

Luigi Russolo's Imagination of Sound & Music

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PhD Thesis

Declaration of Authorship

Ihereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

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A bstract

This thesis examines the imagination and function of noise within the Futurist movement, specifically within the work of Luigi Russolo. It starts from the publication of his manifesto *L'Arte dei rumori* in 1913, goes through his process of conceptualisation, design and construction of his *intonarumori* (noise-intoners) and questions why he chose to create these instruments using pre-industrial technologies. The thesis examines in close detail the fragment of Russolo's *intonarumori* composition, *Risveglio di una città* (The Awakening of the City) to gain an understanding of what Russolo sought to create and realise through the employment of specific *intonarumori* fulfilling specific functions in performance, and the reasons for his perceived failures within the live arena.

It analyses Russolo's legacy as the author of a flawed concept of Sound Art, examining the reasons behind his advocacy of the assimilation of a noises section within the conventional symphony orchestra. This thesis also touches upon the relationship between Russolo, Marinetti and Balilla Pratella in the events leading up to and beyond the publication of *L'Arte dei rumori*, and questions the perception amongst contemporary researchers that Russolo was indebted to Marinetti's concept of *Parole in Libertà* (Words in Freedom) for his concept of noise art, by making the argument that each proved influential to the other.

Finally, this thesis examines the lexicon of Futurist auralty and investigates whether the evolution of meaning for specific terms, throughout the twentieth century, has resulted in later misconceptions regarding the nature of the ideas conveyed, and the works produced, by Futurists and Futurist inspired practitioners in the first decades of the twentieth century.

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Introduction

Passéist¹

Adjective: Having an excessive regard for the traditions and values of the past; backward looking. Chiefly in contrast to *futurist*.

Noun: A person, especially a writer or artist, with excessive regard for the traditions and values of the past; a backward-looking person. Chiefly opposed to *futurist*.

Origin: Early 20th cent.; earliest use found in *The Observer*. From French *passéiste* from *passé* the past + *-iste*, after Italian *passatista*.

Italian Futurism, the first *Twentieth-century* avant-garde movement, did not emerge from a vacuum. There was a historical context regarding the state of Italian creative praxis, which formed the precise circumstances from which Futurism could emerge. Perhaps Marinetti would have disagreed with this statement and might have argued that metaphorically, that is exactly what Futurism did; emerge from a vacuum of creative aspiration, a malaise which infected Italian writers forced to continue to work within highly structured traditional templates established during Italy's classical and Renaissance past, the prisoners of positivism which, as Guglielmo Salvadori stated in 1908, 'has in Italy, a long and brilliant tradition, from the time of the Renaissance to our day.'²

Aristotelian philosophy argues that nature abhors a vacuum and so perhaps the rise of the Italian avant-garde, specifically Futurism was a natural consequence of a perfect storm within Italian society; a combination of increased prosperity and, by comparison with its recent past, political stability after the years of social, political and economic turmoil following the unification or *Risorgimento*, the rise of nationalism, and the innate stranglehold conservative and traditional art practices had over young Italian artists leading into the first decade of the *Twentieth-century*.

¹ <https://en.oxforddictionaries.com/definition/us/passeist>

² Guglielmo Salvadori, "Positivism in Italy", in *The Journal of Philosophy Psychology and Scientific Methods*, vol. V, no. 17, (The Journal of Philosophy Inc, 1908), 449.

It should not be underestimated the effect mass industrialisation had in terms of the balance of political power between the agrarian south and the industrialised north and the urbanisation of the proletariat and the bourgeoisie. The creative centres of Italy, particularly Milan, were transformed through industrialisation and commercialisation. The thesis examines this in chapter two, focussing upon the visual and aural ambient of environment and the rise of noise, specifically, industrial noise. As Luigi Russolo states in his Futurist manifesto, *L'Arte dei rumori* (The Art of Noises) in 1913:

La vita antica fu tutta silenzio. Nel diciannovesimo secolo, coll'invenzione delle macchine, nacque il Rumore. Oggi, il Rumore trionfa e domina sovrano sulla sensibilità degli uomini.³

Ancient life was all silence. In the nineteenth century, with the invention of machines, Noise was born. Today, Noise triumphs and dominates sovereignty over the sensibility of man. [my translation]

Yet despite these fundamental changes to the everyday reality of Italian life, Italian art, in terms of themes and practices, remained firmly in the pre-industrial past and rooted in classicism.

After the fall of the Western Roman Empire in AD 476⁴, Italy, or rather, the Italian peninsula became the adoring victim of old glories and classical artistic practices, becoming more dependant on the past for its sense of national self worth and identity than other European nations. The memory of Rome, the Eternal City, provided an existential security and warmth to a people increasingly isolated from the rest of Europe

³ Luigi Russolo, "L'Arte dei rumori" (1913), quoted from Luigi Russolo, *L'Arte dei rumori*, (Milano: Poesia, Corso Venezia, 61, 1916), 9.

⁴ 'In 476 C.E. Romulus, the last of the Roman emperors in the west, was overthrown by the Germanic leader Odoacer, who became the first Barbarian to rule in Rome. The order that the Roman Empire had brought to western Europe for 1000 years was no more'. <http://www.ushistory.org/civ/6f.asp>

and victim to the rise of the super-powers of Spain, Germany and France, who used her as a battle ground for their imperial conflicts. When Italians dreamed of peace or greatness, their ideal was inherently Roman.

The political and economic frailties of the recent past, particularly the years of government repression beginning with the massacre in Milan (1898) and ending with the assassination of King Umberto I (1900) by the anarchist Gaetano Bresci, appeared to have been overcome during the brief pre-war period. Umberto had been a key figure in the establishment of the triple alliance between Italy, Germany, and Austria-Hungary. Austria was unpopular throughout all of Italy, whose population regarded it as the enemy that still controlled the Italian speaking territories of Trentino and Trieste. It was widely felt that a territory peopled by Italians should be part of the Kingdom of Italy. Marinetti and the Futurists firmly espoused this viewpoint and their promotion of irredentism and their vehement opposition to the Triple alliance, some thirty years after its ratification in 1882, would form the cornerstone of their political agenda in the years leading up to the Great War. Bresci had acted in the hope that the king's assassination would provoke a social revolution. The public anger over the Events of May as well as Umberto's complicity in, and his public support of the massacre had not abated over the subsequent period. If anything, tensions increased, for whilst a policy of violent repression had succeeded in the short term, the long term consequences of that action had the effect of altering the axis of influence throughout the peninsula. As Martin Clark points out: 'They [the government] made popular national heroes out of a few, relatively unknown 'subversives', not just in Milan but in many provincial towns throughout Italy. Furthermore, they discredited the 'agrarian' politicians who dominated the di Rudini government and the state in general; and they strengthened the position of more

‘progressive’ leaders. Above all, they exposed the Crown to hatred and contempt.⁵ Yet the violent murder of Umberto did not prove to be the catalyst for violent insurrection and the overthrow of the apparatus of state. This was partly to do with the fact that Umberto was not a nationally polarising figure because his active support for the increasingly unpopular Triple Alliance, his failed imperial ambitions for North Africa, and his unequivocal backing for those widespread acts of repression against his own subjects, subsequent to the massacre in Milan, made him almost universally hated by the bourgeoisie and the proletariat alike. Consequently, his murder did not result in major insurrection or civil conflict.

An important constituent to this was that Bresci was not the agent of a foreign power, but an Italian national who was perceived to have performed a selfless duty on behalf of the nation in a simultaneous act of revenge and liberation from tyranny. Therefore, far from triggering a revolution or civil war, it could be argued that Bresci’s murder of Umberto imparted a sense of catharsis upon the nation. Such was the range and depth of discord sown throughout the fabric of Italian society, Bresci took not only Umberto’s life but also his implicit role as an embodiment of the national spirit. Someone had finally been held to account for these deplorable events through an act of natural justice and the Kingdom of Italy, almost completely united perhaps for the first time in her short history, found a commonality hitherto unseen and so stepped away from the precipice of revolution. The assassination of Umberto lanced the boil and vented the infected matter which had so poisoned the country. Umberto’s son, King Victor Emmanuel III, who fortuitously proved to be the antithesis of his father, wisely instigated a process of appeasement, particularly of the bourgeoisie and the proletariat. As Rosa Trillo Clough

⁵ Martin Clark, *Modern Italy, 1871 to the Present*, (London: Routledge, 2014), 127.

points out: ‘The monarchy, which under Humbert (sic) had been ultra-conservative, became democratic, or rather – as some writers have described it – socialistic.’⁶

Giovanni Giolitti’s return to power in 1903⁷ with his pragmatic policy of *trasformismo*⁸ coincided with an improvement in the economic circumstances of the Italian people – at least, the bourgeoisie, although the syndicalist, Georges Sorel’s influence was already beginning to be felt amongst an Italian proletariat that increasingly resented the official Socialist platform’s rapprochement of Giolitti’s centrist government and willing subservience to the needs of the bourgeoisie. These actions were deemed a betrayal of the proletariat through a corrupt desire to improve their own economic and political circumstances. As Clough observes: ‘the consequent rise of syndicalism and its eventual orientation towards National Socialism was due to Sorel. A new faith and a very active enthusiasm reappeared in the ranks of the Italian proletariat; a spirit of revolt animated these men and turned them against the official socialists who had revealed themselves as the allies of the bourgeoisie class by their endeavours to divert the revolutionary energies of the people into some vague movement of interclass collaboration.’⁹

Italy was also establishing itself as one of the leaders of modern European philosophical debate as set down by future fascist Emilio Gentile and Benedetto Croce, who published *Estetica* in 1902 and founded the journal *La Critica* (1903 – 1951) that was to influence European thought for nearly fifty years. Yet, when envisioning a bright future after

⁶ Rosa Trillo Clough, *Futurism: The Story of A Modern Art Movement, A New Appraisal*, (New York: The Philosophical Library Inc, 1961), 5.

⁷ Giolitti’s first spell as Prime Minister (1892-3) ended up in accusations of corruption surrounding the banking crisis, when he had been Treasury Minister in Crispi’s government four years earlier. His suppression of the 1889 inspection report on the state of Italian banks and his attempts to cover that up in 1893, by trying to promote the disgraced governor of Bank Roma, Bernardo Tanlongo to the rank of senator, where he would have been immune to prosecution resulted in Giolitti’s resignation and impeachment, although the Constitutional Court later revoked that impeachment.

⁸ For more information regarding *Trasformismo* read: Marco Valbruzzi, “Trasformismo”, in *The Oxford Handbook of Italian Politics*, edited by Erik Jones and Gianfranco Pasquino, (Oxford: Oxford University Press, 2015), 26 – 40.

⁹ *Ibid.*, 10.

decades of political and socio-economic turmoil and centuries of revisionist, provincial art praxis, Italian national identity, as was its constant habit, still looked to ancient Rome when all other western nations, the former Roman provinces, moved away from the tutelage of that ancient civilisation.

Their thwarted nationalism took refuge in formal classicism. In her proud “antiquarian” isolation, Italy found her distinctiveness and, she thought, her distinction. She became provincial out of devotion for the City, which had reduced the entire Western World to provinces. It was this subservience to classical culture, we are told, that gave Italians their habits of traditionalism, their cultural conservatism.¹⁰

Such was the stultifying nature of Italian culture that invariably, when they sought out the new, they looked to other nations for cultural guidance or inspiration. Italian art was so enmeshed within a cultural subservience that to seek escape from the stifling confines of neo-classicism was deemed to be inherently unpatriotic or even anti-Italian. Certainly, as the independent Italian nation states underwent the long and tumultuous process of unification, the forces that bound the Italian-speaking people of the region together as a nation were not necessarily economic or even political. Italy’s self image was defined by a shared, yet increasingly distant cultural heritage and provenance, and so neo-classicism was minutely woven into a patriotic sense of self, condemning Italy to a cultural backwater, its artists and writers confined by ancient ideologies and traditional aesthetic practices.

Nevertheless, the Italian art scene was undergoing change. Frustrated by the passéism of Italian art, a new generation of artists and writers were looking abroad for new ideas which they then sought to disseminate to the wider Italian public. Along with Croce’s *La*

¹⁰ Clough, *Futurism: The Story of A Modern Art Movement, A New Appraisal*, 10.

Critica, Giovanni Papini, who in 1913 would be recruited, albeit temporarily, to the Futurist cause, founded the journal *Leonardo* (1903). Like Croce, Papini ‘was inspired by a profound dislike for the doctrines of positivism that for over twenty years had maintained a more or less undisputed sway over the intellectual life of Italy’.¹¹ The gifted poet was emerging as one of the leading voices in the post-Umberto era. He was inspired, along with Giuseppe Prezzolini, by the Florentine journal *Marzocco* and the work of ‘Mario Morasso, who in 1898 published a highly original philosophical treatise on the role of progress in history and art. [...] In *Marzocco*, he contributed essays on ‘The Aesthetics of Speed’, ‘The Sensation of Speed’, ‘Heroes of the Machine’, ‘ and ‘Cars of Fire: On the New Mercedes’.¹²

The ‘modern’ note of *Marzocco* inspired, from 1900 onwards, a more radical attitude amongst its readers. Two of these ‘angry young men’ were Giuseppe Prezzolini and Giovanni Papini, who in 1903 became the founders of an influential Florentine movement of cultural regeneration, group around the journals *Leonardo* and *La Voce*.¹³

Papini despised the traditions of Italian scholarship and, like Marinetti, sought out influences beyond Italy. In many ways, Papini was Marinetti’s Futurist twin and whilst he lacked Marinetti’s impresario skills, nevertheless, he was a very influential writer with a brilliant and yet chaotic mind. As Clough points out: ‘If Italy learned to scorn the materialistic platitudes of the Lombroso school, to rebel against the pedantry of literary scholarship and the worship of factual erudition; if she discovered something concerning the contemporary philosophic and literary trends of Europe and America; if she

¹¹ Clough, 7.

¹² Günter Berghaus, *Italian Futurist Theatre 1909-1944*, (Oxford: Clarendon Press, 1990), 5.

¹³ *Ibid.*

protested against an uncritical acceptance of tradition, she owed these things in considerable measure to Papini'.¹⁴

During the period between 1903-14, Italy experienced a period of economic growth hitherto unknown, largely due to the increase in the industrialisation of the north and the pacification of the disparate dissenters, the socialists and the anarchists. This was thanks, in part, to the influence of Giolitti, who fought against anti-constitutional opposition through the employment of patronage, economic pressure, and favouritism. As Clough observes: 'By the end of his period of influence, most of the revolutionary fire-eaters had been tamed and had become petty bourgeoisie.'¹⁵

The expanding industrial working class in particular saw a rise in their standard of living thanks to a policy of industrial protectionism through subsidies and improvements to workplace conditions, instigated by the Giolitti helmed government. Adhering to the lessons learned after the Events of May, the Giolitti administration refused to intercede on behalf of the employers, which had been standard practice since the unification. Without the backing of a government willing to break strikes through the deployment of the Polizia di Stato and the Arma dei Carabinieri, employers were obliged to engage with an increasingly unionised workforce through the process of collective bargaining, which resulted in a marginally more equitable distribution of wealth, where the workers as well as the employers enjoyed at least some of the financial benefits of industrial protectionism. The Kingdom, which had been on the verge of revolution, now began to experience a period of relative calm and affluence.

¹⁴ Clough, 7.

¹⁵ Clough, 4.

The satisfactory financial standing of the country was shown by the ease with which Minister Luzzatti was able to convert 5 percent rentes into 3½ percent bonds.¹⁶

By 1908, whilst enjoying this period of creaky affluence and still undergoing the process of industrialisation, some hundred years after Great Britain, Italy was still fantastically bipolar. On the one hand, her cultural life remained dominated by the memory of Rome, seemingly immutable, and on the other, a new generation of younger artists were straining at the leash of neo-classicism, desperate to culturally leave home and think for themselves.

The worship of the past remained an insuperable obstacle; every revolt against its tyranny provoked some new form of traditionalism. In addition, whenever, by chance, Italians awoke to the need of something new, they invariably looked abroad for inspiration. Italy's culture seemed condemned, therefore, to decide between a classical and foreign influence. Italian patriots had no choice but to submit to the "tyranny of Roman glories". Then came Marinetti.¹⁷

As Italy was experiencing a period of intense unrest between the years 1898-1900, Marinetti, ostensibly completing his post-graduate degree in Genoa, was in fact preparing for a literary career, frequently travelling between Genoa and Paris. His mentor, the Symbolist poet Gustave Kahn, provided Marinetti with introductions to the finest literary salons and the most influential literary figures of the day, 'to newspaper editors, actors, playwrights and theatre directors. Within a few years, Marinetti was established as a major new talent on the French literary scene.'¹⁸ Marinetti embraced Kahn's concept of *vers libre* (free verse) and immediately employed the technique in his own writing.

¹⁶ Clough, 4.

¹⁷ Clough, 13.

¹⁸ Berghaus, *Italian Futurist Theatre 1909-1944*, 7.

Marinetti's growing literary reputation in France was mirrored on the Italian Peninsula, where he promoted French Symbolism in his Milanese journal *Poesia*. As a publisher, Marinetti took it upon himself to promote French culture in Italy and wherever possible, to introduce new Italian writers to the Parisian salons. Marinetti could have chosen to publish his *Fondazione e manifesto del futurismo* (Founding and Manifesto of Futurism) in *Poesia*, but the journal lacked the weight of reputation and width of circulation Marinetti believed it - and he - deserved. He wasn't looking merely to publish a new literary theory, he wanted to instigate and direct a cultural and socio-political movement and to do that he needed publicity, the flavour of which was unimportant when compared to its intrinsic value. This is not to say he didn't dip his toe into the waters to gauge reaction before committing himself totally. Notoriety is one thing but derision and humiliation at the hands of one's peers is quite another. Possibly with that in mind, Marinetti had his manifesto, which at this stage still lacked the contextualising narrative, printed as a broadsheet and sent to leading Italian critics and writers the with the accompanying note:

Dear Friend and Colleague,

I would be extremely grateful if you could send in your views on our "Manifesto of Futurism," indicating also your partial or total adherence. Awaiting your reply, which will be published in *Poesia*, I beg you accept my thanks in advance, along with the expression of my highest regard,

F. T. Marinetti.⁷

The *Fondazione e manifesto del futurismo* was published in *Le Figaro*, where the preamble and postscript was written in the weeks immediately preceding February 20, 1909. The decision to add a contextualising preface and conclusion to the numbered points of the manifesto was to become the compositional template for all subsequent manifestos in Futurism's first flush of enthusiasm that ended, when the realities of the First World War and the death of Boccioni in 1916 undermined Futurism's imagination of Imperial glory

as encapsulated in Marinetti's article published in *Le Futurisme* in 1911, *Guerra sola igiene del mondo* (War is the Only Hygiene of the World).

It should be noted that Marinetti, a trained lawyer, wrote his Masters thesis on *La Corona nel Governo parlamentare* (The Crown in Parliamentary Government) in 1899, and so would have been intimately acquainted with the construction of acts of parliament where typically, before the laws are laid out, a preamble is written that sets out the rationale and purpose of the statute. The compositional structure of Marinetti's manifesto was quite different to those that went before. There is some superficial similarity to Moreas' Symbolism manifesto, however, this reads like an article or essay with a dramatised 'Intermezzo' section, where Mr. Hugh de Banville and 'A Detractor of the Symbolic School' debated the legitimacy of Symbolism.¹⁹

'A preamble is the preliminary part of a document, legislation, a contract or treaty, usually setting out what it is all about or why it has been prepared, specifically used of an Act of Parliament where Parliament expresses the general purposes of the piece of legislation'²⁰

The *Fondazione e manifesto del futurismo* is a much more structured and urgent epistle containing the eleven point programmatic element where Marinetti sets down the 'rules' of Futurism. The introductory *fondare* narrative serves as the preamble, an illustrative justification of the manifesto. An earlier definition of the preamble than the definition above, dating from 1856 states: 'A preamble is said to be the key of a statute, to open the minds of the makers as to the mischiefs which are to be remedied, and the objects which are to be accomplished by the provisions of the statutes.'²¹ This seems to describe Marinetti's introductory narrative perfectly.

¹⁹ Jean Moréas published his Symbolism manifesto in *Le Figaro* in the arts section of the newspaper in 1886.

²⁰ *Collins Dictionary of Law*. S.v. "preambular." Retrieved September 13 2017 from <http://legal-dictionary.thefreedictionary.com/preambular>

²¹ *A Law Dictionary, Adapted to the Constitution and Laws of the United States*. By John Bouvier. Published 1856.

Marinetti's decision to seek publication of his manifesto in *Le Figaro*, apart from its circulation and reputation, was conceivably a desire to emulate Jean Moréas, just as he sought to emulate the playwright Alfred Jarry by having his play *Le Roi Bombance* produced at the same venue, the Théâtre de l'Œuvre, where Jarry's *Ubu Roi* was first performed in 1896.²² This would have appealed to Marinetti, who seemed as happy to celebrate all those who had influenced and encouraged him as he was to castigate, denigrate and gleefully denounce all those opposing him as passéists. However, there was one sphere where Marinetti needed no encouraging influences and that was in the public promotion of his Futurist agenda. In this, at least, we can state with some certainty that Marinetti was the original modernist entrepreneurial creative. It was not a discipline learned, but an instinct he was born with and developed at an early age. This is borne out by Marinetti's letter to Luciano Ramo in Milan in 1908.

You understand, my dear friend: it is important that a lot of noise is made about me.... I am about to form a movement called Futurism. We need publicity, even if it is atrocious.²³

To return to the publication of the *Fondazione e manifesto del futurismo* and its location on the front cover of *Le Figaro*, Marinetti conceivably had the option to place it within the safe and cosy environs of the supplement, as Moréas had done. The supplement was where it belonged, where those engaged in similar practice could enthuse, deny and debate without it ever touching everyday lives. Thanks to his personal wealth and influence, both largely inherited from his father, Marinetti was able to extract his avant-garde manifesto from the insular world of letters and place it within society, positioned front and centre in a bold type. This in itself was a Futurist act, both in terms of the

²² See Günter Berghaus, *The Genesis of Futurism: Marinetti's Early Career and Writings, 1899-1909*, (Leeds: The Society For Italian Studies, 1995), 28-9.

²³ Berghaus, *Italian Futurist Theatre 1909-1944*, 7.

immediate impact it was to generate and what it says about the character of Marinetti, who intended his manifesto be a Futurist *soliloquy* rather than a Symbolist *aside*. His ebullient desire to ‘... destroy museums, libraries, academies of every sort’ would have, to his eyes, been fundamentally undermined from the start if it had been featured in the literary supplement, the publication equivalent to the museum, library and academy. He decried the practice of separation of art and state and his particular brand of art-action was intended integrate both by destroying the partition between them. To publish a literary manifesto as headline news was in of itself symbolic of this.

Volete dunque sprecare tutte le forze migliori, in questa eterna ed inutile ammirazione del passato, da cui uscite fatalmente esausti, diminuiti e calpesti? ... noi non vogliamo più saperne, del passato, noi, giovani e forti futuristi!²⁴

Do you wish to waste your better forces in this eternal and useless admiration of the past, that will only leave you fatally exhausted, diminished and crushed? ... We intend to know nothing of it, nothing of the past, we strong and youthful *Futurists!* (my translation).

Marinetti is perceived as the great influencer who, through the publication of his first manifesto, provided a singular cause and a unifying theme for a disparate group of young avant-garde poets, writers and, as the movement gained momentum, practitioners from a wide spectrum of the creative arts such as painting, sculpture, music, photography, architecture, theatre, film, cookery and more. No other modernist movement before or since has incorporated so many artistic disciplines within its canon. Like British Punk, the other great nihilist movement of *Twentieth-century* popular culture, this one act of agitational propaganda kick-started a profound transformation. Yet, whereas the Futurists extolled the future to escape the hegemony of entrenched practices of the past, Punk promoted the perception that there was ‘no future for you’ because of the

²⁴ F.T. Marinetti, *Fondazione e manifesto del futurismo*, 1909.

dominance of establishment institutions.²⁵ Punk believed that the promise of the future had long been eviscerated by the unrealised hope of futures past, where optimism itself had become an artefact of obsolescence. Marinetti was full of hope for a future unencumbered by the past.

The *Fondazione e manifesto del futurismo* was an exaltation expressing the joy of future promise. The destruction of the past was centred upon the idea that Italy's history of European cultural dominance had become a suffocating and reverential distraction. It was not that it was inherently destructive, but that contemporary society's slavish and adoring veneration of it was. Whilst there is no specificity contained within as to how this was to be achieved, Marinetti believed 'that artists, with their superior creativity, intuition and vitality, had an important contribution to make to the process of social and political renewal'.²⁶ The themes and functions of a new aesthetic were Marinetti's preoccupation throughout 1909. When questioned about his dictat that museums and libraries should be burned down, in an interview for the French theatre journal, *Comoedia* in March of that year, he replied: 'Well, that is just a violent image of our desire to get right away from the enchantment with the past, from the despotism of pedantic academies, which stifles intellectual initiative and the creative power of the young.'²⁷ Marinetti argued that it was not enough to look to create new art, one had to first destroy any reverence for the art produced in past eras. Amongst the Futurist manifestos of the pre-war era, those written or edited by Marinetti contained the same thematic structure in the call for the destruction of the past and a proposal for a new art created by young artists.

²⁵ Glen Matlock, John Lydon, Paul Cook and Stephen Jones, "God Save the Queen", in *Never Mind the Bollocks, Here's the Sex Pistols*, (London: Virgin Records, 27 May 1977).

²⁶ Günter Berghaus, "Introduction", in F.T. Marinetti, *Critical Writings*, ed. Günter Berghaus, trans. Doug Thompson, (New York: Farrar, Straus and Giroux, 2006), xx.

²⁷ Marinetti, "Futurism: An Interview with Mr. Marinetti in *Comoedia*", in *Critical Writings*, 19.

Futurism at this early stage was a re-evaluation those Symbolist ideals defined in 1886 and refined by writers listed in Marinetti's manifesto of 1911, *Nostri maestri simbolisti, gli ultimi amori della luna* (We Abjure our Symbolist Masters, the Last Lovers of the Moon), where he rejects *vers libra* as passéism.²⁸ It is in this publication that Marinetti, with a heavy heart but a forward gazing and singular sense of purpose, finally dismisses those who had been so influential in his development as a poet.²⁹

That abjuration, however, was two years into the future and one year after Marinetti first met Umberto Boccioni and Luigi Russolo, when, this thesis argues, Futurism began the rapid transformation from being a predominantly literary movement, to a fully fledged multimedia, multi-platform movement, encapsulated in the Futurist career of Russolo, who was often dismissed by contemporaries as a fidgeting dilettante, but who in fact proved to be the template for the intermedial, inter-disciplinary artist of the Modernist era and beyond. Within the context of early *Twentieth-century* creative praxis, practitioners were trained to become specialised within single or related disciplines. Russolo's creative interests were more wide-ranging and less regimented through rigorous formal instruction.

In 1909, Futurism was Symbolism renewing its vows after twenty years of marriage and envisioning a bright tomorrow and Marinetti, still a late Symbolist poet and exponent of *Vers libra* was advocating only a change in focus to the promise that the future holds, as a means of escape from cultural passéist motifs. He did not seek to promote, as Russolo did later, 'a new kind of art'. There is nothing close to the radicalism of that statement to

²⁸ Marinetti, *Nostri maestri simbolisti, gli ultimi amori della luna*, (Milano: Edizioni Futuriste di "Poesia", 1911).

²⁹ The exceptions being Gustave Kahn, Emile Zola and Walt Whitman, described by Marinetti as 'the great precursors of Futurism'.

be found within *Fondazione e manifesto del futurismo*. Marinetti's second manifesto published later that year, *Uccidiamo il chiaro di luna!* (Let's murder the Moonlight!), was a text written in response to the criticisms levelled at his first manifesto.³⁰ Again, this is a Symbolist work draped in the trappings of celebratory modernity. Lawrence Rainey observes that 'its ornate style and overt allegorizing have not worn well with some readers, to whom it has seemed a step backward from the more rigorous modernism seemingly called for in the first manifesto ... Yet the most revealing detail may be the brief list it provides of bona fide Futurists: they number only five, all former contributors to Poesia. A month later they were joined by Aldo Palazzeschi, also a contributor. It hardly changed the result: Futurism was at a standstill.'³¹

Russolo's 1913 manifesto, *L'Arte dei rumori*, is unique amongst all other manifestos produced by Marinetti and the other members of the Futurist inner circle during the pre-war period, such as Balilla Pratella, Umberto Boccioni and Carlo Carrà. It is addressed directly towards a fellow Futurist, indeed, a member of the inner circle, the Futurist composer Pratella, supposedly as an emotionally inspired response to the orchestral performance of Pratella's *Inno Alla Vita* (Hymn to Life) at the Teatro Costanzi during the Futurist *serata* on 9 March 1913, two days earlier. No manifesto either previously or subsequently ever addressed a fellow Futurist in this manner. Generally, manifestos were addressed to the Italian public in general or to 'the young'. Indeed Pratella, who before the publication of *L'Arte dei rumori* was the only Futurist other than Marinetti to be the sole author of a manifesto and had in fact produced three by 1912, addressed his first, *Manifesto dei musicisti Futuristi* (Manifesto of Futurist Musicians, 1911) directly to the young. Yet Russolo, the untrained painter and amateur musician does just that. This

³⁰ Marinetti, *Uccidiamo il chiaro di luna*, (Milano: Poesia, 1909).

³¹ Lawrence Rainey, "Introduction: F.T. Marinetti and the Development of Futurism", in: *Futurism, An Anthology*, eds. Lawrence Rainey, Christine Poggi and Laura Wittman, (Cambridge, MA: Yale University Press, 2009), 6.

thesis examines the events surrounding publication of *L'Arte dei rumori* in detail and the motivations behind the inclusion of the contextualising preamble, where Russolo implicitly criticises the academy trained composer, Balilla Pratella, for not being radical enough. For an untrained amateur to question the work of a professional was almost unheard of and, like Marinetti's decision to publish *Fondazione e manifesto del futurismo* on the front page of *Le Figaro*, can be viewed as a Futurist act, breaking with established traditions of past. Far from being the Futurist dilettante, or indeed, the Futurist technician, Russolo would prove to be the model for the interdisciplinary reflective practitioner of later eras.

Yet, the thesis argues that the inclusion of a contextualising preamble has been at least partly responsible for a great many misconceptions surrounding both *L'Arte dei rumori* and Russolo's concept of noise-sound. His address to Pratella, which at face value appears to impart lavish praise, and his avocation of the integration of an *intonarumori* (noise-intoner) section within the conventional orchestra has led to criticism that whilst he was the first to propose the notion of Sound Art, it was a fundamentally flawed concept, a missed opportunity to envision a noises only orchestra. Further, it is argued that his stated desire in *L'Arte dei rumori* to incorporate noises within the tonal orchestra effectively subsumed Sound Art within existing musical practices throughout the modernist era and beyond. The inclusion of Marinetti's *Parole in libertà* text, together with Marinetti's forceful personality and Russolo's more taciturn disposition has led to a widely held assumption that Russolo had been directly inspired to conceive of *L'Arte dei rumori* by Marinetti's development from a poet working within Gustav Kahn's notion of *Vers libre* to one working through the radical performance based concept of *Parole in libertà* (Words in Freedom).

This thesis examines the imagination and function of noise within the Futurist movement, specifically within the work of Russolo and Marinetti. It starts from the publication of *L'Arte dei rumori* in 1913, examines Russolo's process of conceptualisation, design and construction of his *intonarumori* (noise-intoners) and questions why he chose to create these instruments using pre-industrial technologies. The thesis also examines in close detail the fragment of Russolo's *intonarumori* composition, *Risveglio di una città* (The Awakening of the City) to gain an understanding of what Russolo sought to create and realise through the employment of specific *intonarumori* fulfilling specific functions in performance, and the reasons for his perceived failures within the live arena. The thesis analyses Russolo's legacy as the author of a flawed concept of Sound Art, examining the reasons behind his avocation of the assimilation of a noises section within the conventional symphony orchestra. It also explores the relationship between Russolo, Marinetti and Pratella in the events leading up to and beyond the publication of *L'Arte dei rumori*, and questions the perception amongst contemporary researchers that Russolo was indebted to Marinetti's concept of *Parole in Libertà* for his concept of noise art, by making the argument that each proved influential to the other as they developed in tandem, methodologies to integrate noises within their respective disciplines. Finally, the thesis examines the lexicon of Futurist aurality and investigates whether the evolution of meaning for specific terms, throughout the twentieth century, has resulted in later misconceptions regarding the nature of the ideas conveyed, and the works produced, by Futurists and Futurist inspired practitioners in the first decades of the twentieth century.

Chapter 1: L'Arte dei rumori and the Futurist Elite

When Luigi Russolo published *L'Arte dei rumori* (The Art of Noises) in March 1913, he was the first artist to propose a new kind of music that reflected and evoked the modern industrial world. As Tony Gibbs states:

Perhaps one of the most significant developments in sound art and design used relatively simple mechanical technologies: the importance, however, was not so much the technology as the ideas that it expressed. The work of the Futurists, an Italian art movement of the early 1900s, included one of the most famous documents in sonic art: the Art of Noises manifesto of 1913.³²

Drawing on Futurism's celebration of industrialised modernity, Russolo defines 'Noise' as artefacts from an industrialised, societal interaction. Yet when setting down his vision of the Futurist orchestra, Russolo strove to integrate his *intonarumori* (noise-tuners) within traditional orchestral harmonic codifications. This decision has since been cited by practitioners and theorists as a failure to conceptually grasp the notion of noise art as a separate form of creative expression, distinct from both the production of music and its transmission through the traditional orchestra. Whilst Gibbs praises Russolo for producing 'one of the most famous documents in sonic art' he goes on to say:

Interestingly, Russolo does not suggest a new form of art that is based upon sound: what he proposes is simply an extension of existing practices in music (this is an argument that continues to the present day). Sonic art, it seems, is still some way in the future but at least the idea of using non-musical sounds in art has begun to be established.³³

Gibbs is not alone in this assessment. Barclay Brown, in his introduction to the 1986 edition of *The Art of Noises*, comprising a collection of essays by Russolo, first published

³² Anthony Gibbs, *The Fundamentals of Sonic Art & Sound Design*, (London: AVA Publishing, 2007), 22.

³³ *Ibid.*, 23.

in 1916 (to which I will subsequently refer to as *AoN 16*)³⁴ also concludes that Russolo was not an artist in search of an art form, but an artist who sought to augment the ‘existing practices’ of music:

Russolo’s awareness of the sea of sound in which we live, his consciousness of the expressive musical possibilities of noise inevitably link him with such contemporary figures as Pierre Schaeffer and John Cage.³⁵

Danielle Lombardi quotes composer Amando Gentilucci:

Gentilucci asks: “Is there a relationship, a thread, which connects the post-war experimental avant-garde with Futurism?” He answers that one can assume a connection citing Karlheinz Stockhausen, Cage and Luigi Nono as exponents of three different attitudes which he claims are all, in some way, related to the work of Pratella and Russolo.³⁶

This perception of Russolo’s definition of noise-sound as an exclusive component of music – a perception that appears to be based solely upon the preamble and conclusion within the *L’Arte dei rumori* manifesto is also supported by Karin Bijsterveld:

Russolo’s stress on enlarging and enriching rather than supplanting traditional sound explains the fact that his noise instruments or *intonarumori* not only contained the acoustical phenomena of new forms of technology, but also those of nature.³⁷

This chapter questions whether this perception is accurate. It is as if Russolo, whilst receiving recognition for being the first to conceive of noise-art, is then either summarily dismissed as a dilettante for his wide-ranging interests in painting and music, having received no formal training in either discipline, or damned with faint praise for not fully

³⁴ The chapters contained within the 1916 publication entitled *L’Arte dei rumori* (The Art of Noises) were comprised of new writing and articles first published in *Lacerba* and *Le Futurisme* between 1913 and 1916.

³⁵ Barclay Brown, “Introduction”, in: Luigi Russolo, *The Art of Noises*, trans. Barclay Brown, (New York: Pendragon Press, 1986), 1.

³⁶ Danielle Lombardi, *The Art of Noise Destruction of music by Futurist Machines*, ed. Candice Black, (New York: Sunvision Press, 2012), 9.

³⁷ Karin Bijsterveld, *Mechanical Sound: Technology, Culture and Public Problems of Noise in the Twentieth Century*, (Cambridge, MA: MIT Press, 2008), 142.

realising his notion of noise-art as a stand-alone art form. The consequence of this is that he has been, to a greater or lesser extent, held partly accountable for the underdevelopment of sound art when compared to visual art throughout the twentieth century. Douglas Kahn is rather more even-handed in his assessment of Russolo, observing that the way in which his manifesto was received, rather than the concepts contained within it, was responsible for the twentieth century's subjugation of sound within music. He states: 'at every point in his practice, from the way he conceived of his artistic raw material at a molecular level to the reception of his works by others, received notions of music suppressed a truly radical art of sound'.³⁸ Kahn observes that the manifesto contains within it 'a deep-seated tension on the question of whether the art of noise should be an independent art or whether it should be dependent upon music'.³⁹ However, he concludes that: 'Since it is resolved unproblematically for music, this tension manifests itself as a schism, and a continual source of contradiction and hesitation for Russolo in the conceptualising of his project'.⁴⁰

In agreement with Kahn, this chapter then goes further by observing that most critical reflection surrounding Russolo's *L'Arte dei rumori* is focussed on the 1913 manifesto, rather than the 1916 essays where he develops and enlarges his concepts. In these texts, Russolo at times contradicts his original manifesto, notably when he sets down his ambition to create an orchestra comprised exclusively of *intonarumori*. The conceptual 'schism' observed by Kahn is apparent within *AoN 16*. In the chapter 'L'Orchestra d'intonarumori' (The Orchestra of Noise Instruments), Russolo first deals with the incorporation of his *intonarumori* within the traditional orchestra:

³⁸ Douglas Kahn, "Audio Art in the Deaf Century", in: *Sound by Artists*, 301 – 329, eds. Dan Lander and Micah Lexier (Charivari Press & Blackwood Gallery, Facsimile edition, 2013), 309.

³⁹ Ibid.

⁴⁰ Ibid., 310.

E qui viene opportuno di toccare la questione della possibilità di unire gl'intonarumori all'orchestra comune. Poichè la musicalità è incontestabile, e l'intonazione, negli intonarumori, è perfetta, è logico e naturale che si possa unirli all'orchestra comune. Primo fra i musicisti d'avanguardia, il mio caro amico e fratello futurista Pratella ha realizzata questa unione nella sua opera l'Eroe. E sono certo che altri ('autorizzazione mi è già stata richiesta da parecchi compositori) vorranno seguire l'esempio di Pratella.⁴¹

This is the opportunity to touch on the question of the possibility of adding the noise instruments to the conventional orchestra. Since the musicality of the noise instruments is incontestable and their intonation perfect, it is logical and natural that they be joined to the conventional orchestra. The first avant-garde composer to realize this union was my dear friend and fellow Futurist, Pratella, in his opera *Eroe*. It is certain that others will want to follow the example of Pratella (several composers have already requested authorization from me).⁴²

This conforms to the Futurist doxa surrounding the publication of *L'Arte dei rumori* and its criticism by later generations, and reaffirms Russolo's ambition contained within the programmatic element of the 1913 manifesto:

I musicisti futuristi devono allargare ed arricchire sempre di più il campo dei suoni. Ciò risponde a un bisogno della nostra sensibilità. Notiamo infatti nei compositori geniali d'oggi una tendenza verso le più complicate dissonanze. Essi, allontanandosi sempre più dal suono puro, giungono quasi al suono-rumore. Questo bisogno e questa tendenza non potranno essere soddisfatti che *coll'aggiunta e la sostituzione dei rumori ai suoni*.⁴³

Futurist musicians must constantly enlarge and enrich the field of sound. This responds to a need in our sensibility. Indeed, we note that the most talented composers of today are tending to adopt the most complicated dissonances. As they move ever farther away from pure sound, they almost achieve noise-sound. This need and this tendency can be satisfied only by *adding and substituting noises for sounds*.⁴⁴

⁴¹ Luigi Russolo, *L'Arte dei rumori*, (Milan: Edizioni Futuriste Di Poesia, 1916), 84.

⁴² Luigi Russolo, *The Art of Noises*, trans. Barclay Brown, (New York: Pendragon Press, 1986), 80.

⁴³ Russolo, *L'Arte dei rumori*, (1913).

⁴⁴ Russolo, (1986), 34.

However, in the next paragraph in ‘L’Orchestra d’intonarumori’ he states:

Io però miro e mirerò sempre a completare e ad allargare l’orchestra completamente e unicamente composta d’intonarumori. A far questo mi sono di stimolo I risultati più che sufficienti già ottenuti, affinché l’orchestra d’intonarumori sia e debba rimanere una cosa parte, ma completa.⁴⁵

I look forward, nevertheless, and have *always looked forward* [my italics] to completing and enlarging an orchestra composed entirely and uniquely of noise instruments. The stimulus to do so is the more than satisfactory result obtained so far. The orchestra of noise instruments is and must remain a thing apart, complete in itself.⁴⁶

If we are to take this assertion at face value, there is little doubt that Russolo had always regarded noise art to be a standalone form, despite his protestations to the contrary three years earlier. Even in 1913, Russolo’s laudatory affirmation to Balilla Pratella ‘that only you can create: the Art of Noises, a logical consequence of your marvelous innovations’ is at odds with his actions when, in that year, he composed two Futurist musical works exclusively for an orchestra comprising of sixteen *intonarumori*.⁴⁷ These were *Risveglio di una città* (*The Awakening of a City*) and *Convegno di automobili e di aeroplani* (*A Meeting of Automobiles and Airplanes*). He performed these works before an invited audience at Marinetti’s house in August 1913, just four months after the publication of his manifesto. By the time of the *serata* of 21 April 1914, at the Teatro dal Verme in Milan, a third composition *Colazione sulla terrazza del Kursaal Diana* (*Breakfast on the Terrace of the Kursaal Diana*) had been added to the repertoire. That said, Point 2 of *L’Arte dei rumori* contradicts Point 1, by stating:

I musicisti futuristi devono sostituire alla limitata varietà dei timbri degli strumenti che l’orchestra possiede oggi, l’infinita varietà di timbri dei rumori, riprodotti con appositi meccanismi.⁴⁸

⁴⁵ Russolo, (1916), 84.

⁴⁶ Russolo, (1986), 82.

⁴⁷ Russolo, (1913).

⁴⁸ Ibid.

‘Futurist musicians should substitute for the limited variety of timbres that the orchestra possesses today the infinite variety of timbres in noises, reproduced with appropriate mechanisms’⁴⁹

So, instead of Futurist musicians *adding, enriching* and *enlarging* ‘the field of sound’⁵⁰, they must replace contemporary orchestral instruments. Kahn’s observation that ‘this tension manifests itself as a schism, and a continual source of contradiction and hesitation for Russolo in the conceptualising of his project’, seems particularly apt, not just in the relationship between music and noise-art throughout the twentieth century, but within Russolo’s original vision.⁵¹ Yet it is a confusion that, in terms of the thematic structure of the manifesto, feels wedged in as an afterthought. It is as if Russolo, having completed his argument for a new form of ‘music’ based entirely on new instruments designed to evoke the contemporary world, felt insecure or sought some kind of transitional stage of development and therefore looked to integrate noise within the conventional orchestra. Was his singular vision conceptually flawed, as has often been stated, or was it undermined by Marinetti?

Perhaps Russolo saw the potential in hedging his bets, so that the introduction of a noises section to the conventional orchestra was but the first step in the process of establishing a complete noise orchestra, once he had completed the development and fabrication of his *intonarumori*. It is as if Russolo required support from legitimate sources, which in this instance were classically trained composers, before he felt able to ‘realizzazione della nostra orchestra totalmente composta d’intonarumori, e all’esecuzione

⁴⁹ Russolo, (1986), 28.

⁵⁰ ‘Sound’ in this instance, refers to the aural emanations generated by the conventional orchestra performing the music score – one might also employ the word ‘tones’.

⁵¹ Kahn, *Audio Art in the Deaf Century*, 310.

pubblica dell mie tre composizioni, *o spirali di rumori*.⁵² ('realize an orchestra made up entirely of noise instruments and present a public performance of [his] three compositions, or *network of noises*.')⁵³ If we evaluate Russolo, not only by his words, but also by his actions, then there is sufficient evidence to suggest he was not so convinced that Pratella was the only avant-garde composer (and the only 'Futurist' composer at that time) capable of realizing his vision. In light of this, the next question must be: why then did he affirm this so vehemently in his preamble? In fact, why was there a preamble and a post-script to *L'Arte dei rumori* at all?

This chapter evaluates the events surrounding the writing and publication of *L'Arte dei rumori*. It interrogates the process between the conception and the practical realisation of Russolo's *intonarumori*. Arguing that this history, as commonly understood, is a narrative controlled by the Futurists, this thesis states that Russolo had been contemplating such an endeavor for some years, perhaps even before he and Umberto Boccioni met Marinetti at the Caffè Biffi, directly after the *serata* at the Teatro Lirico on 15 February 1910.⁵⁴

This meeting at least, is a demonstrably supported, if not unequivocal fact. As Günter Berghaus states: 'The Manifesto of Futurist Painters, which resulted from that meeting, carries the date "11 February 1910". On the back of the large format leaflet a new Leadership of the Futurist movement was announced.'⁵⁵ This is confusing because the manifesto is dated some four days before the Milan *serata* where Marinetti was first introduced to Russolo and Boccioni, both of whom at that time were members of Famiglia Artistica. This was a Milan based artists' circle 'which had attempted in the

⁵² Russolo, (1916), 21.

⁵³ Russolo, (1986), 32-3.

⁵⁴ For a full account of that *serata*, see: Günter Berghaus, *Italian Futurist Theatre, 1909 – 1944*, (Oxford: Clarendon Press, 1998), 91-96.

⁵⁵ Berghaus, *Italian Futurist Theatre 1909-1944*, 96.

preceding five years to bring some life into the art world of the Lombard capital'.⁵⁶

However Berghaus addresses this by pointing out that the original broadsheet edition was undated:

Since Marinetti had a fixation on the number 11, the date given on the second edition ... has to be taken with a pinch of salt. I would not be astonished if the serata on 15 February gave Boccioni, Russolo, and Carrà the idea of meeting Marinetti, and that the *Manifesto of Futurist Painters* was set up between the Milan and Turin serata.⁵⁷

Whilst Berghaus is perhaps making an educated guess, it is not unreasonable to assume this is fairly accurate and that the manifesto was written by Boccioni, Russolo, and Carlo Carrà, with the active encouragement of Marinetti in the weeks leading up to the serata in Milan on 8 March.⁵⁸ However, there is a question as to whether Boccioni, Russolo and Carrà were inspired to write the manifesto after the Lirico serata of 11 February 1910, or whether they already had this in mind for some weeks and had attended the event with the explicit intention of meeting Marinetti. Lawrence Rainey states that it 'was Boccioni who first suggested in January 1910 that the three meet with Marinetti'.⁵⁹ We can be certain that the manifesto was completed before the serata held at the Politeama Chiarella because Boccioni declaimed the *Manifesto dei futurista pittori* (Manifesto of Futurist Painters) at that event. However, it is not the manifesto that is of particular interest here, and the significance of the date lies not in the month, but in the year it was published. Printed on the reverse of the *Manifesto dei futurista pittori* is a list titled: 'Direzione del Movimento Futurista' (Leadership of the Futurist Movement). In that list, all current Futurists were cited beneath their artistic discipline. There were only two members listed under more than one heading and both were new to the movement. Boccioni was listed

⁵⁶ Ibid.

⁵⁷ Ibid., 147.

⁵⁸ Umberto Boccioni played the central role in the composition of the manifesto and its declamation in the Futurist serata of 8 March and all subsequent serate.

⁵⁹ Lawrence Rainey, "Introduction: F.T. Marinetti and the Development of Futurism", in: *Futurism, An Anthology*, eds. Lawrence Rainey, Christine Poggi and Laura Wittman, (Cambridge, MA: Yale University Press, 2009), 7.

along with Russolo, Carlo Carrà , Giacomo Balla, Gino Severini and Ardengo Soffici under ‘*Pittura*’ (painting), and his was the only name listed under ‘*Scultura*’ (sculpture). He would go on to publish his *Manifesto tecnico della scultura futurista* (Technical manifesto of Futurist Sculpture) in 1912. Russolo, along with his inclusion under painting, is also the sole name listed under ‘*Arte dei rumori*’.⁶⁰

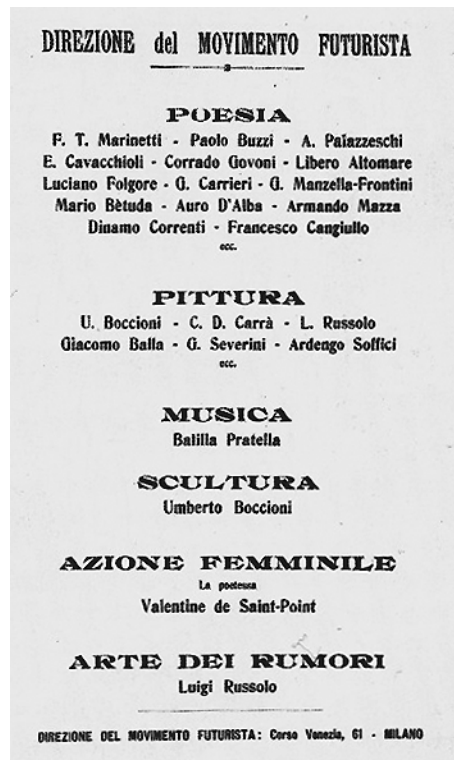


Fig. 1. Directors of the Futurist Movement 1910.⁶¹

It is noteworthy that the two newest members are listed under two distinct disciplines and that in their second discipline they are cited as the sole exponent. It suggests that Boccioni and Russolo brought these disciplines to the initial meetings. Carrà recalls the composition of the *Manifesto dei futurista pittori* (Manifesto of Futurist Painters) in his autobiography:

⁶⁰ There is an interesting disparity in terms. The general consensus is that ‘L’*Arte dei rumori*’ translates into English as the *Art of Noises*. This is supported by Lombardi, Barclay, Rainey, Wittman, and Poggi. Berghaus, however, in both *F. T. Marinetti Critical Writings* (New York: Farrar, Straus & Giroux, 2006), and *Italian Futurist Theatre 1909 – 1944* (1998), translates it as the *Art of Noise*. ‘Noise’ is unmediated but ‘noises’ imply a process of selective mediation. The ‘6 families of noises’ support this mediated approach and so I will use that accepted translation. I will only refer to the manifesto as the *Art of Noise*, when quoting Berghaus.

⁶¹ Berghaus, *Italian Futurist Theatre 1909-1944*, 97.

We were directed into a parlour that was luxuriously adorned with rich Persian rugs, and we found Marinetti to be cordial and effusive. After a long discussion about the situation of art in our country, we decided to launch a manifesto directed to younger Italian artists. . . . The next morning Boccioni, Russolo, and I gathered in a cafe by the Porta Vittoria, near to all our houses, and we enthusiastically sketched a draft of our appeal. Getting a final draft was rather laborious; all three of us worked at it the whole day. In the late afternoon we went to Marinetti's house and continued to work on it with him and his secretary, Decio Cinti.⁶²

The extent of the list, encompassing the artistic disciplines of poetry, painting, sculpture, feminism indicates that Marinetti was now ambitious for his movement to widen in scope beyond poetry and literature.⁶³ But it is Russolo's citation beneath **ARTE DEI RUMORI**, some three years before he was 'inspired' by the work of Pratella, which suggests that we should no longer accept at face value the Futurist narrative regarding the origin and timeframe of Russolo's noises manifesto.

The first task is to examine the timeline set down by the Futurists themselves. Russolo, a painter from a family of musicians, attended the *serata* held at the Teatro Costanzi on 9 March 1913, where Pratella performed his Futurist work *Inno alla vita*. Seemingly inspired by Pratella's composition, he envisioned an orchestra which, in addition to the traditional disposition of the classical orchestra, included a new section of noise instruments to be deployed by the Futurist composer. Immediately after this revelation Russolo wrote *L'Arte dei rumori*. This took the form of an open letter to Pratella, where he praised Pratella's 'marvellous innovations'.⁶⁴ He dismissed the traditional instruments that

⁶² Rainey, *Introduction: F.T. Marinetti and the Development of Futurism*, 7.

⁶³ It might also be indicative of the fact that Marinetti had been very impressed with the poet Valentine de Saint-Point, who he had met at The Abbaye de Creteil in 1907 and who would later join the movement and 'penned the influential Manifesto of Futurist Women' (GB, 32) in 1912. (See Günter Berghaus, *The Genesis of Futurism: Marinetti's Early Career and Writings*, 30-32.

⁶⁴ Russolo, (1913).

predate the industrial age, before setting out his '6 families of noises in the Futurist orchestra' and the eight point conclusion.⁶⁵ He then stated in a post-script:

Caro Pratella, io sottopongo al tuo genio futurista queste mie constatazioni, invitandoti alla discussione. Non sono musicista: non ho dunque predilezioni acustiche, né opere da difendere. Sono un pittore futurista che proietta fuori di sé in un'arte molto amata la sua volontà di rinnovare tutto. Perciò più temerario di quanto potrebbe esserlo un musicista di professione, non preoccupandomi delle mia apparente incompetenza, e convinto che l'audacia abbia tutti i diritti e tutte le possibilità, ho potuto intuire il grande rinnovamento della musica mediante l'Arte dei Rumori.

Dear Pratella, I submit to your futurist genius these propositions of mine, inviting your discussion. I am not a musician by profession and therefore, I have no acoustical prejudices, nor works to defend. I am a futurist painter who projects beyond himself, into an art much-beloved and studied, his desire to renew everything. Thus, bolder than a professional musician, not worried about my apparent incompetence, and convinced that audacity has all rights and all possibilities, I was able to divine the great renewal of music through the Art of Noises.⁶⁶

The manifesto is dated 11 March 1913, just two days after the *serata* held at the Teatro Costanzi. Within forty-eight hours Russolo had seemingly conceived and written his manifesto. It is also worth noting that the humble, even obsequious address to Pratella is at odds with Russolo's assertion that these conceptualised noise families would soon become a practical resource. Luciano Chessa believes that far from being a disclaimer, in this post-script Russolo was:

Boldly claiming a space for himself: he raises the issue of incompetence, but note his use of the adjective *apparent*. Russolo had long been interested in music, and through his synesthetic investigations he had probably already devoted intense hours of study to the theory of vibrations, acoustic science, and

⁶⁵ Ibid.

⁶⁶ Russolo, (1916), 30.

the theosophical theories about the forms produced by music, all of which is evidenced by *La Musica*.⁶⁷

Following Chessa, this thesis concurs that Russolo had probably been thinking about this subject for some time. His research into the theory of vibrations, acoustics and X-rays would thus account for the three years between March 1910 and March 1913. If we were to accept the original timeline, then we must also accept that the subsequent noise-machines, labelled *intonarumori*, were designed and fabricated by Russolo, with the help of his assistant Ugo Piatti, in a matter of weeks. In a letter dated 1 May 1913 ‘Marinetti informed Pratella that Russolo has constructed a machine which imitated the noise of a motor’.⁶⁸ Marinetti and other Futurists often referred to a specific *intonarumori* as a mimetic device. Russolo himself was guilty of that on occasion. This perhaps is a significant factor in the subsequent confusion amongst later practitioners, like Edgard Varesè, who dismissed the *intonarumori* as imitative, despite Russolo’s insistence in his manifesto that these machines should be non-mimetic; that they were intended to evoke, not represent or imitate.⁶⁹

Once Russolo had published his manifesto, he was obliged to practically realise the machines capable of delivering the ‘6 families of noises’. It was not Russolo’s stated ambition at that point to create a Futurist orchestra comprised solely of instruments capable of generating these noise families. His aim was to create a new ‘section’ that could be incorporated within the traditional orchestra. This is what Pratella wished-for in his 1911 manifesto: *Musica Futurista: Manifesto tecnico* (Futurist Music: Technical Manifesto), when he stated: ‘imagining and hearing a particular orchestra for each

⁶⁷ Luciano Chessa, *Luigi Russolo, Futurist: Noise, Visual Arts, and the Occult*, (London: University of California Press, 2012), 112.

⁶⁸ Berghaus, *Italian Futurist Theatre 1909-1944*, 119.

⁶⁹ Edgard Varese, “Que la musique sonne”, in *391* no.5 (June 1917).

particular and diverse musical condition of the mind':⁷⁰ an orchestra of conventional instruments, but configured in a bespoke fashion to suit the demands of the composition. To complement the traditional sectional disposition of instruments, Russolo envisaged a noises section, using mechanically driven machines to evoke both industrialized modernity and those sounds found in nature that alter in pitch enharmonically.

The howling of the wind produced enharmonic scales, in Russolo's terms scales of microtones, and the even richer world of machine noise was constantly enharmonic in the rising and falling of its pitch. Therefore, enharmonic instruments should be created to be capable of changing pitch by enharmonic gradations instead of diatonic or chromatic leaps in pitch.⁷¹

As stated, Russolo, though widely credited for being the first to publish the concept of a sonic art, has been criticized for failing to make the logical step of defining it as a new art form. Certainly, *L'Arte dei rumori* has long been regarded as vital to the establishment of depicted noise-driven modernity within performance art, but Russolo's imagination of noises failed to conceive this as anything other than a technical augmentation of the classical orchestra. The conventional chromatic scale with which that composer had to work was considered a rigid system that stifled the true range and depth of sound, equivalent to a hypothetical 'system of painting that abolishes all the infinite gradations of the seven colours—knowing red, but no rose and scarlet lake.'⁷² In contrast, Russolo's synaesthetic approach equated the enharmonic scale with the more subtle gradations of painting.

However, was the incorporation of *intonarumori* into orchestral music the consequence of a lack of vision on Russolo's part? This thesis argues that *L'Arte dei rumori* is a document

⁷⁰ Ballila Pratella, "Technical Manifesto of Futurist Music", trans. Lawrence Rainey, in: *Futurism, An Anthology*, 137.

⁷¹ Bijsterveld, *Mechanical Sound: Technology, Culture and Public Problems of Noise in the Twentieth Century*, 144.

⁷² Russolo, "The Conquest of Enharmonism", in: *The Art of Noises* (1986), 62.

permeated by the internal politics of the Futurist movement. It is addressed to ‘Dear Balilla Pratella, great Futurist composer’.⁷³ This was the first time one Futurist publicly communicated directly to another in this way, as ‘Futurist’.⁷⁴ Typically in the pre-war period, the movement’s manifestos were missives addressed to the world in general, or to a specific audience. Pratella had followed this path in his *Manifesto dei Musicisti futuristi* (1911) when he stated ‘To mi rivolgo ai *giovani*’ (I address myself to the *young*).⁷⁵ Conversely, Russolo’s address is less ebullient and carries a subtext of obsequious, passive aggressive chiding of Pratella. Russolo does not criticise Pratella’s work – in fact he makes a point of praising it – but challenges his compositional methods and his uninspired definition of enharmony in *Manifesto tecnico dei musicisti futuristi*.⁷⁶

Russolo’s manifesto, whilst presenting his radical ideas about noise-music, can be understood as an example of Futurist housekeeping, encouraging Pratella to incorporate himself more fully within Futurist ideology. Russolo name checks most of the inner circle of Futurists, including, significantly, Marinetti himself. One suspects this must have had some impact on Pratella, insofar as it implies a select consensus of opinion supporting Russolo’s argument. If this was the case, then it is possible that Russolo had conceived of the noise-orchestra at an earlier date, but as one of Marinetti’s loyal lieutenants - perhaps in return for an assurance by Marinetti to provide some financial support for the practical development of his *intonarumori* - he allowed it to be used as ammunition to prod Pratella along the approved path at an appropriate moment. Whilst this is merely speculation and no empirical evidence currently exists to support this theorem, it is generally acknowledged that Marinetti funded, in large part, the activities of

⁷³ Russolo, (1913).

⁷⁴ Ibid.

⁷⁵ Pratella, *The Manifesto of Futurist Musicians*, (*Manifesto dei musicisti futuristi*). First published in *Il nuovo teatro*, no. 2 (11 November 1910) and subsequently issued as independent pamphlets in Italian and French, in January 1911. Later collected in Pratella’s *Musica futurista* (Bologna: Bongiovanni, 1912).

⁷⁶ Pratella, *Technical Manifesto of Futurist Music*, (1911).

the Futurist movement. The inheritance he received from his father in 1907 was substantial, making Marinetti, as the sole inheritor of the estate, a very rich man.⁷⁷ It would go some way in explaining why there was a three-year hiatus between Russolo's conceptualisation of *L'Arte dei rumori* in 1910 and his frenetic activity throughout the Summer of 1913 to conceptualise, design and construct his *intonarumori*.⁷⁸ Perhaps the principal motivating factor was not Russolo's sudden inspiration provoked by the performance of Pratella's Futurist symphony *Inno alla vita* on the 9 March, but Marinetti's financial backing, suddenly available after Marinetti read the original version of *L'Arte dei rumori* and sensed an opportunity. As Chessa states, 'It is well documented that Marinetti initially subsidized all the initiatives of the movement (including publications and exhibitions), and, like a good impresario, he reserved the right to supervise the work of the other artists of the group'.⁷⁹ Indeed, once Russolo set about his task, Marinetti typically involved himself in the process, possibly as a mentor, but more likely in an enthusiastic, cheerleading role. In *La Gran Milano* (1921), he reminisced about the 'Ecstatic and vibrating afternoons in his laboratory where I assist in the construction of the intonarumori and the noise harmonium'.⁸⁰ However, it should be noted that Russolo did not begin work on his noise harmonium until 1921 when, despite his fierce loyalty towards Marinetti – which he shared with Pratella – he had all but left the Futurist movement.

The 'Direzione del movimento futurista' is a *terminus ad quem* for the conception of *L'Arte dei rumori* by 1910. However, this should not lead us to presume that Russolo had a clear vision of how noise art could be realised practically at that time. The document

⁷⁷ Marinetti's older brother Leone died in 1897 from complications arising from an on-going heart condition. His mother Amalia, having never fully recovered from the loss of her eldest son, died in 1904.

⁷⁸ The date of the Directors of the Futurist Movement pamphlet, where the *Arte dei Rumori* was first mentioned is 1910. But it is important to note that Russolo at that stage had only very recently joined the Futurist movement and so it is possible, even likely, that Russolo had envisioned this much earlier.

⁷⁹ Chessa, 14.

⁸⁰ F. T. Marinetti, *La Grande milano tradizionale e futurista*, (Milan: Arnoldo Mondadori, 1919), 83.

only reveals that he was contemplating the establishment of a creative discipline under that heading. However, it would not be unreasonable to hypothesize that Russolo would go on to develop and refine his ideas over the three-year period between 1910 and the publication of his manifesto. Certainly, this is more credible than the normally invoked timeline, which would require Russolo to forget about it entirely for the next three years until he was provoked into inspired recollection during the ‘Battle of Rome’.⁸¹ Indeed, Kahn, citing Giovanni Lista’s introduction to the 1975 edition of the *AoN 16*, states that the manuscript for *L’Arte dei rumori* was ‘apparently finished three months prior to Pratella’s concert, but postponed so as not to disrupt on-going preparations and embarrass a fellow Futurist’.⁸² If the desire was to avoid Pratella’s blushes then publishing the manifesto, altered at the last moment to appear as an open letter to Pratella, was surely ill-conceived. Arguing that the reverse was the case, it would seem that the publication of *L’Arte dei rumori* was delayed to create the maximum impact upon Pratella and the Futurist movement.

An intriguing aspect of *L’Arte dei rumori* is the ‘6 families of noises’ listed by Russolo. These are not merely conceptual categories, but semiotically resonant sound types. Russolo sought to define a concept of ‘noise’ by identifying the dominant and evocative noise sources within both the natural and industrial environments. R. Murray Schafer subsequently defined these aural elements within the environmental soundscape:

Ultimately some system or systems of generic classification will have to be devised, [but for now] it will be enough to categorise the main themes of a soundscape by distinguishing between what we call keynote sounds, signals and soundmarks. To these we might add archetypal sounds, those mysterious ancient sounds, often possessing felicitous symbolism, which we have inherited

⁸¹ The *serata* at the Teatro Costanzi on 9 March had been dubbed the battle of Rome by the Roman press; such was the tumultuous response by the public both within the auditorium and without. This *serata* was the second to be performed at this theatre within the space of two weeks. Indeed, the *serata* on 27 February had created such a furore that the 9 March performance had originally been banned by the Prefect of Rome.

⁸² Giovanni Lista, *L’Art des bruits* (Lausanne: Editions l’Age d’Homme, 1975), 18-19.

from remote antiquity or prehistory.⁸³

Compare that statement by Schaffer in 1977 with Russolo's observations in chapter four of *AoN 16*: 'The Noises of Nature and Life':

In questa mia breve rassegna dovrò naturalmente limitarmi a farti analizzare un piccolo numero di rumori, poichè questi sono innumerevoli. Ma sarò soddisfatto se riuscirò a convincerti che il rumore non è sempre sgradevole e fastidioso come tu credi e affermi, e che anzi, per chi lo sappia capire, il rumore rappresenta una fonte inesauribile di sensazioni a volta a volta squisite e profonde, gaudiose ed esaltanti.⁸⁴

In this brief summation, I naturally have to limit myself to having you analyse a small number of noises, even though noises themselves are innumerable. But I will be satisfied if I succeed in convincing you that noise is not always disagreeable and annoying as you believe and say, and that for him who understands it, noise represents instead an inexhaustible source of sensations, from one moment to the next exquisite and profound, grandiose and exultant.⁸⁵

Russolo anticipates that the juxtaposition of these noise-families would result in 'a fantastic combination of the various timbres and rhythms that the new orchestra will achieve the newest and most complex and novel emotions of sound'.⁸⁶ His confident declaration that these noise families would soon be 'realised mechanically' adds further weight to my argument that Russolo had been engaged in a process of established and on-going practical research, prior to the publication of his manifesto. The '6 families' are significant in the sense that they are generic, neither particularly orientated towards industrial sounds nor representative of specific actions or locations.

⁸³ R. Murray Schaffer, *The Soundscape: Our Sonic Environment and The Tuning of the World*, (Rochester, Vermont: Destiny Books, 1977/1984), 7. See also Chapter 12, *Symbolism*, 169.

⁸⁴ Russolo, (1916), 33.

⁸⁵ Russolo, (1986), 41.

⁸⁶ *Ibid.*

1	2	3	4	5	6
Rumbles	Whistles	Whispers	Screeches	Noises	Voices of
Roars	Hisses	Murmurs	Creaks	obtained by	animals and
Explosions	Snorts	Mumbles	Rumbles	percussion on	men:
Crashes		Grumbles	Buzzes	metal, wood,	Shouts
Splashes		Gurples	Crackles	skin, stone,	Screams
Booms			Scrapes	terracotta, etc.	Groans
					Shrieks
					Howls
					Laughs
					Wheezes
					Sobs

Fig. 2. The 6 Families of Noises

Russolo further asserts that: ‘the Art of Noises must not limit itself to an imitative reproduction. It will achieve its greatest emotional power in acoustical enjoyment itself, which the inspiration of the artist will know how to draw from the combining of noises.’⁸⁷ In light of the assertion that the aural evocation of environment should not be specifically emulatory or mimetic, it seems improbable that Russolo’s creation of the *intonarumori* could have been an ad-hoc improvisation, which was conceived, designed and constructed within a three month period, as the chronology of *L’Arte dei rumori* indicates in its opening address.⁸⁸

This, of course, is dependant upon the acceptance of the Futurist chronology, that Russolo, after publishing the manifesto was obliged to produce a physical artefact – a noise-intoner - in short order, and so cobbled together a kinetic emulator that utilized technology dating back to classical Greek theatre, whilst ignoring the emergent technologies of sound reproduction. Certainly this is the dominant perception amongst current Futurist scholars and sound art theoreticians:

⁸⁷ Ibid.

⁸⁸ Ibid.

In 1913 he [Russolo] wrote “The Art of Noises,” a pioneering document in musical theory. Shortly afterward, with Ugo Piatti, he made a series of “noise-tuners” [*intonarumori*], sound machines to create and modify types of noise.⁸⁹

It was this [*Inno alla vita, performed at the Teatro Costanzi in Rome on the 9th March 1913*] performance that encouraged the Futurist artist Luigi Russolo to become interested in music and develop his ‘noise-intoners.’⁹⁰

The idea of building new musical instruments occurred to Russolo during the performance of Balilla Pratella’s *Musica Futurista* at the Teatro Costanzi on March 9, 1913, and he announced his intention a few days later, on March 11, in the *Art of Noises* manifesto. It is well documented that Russolo fashioned the first series of *intonarumori* at breakneck speed during the next few months.⁹¹

Even Berghaus appears to accept this chronology, despite having published a facsimile of the *Direzione Del Movimento Futurista* earlier in the same chapter of the same book.

As Russolo stated in the introduction to his manifesto of 11 March 1913, The Art of Noise, it was ‘in the crowded Costanzi theatre in Rome, while I was listening with my Futurist friends Marinetti, Boccioni, and Balla to the orchestral performance of your overwhelming Futurist music, that there came to my mind the idea of a new art: The Art of Noise, a logical consequence of your marvellous innovations.’ Shortly after the serata, Russolo set about realising the idea of an orchestra of noise instruments.⁹²

There has been praise and a sense of incredulity from subsequent critics and practitioners about the very condensed three-month period in which Russolo and his assistant Piatti supposedly produced fifteen *intonarumori*. As G. Franco Maffina states, ‘It is nothing less than surprising that in such a brief period — not just the crafting time needed for their construction (which was perhaps entrusted to various artisans) but also the study time

⁸⁹ Rainey et al, *Futurism, An Anthology*, 516.

⁹⁰ Benjamin Thorn, *Francesco Balilla Pratella (1880-1955)*, in: *Music of the Twentieth-century Avant-garde: A Biocritical Sourcebook*, ed. Larry Sitsky, (New York: Greenwood Publishing Group, 2004), 380.

⁹¹ Chessa, 169.

⁹² Berghaus, *Italian Futurist Theatre 1909-1944*, 119.

for understanding the various mechanical principles that would lead to the desired results — Russolo was able to perfect fifteen instruments.⁹³

However, this extraordinary output is conceivable if Russolo's noise-tone generators were the products of practical research across a longer period, where the issues of manipulation and mediation in performance were the prime elements of a considered approach to the generation of enharmonic noise instruments. Maffina observed: 'Despite having grown up in a musical family, Russolo was at that time a painter with only basic music training, so one wonders how he could have acquired the knowledge of acoustics and mechanics necessary for the construction of the *intonarumori*.'⁹⁴ However, it should be noted that Russolo's father Domenico was not only a church organist, but also a watchmaker and had frequently been employed as a piano and church organ tuner. It is entirely possible that his son used this background in mechanics for the design and fabrication of what were entirely mechanical devices.

It is believable that Russolo and his assistant Ugo Piatti, presumably, as Giovanni Lista suggests, with some practical assistance from craftsmen, were able to construct these machines within that timeframe. Russolo's dedication to his research was well known in Futurist circles. As Chessa observes:

Russolo took an eclectic and encyclopedic-comparativist approach to research, which was pedantic and almost obsessive in its intellectual breadth. In a propagandistic article published in installments in the *Gazzetta della sport* and dealing with the deeds of the futurists at the front during World War I, Marinetti reported that, while such futurist soldiers as Boccioni, Piatti, and himself were busy preparing dinners, lighting fires, or taking turns drawing water, Russolo was "studying the noises of the war and drawing from them

⁹³ Gianfranco Maffina, in: Luciano Chessa, *Luigi Russolo, Futurist: Noise, Visual Arts, and the Occult*, (169).

⁹⁴ *Ibid.*

improvements for his *intonarumori*.⁹⁵

Francesco Cangiullo observed that, ‘Russolo had no romantic yearnings: he is a hero, and he pays no attention except exclusively to the *intonarumori*.⁹⁶ There can be no doubt that Russolo was extremely motivated to complete his task of practically realising his *intonarumori* within a very short timeframe. By 22 May 1913 Russolo, by his own admission, in the article ‘*Gl’intonarumori Futuristi*,⁹⁷ had completed four examples of the *intonarumori* – The *crepitatore* (crackler – family 4, noise 5), the *stropicciatore* (stamper – family 5), the *scoppiatore* (exploder- family 1, noise 3) and the *ronzatore* (buzzer – family 3, noise 4). Perhaps it had been Russolo’s original intention to create six *intonarumori* by this date, each representing a noise from one of the families: certainly the four he produced each represented a different noise family.

What seems incredible, however, is the assumption that Russolo was able to conceptualise, design and then build these machines within that period. It is significant that the names he gives his noise-tuners reflect his classification of the ‘6 families of noises’ because this reinforces the notion that the non-specific characteristics of these noises are indicative of a mature recognition that a ‘musical’ instrument, defined by a level of operational functionality that would allow these noises to be manipulated enharmonically, could not be realised by the reproductive technology of the gramophone or phonograph.

The instruments were also rife with contradiction. For having ostensibly resulted from an artistic response to the din of mechanized modernism, the design of the *intonarumori* drew not from contemporary technology but from the technology of traditional musical instruments.⁹⁸

⁹⁵ Ibid.

⁹⁶ Francesco Cangiullo, *Le serate futuriste: Romanzo storico vissuto*, (Milan: Ceschina, 1961), 183.

⁹⁷ Russolo, *Gl’intonarumori Futuristi*, (Lacerba, 1 June 1913), dated 22 May.

⁹⁸ Douglas Kahn, *Noise, Water, Meat: A History of Sound in the Arts*, (Cambridge, MA: MIT Press, 1999), 11.

The next chapter examines the technological timeline in more detail, but suffice it to say that the phonographic technology of 1913 could not be manipulated effectively within an orchestra. Machines could not be accurately cued nor edited, and it would have required at least two phonographs, with the second set to play as the first was finishing, to maintain a performance lasting longer than four minutes. They would also have been inaudible beyond the first two or three rows of seats in the auditorium. I suggest that Russolo had long understood this and throughout the apparent three-year hiatus between 1910 and 1913 had investigated other means of manipulating noise *before* he classified the ‘6 families of noises’; otherwise, the noises listed might well have been considerably more specific. The technical apparatus of modernity was as yet unable to reproduce modernity on a public scale, so Russolo chose not to include such avatars of Futurist auralty, such as the roar of an automobile or the rhythm of a passing locomotive. A young man writing with an enthusiasm generated by a new found idea that fell outside his area of technical expertise might well have done just that. The fact Russolo did not suggests he had already considered and rejected this as a practical option.

Chessa credits the influence of Leonardo da Vinci for the speed in which Russolo was able to design the *intonarumori*. This theory derives from Russolo’s working in Milan and supposed inspiration by the work Leonardo made in that city. Perhaps more realistically, Chessa also suggests that Russolo had seen a facsimile of Leonardo’s folio 175r:

The prominent Leonardo scholar Carlo Pedretti has pointed out that folio 175r was one of several pages from Arundel 263 that Jean Paul Richter, the great pioneer of Leonardo studies, chose to reproduce in facsimile in his *Literary Works of Leonardo da Vinci* (London, 1883). Richter’s book was immensely popular, and not simply among Leonardo scholars or restorers: it was nothing short of a blockbuster. Russolo, given his interest in Leonardo’s work, would have known it. [...] The accessibility of folio 175r does not prove that Russolo

borrowed from it. But the *intonarumori* employ a number of mechanical principles akin to those in this folio, including adjustable, telescoping sound boxes, resonating bodies tuned in different ratios, and coiled springs that vibrate against a membrane.⁹⁹

This is an interesting hypothesis that can be neither proved, nor dismissed. However, it requires a convoluted route to explain the short timeframe between the drafting of *L'Arte dei rumori* and the construction of the *intonarumori*. As a theory, it does not follow the rule of Occam's razor. Whilst the *intonarumori* employed resonating sound boxes and coiled springs that vibrate against a membrane, so too did the 'Creaks, Squeaks, Growls and Roars' mechanical sound effects machine used in commercial theatre at that time and for some considerable period before.¹⁰⁰ Theatre sound designer David Collison provides a description of the mechanical effect of this device:

A most useful device for a variety of sounds, depending upon how it was 'played', was constructed from a small barrel with both ends removed and one end replaced with a piece of plywood (or a drum skin for a higher pitched effect). A piece of string fixed firmly through the centre of the head and impregnated with resin is held taut with one hand; then, using the other hand, the string is pinched with a piece of leather and drawn along it ... by altering the tautness of the string and the amount of 'pinching' with the leather, it can also produce convincing roars and growls.¹⁰¹

Thus whilst one cannot dismiss the influence of Leonardo, based as it is entirely on a facsimile of folio 175r that was published thirty years earlier in England, the hypothesis of this thesis requires Russolo only to look about him in the performance spaces he frequented throughout his childhood and adolescence and in the theatres hosting the

⁹⁹ Chessa, 174.

¹⁰⁰ It is very difficult to accurately date the advent of this sound engine. In all likelihood it was developed at the same time as the other theatrical sound devices like the thunder sheet and the wind machine, in the late eighteenth century – although all mechanical sound effects were more likely to have evolved over the centuries, rather than invented for a specific purpose. In this sense, perhaps the *intonarumori* were co-designed by Leonardo, but in a more circuitous route than Chessa suggests.

¹⁰¹ David Collison, *The Sound of Theatre, from the Ancient Greeks to the Modern Digital Age*, (England: Plasma, 2008), 53.

Futurist *serate* between 1910 and 1913. Collison could just as easily be describing an *intonarumori* such as the *rombatori* (roarer).

Whilst there is evidence that Russolo and Piatti did manage to construct the *intonarumori* within the accepted timeframe, it is doubtful that Russolo only conceived the devices during the *serata* on 9 March 1913. One might further question why we need to insist that this is the case. Russolo had completed his manifesto, without the preamble and post-script, three months before that date. It would not be unreasonable to postulate that Russolo spent that period designing the *intonarumori*. Perhaps he had been developing the machines on paper - which required very little funding - for some years. The questions we should ask in that case should be – why did Russolo agree to wait before publication? And why did he add the address to Pratella before doing so?

In the preamble to *L'Arte dei rumori*, Russolo's tone in praising Pratella's 'Futurist' symphony *Inno alla vita* suggests that he and his 'Futurist friends' had merely been part of the audience. In fact most of them had been active participants in the *serata*, a highly charged and confrontational event that not only penetrated the fourth wall between the performers and the Roman public, but broke through the very fabric of the theatre itself as the ensuing riot spilled out into the streets.¹⁰² Newspaper reports labelled the event 'The Battle of Rome'¹⁰³. Apparently inspired by the quality of the performance, and energized by the negative response from 'over four thousand passéists', Russolo claimed that he had intuitively conceived a 'new art'.¹⁰⁴

¹⁰² Why did Russolo not take part in this *serata*? He had taken part in every *serata* after his meeting with Marinetti (with the exception of the one on 8 March 1910, where Boccioni declaimed their first painting manifesto). He was present at the event and had taken part in the *serata* held at that same venue only a few days before on 27 February. Was this setting up the Art of Noises?

¹⁰³ Berghaus, *Italian Futurist Theatre 1909-1944*, 116.

¹⁰⁴ *Ibid.*, 119.

Arguably, despite the satisfactory outcome of the evening, the Futurists thought Pratella had not gone far enough towards the development of a new concept of music, distinct from the traditional structure of the orchestra and the performed score. Marinetti had advocated the total destruction of European cultural inheritance, something he made clear when he declaimed: ‘We intend to destroy museums, libraries, academies of every sort.’¹⁰⁵ Pratella was more pragmatic: it is not ‘the past’ to which he objects, but those in positions of power and influence who stubbornly adhere to it at the cost of innovative exploration and experimentation. He affirms this in his *Manifesto dei musicisti futuristi*, when he describes the contemporary Italian music scene as:

Insidia ai giovani e all'arte, vegetano licei, conservatori ed accademie, musicali. - In questi vivai dell'impotenza, maestri, e professori, illustri deficienze, perpetuano il tradizionalismo e combattono ogni sforzo per allargare il campo musicale.¹⁰⁶

Vegetating musical lyceums, conservatories and academies are snares for the young and for art. In these pools of impotence, masters and professors, illustrious idiocies, perpetuate traditionalism and struggle against any effort to enlarge the field of music.¹⁰⁷

He certainly does not denounce the past with the visceral glee of Marinetti. For Pratella, an exclusive, unquestioning and uncritical embrace of the forms, structures and compositional theories of a past age was stifling the motors of innovative modernity. No one was looking towards the new age – not the composers, the critics, and functionaries of the academy, nor the public itself. Aspiring composers, confined within mausoleum-like educational institutions, were infected with this malaise. Any latent desire to experiment with form, structure and melody was systematically repressed by pedagogical disciplines. So Pratella urges that contemporary composers should:

¹⁰⁵ Marinetti, “The Founding and Manifesto of Futurism”, (1909), trans. Lawrence Rainey, in: *Futurism*, 51.

¹⁰⁶ Pratella, *Manifesto dei musicisti futuristi*, (1911).

¹⁰⁷ Pratella, “Manifesto of Futurist Musicians”, (1911), trans. Lawrence Rainey, in *Futurism*, 76.

Provocare nei pubblici una ostilità sempre crescente contro le esumazioni di opere vecchie che vietano l'apparizione dei maestri novatori, ed appoggiare invece ed esaltare tutto ciò che in musica appaia originale e rivoluzionario, ritenendo un onore l'ingiuria e l'ironia dei moribondi e degli opportunisti.¹⁰⁸

Provoke in audiences, a growing hostility against the exhumations of old works which prohibit the appearance of innovative composers, and support and enhance everything in music that seems original and revolutionary, considering it an honour to receive abuse and irony from opportunists and moribund people. [my translation]

One can conclude that this is his central, dominant theme. Pratella is more equivocal than Russolo in the celebration, and musical representation, of modern urban and industrial life. Russolo states: 'We delight much more in combining in our thoughts the noises of trams, of automobile engines, of carriages and brawling crowds than in hearing again the "Eroica" or the "Pastorale"'.¹⁰⁹ As Kahn observes, he provides 'an urban and technological flavour to his modernism that distinguished it from the resident Italian Futurist composer...Pratella, whose music allied itself to Futurism primarily on the program of a nationalism rooted in peasantry'.¹¹⁰ Kahn continues:

Pratella's Manifesto of Futurist Music...did indeed state that Futurism ought to "express the musical soul of crowds, of the great industrial shipyards, the trains, the transatlantics, battle ships, cars and airplanes" but he was to say later that these were not his sentiments but those Marinetti interjected during the editing process.¹¹¹

Pratella confirms this editorial intrusion when he stated:

I must say that some affirmations, of a polemic and others of a theoretical nature, which one can read in my Manifesto, refer to a rapport between music and machines. These were neither written nor even thought by me and often are in

¹⁰⁸ Ibid.

¹⁰⁹ Russolo, *The Art of Noises*, (1986), 25.

¹¹⁰ Kahn, *Noise Water Meat*, 58.

¹¹¹ Ibid., 57.

contrast to the rest of the ideas. These inventions were added by Marinetti arbitrarily and at the last moment. I was then astonished to read them over my signature, but the act was already done.¹¹²

Marinetti's editorial intervention explains why the conclusions listed in Pratella's *Musica Futurista: Manifesto tecnico* consist of eleven points, the final point being the 'inventions'. This polemical point is incongruous when compared to the preceding ten, which deal with modernist compositional techniques. Point one advocates the 'single atonal chromatic mode' and point ten sets down the role of free verse in 'attaining a criterion of poly-rhythmic freedom'.¹¹³ By contrast, the eleventh point, much longer than the preceding ten, abandons the technical discourse entirely and returns to a familiar Futurist theme:

Portare nella musica tutti i nuovi atteggiamenti della natura, sempre diversamente domata dall'uomo per virtù delle incessanti scoperte scientifiche. Dare l'anima musicale delle folle, dei grandi cantieri industriali, dei treni, dei transatlantici, delle corazzate, degli automobili e degli aeroplani. Aggiungere ai grandi motivi centrali del poema musicale il dominio della Macchina ed il regno vittorioso della Elettricità.¹¹⁴

Music must contain all the new attitudes of nature, always tamed by man in different ways through incessant scientific discoveries. It must render the musical spirit of the masses, the grand industrial factories, trains, transatlantic steamers, battleships, automobiles, and airplanes. It must add the domination of the machine and the victorious reign of electricity to the great central motifs of the musical poem.¹¹⁵

This intervention indicates that Pratella was not especially inspired to celebrate industrialised modernity, but that Marinetti wanted to implant these themes, both within

¹¹² Ibid. 374, Cited: Rodney Johns Payton, *The Futurist Musicians: Francesco Balilla Pratella and Luigi Russolo* (Ph.D. diss., University of Chicago, 1974), 15-16.

¹¹³ Balilla Pratella, *Musica Futurista- Manifesto tecnico*, (1911). First published as an independent leaflet in May 1911, and was subsequently collected in Pratella's *Musica futurista* (Bologna: Bongiovanni, 1912).

¹¹⁴ Ibid.

¹¹⁵ Rainey et al, *Futurism: an Anthology*, trans. Lawrence Rainey, 84.

the body of the text and, aided by Russolo in *L'Arte dei rumori*, within the work of the composer. That Marinetti felt empowered and obliged to augment the text – despite Pratella's feeling that Marinetti's affirmation was 'in contrast to the rest of the ideas' – demonstrates his desire to preserve the central tenet of Futurism; namely, the celebration of modernity through a creative engagement with its industrial and urban practices.¹¹⁶ It also illustrates Marinetti's willingness to use forceful means to keep his only notable composer on message, even if that meant undermining the rest of his ideas. Marinetti certainly exerted such editorial control over other authors of Futurist manifestos. As Berghaus observes, 'Pratella, Sant'Elia, Carrà and others repeatedly moaned about the interventions of the *capo* and some of the phraseology he inserted into their texts.'¹¹⁷

This casts *L'Arte dei rumori* in a different light. It is published, as Kahn observes, 'exactly one year after Pratella's Technical Manifesto of Futurist Music'.¹¹⁸ Marinetti would always maintain a focus on the ideology as set down in his first manifesto. Berghaus points out that he 'was a skilled public relations manager, who had fully understood the importance of publicity and the need to manipulate the mass media, which in the pre-electronic age meant the printed and spoken word'.¹¹⁹ As Futurists, all three men had just one thing in common when contemplating the role of future music – the enharmonic scale. Marinetti sought to use this commonality to integrate Pratella more fully into the Futurist cause and to promote Russolo – and perhaps provide the perpetually impoverished artist with some much needed funding – in his role as the research and development technician for the movement's musical ambitions.¹²⁰

¹¹⁶ Kahn, *Noise Water Meat*, 374, Cited: Rodney Johns Payton, 15-16.

¹¹⁷ Berghaus, *Italian Futurist Theatre 1909 – 1944*, 56.

¹¹⁸ Kahn, *Noise, Water, Meat*, 58.

¹¹⁹ Berghaus, *The Genesis of Futurism: Marinetti's Early Career and Writings*, 14.

¹²⁰ There is a certain irony here, for I argue that the *Twentieth-century* was the era of the sound technician.

1.2 Mentored by Marinetti: Pratella's Concept of Future Music.

If, in his *Manifesto dei musicisti futurist*, Pratella deals primarily with his frustration with the cabal of self-interested publishers and promoters and the conservatism of the conservatoires, then in his *Musica futurisa: Manifesto tecnico* he attacks the conventional forms of composition, specifically the tonal scale, that he feels should be augmented by his specific notion of enharmony. Furthermore, Pratella wanted to abandon the traditional, stately dance rhythms and stultifying forms and structures in favour of a purity of creative expression, where the orchestration of the melody was defined by an implicit natural pace and proportional sense. Similarly, the physical composition of the orchestra had to be constructed around the demands of the musical composition, rather than the other way around. As Pratella claims, 'For man, absolute truth consists in what he feels as a human being. The artist humanizes nature by interpreting it purely'.¹²¹

Pratella argues that the composer must be free to examine the reality of his environment, be it rural or urban, pastoral or industrial, so that he can create an artistic interpretation or indeed a musical distillation of his perception. To fulfil this creative vision, the composer cannot be confined to past forms and the structural traditions of an obsolete romantic ideal. He should be free to define his own constructs within a free-form compositional environment. The young composer must therefore shun the advances of decrepit mainstream conservatoires and instead develop personal methodologies based upon his own instincts. Given the content and context of *L'Arte dei rumori*, we should give greater consideration to a subtext that allows Russolo to challenge Pratella's conception of Futurist music.

¹²¹ Pratella, *Manifesto of Futurist Musicians*, (1911), trans. Lawrence Rainey, 76.

Before the publication of the *Manifesto dei musicisti futuristi* and *Musica Futurista: Manifesto tecnico*, nearly all Futurist manifestos had either been written by Marinetti or co-authored by the acolytes Russolo refers to as his ‘Futurist friends’.¹²² Pratella was the first Futurist, other than Marinetti, to produce not just one, but three manifestos where he is listed as sole author. These manifestos, whilst seemingly adhering to Marinetti’s vision of the future, were nevertheless characterised by a less destructive and far less radical vision of music of the future. There is also the question of the authority and leadership of the Futurist movement itself. Marinetti was, of course, the first to announce the concept of Futurism in February 1909; however, Pratella was then already composing his ‘Futurist’ opera *La Sina d’Vargöum*. According to Berghaus, Pratella and Marinetti met for the first time on 11 August 1910 when the opera’s intermezzo was performed at Imola’s municipal theatre.¹²³ This date is problematic because it occurs some months after Pratella’s inclusion as one of the ‘Leaders of the Futurist Movement 1910’.¹²⁴ Rainey states, ‘In December 1910 the composer Francesco Balilla Pratella agreed to join the movement, and within months he had produced two manifestos.’¹²⁵

The accuracy of this timescale needs more research, particularly as Candice Black dates *Manifesto dei musicisti futuristi* to 11 October 1910.¹²⁶ This is some two months before Pratella’s agreement to join the Futurist movement and, according to Rainey, three months before the publication date of 11 January 1911 given in *Futurism, an Anthology*.¹²⁷ It is possible that Marinetti met Pratella in August and Pratella, impressed with the potential of Futurism, wrote his first manifesto two months before formally joining the movement. That Marinetti included Pratella before he or any of the members of the

¹²² Russolo, *L’Arte dei rumori*, (1913).

¹²³ Berghaus, *The Genesis of Futurism*, 41.

¹²⁴ Berghaus, *Futurist Variety Theatre 1909 – 1944*, 97.

¹²⁵ Rainey, et al, *Futurism, An Anthology*, 12 .

¹²⁶ *L’Arte dei rumori, Destruction of Music by Futurist Machines*, ed. Candice Black, (London: Sun Press Vision, 2012).

¹²⁷ Rainey et al, *Futurism, An Anthology*, 76.

inner circle had met him would seem unlikely and perhaps there is confusion between the writing of this manifesto and its publication date. However, there might be greater significance to Pratella's inclusion in the 'Direzione del Movimento Futurista' in 1910, some ten months before he actually formally joined the Futurist movement. This is indicative of an ambition on Marinetti's part to encourage Pratella into the Futurist fold and this document could be regarded as part of the wooing process. If true, this is significant because it reveals that either Pratella was not a natural Futurist acolyte drawn to the movement and willingly subjugating himself to Marinetti's vision, or Marinetti saw potential in both the work and character of Pratella, who he had met just a few months earlier. Why Pratella would voluntarily submit to Marinetti's conceptual ministrations, to the point where he allowed Marinetti to add text to his manifesto, is perhaps down to Pratella's character and his perceived sense of the parochialism of Italian music in the months running up to his inclusion as a Futurist composer – indeed, 'the' Futurist composer.

There are interesting parallels between the early careers of Marinetti and Pratella: both were raised in provincial environments and both felt that sense of provinciality quite keenly. Marinetti was born in Alexandria, Egypt in 1876, the second offspring of Enrico Marinetti, a successful lawyer specialising in business and finance with offices in Alexandria, Cairo and Khartoum, and Amalia Grolli, whose father had been a literary professor from Milan. Marinetti was educated at the Jesuit College of Saint-Françoise-Xavier, an exclusive school for the children of expatriate families, which had an arts oriented curriculum, delivered in French by the Jesuits who ran the school. Whilst his father was always business orientated – a conscientious and practical man, it was his

mother Amalia who instilled in Tom, a love for literature and poetry.¹²⁸ As *Günter Berghaus* points out: ‘both as an expatriate and a woman, Amalia was cut off from the social and cultural life around her. The reading of poetry was her main consolation and, as a mother, she endeavoured to acquaint her sons with a comprehensive body of European literature.’¹²⁹ In *Self-Portrait* (1929), Marinetti fondly recalls that ‘my mother, who was entirely composed of the most delicate, musical poetry of affectionate tears and tenderness, was Milanese. Though born in Alexandria, I feel myself bound to Milan’s forest of chimneys and its ancient Cathedral.’¹³⁰ The last sentence is the most revealing and is indicative of Marinetti’s sense of emotional and cultural displacement at that time. One can imagine how Amalia must have felt, living far from her home town, married to an ambitious businessman, perhaps lonely, without a satisfying social and cultural life. Enrico was happy with his big villa by the sea and his rewarding profession, but Amalia was denied the everyday pleasures of the cosmopolitan life she was used to, and so sought refuge in European art and poetry, sharing it with her beloved sons, especially Tom, who must have been as a sponge, sucking up every last drop. It is in Marinetti’s description of his mother, her ‘affectionate tears and tenderness’, which offers us an empathic understanding of Amalia as a woman inhabited by sadness and love.¹³¹

Marinetti himself demonstrated precocious abilities in the area of arts and humanities: ‘I was just fourteen when Father Bufferne, my Humanities teacher, solemnly announced one day in class that a description of mine, of the dawn, was far superior to any of those written by Chateaubriand, and predicted my glory as a very great poet.’¹³² His creative precocity was matched by his ebullience, his love of controversy, conflict, his desire to

¹²⁸ Tom was his family name. For more information about the various names he used see: Berghaus, *The Genesis of Futurism*, 4, fn.1.

¹²⁹ Ibid., 4.

¹³⁰ Marinetti, *Critical Writings*, 5.

¹³¹ Marinetti, *Critical Writings*, 6.

¹³² Ibid.

shock and his enormous self-belief. He was expelled from the college at seventeen when he published ‘an essay defending Émile Zola and Naturalism against the critics’, in an early edition of *Le Papyrus*, and supported his argument by bringing Zola novels into school.¹³³ If one were to be ungenerous, one might argue that this first assault against creative conservatism was an act of narcissistic self-promotion – an accusation that would be levelled at Marinetti many more times throughout his life. Certainly, Marinetti had such propensities but in this instance his obsession with Zola was likely genuine and, given his young age, a consuming first love.

Marinetti, as a consequence of his education and place of birth, was always both a part of, and separate from, Italian culture. He did not live in Italy until he was twenty and his formal education up to that point had been exclusively French. Despite that, there is no doubt that Marinetti felt profoundly Italian, perhaps in the way that expatriates often are, to the point where he was very sensitive to any slights, real or imagined, against his mother country. He states in *Self-Portrait*: ‘all I ever learned was how to play soccer, and to fight with any of my classmates who said anything against Italy. Many times my terrified mother would find me covered in blood as a result of these furious games.’¹³⁴

Marinetti, aged twelve, was sent by his parents to the recently opened school of the French Jesuits. Its playground – a misnomer if ever there was one – was the site of running battles between boys of different nationalities.... It was the time of the Italo-French trade war and the adolescent Marinetti, violently pro-nationalist and anti-papal was in the thick of the fights.... Back in the school refectory, he was required to read aloud from some pages from a biography of Pius IX, redolent with anti-Italian sentiment. He threw the book in a soup tureen, his first “Futurist’ act.”¹³⁵

¹³³ Berghaus, *The Genesis of Futurism*, 4.

¹³⁴ Marinetti, *Critical Writings*, 6.

¹³⁵ Paul Ginsborg, *Family Politics: Domestic Life, Devastation and Survival, 1900-1950*, (London: Yale University Press, 2014), 140.

Pratella was born in Lugo in 1880, a town in the region of Romagna in northern Italy. He studied music at the Pesaro Liceo Musicale, where his composition tutor was Piero Mascagni. In 1910 he also became a teacher, 'directing the Licei Musicali at Lugo di Romagna (1910-1926) and Ravenna (1927-1945).'¹³⁶ Like Marinetti, Pratella felt he was disadvantaged by his provincial upbringing, yet unlike Marinetti, neither circumstance nor desire conspired to transplant Pratella from Lugo to Paris (the centre of European art and culture), nor indeed Milan (the Alexandrian Marinetti's place of yearning), until called upon by Marinetti to join the Futurism movement in 1910. It is also important to note that once that opportunity presented itself, and whilst he threw himself wholeheartedly into the composition of Futurist manifestos and performances in Futurist *serata*, he never gave up his teaching position in Lugo. Marinetti would not have been so cautious, but then Marinetti lived a very fiscally secure life, which allowed him to pursue his interests single-mindedly.

Benjamin Thorn states: 'In 1909, he [Pratella] won a competition with his opera *La Sina d'Varguõn*, which brought him to the attention of the founder of the Italian Futurist movement.'¹³⁷ Pratella makes much of this prize in *Manifesto dei musicisti futuristi*:

Or è un anno, una commissione, composta dei maestri Pietro Mascagni, Giacomo Orefice, Guglielmo Mattioli, Rodolfo Ferrari e del critico Gian Battista Nappi, proclamava la mia opera musicale futurista intitolata *La Sina d'Varguõn* – su un poema pure mio ed in versi liberi – vincitrice, fra tutte le altre concorrenti, del premio di L. 10.000 destinato alle spese di esecuzione del lavoro riconosciuto superiore e degno, secondo il lascito del bolognese Cincinnato Baruzzi.¹³⁸

A year ago, a commission composed of the masters Pietro Mascagni, Giacomo Orefice, Guglielmo Mattioli, Rodolfo Ferrari and the critic Gian Battista Nappi,

¹³⁶ Thorn, *Francesco Balilla Pratella (1880-1955)*, 380.

¹³⁷ Ibid.

¹³⁸ Pratella, *The Manifesto of Futurist Musicians*, (1911).

proclaimed my Futurist musical work entitled *The Sina d'Varguon* – based on a free verse poem of mine, the winner, among all the other competitors, of a prize of 10,000 lire, that was intended for costs linked to the execution of the work, recognized as superior and worthy, according to the bequest of Bolognese Cincinnato Baruzzi. [my translation]

The rest of the manifesto is an acerbic critique of the contemporary Italian music scene, ‘with a vitriolic attack on Giacomo Puccini, and a call for modernism.’¹³⁹ As stated, in keeping with other Futurist manifestos of the pre-war period, Pratella condemns the offices of Italian tradition. It is then ironic that Pratella dismisses the very individuals responsible for awarding him his composition prize – exponents of the *verismo oeuvre*.¹⁴⁰ Inspired by French Naturalism, *verismo* was a post-Romantic style, which sought to use the lives of ordinary people for their operatic themes. Despite Pratella’s assertion that *La Sina d'Varguon* was a ‘Futurist musical work’ based on a self-composed free verse poem, it was still very much in the style of *verismo*.¹⁴¹ Throughout his life, Pratella was obsessed with Italian folk singing and indeed *La Sina d'Varguon* was inspired by his fascination with indigenous song. Why Marinetti should have been motivated to invite Pratella to join the Futurist movement based on this work is questionable. Of course, this was 1910, or possibly December 1909, when Marinetti was still very much a *vers libra* late Symbolist poet and perhaps the 1913 Marinetti would not have been so impressed, nor indeed, put so much effort into recruiting Pratella, the music teacher from Lugo.

Perhaps it was because Marinetti saw potential in Pratella, or he empathised with Pratella’s insecurity regarding his provinciality. Perhaps it was because of Zola, Marinetti’s first literary love in Alexandria. Zola was an exponent of *verismo* or Naturalism

¹³⁹ Thorn, 380.

¹⁴⁰ In opera, *verismo* was a late-Romantic form associated with composers like Umberto Giordano and Giacomo Puccini and Pietro Mascagni. It had its origins in the literary movement of the same name, which itself was inspired by French Naturalism, as practiced by Zola – an early influence on the schoolboy Marinetti, who was expelled from his Jesuit school in Alexandria for bringing Zola novels into school.

¹⁴¹ Rather like the rest of his composition work, including his Futurist opera, *L'aviatore Dro* (1911-1914).

in its literary incarnation. Whilst Marinetti would have officially dismissed *verismo* as an example of passéist Italian traditionalism, one could argue that his long-standing and genuine affection for Zola stayed his hand.

But it was not only Zola's depiction of French society and, in particular, of the lower strata of society, that interested Marinetti. He was "obsessed", as he called it, with Zola, the chronicler of the Modern Age.¹⁴²

His desire to place art within the centre of Italian cultural and political life meant that Marinetti would have seen *verismo* as possibly an antecedent of Futurism. He would have recognised enough to understand that the thirty-year old Pratella was a work in progress, to be encouraged and directed towards Futurism. Both men were reluctant to fully dismiss their mentors and childhood influences. Marinetti could criticise neither Zola nor his Symbolist, free verse mentor Gustave Kahn in his manifesto *Nostri maestri simbolisti, gli ultimi amori della luna*. (We Abjure our Symbolist Masters, the Last Lovers of the Moon, 1911)¹⁴³ Marinetti described both figures as 'the great precursors of Futurism'.¹⁴⁴ Pratella, whilst chiding his old composition tutor Pietro Mascagni for his traditional values and his adherence to *verismo*, nevertheless praises him for his stance on publishers:

Unico Pietro Mascagni, creatura di editore, ha avuto anima e potere di ribellarsi a tradizioni d'arte, a editori, a pubblico ingannato e viziato. Egli, con l'esempio personale, primo e solo in Italia, ha svelato le vergogne dei monopoli editoriali e la venalità della critica, ed ha affrettata l'ora della nostra liberazione dallo czarismo mercantile e dilettantesco nella musica. Con molta genialità Pietro Mascagni ha avuto dei veri tentativi d'innovazione nella parte armonica e nella parte lirica del melodramma, pur non giungendo ancora a liberarsi dalle forme tradizionali.¹⁴⁵

Pietro Mascagni, at one time a pet of the publishers, is alone in having had the spirit and power to rebel against the art's traditions, its publishers, and its

¹⁴² Berghaus, *The Genesis of Futurism*, 4.

¹⁴³ Marinetti, *We Abjure Our Symbolist Masters: The Last Lovers of the Moon*, (Florence: Le Futurisme, 1911).

¹⁴⁴ Rainey et al, *Futurism: an Anthology*, 93.

¹⁴⁵ Pratella, *Manifesto dei musicisti futuristi*, (11 January 1911).

deceived and depraved public. By his personal example, the first and only one in Italy, he has revealed the shameful publishing monopolies and the venality of the critics, and has hastened the day of our liberation from the commercial and dilettantish czarism that rules music. With real genius he has brought forward true attempts at innovation in the harmonic and lyrical dimensions of opera, even if he still hasn't freed himself from traditional forms.¹⁴⁶

It should be noted that Kahn and Mascagni were instrumental in recognising the work of their respective protégées. Mascagni was one of the judges for the 10,000 lire prize, in the form of a bequest by Cincinato Baruzzi, which Pratella won in 1909.¹⁴⁷ This thesis has already discussed the confusion amongst researchers like Lombardi, Berghaus, Rainey and Kahn regarding the date of Marinetti's first encounter with Pratella. Given the temporal shifts required to facilitate that conflicting, even tortuous timeline, the most likely date the two first met was December 1909 when *La Sina d'Varguõn* was first performed.

L'esecuzione avvenuta nel dicembre 1909 nel Teatro Comunale di Bologna, mi procurò un successo di grande entusiasmo, critiche abiette e stupide, generose difese di amici e di sconosciuti, onore e copia di nemici.¹⁴⁸

The performance, executed in December 1909 at the Teatro Comunale in Bologna earned me a success of great enthusiasm, some abject and stupid criticisms, generous defenses by friends and strangers, honor, and an abundance of enemies. [my translation]

This seems apposite considering that the *Manifesto dei musicisti futuristi* was originally published in *Il nuovo teatro* in November 1910. It was subsequently issued as a pamphlet in both Italian and French in January 1911. Accurate dates are problematic when

¹⁴⁶ Rainey et al, *Futurism: An Anthology*, trans. Lawrence Rainey, 78.

¹⁴⁷ Cincinato Baruzzi studied sculpture at the Accademia di Belle Arti in Bologna, and in 1816 won a prize that let him study in Rome, where he met the neoclassical sculptor Antonio Canova (1757–1822). Upon Canova's death Baruzzi took over his studio, finishing works left incomplete. He was a professor at the Pontifical Academy of Bologna from 1831 to 1868 and left his villa and property to the city of Bologna, establishing a Baruzzi Prize to encourage young painters, sculptors, and musicians. Rainey et al, *Futurism: An Anthology*, 528 fn. 1.

¹⁴⁸ Pratella, *Manifesto dei musicisti futuristi*, (1911).

considering the publication of Futurist works because they were often printed in different languages – principally French and Italian – at different times. Lawrence Rainey dates the *Manifesto dei musicisti futuristi* as 11 January 1911, the date it was printed as an independent pamphlet. This can be seen as unnecessarily confusing and original publication dates should be regarded as the primary point of entry within the public domain.

The twenty-two-year-old Marinetti had been taken under the wing of Kahn, one of the prominent leaders of late Symbolism and the *Vers libre* style, who awarded him ‘the first prize in a national poetry competition which he had organised together with Catulle Mendès. The award winning poem, *Les vieux marins*,¹⁴⁹ was publically recited by Sarah Bernhardt, and Kahn became Marinetti’s mentor.’¹⁵⁰ Kahn was instrumental in introducing ‘his young disciple to the French cultural elite, to newspaper editors and publishers, actors, playwrights and theatre directors.’¹⁵¹ Perhaps Marinetti felt that he, in turn, could mentor Pratella. Undoubtedly, Kahn saw much the same in Marinetti in 1898, as he guided him towards Symbolism and *vers libre*. Now Marinetti could do the same with Pratella. Like Russolo, Pratella proved to be a loyal acolyte between the years 1910-18, despite Marinetti’s ruthless editorial policy. Possibly Pratella felt a debt for the way in which Marinetti sought to guide him, constantly writing to him in Lugo, encouraging him? As Chessa points out:

Pratella was certainly well informed about the latest trends in contemporary music, since Marinetti kept him up to date. Pratella’s rather provincial anxiety about keeping up with the latest musical trends can be deduced from a letter that Marinetti wrote to Pratella on April 12, 1912, to accompany a package of newly published scores that Pratella was requested to study. Marinetti wrote: “I send you everything there is of the most advanced as far as music in Paris.”¹⁵²

¹⁴⁹ Marinetti, “The Old Sailors” (1898), dedicated to Gustave Kahn, in: F.T. Marinetti, *Selected Poems and Related Prose*, (London: Yale University press, 2002), 3-4.

¹⁵⁰ Berghaus *The Genesis of Futurism*, 6.

¹⁵¹ *Ibid.*

¹⁵² Chessa, 51.

The pianist and author of the introduction to *The Art of Noises*, Lombardi

claims to have observed numerous first editions in Pratella's library of scores by Scriabin, Debussy, Ravel, and others, signed as gifts by the xenophilic young Marinetti, who evidently force-fed Pratella with musical novelties as they became available in Paris.¹⁵³

Whilst there is some merit in the argument that Pratella had been inspired by *The Founding and Manifesto of Futurism* (1909) to compose his free verse opera, it is unlikely, given the timeframe. If it is known that Marinetti sent Pratella the latest music scores from Paris, from at least 1910, before Pratella formally joined the movement, it is significant that he continued to do so for years after – up to and beyond the publication of *L'Arte dei rumori*. This suggests Marinetti was constantly attempting to influence Pratella towards producing more radical works. Why Marinetti should go to so much trouble is more of a mystery. Perhaps, equipped with great wealth, Marinetti was able to act according to his nature. Perhaps, replete with a stable of promising writers and painters, and a house journal, he was searching for a house composer for the Futurist *serate* and was prepared, over a lengthy period, to encourage Pratella to adopt the appropriate Futurist positions? Marinetti may have coined the movement's name, but this claim made it conceivable that some might see Pratella, with his 'boyish appearance [and] his gay and happy airs' as the figure most effectively realising the ambitions of the Futurist brand.¹⁵⁴ Whilst one could and should regard Boccioni as the most creatively ambitious Futurist after Marinetti, Pratella certainly needed no instruction about the art of self-promotion, although Marinetti certainly provided such instruction over the years. Having already proclaimed the success of his 'Futurist musical work', which was later performed at Municipal Theatre in Bologna in December 1909, Pratella continues:

¹⁵³ Ibid.

¹⁵⁴ *Gazzetta dell'Emilia*, in: Berghaus, *Italian Futurist Theatre 1909 – 1944*, 121.

Essendo entrato, così trionfalmente, nell'ambiente musicale italiano, in contatto col pubblico, cogli editori e coi critici, ho potuto giudicare con la massima serenità il mediocritismo intellettuale, la bassezza mercantile e il misoneismo che riducono la musica italiana ad una forma unica e quasi invariabile di melodramma volgare, da cui risulta l'assoluta inferiorità nostra di fronte all'evoluzione futurista della musica negli altri paesi.¹⁵⁵

With this triumphal entrance into the world of Italian music, placing me in contact with the public, publishers, and critics, I was able to judge with maximum serenity, the intellectual mediocrity, the mercantile meanness, and the misoneism that have reduced Italian music to a single and almost invariable form of vulgar melodrama, resulting in our absolute inferiority, as opposed to the futurist evolution of music in other countries. [my translation]

With that phrase, 'the futurist evolution of music in other countries', Pratella was, possibly unwittingly, undermining Marinetti as the founder and focal point of Futurism. Whilst it is true that Marinetti himself would often praise the work of writers and artists from other countries as a means of berating the Italian art scene for its parochialism and reliance on past glories, he never labelled them as Futurists. Pratella chose to do just that in his first manifesto and then developed that observation in the preamble of his second, *Musica futurista: Manifesto tecnico*, when he stated:

Tutti gli innovatori sono stati logicamente futuristi, in relazione ai loro tempi. Palestrina avrebbe giudicato pazzo Bach, e così Bach avrebbe giudicato Beethoven, e così Beethoven avrebbe giudicato Wagner. Rossini si vantava di aver finalmente capito la musica di Wagner leggendola a rovescio! Verdi, dopo un'audizione dell'ouverture del Tannhäuser, in una lettera a un suo amico chiamava Wagner matto!¹⁵⁶

All innovators were logically Futurists, in relation to their own times. Palestrina would have thought Bach crazy, and so Bach would have judged Beethoven, and so Beethoven would judge Wagner. Rossini boasted of having finally understood the music of Wagner by reading it upside down In a letter to a

¹⁵⁵ Pratella, *Manifesto dei musicisti futuristi*, (1911).

¹⁵⁶ Pratella, *Futurist Music: Technical Manifesto*, (1911).

friend, Verdi called Wagner mad after listening to the overture to *Tannhäuser*.
[my translation]

This could be interpreted as a direct challenge to Marinetti. Pratella did not perfectly fit the Futurist mould as defined in *The Founding and Manifesto of Futurism*. He redefined the incarnation in his own image by characterizing radical or progressive creative artworks from any era as examples of Futurism. Soon after Pratella published *Musica futurista: Manifesto tecnico*, Marinetti published *Noi rinneghiamo I nostri maestri simbolisti ultimi amanti della luna* (We Abjure Our Symbolist Masters, the Last Lovers of the Moon). In this text Marinetti finally rejects Symbolism – to an extent – and proclaims ‘such illuminating artists’ as Emile Zola, Walt Whitman, Paul Adam, and his mentor Kahn as the ‘great precursors of Futurism’.¹⁵⁷ As far as Marinetti was concerned, these ‘illuminating artists’ were not Futurists. How could they be?

The manifesto can be viewed as the termination of Marinetti’s career as a Symbolist poet. Immediately after writing this piece, in November 1911, he left Italy for Tripoli to report on the Libyan War for *L’Intransigeant*. There he composed the onomatopoeic noises poem *Zang Tumb Tuumb*. This should be regarded as evidence of the creative evolution of Marinetti the artist, yet even so, *Noi rinneghiamo I nostri maestri simbolisti ultimi amanti della luna* can also be read as a criticism of Pratella, particularly of his claim concerning the historical provenance of Futurism. Perhaps criticism is too strong a word, given that Marinetti, in all of his actions concerning Pratella in the years leading up to the publication of *L’Arte dei rumori*, sought to educate, even nurture him. Nevertheless, whether it was his intention or not, Marinetti certainly ‘schools’ Pratella when he unequivocally contradicts this assertion:

¹⁵⁷ Marinetti. *We Abjure Our Symbolist Masters, Last Lovers of the Moon*, (1911).

La storia, agli occhi nostri, è fatalmente una falsaria o, tutt'al più una miserabile collezionista di francobolli, di medaglie e di monete contraffatte. Il passato è necessariamente inferiore al futuro. Noi vogliamo che così sia. Come potremmo riconoscere dei meriti al più pericoloso dei nostri nemici : il passato, lugubre mentore, tutore esecrabile?¹⁵⁸

History, in our eyes, is fatally a forger, or at most a miserable collector of stamps, medals and counterfeit coins. The past is necessarily inferior to the future. We want it to be so. How can we acknowledge any merit in our most dangerous enemy: the past, gloomy mentor, execrable tutor? [my translation]

Of course, Marinetti could simply have altered that text, but one can understand why he chose not to. He had, after all, already added to the conclusions in *Musica futurista: Manifesto tecnico* and besides, Pratella's assertion that musicians of a different age could be regarded as the Futurists of their era was perhaps harmless enough in isolation. However, after the *serata* at the Teatro Rossini in Pesaro on 16 May 1911, a mere two months after the publication of *Musica futurista: Manifesto tecnico*, and despite the presence of Futurist heavyweights Marinetti, Boccioni, Russolo and Carrà, it was Pratella who was singled out for praise: 'Afterwards there was a triumphant procession through the streets with endless shouting of 'Viva Pratella''.¹⁵⁹ Concerns over comparative status were reinforced when Bongiovanni's *Musica Futurista* in 1912 heralded Pratella as the central figure of Futurist music, and Marinetti, by that stage, might well have felt that Pratella was taking more from the Futurist movement than he was contributing. There could be only one leader, and his name was Filippo Tommaso Marinetti.

In light of this, perhaps the critical undercurrent found within *L'Arte dei rumori* was motivated by Marinetti's desire to clip Pratella's wings, discouraging him from taking

¹⁵⁸ Marinetti, *Noi rinneghiamo I nostri maestri simbolisti ultimi amanti della luna*, (Florence: Le Futurisme, 1911).

¹⁵⁹ Berghaus, *The Genesis of Futurism*, 109. Perhaps it was this event that might have prompted Marinetti to discuss in more detail with Russolo his *L'Art dei rumori* ideas and perhaps even encouraged him to move away from *vers libra* free verse to develop his *Parole in libertà* concept.

Futurist ideas for his own professional purposes or indeed, re-branding Futurism. I refer here to a part of *L'Arte dei rumori*, which begins: 'In older times life was completely silent' and concludes: 'thus, the motors and machines of our industrial cities can one day be given pitches, so that every workshop will become an intoxicating orchestra of noises'.¹⁶⁰ This is the manifesto proper, completed at an earlier date and without reference to Pratella. The introduction and conclusion of *L'Arte dei rumori* were clearly written after the *serata* at the Teatro Costanzi in Rome on 9 March because they make reference to the event. It is significant that this criticism is articulated either by Russolo, a painter and dilettante musician rather than another professional composer, or Marinetti, the acknowledged, self-appointed leader of the movement. One might speculate that the author of the contextualising elements of the manifesto, and perhaps the decision to include an extract from Marinetti's onomatopoeic poem *Zang Tumb Tuumb*, came from Marinetti, rather than Russolo. As has already been noted, Pratella claimed that Marinetti augmented his *Musica futurista: Manifesto tecnico* in exactly this way.¹⁶¹ There is no compelling evidence to support such intervention in *L'Arte dei rumori*, but the 'bolted on' quality of these textual inserts suggests that Marinetti exerted a degree of editorial control, as he would also later do with Carrà's manifesto: *La pittura di suoni e rumori e odori* (Painting of Sounds, Noises and Smells, 11 August 1913) and Antonio Sant'Elia's: *Manifesto di architettura futurista* (Manifesto of Futurist Architecture, July 1914). Regardless of whether Russolo wrote it or Marinetti redacted it, it can be suggested that the flattery in the opening paragraph, coupled to the clear assertion that Pratella was the only Futurist capable of practically realising Russolo's concept of noise driven music, was intended to prevent any alienation that may otherwise have resulted from the subsequent criticism of his failure to challenge the conventions of orchestral music.

¹⁶⁰ Russolo, *The Art of Noises*, (1986), 28.

¹⁶¹ Kahn, *Noise, Water, Meat*, p. 374, Cited: Rodney Johns Payton, 15-16.

1.3 Pratella's Detuned Enharmony versus Russolo's Microtonal Glissandi.

But, how could there be enharmonic divisions of scale, as Pratella theorized, when most of the traditional instruments of the orchestra were incapable of delivering them?

Pratella's concept of enharmonic division betrays a lack of Futurist radicalism when he states:

Ma sopra ogni cosa l'enarmonia ci rende possibili l'intonazione e la modulazione naturali e distintive degli intervalli enarmonici, presentemente infattibili data l'artificiosità della nostra scala a sistema temperato, che noi vogliamo superare. Noi futuristi amiamo da molto tempo questi intervalli enarmonici che troviamo solo nelle stonature dell'orchestra, quando gli strumenti suonano in impianti diversi, e nei canti spontanei del popolo, quando sono intonati senza preoccupazioni d'arte.¹⁶²

But above all things, enharmony makes possible the intonation and the natural modulation and instinctive enharmonic intervals, presently unachievable within the present tempered system, that we want to overcome. For a long time, we futurists have loved these enharmonic intervals, which we hear in the false dissonance of an orchestra when the instruments play out of tune and in spontaneous popular songs that are sung without musical training. [my translation]

To Marinetti and Russolo, Pratella's assertions that enharmony could be created just by detuning the orchestra, or by having untrained peasants lustily singing traditional Italian folk tunes, must have been distinctly lacking in Futurist *verve*. The sound of the future was apparently to be achieved with passéist instrumentation and musical primitivism. The Futurists had no objection to Pratella's definition of enharmony, which differs somewhat from the classical Greek conception, where enharmony is the third strand of music theory, the other two being the more familiar chromatic and diatonic scales: "The

¹⁶² Pratella, *Futurist Music: Technical Manifesto*, (March 1911).

enharmonic system was based on a scale obtained from the union of two descending enharmonic tetrachords'.¹⁶³ In its Futurist conception, the enharmonic scale is 'a microtonal musical system that adopts as its compositional material not only every pitch present in the chromatic scale but also all the microtones generated by dividing the octave (and therefore the tone) into infinite parts'.¹⁶⁴ In fairness, Pratella was not actually offering this as a Futurist methodology, but providing an example from within the frame of reference of the likely readers of his manifesto. However, whilst he postulates achieving enharmony in musical performance, he does not present a practical method of its realisation. Russolo and Marinetti needed to find a way of telling Pratella that he was merely tinkering around the edges of Futurist thought.

This insistence on practice is what makes *L'Arte dei rumori* such a radical manifesto. Certainly, the promulgation of noise-art was significant enough, but to it was added the notion that the Futurists felt entitled to tell Pratella publicly that his ideas were not radical enough, even though he was the trained composer when Russolo and his 'Futurist friends' were at best amateurs.¹⁶⁵ A painter would not presume to publicly criticize the compositional techniques of a composer or vice versa, yet *L'Arte dei rumori* does exactly that. The text thus breaks down the conventions of the specialist, technical discipline. For Marinetti and his cohort it did not matter if one was an artist, sculptor, musician, poet or performer because the works an artist created were Futurist works, which could be presented, published or displayed in conventional outlets, or combined within the intermedial environment of the Futurist theatre.

D'altra parte, il suono musicale è troppo limitato nella varietà qualitativa dei timbri. Le più complicate orchestre si riducono a quattro o cinque classi di

¹⁶³ Chessa, 142.

¹⁶⁴ Ibid.

¹⁶⁵ Carrà (painter), Boccioni (painter and sculptor), Soffici (writer and painter), Papini (writer), Cavacchioli (journalist), Marinetti (writer). See Gunter Berghaus, *Italian Futurist Theatre, 1909-1944*, 97.

strumenti ad arco, a pizzico, a fiato in metallo, a fiato in legno, a percussione. Cosicché la musica moderna si dibatte in questo piccolo cerchio, sforzandosi vanamente di creare nuove varietà di timbri.¹⁶⁶

Musical sound is too limited in its variety of timbres. The most complicated orchestras can be reduced to four or five classes of instruments, differing in timbres of sound: bowed instruments, metal winds, wood winds, and percussion. Thus, modern music flounders within this tiny circle, vainly striving to create new varieties of timbre.¹⁶⁷

According to Russolo, the instruments of the contemporary orchestra were refined versions of the primitive tone generators of the past, when sound was ritualized, sacralised and possessed by priests who venerated nature and its cycles.

He states: ‘ancient life was all silence. In the nineteenth century, with the invention of machines, Noise was born.’¹⁶⁸ He argued that, through the technological innovations of the nineteenth century, for the first time in the history of the species, mankind had placed itself above, apart and distinct from the cycles of nature. Man invented sodium lights to turn night into day, and machines of mass production to bear the burden of manufacture. Cities of concrete, glass and iron had replaced villages of stone and wood. Russolo flatters Pratella, praising his ‘overwhelming music’, whilst modestly stating that this new manifesto was simply a ‘logical consequence of your [Pratella’s] marvellous innovations’¹⁶⁹. The implication is that Pratella had not sufficiently distanced himself from the ‘vegetating musical lyceums, conservatories, and academies’ or ‘Italy’s past in its relations with the art and habits of today: an industry of the dead, a cult of graveyards, the desiccation of vital forces.’¹⁷⁰

¹⁶⁶ Russolo, (1913).

¹⁶⁷ Russolo, (1986), 24-25.

¹⁶⁸ Ibid., 23.

¹⁶⁹ Russolo, (1986), 23.

¹⁷⁰ Rainey, et al, *Manifesto of Futurist Musicians*, trans. Rainey, 77-78.

1.4 *L'Arte dei rumori: A Solution in Praxis.*

Certainly *L'Arte dei rumori* was a far more revolutionary document than either of Pratella's manifestos. The *Manifesto dei musicisti futuristi* and *Musica futurista: Manifesto tecnico* criticised the conservative elements within the Italian musical mainstream and 'urged only minor modifications to the twelve tone chromatic scale and a more complex sense of rhythm that would encompass all possible meters'.¹⁷¹ Russolo, in contrast, rejected the use of chromatic, incremental pitch altogether. In a call to arms, which would influence later avant-garde composers like Varèse, Schaeffer and Cage, Russolo declaimed in bold type:

**Bisogna rompere questo cerchio ristretto di suoni puri e conquistare la
varietà infinita dei suoni-rumori.**¹⁷²

We must break out of this limited circle of sounds and conquer the infinite variety of noise sounds.¹⁷³

Significantly, Russolo extols the virtues of noise-sound, and according to Tony Gibbs argues that 'there should be no barriers (or even distinctions) between sounds that have musical or instrumental origins and those that come from the street, from industry or even from warfare'.¹⁷⁴ He does not, however, advocate a new art form based on this aesthetic evaluation of the contemporary world. Instead, Russolo presents this concept of noise art as a development of traditional musical processes. To return to his '6 families of noises', Russolo classifies sound-types, not sounds generated by specific objects and his selection process is centred on the onomatopoeic qualities of the words. This is a reflection of the Futurist concept of *parole in libertà* and Marinetti's *Zang Tumb Tuumb*. The non-specific and non-mimetic character of these sound-types has the effect of creating a

¹⁷¹ Ibid., 18.

¹⁷² Russolo, (1913).

¹⁷³ Russolo, (1986), 25.

¹⁷⁴ Gibbs, *The Fundamentals of Sonic Art & Sound Design*, 22.

distance between them and an urban context, for they do not seem to be exclusively industrial or modern. What makes this list significant are Russolo's assertions that the combination of these 'noises' should form the bedrock of Futurist music and - significantly anticipating the sound design theories of R. Murray Schaffer some sixty years later - that 'selecting, coordinating, and controlling all the noises ... will enrich mankind with a new and unexpected pleasure of the senses'.¹⁷⁵

This leads us to a vital question concerning Futurism's apparently radical conception of sound. Is Russolo's definition of noise in his manifesto directly influenced by earlier reflection? In his preamble, he describes the noises one might encounter with open ears whilst wandering through a modern city:

Attraversiamo una grande capitale moderna, con le orecchie più attente che gli occhi, e godremo nel distinguere i risucchi d'acqua, d'aria o di gas nei tubi metallici, il borbottio dei motori che fiatano e pulsano con una indiscutibile animalità, il palpitare delle valvole, l'andirivieni degli stantuffi, gli stridori delle seghe meccaniche, i balzi dei tram sulle rotaie, lo schioccar delle fruste, il garrire delle tende e delle bandiere. Ci divertiremo ad orchestrare idealmente insieme il fragore delle saracinesche dei negozi, le porte sbatacchianti, il brusio e lo scalpiccio delle folle, i diversi frastuoni delle stazioni, delle ferriere, delle filande, delle tipografie, delle centrali elettriche e delle ferrovie sotterranee.

Let us cross a large modern capital with our ears more sensitive than our eyes. We will delight in distinguishing the *eddyng* of water, of air or gas in metal pipes, the *muttering* of motors that *breathe* and *pulse* with an indisputable animality, the *throbbing* of valves, the *bustle* of pistons, the *sbrieks* of mechanical saws, the starting of trams on the tracks, the *cracking* of whips, the *flapping* of awnings and flags. We will amuse ourselves by orchestrating together in our imagination the din of rolling shop shutters, the varied hubbub of train stations, iron works, thread mills, printing presses, electrical plants and subways. [my italics]¹⁷⁶

¹⁷⁵ Russolo, (1913).

¹⁷⁶ Russolo, (1986), 26.

Russolo's '6 families of noises' are characterised by adjectives similar to those that describe the sensation of mediated noises rather than the noises themselves. He asserts at the very end of the preamble that:

L'Arte dei rumori non deve limitarsi ad una riproduzione imitativa. Essa attingerà la sua maggiore facoltà di emozione nel godimento acustico in se stesso, che l'ispirazione dell'artista saprà trarre dai rumori combinati.¹⁷⁷

The Art of Noises should not limit itself to an imitative reproduction. It will achieve its greatest emotional power in acoustical enjoyment itself, which the artist's inspiration will know how to draw from the combining of noises'.¹⁷⁸

Was this a polemical statement for the Futurist project, or a conclusion based on practical experience? If Russolo had conducted experiments in noise manipulation prior to writing the manifesto, there is no available evidence that he had constructed or attempted to construct a working model. Perhaps the construction of the *intonarumori* did take place within the three months between the publication of his manifesto and his first demonstration of his *scoppiatore* at the Teatro Storch in Modena on 2 June 1913. However, that does not mean Russolo had not been engaged in designing his machines. Indeed, in *Polemiche, battaglie e prime esecuzioni d'intonarumori* (Polemics, Battles and the First Performances), Russolo mentions his 'lunghe e pazienti ricerche di laboratorio' (long and patient research in the laboratory).¹⁷⁹ Again, this suggests a considered process rather than a condensed burst of inspired creativity. Marinetti, enthused by the creation of an authentic 'Futurist instrument' decided to hold another *serata* to introduce it to the Italian public. After the madness of 'The Battle of Rome', Marinetti had initially decided to let the dust settle before embarking on another such event. However, when a venue became unexpectedly available, he changed his mind and it was there that Russolo provided the

¹⁷⁷ Russolo, (1913).

¹⁷⁸ Russolo, (1986), 27-28.

¹⁷⁹ Russolo, (1916), 20.

first public demonstration of his noise-tuner. The *scoppiatore* was constructed of wood, gut, and animal hide, not at all in keeping with the embrace of industrialised modernity. It lacked sufficient amplitude and so, after the publicity generated by Marinetti, the world's first bespoke, enharmonic, continuous noise generator failed to live up to its billing. The aural evocation of industrialised environments needed to contain the frequency range and amplitude of that environment. Acoustic amplification through stretched gut and horn resonators could not hope to generate the sense-consuming situational signposts of urban reality.

The phonograph impressed as an alternative to the recital hall because its reproductive properties meant music became portable. It rendered musical performance egalitarian, since people in their millions could enjoy listening to singers such as Enrico Caruso, whose light tenor suited the limited frequency response of the playback, making him the first recording star. The commercial development of the phonograph had the same effect upon the live music event that the rise of radio had upon the live sporting event. Both escaped from the spatial constraint of the situation. The kinetic emulation of sound effects generators, found in traditional theatre production, were able to have an effect upon an audience because those devices were deployed as part of an audio-visual spectacle, which included lighting, set, orchestral music and dramatic performance. They were also designed to be emulative or mimetic machines, whereas the *intonarumori* were absolutely not. The derision that was poured upon the first performance of Russolo's *intonarumori* by a *passéist* audience was primarily because its expectations had been absurdly frustrated. They had expected loud, powerful mimetic machines of modernity. What they got was what Marinetti would later call a 'philosophical systems' machine that

they drowned out with their mocking laughter.¹⁸⁰

Luigi Russolo inventor of philosophical systems motors artificial skins musical instruments and first intonarumori. In his dormer window he amazes me by boiling paste to replace the latex on the wheels.¹⁸¹

A later chapter examines Russolo's *intonarumori* within performative settings, specifically the Futurist *serate* and the much smaller scale Futurist soirées held in galleries for invited guests, which took place after the cessation of the grand *Serate* in 1914. It is clear, however, that throughout the development of the concept of Futurist noise-art, Marinetti was able to exert a significant influence over both Russolo and Pratella. Of course, as the central figure and inaugurator of the Futurist movement, he was an influence over all of the Futurist elite. However, this influence appears to have been most keenly exerted over Russolo and Pratella. Why this should have been the case is not entirely certain, although it has been pointed out that both men could well have felt the least secure amongst their fellow Futurists. Russolo, the dilettante, with no formal training in either painting or music and perpetually impoverished was a perfect Futurist, willing to be shaped and honed by Marinetti's evolving vision. Pratella, the provincial music teacher, isolated from the great cultural centres of Europe, was also the perfect project for Marinetti's desire to expand the boundaries of Futurism into music. Yet one could argue that Marinetti, for all his enthusiasm, financial support and manipulation, never truly succeeded in transforming Pratella into a Futurist composer. Pratella's supposedly Futurist opera, despite the inclusion of Russolo's *intonarumori*, was not a genuinely Futurist work. Whilst it contained many of the Futurist tropes found scattered throughout the manifestos of the pre-war 'heroic' period of Futurism, it still adhered to the notion of *verismo*, which he had so derided in his *Manifesto dei musicisti futurist*. Its completion marked the end of Pratella as a Futurist. Whilst it was privately premiered a year later to an invited audience,

¹⁸⁰ Chessa, 169.

¹⁸¹ Ibid.

including Stravinsky, Prokofiev, Diaghilew and Massine, it was not publically performed until 1920, two years after Pratella had formally left the Futurist movement.

As stated in the introduction, Russolo has subsequently been both praised and condemned for his *L'Arte dei Rumori*, and yet, of all the polemical and creative works produced by the Futurists, it is this manifesto and Marinetti's *Zang Tumb Tumb* that have influenced future practitioners. However, of the two, it is *L'Arte dei Rumori* that has proved the most influential. This chapter has emphasised the influence Marinetti had over Russolo and has suggested that it was this influence that created the perception amongst some that despite its radicalism, *L'Arte dei rumori* was a missed opportunity. Having disputed that, this chapter also disputes the perception that Russolo was in some manner Marinetti's conceptual plaything. The next chapter argues that whilst Marinetti was an influence on Russolo, this was by no means a one-way street and that Russolo, throughout the development of his *L'Arte dei rumori*, significantly influenced Marinetti's evolution from *Vers libre* Symbolist to the *Parole in Libertà* poet of *rumori*.

Chapter 2: Noise, Sound and Noises.

This chapter deals with the Futurists' creative interaction with noise and how it was defined, conceptualised and performatively realised, in a milieu characterised by new technologies. This is approached primarily through scrutinising the work of Marinetti and Russolo. Marinetti's concept of noise, up to and including the publication of the *Founding and Manifesto of Futurism* in 1909, was in part predicated upon Symbolism's embrace of the linguistic theories of Ferdinand Saussure, whose 1880s Paris lectures proposed that 'language is a system of communication based on social consensus in which meaning is determined by custom and context.'¹⁸² By 1913, Marinetti had refined his concept of Futurist literature to the point where he advocated the abandonment of syntax and promoted his vision of free expressive orthography within words-in-freedom, allowing for the graphological representation of the Futurist poetic declamation in performance.

7. – L'ortografia e la tipografia libere espressive servono inoltre ad esprimere la mimica facciale e la gesticolazione del narratore.

Così le parole in libertà giungono ad utilizzare (rendendola completamente) quella parte di esuberanza comunicativa e di genialità epidermica che è una delle caratteristiche delle razze meridionali. Questa energia d'accento, di voce e di mimica che finora si rivelava soltanto in tenori commoventi e in conversatori brillanti, trova la sua espressione naturale nelle sproporzioni dei caratteri tipografici che riproducono le smorfie del viso e la forza scultoria e cesellante dei gesti. Le parole in libertà diventano così il prolungamento lirico e trasfigurato del nostro magnetismo animale.¹⁸³

7. Free expressive typography and orthography also serve to express the narrator's facial mimicry and gesticulation.

This way the words-in-freedom come to use (and render completely) that part of communicative exuberance and epidermal ingeniousness that is one of the

¹⁸² Michelle Facos, *Symbolist Art in Context*, (London: University of California Press, 2009), 93.

¹⁸³ Marinetti, *Lo splendore geometrico e meccanico e la sensibilità numerica*, (1914).

characteristics of the southern races. This energy of accent, of voice and of mimicry that it revealed only till now in touching ways and in bright conversationalists, it finds its natural expression in the disproportions of the typographic characters that reproduce the grimaces of the face and the sculptural and chiselling strength of the gestures. The words in liberty become so the lyric prolongation and transfigured of our animal magnetism.’ [my translation]

Marinetti’s background as a performance poet is crucial to his conflation of the *recitativo* and published modes of transmission into a single intermedial ‘object’.¹⁸⁴ Saussure believed that ‘the actual mode of inscription is irrelevant’, by which he meant the same word kept its intrinsic meaning regardless of the type of font, and that Marinetti’s primary literary tool, onomatopoeia was an uninspired, imprecise and conventional form.¹⁸⁵

As for authentic onomatopoeic words (e.g. glug-glug, tick-tock, etc.), not only are they limited in number, but they are chosen somewhat arbitrarily, for they are only approximate and more or less conventional imitations of certain sounds cf. English bow-wow and French ouaoua). In addition, once these words have been introduced into language, they are to a certain extent subjected to the same evolution – phonetic, morphological, etc., - that other words undergo ... obvious proof that they lose something of their original character in order to assume that of the linguistic sign in general, which is unmotivated.¹⁸⁶

This statement, posthumously published in 1916, three years after Saussure’s death, places Marinetti in diametric opposition to his earlier Symbolist incarnation, as evinced by his first manifesto. It is argued that Marinetti’s concept of words-in-freedom and his promotion of free expressive orthodoxy in his manifestos and creative works, particularly his journalistic account of the Siege of Adrianople in 1912 and his art book *Zang Tumb Tumb* (1914), was the precursor to our contemporary understanding of creative sound

¹⁸⁴ Within this context, intermediality is the combination and/or integration of separate modes of representation and reproduction. See, Werner Wolf. “Forms of musico-literary intermediality and the place of musicalized literature/fiction as deducible from a general typography of intermediality”, in: *The Musicalization of Fiction: A Study in the Theory and History of Intermediality*. Atlanta: Rodopi, 1999, 53 – 55.

¹⁸⁵ Ferdinand de Saussure, *Cours de linguistique générale* (1915), (Paris: Payot, 1995), 61.

¹⁸⁶ Ibid.

design as a poetic distillation of naturalism. This, within the context of post-production sound design, is the identification of the defining aural components of a geographical location, both in terms of the soundmarks inherent within the visual landscape, and the signal and keynote sounds of Marinetti's immersive, diegetic mimesis.

This concept of creative sound design is distinct from the notion of a sound art insofar as it is predicated upon the inclusion of a visual element, be it the conventional post-production of sound-to-picture, where the mediated aural component supports the visual diegesis; the theatrical performance, where the mediated design supports the visual mise-en-scene, or the radio-play, where the visual component is the product of a hybrid of the listener's imagination and the performed dialogue. Sound art, by comparison, does not require a visual component, nor does it demand a cognitive recognition of physical environment. Of course, whilst sound is the primary medium, it is fundamentally interdisciplinary in nature. Indeed, a recorded sound art work can be track-layed on a visual timeline, transforming it into a non-diegetic noise-sound composition.¹⁸⁷ It is also the case that if you dislocate a sound design from its visual reference and reproduce it within a different environment, for example, an art gallery, then it undergoes a transformative process. The distinction between both disciplines is a thesis in of itself. For the purposes of this argument, sound design must adhere to specific rules of production and reproduction that sound art does not.

Russolo, the painter and musician, though lacking formal training in both, produced his

¹⁸⁷ In the sound art component of my undergraduate Creative Sound Design course, I run two exercises. 'Flesh Mechanic', where my students must create a musique concrète work using only noises they can generate with their own bodies and 'Synaesthesia', where they are required to produce a non-associative abstract work evoking a specific colour of their own choosing. After class playback, where everyone has to guess the colour, I paste their designs onto early avant-garde films. The Flesh Mechanic works are played back under *Ballet Mechanique* (1924/6) by Ferdinand Leger and the Synesthesia pieces under *Lichtspiel: Opus I* (1921) by Walter Ruttmann. The purpose of this is to illustrate the conceptual plasticity of sound art and to test Michel Chion's theory regarding the spatial magnetisation of sound. (see Michel Chion, *Audio-vision: Sound on Screen*, (New York: Columbia University Press, 1994).

noises manifesto, *L'Arte dei rumori*, in 1913. This was the product of at least three years of theoretical development, where he conceptualised three distinct categories of noise: a section of bespoke mechanical noise intoners to be added to the conventional orchestra, a stand alone orchestra of noise instruments, distinct from the conventional symphony orchestra, and an additive process of noise classification through his '6 families of noises', which, according to the French film critic Georges Sadoul, inspired the future Soviet documentary filmmaker Dziga Vertov to establish his 'Laboratory of Hearing' in 1916.¹⁸⁸ Russolo's lack of formal training, and his desire to shift between artistic specialisms, resulted in accusations of dilettantism. His willingness to be subjugated and editorialised by the dominant Marinetti, especially with regard to the events surrounding the publication of *L'Arte dei rumori*, is regarded by critics as indicative of Marinetti's influence over Russolo. Russolo is depicted as a man who experienced an epiphany to create his own concept of noise art, as a direct consequence of the inspiration gleaned from the work and theoretical treaties of both Marinetti and Pratella. Of course, whilst *L'Arte dei rumori* was a far more radical document than anything Pratella produced, one can argue that even as Marinetti was a significant influence over Russolo, this range of influence was by no means a one way street. Marinetti was influenced, if not equally then certainly substantively, by the ideas of Russolo, developed over time, as set down in *L'Arte dei rumori* and subsequent articles and manifestos published between 1913 and 1915 and compiled within *AoN 16*.

This chapter looks at the state of the rapid developments in acoustic aural technology at the time, in terms of inscription, reproduction and transmission, in order to evaluate why Russolo specifically, and the Futurists in general, did not take full advantage of these technologies. The chapter also investigates why Russolo instead chose to develop non-

¹⁸⁸ Georges Sadoul quoted in Lucy Fisher, "Enthusiasm: From Kino-Eye to Radio-Eye", In: *Film Sound: Theory and Practice*, eds. Elisabeth Weis and John Belton, (New York: Columbia University Press, 1985), 248-9.

mimetic, mechanical machines of industrial evocation, employing long redundant mechanical technologies to do so. It then examines the lexicon of aurality, as it was defined in 1913, and the evolution of meaning for these terms, which, it is argued, has resulted in a confusion by later critics about the actions and motivations of Futurist and Modernist practitioners.

2.1 *L'Arte dei rumori, not L'Arte del Rumore.*¹⁸⁹

This history presents problems at all levels, beginning with the fact that, despite the cultural pervasiveness of sound,¹⁹⁰ there was no artistic practice outside music identified primarily with aurality: What took place was required to do so under other practices.¹⁹¹

When Russolo published his Futurist manifesto on the 11th March 1913, he sought to set down a new definition of noise within performative art by making a distinction between what he perceived as post-industrial *noise* and pre-industrial *sound*. In many ways this has led to a vagueness and confusion with regard to the appropriate application of the terminology and the lexicon of mediated 'aurality' of created works of performative art, within Futurism particularly and modernism generally. In fact, his decision to employ the word 'noises' to his concept of music works, through the employment of bespoke noise-intoners,¹⁹² has resulted in an unnecessary conflict between Russolo and the cultural and societal perception of noise. The latter, as defined by Jacques Attali, conceived noise as a sonic or aural intrusion upon the prescribed codes and norms of a specific societal system of communication and interaction.¹⁹³ Whereas Russolo had the intention to

¹⁸⁹ Berghaus in *Italian Futurist Theatre 1909-1944* translates *L'Arte dei Rumori* as 'The Art of Noise', 120.

¹⁹⁰ Douglas Kahn, writing in 1992, uses the term 'sound' as defined by the late Twentieth-century lexicon of aurality. Kahn, "Introduction: Histories of Sound Once Removed", In *Wireless Imagination: Sound, Radio and the Avant-Garde*, eds. Douglas Kahn and Gregory Whitehead, (London: MIT Press, 1992), 2.

¹⁹¹ Kahn, "Introduction: Histories of Sound Once Removed", 2.

¹⁹² *Intonarumori*.

¹⁹³ Jacques Attali, *Noise: The Political Economy of Music*, Theory and History of Literature, Volume 16, trans. Brian Massumi, (Minneapolis/London: University of Minnesota Press, 1985).

incorporate specific non-tonal, textural auditive elements within musical composition and performance.

Indeed, the term *rumore* as defined in the preamble of *L'Arte dei rumori*, is later subverted by Russolo in this text, when after including an excerpt from Marinetti's onomatopoeic journalistic account of the Siege of Adrianople, constructing the conceit that this was an extract from a letter sent to him from the trenches by Marinetti,

Recentemente il poeta Marinetti, in una sua lettera dalle trincee di Adrianopoli, mi descriveva con mirabile parole in libertà l'orchestra di una grande battaglia¹⁹⁴

Recently the poet Marinetti, in one letter of his from the trenches of Adrianopoli, described to me with admirable words-in-freedom, the orchestra of a great battle. [my translation]

Russolo goes on to state that:

Noi vogliamo intonare e regolare armonicamente questi svariati rumori. Intonare i rumori non vuol dire togliere ad essi tutti i movimenti e le vibrazioni irregolari di tempo e d'intensità, ma bensì dare grado o tono alla più forte e predominante di queste vibrazioni. Il rumore infatti si differenzia dal suono solo in quanto le vibrazioni che lo producono sono confuse ed irregolari, sia nel tempo che nella intensità.¹⁹⁵

We want to sing and adjust harmonically these many very different noises. Giving pitches to noises doesn't mean depriving them of all the irregularity of tempo and intensity that characterize their movements and vibrations. The noises in fact differ from the single sound only in so far as the vibrations that produce it are confused and irregular, both in time and intensity. [my translation]¹⁹⁶

¹⁹⁴ The Rainey translation reads 'Recently the poet Marinetti, in a letter written from the Bulgarian trenches surrounding Adrianople, described for me the orchestration of a large battle, rendered in marvelous words-in-freedom.' In: *Futurism: An Anthology*, 136.

¹⁹⁵ Russolo, *L'Art dei rumori*, (1916), 14.

¹⁹⁶ This is my translation and while my Italian is far from comprehensive, some English translations of this text are questionable. For example in Rainey et al, *Futurism, an Anthology*, 133, the Italian text 'noi vogliamo intonare e regolare armonicamente questi svariati rumori' is translated as 'we want to give pitches to these extraordinarily diverse sounds, regulating them harmonically and rhythmically.' In this instance, the decision was made to translate 'rumori' as

Russolo has identified Marinetti's visual evocation of aurality within a specific context as a mediation of *rumore*, through the employment of onomatopoeia and dynamic visual representation. It is an editorial mediation resulting in the identification, isolation and creative recombination of individual *rumori* to create a poetic distillation of location and context. However, when, in the following sentence, he uses the term 'noises' to advocate the adoption of the enharmonic scale in Futurist composition, at this stage, a mediation has not yet been made, merely implied – in this sense, the term 'noises' represents the potential for mediation, through the identification of the strongest and predominant vibrating frequencies. It is a call for a Futurist intermedial expression and evocation of *noises* simultaneously delivered by means of the printed page, through vocal mimicry in Futurist *serate*, through fine art and music performed by the Futurist orchestra of *intonarumori*. With his *parole in libertà* text, Marinetti liberates Russolo's thinking to the point where he understands that what Marinetti achieved in the Siege of Adrianople could be achieved through other means – in this instance, noise-intoners, or noise tuners. As he confidently predicts:

Ecco le 6 famiglie di rumori dell'orchestra futurista che attueremo presto,
meccanicamente.¹⁹⁷

Here are the 6 families of noises of the futurist orchestra that we will effect
soon, mechanically. [my translation]

In order to effectively create such an orchestra, one had to first identify the significant *rumori* within a specific context and create machines to evoke their significant form -to use an abstract-expressionist term. Yet, the reverse argument could also be made, that between the years 1910-13, Russolo was just as influential in persuading Marinetti to

'sounds', for reasons I cannot fathom. The Italian for 'sounds', meaning the production of sound, is 'suoni'.
¹⁹⁷ Russolo, *L'Arte dei rumori*, (1913).

abandon syntax and the traditional compositional aspects of writing, replacing them with onomatopoeic representations of dynamic action. As Russolo states:

Siamo certi dunque che scegliendo, coordinando e dominando tutti i rumori,
noi arricchiremo gli uomini di una nuova voluttà insospettata.¹⁹⁸

We are certain therefore that choosing, coordinating and dominating all the noises, we will enrich mankind with a new, unsuspected voluptuousness. [my translation]

2.2 Noise and Modern Living: Milan, the Electric City.

Music is a herald, for change is inscribed in noise faster than it transforms society.
. . . Listening to music is listening to all noise, realising that its appropriation and control is a reflection of power, that it is essentially political. ¹⁹⁹

The Futurists, in their call for an absolute destruction of all established cultural structures – be it the physical structures of the conservatoires and museums, or the aesthetic and thematic structures of modes of cultural creative endeavour, rendered stultifying in their estimation by the dominance of nineteenth-century arts dogma – understood that ‘noise’ had the potential to provoke such a revolution. Noise was an anathema to existing artistic practice in both visual and auditive terms. Indeed, the fact that there existed bespoke houses of reproduction in the form of art galleries and music recital halls was evidence enough that art and music sought to remove themselves from the noisy reality of the city street. The Futurists’ celebration of noise therefore can be interpreted as their hegemonic ambition to destroy the traditional cultural and political centres of power. It is Futurist noise that becomes the weapon with which they can ‘destroy museums, libraries, academies of every sort’.²⁰⁰ Whatever the motivations behind the championing of ‘noise’

¹⁹⁸ Ibid.

¹⁹⁹ JAttali, *Noise: The Political Economy of Music*, 6.

²⁰⁰ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

as a cultural signifier to be celebrated in Italian contemporary art praxis, it was an effective approach. In her essay, *The Futurist Noise Machine*, Christine Poggi states:

Noise is always experienced as destructuring, because it dissolves existing cultural differences, including the distinctions between message and background, sanctioned harmonies and forbidden dissonances, high and low technologies of sound production or even between programmed or chance effects. The presence of noise in the cultural sphere may evince the immanent, entropic collapse of the code and its system of transmission, such that repressed elements rise to the surface.²⁰¹

One can argue that this definition is appropriate within the context of our perception of noise as a non-specific interruption of communication, whether in relation to the interruption of a signal or the intrusive acoustic soundmarks of a specific environment, which can often be a temporary dissonance to the perceived harmonic distillation of the accepted presence of aurality. As Paul Hegarty states, ‘noise is not the same as noises. Noises are sounds until further qualified ... but noise is already that qualification; it is already a judgement that noise is occurring’²⁰²

If we accept that the definition of silence is not the absence of sound,²⁰³ and that noisy silences are to be found predominantly in urban centres, then, for example, Milanese office workers in 1909, located in a building next to a busy thoroughfare – one of the new arteries linking the developing industrial estates outside the old city walls to the urban heart of Milan, where ‘modern traffic with buses, trams, bicycles, and automobiles was replacing the horse-drawn cart and coach’²⁰⁴ – may not have regarded the constant passing of traffic as an irritant; as a noise. Familiarity with their work environment and the ability of the human mind to block or filter out background noise results in an

²⁰¹ Christine Poggi, “The Futurist Noise Machine.” *The European Legacy* 14:7 (2009): 821 – 40. Accessed 3 April 2010. doi: 10.1080/10848770903363912, 823.

²⁰² Paul Hegarty, *Noise/Music: A History*, (London: Continuum, 2007), 3.

²⁰³ I use ‘sound’ here in its late twentieth-century definition.

²⁰⁴ Berghaus, *Italian Futurist Theatre, 1909 – 1944*, 4.

individual and entirely subjective re-evaluation of how aurality within a prescribed environment affects the physical and emotional state of the individual or group of individuals. In essence, if the message, which in this example is the effective realisation of professional roles and relationships within that workspace, is not interrupted or undermined by the presence of the background – the traffic noise – then it ceases to be noise because it is an *inherent* aurality; an immanent component of both external and internal environments. The situation would be different if a new set of aural resonators were to be introduced to that environment, particularly if the artefacts – the evidence of a new set of soundmarks – were intermittent, or if the perceived resolution were to be in some way amplified. If, for example, these office workers were present when the thoroughfare was being constructed in 1900, with nearby buildings being demolished and the signal aurality of large construction works dominant, then the ‘harmony’²⁰⁵ of location would have been usurped. Whilst the amplitude of these new and temporary soundmarks may not be enough to interfere with the message in physical terms, emotionally, the dissonance of background has a psychological foregrounding and as a consequence, a disruptive effect.

Similarly, if an office worker were to attempt a conversation with a colleague at street level, what once was the harmonic resonance of traffic within the interior office space, will now have become noise because both the context, and the resolution, has changed. Nevertheless, despite this transformation into a perceived intrusive dissonance without an actual transmutation of form, the ‘noise’ that the traffic has now become, interferes with the message because the traffic *rumore* now has an amplitude, which interferes with the conversation. However, this noise preserves an emotive subjectivity - i.e. despite the increase in amplitude, the location is still inherently ‘silent’, especially if the office

²⁰⁵ As the long established signal to noise ratio of that environment.

workers are merely passing time in inconsequential conversation whilst waiting for a tram to arrive to take them home. The approach of the tram has a transformative effect, to the extent that both the aurality of the traffic and the keynote signifier of the approaching tram immediately become the message for the waiting office workers and for Marinetti and his friends, who ‘jumped at the tremendous noise of the large double-decker trams which jolt along outside.’²⁰⁶ As Hegarty points out:

Noise is negative: it is unwanted, other, not something ordered. It is negatively defined [...] by what it is not (not acceptable sound²⁰⁷, not music, not valid, not a message or meaning), but it is also a negativity. In other words, it does not exist independently, as it exists only in relation to what it is not. In turn, it helps structure and define its opposite.²⁰⁸

Poggi concurs:

The relation between music and noise, figure and ground, unity and multiplicity, remains unstable, always in flux. With its murmurs and rumbles, its soft or impinging turbulence, noise invades, filling space and welling up to engulf the pure crests of structured musical sound with its deviant trajectories.²⁰⁹

2.3 A Movement Out of Time... Just.

Critical discourse does badly in dealing with sound as it assumes and insists on the gap between that which it describes and its description – it is the very opposite of sound, which is always the heard, immersive and present. Its language relegates the sonic into a position of attribute: sound is loud, clear, silent or noisy, it is fast or slow, but never is it the noun under consideration. Instead it is sublimated to a visual referent, which mutes its particularity.²¹⁰

The failure of sound art in the twentieth century, the subsuming of aurality within the dominant culture of visuality, indeed the subjugation of sound to image in most areas of

²⁰⁶ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

²⁰⁷ Paul Hegarty defines ‘sound’ here as something other than the manifestation of the performed musical score. It is an essentially post-modern definition of sound, as the classified ‘noises’ of Futurism.

²⁰⁸ Hegarty, 5.

²⁰⁹ Poggi, *The Futurist Noise Machine: The European Legacy*, 823.

²¹⁰ Voegelin, *Listening to Noise and Silence: Towards a Philosophy of Sound Art*, xiv.

creative practice and critical discourse, is one of the more significant artefacts of modernism. Whilst there have been practitioners who sought to express notions of identity and location through representations of aurality, there has never been a consistent synergetic or synchronistic evolution of concept or creative fulfilment of sound art. There is no style guide, no defined, sophisticated or refined orthodoxy. As Voegelin points out: ‘Sounds ephemeral invisibility obstructs critical engagement, while the apparent stability of the image invites criticism.’²¹¹

Whether within the context of art or design, sound in the twentieth-century was the principal domain of the technician, whose singular function was to support the performed or exhibited (visual/dramatic) text.²¹² For example, within commercial professional theatre practice, scenographic *mise-en-scène* sound was virtually non-existent other than certain performative elements that had traditionally been delivered through the eighteenth and nineteenth-century kinetic sound mimetic generators, like wind machines, rain machines and thunder sheets.²¹³ Sound in all other respects was limited to the delivery of spot effects as set down in the script.²¹⁴ These narrative sound effects are regarded as performatively ‘sacred’ because of their inclusion in the stage directions and are accordingly perceived as integral to the authorship of the work.²¹⁵ In this sense, the text defines the narrative visually through character dialogue – which, under no circumstances, should be considered as a manifestation of aurality – and stage directions, which dictate the physical and dynamic occupation of the defined space. Sound directions are usually sparse and rarely contain scenographic aural elements. There are historical reasons as to why this is, for scenographic sound in theatrical production was

²¹¹ Ibid., xi.

²¹² By which I mean, mediated, non-musical noises – what Russolo described as noise-sounds.

²¹³ These machines emulate natural sounds only, i.e. non-industrial/urban sounds.

²¹⁴ Sound effects played at a signal level, usually very brief in duration.

²¹⁵ Narrative sound effects are those that are required in order for the narrative to progress.

not uncommon in the centuries leading up to the Industrial Revolution. Yet when there was a potential demand for scenographic aurality to support productions framed within a context of industrial modernity, the technology was either not available, or not plastic enough to fulfil those demands and would not be in a position to do so until the advent of electrical recording and amplification after World War One. So, at the crucial period when professional theatre was transforming itself from classic theatre production to modern theatre production, ‘designed’ scenographic sound was found to be wanting.

The advent of gas lighting in the first half of the nineteenth-century resulted in increased luminosity and consequently the auditorium was darkened, silencing the audience and transforming them from active/passive participants to voyeurs. Actors, no longer needing to pitch their voices above the din²¹⁶ of the auditorium, modified their declamatory heroic performance techniques and retreated to within the proscenium. Box sets and stage furniture replaced painted canvas backdrops and legs. Costumes, which hitherto had been shabby and generic in the gloomy half-light of oil lamps, became designed according to character, bespoke to the production. By 1889, the year that electric lighting was installed in the Savoy Theatre in London, set designers, lighting designers and costume designers had all been added to the ranks of professional theatre practitioners. Sound designers were absent from this list because technology had yet to transform the processes of production for sound in theatre. The only fundamental difference between theatre sound in 1813 and 1913 was that in the nineteenth century theatre sound could evoke the contemporary world, but by the twentieth it could not, and had not for some decades. Theatre practice, for all its pretence of radicalism and experimentation around its edges, is one of the most conservative of art forms of the post-industrial age and throughout the early twentieth century. In the 1910s, when

²¹⁶ ‘A loud continued noise; *especially*: a welter of discordant sounds’, the Merriam-Webster Dictionary.

Marinetti and Russolo were writing their manifestos linking auralty with speed, danger and dynamism, conservative theatre dominated.

The reality of the situation in the first decade of the twentieth-century was that aural technology had yet to catch up with visual technologies. Theatre practitioners between 1890 and 1990²¹⁷ would first explore any visual method of defining location and environment before considering an aural scenographic solution, and any aural scenographic construct included in a production was almost invariably merely a very backgrounded effect employed only when visual design elements could not fully achieve an adequate level of semiosis.²¹⁸ This artistic conservatism was most exaggerated in theatre practice, yet within western art the inability of sound to realise itself as a physical construct is perhaps the reason why, as a mode of communication, it is secondary to visual art and its analogue – music, into which sound was subsumed.

If modernism failed to engage with sound as a singular mode of artistic endeavour, the responsibility cannot be placed at the door of Futurism, which whilst perceived predominantly as an artistic movement within modernism, was more of a syncretised chimera comprising of modernism, or at least the unqualified embracing of modernity, and, initially at least, Romantic Symbolism. Particularly with regard to the failure of language to adequately reflect contemporary environments; the concept of future music as defined by Russolo and the experiments by Futurist artists such as Severini, Balla and Boccioni to visually depict sound (noise) as a spatial and dynamic aspect of velocity.

Richard Taruskin, in *Text and Act: Essays on Music and Performance* (1995), regards avant-

²¹⁷ As a former professional theatre sound designer, I would argue that such prejudice remains to this day. I use the 1990s because by this time repertory theatre had all but gone and many productions were now taking place in fringe venues, where there was little budget and no scene dock. Scenographic sound emerged as a practical alternative to sets and flattage.

²¹⁸ Typically, seagulls and distant waves for beach scenes and cicadas for night scenes set in warm climates – usually Lorca plays. Again, these are almost invariably pre-industrial sounds.

garde music in the early twentieth century as a form of late Romanticism:

Reinterpreted in this light, the noise artists' aim of allowing the machine to embody the essence of life was a romantic rather than a modern ambition. Even the significance that these and other proponents of machine music attributed to mechanical precision, expressed a romantic ideal. The precision they expected of machines gave voice to the composers' intentions, thereby reiterating the Romantic enthronement of the autocratic and infallible composer-creator.²¹⁹

Despite suggesting an alternative motivation in '*L'Arte dei rumori* and the Futurist Elite', this chapter considers how this notion of the 'autocratic and infallible composer-creator' in pre-neo-classicist avant-garde music was perhaps a contributing factor in Russolo's seemingly obsequious closing rhetoric of *L'Arte dei rumori*:

Caro Pratella, io sottopongo al tuo genio futurista queste mie constatazioni, invitandoti alla discussione. Non sono musicista: non ho dunque predilezioni acustiche, né opere da difendere. Sono un pittore futurista che proietta fuori di sé in un'arte molto amata la sua volontà di rinnovare tutto. Perciò più temerario di quanto potrebbe esserlo un musicista di professione, non preoccupandomi della mia apparente incompetenza, e convinto che l'audacia abbia tutti i diritti e tutte le possibilità, ho potuto intuire il grande rinnovamento della musica mediante *L'Arte dei rumori*.²²⁰

Dear Pratella, I commend today to your Futurist genius, my findings, and invite you to debate them with me. I am not a musician and therefore I have no acoustic predilections, nor works to defend. I am a Futurist painter who is using a much-loved art to project my determination to renew all. Which is why, more daring than any professional musician could be, not worrying myself about my apparent incompetence and convinced that boldness possesses all rights and seizes all possibilities, I could perceive the great renewal of music by the Art of Noises. [my translation]

²¹⁹ Bijsterveld, *Mechanical Sound: Technology, Culture and Public Problems of Noise in the Twentieth Century*, 167.

²²⁰ Russolo, *L'Arte dei rumori*, (1913).

The Futurists' obsession with modernity did not always translate to an unequivocal embrace of contemporary technology. Indeed, the two greatest Futurist contributions to a modern conceptual approach to sound art and sound design, *L'Art dei rumori* (11 March 1913) and *Parole in Libertà*²²¹ (11 May 1913) were practically realised through the employment of pre-industrial technologies. Russolo's *intonarumori* were hand cranked mechanical devices. Some models did employ electrical cranking, particularly those intended to evoke engines in operation, but most were hand cranked, often plucking a taut cable attached to a resonating drum head, positioned within the resonating housing, behind the acoustic amplifier. Attached to the cable would be a lever, positioned on the top of the resonating box/housing to manually increase the tension of the cable, altering the tonal frequencies of the drum head by stretching the drum skin, and so affecting an enharmonic change in frequency.²²² On some models, the lever was calibrated to specific frequencies through a series of notches. This enabled the operator/musician to shift the lever from one defined frequency to another, creating what Russolo described as a 'micro-tonal' system (fig. 7). *Zang Tumb Tumb*, Marinetti's art book published in October 1914, was printed with a typesetting machine. However Marinetti's dust cover design employed font styles and perspective positioning that the typesetter was unable to replicate and so the pre-Gutenberg technology of wood-cut printing was used, much like the Elizabethan political and religious pamphlets and manifestos five hundred years earlier.

²²¹ 11 May 1913 is the publication date of Marinetti's *Destruction of Syntax – Radio Imagination – Words in Freedom*. However, it is in the *Technical Manifesto of Futurist Literature* that Marinetti first lays out in detail his concept of Wireless Imagination and where he first coins the phrase Words in Freedom: 'After free verse, here at last are words in freedom!' Marinetti, *Technical Manifesto of Futurist Literature*, However, I chose to highlight the later manifesto because whereas Marinetti employs the term *noise* in 1912, by 1913 he uses the term *noises*.

²²² Frequency = Pitch. Conventional drummers 'tune' their drum-kit by increasing or decreasing the tension of the drum skin. They do this by using adjusting screws positioned around the tension ring, which also seats the skin over the resonating box of the drum body. The tighter the tension, the higher the frequency. The *intonarumori* design is very similar although the drum skin is already seated and an initial tuning accomplished before the cable is attached to the centre of the skin itself.

It is very tempting to provide a retrofitted reading of these problems because we now possess the technology and the processes of production to practically realise these projects and others during this period. But it would be inaccurate to suppose the Futurists felt any sense of technological frustration. We recognise their ambition because, as Futurist philosophies and methodologies have become easily achievable in the post-modern digital world, Futurism has become more relevant within contemporary art practice. It should be of little surprise that interest in *L'Arte dei rumori* increased significantly after the commercial release of The Fairlight Mk.1 Music Computer, the first digital sampler in 1978 (see fig. 10. in Appendix 1: The *noise-sound* technology timeline.)

When evaluating the relative successes or failures of the Futurist movement to realise their ambition in relation to the classification and creative application of 'noises' within their *oeuvre*, it is vitally important to observe that the very concept of a designed aural environment – whether it be the graphological representation of a reported sound, or a Futurist orchestra made up of pre-dominantly acoustmatic instrumentation performing a score exclusively composed for such an orchestra – had previously never been seriously contemplated, certainly not in terms of a physical or practical outcome. Futurists defined the future of art and music, even if they were not fully capable of fully realising this definition in practical terms. In consequence, the processes they developed should not be regarded in any way as ad-hoc or remedial. There is, however, somewhat of an irony when one understands that both Russolo's experiments in instrument manufacture, required to realise his vision of a bespoke Futurist orchestra and Marinetti's experiments with the delivery of journalistic tone-poetry through the dynamic representation of sounds as printed text, resulted in a return to entirely obsolete pre-industrial techniques of construction and that, in order to promote and create the template for future-art, they had to re-discover the tools of the past. From the Renaissance to the Restoration, the

technology employed by the Futurists pre-dates the passèist cultural dominance they were so inspired to destroy. Yet when one considers the Futurists' experimentation with noise-sound and the importance that they placed upon the dynamic depiction of a noise driven modernity, it would be easy to make the assumption that they sought to rise above the limitations of contemporary audio technology, an ambition which subsequently proved to be unattainable in so far as, with regard to the practical approach to the creation and delivery of sound art, it seemed that Futurism was a movement out of time, imagining a process of creative expression that had yet to fully emerge. The concepts they devised required a technological world of electricity and steel, whilst they lived in the last days of steam and iron. In essence, a product of the first Industrial Revolution,²²³ they anticipated the second.²²⁴ Futurism was in a prolepsis of what was to come, contained within a denunciation of all that had gone before.

Comparing the artistic utilisation of the mechanical recording of the objects of the two major senses, that is sight and hearing (what John Cage calls the public senses), we can note a remarkable historical lapse: approximately 100 years between the eyes and ears, a rather severe mutation that has neither cultural nor physiognomic equal.²²⁵

In the purely practical and performative senses, and with reference specifically to sound 'art' rather than to sound 'design', or the visual evocation of noise and sound in Futurist fine art, this is indeed an ostensibly valid argument. The Futurists failed to effectively realise their ambition to establish a cohesive approach to the creation and delivery of designed aurality or 'noise-art'. There are a number of reasons for why this might have been the case, the most obvious being the stem-cell stage of contemporaneous technological developments in the field of audio electronics and subsequently the availability of electronic amplification as well as forms of storable and, significantly,

²²³ A mechanical engineering revolution

²²⁴ An electronic engineering revolution

²²⁵ Kahn, *Audio Art in the Deaf Century*, 3.

editable media. Lee de Forest, an American inventor, Yale graduate and ‘father of the electronic age’,²²⁶ invented the first power valve (triode) the year before Marinetti published his *Founding and Manifesto of Futurism*. However, it wasn’t until de Forest perfected the continuous wave arc in 1913 that the electronification of the gramophone, the birth of commercial radio and sound on film was made technically feasible and it would be a further ten years before this process of electronic amplification of the acoustic signal became commercially viable. Consequently, the first wave of Futurism (1909-18) was denied the opportunity to apply the technology that defined the twentieth century. Less than ten years after the publication of *L’Arte dei rumori*, Hungarian painter, photographer and future professor in the Bauhaus school László Moholy-Nagy could confidently state:

Among present day musical experiments, an important role is played by researches conducted with amplifiers which open up new paths in the production of acoustic phenomena. The aims of the Italian Bruitists (Russolo and others), in constructing new instruments with new sound formations, have been substantially fulfilled by experiments with the amplification tube as a specific instrument which permits the production of all sorts of acoustic phenomena.²²⁷

Whilst this technological gap appears the most salient reason for why the Futurists were deemed to have ultimately failed in their stated ambitions, this is not necessarily the case. Indeed, one might query whether the Futurists did immanently fail in their ambitions, because without doubt a significant proportion of the critical evaluation of Futurist works rely upon a retrospective analysis, illuminated by subsequent experimentation and an establishment of modes of designed auralities as set down by later practitioners like Edgard Varèse, Moholy-Nagy, Pierre Schaeffer and Cage, all of whom imprisoned sound within music. They were aided by their access to a much more established and proven

²²⁶ Ibid. Forest also called himself the ‘father of radio’, which was the title of his autobiography in 1950.

²²⁷ László Moholy-Nagy, “Production-Reproduction: Potentialities of the Phonograph (1922/3)”, in: *Audio Culture: Readings in Modern Music*, eds. Christoph Cox and David Warner, (New York: Continuum, 2004), 331 – 333.

technology of electronic aural acquisition, editorial mediation and playback. For these practitioners, there already existed a naissance concept of sound as art, which was as necessary a foundation to the aesthetic and conceptual development of non-visual auditory creative practice, as the camera obscura was to the advent of photography. When Moholy-Nagy stated that the ‘Italian Bruitists’ aims had been ‘substantially fulfilled’, thanks to the ‘amplification tube’, he implied that ‘(Russolo and others)’ had substantially failed.²²⁸ It would be wise to accept this statement with caution given that Moholy-Nagy’s primary motivation for this essay was to promote the gramophone as an electronic musical instrument. The greatest criticism he offered was the limited flexibility in performance or operation. Molholy-Nagy was of the opinion that such instruments should be capable of a fast attack - analogous to the force lines in painting to depict dynamic vibration - by which he meant that one should be able to generate aurality immediately. The design of the *intonarumori* precluded this functionality and so the aurality generated by these machines was slow – like a fade in. The gramophone’s ability to both trigger a fast attack, and to reproduce what Guillaume Apollinaire called ‘auditive reality’,²²⁹ would not be applied musically for some decades, with the work of Cage, who first employed the gramophone in *Imaginary Landscape No.1* (1939)²³⁰ and Pierre Schaeffer’s pre-tape musique concrete experiments with gramophones in the immediate aftermath of World War Two.



²²⁸ Ibid.

²²⁹ Guillaume Apollinaire, *The New Spirit and the Poets*, (1918).

²³⁰ *Imaginary Landscape No.1* – For two variable speed phono turntables, frequency recordings, muted piano and cymbal.

Fig. 1. The envelope signature of a relatively fast attack, such as a piano note. It has a quick decay and a long sustain, whilst the key remains depressed, and a moderate release. The *intonarumori* has a slow attack as the operator gets up to speed, no discernable decay, the sustain level remains constant whilst the machine is being operated with a fast decay, once the operator has stopped moving the handle situated at the rear of the instrument.

Attack - The time it takes for the note to reach the maximum level.

Decay - The time it takes for the note to go from the maximum level to the sustain level.

Sustain - The level while the note is held.

Release - The time it takes for the note to fall from the sustain level to zero when released.

Moholy-Nagy's assertion was very much a music-centric concept of phonography, which did not include a notion of a process of noise classification and the concept of designed aurality, separate and distinct from sound as a component of music, both of which are to be found within Russolo's 1913 manifesto. Even if the acoustically amplified and mechanically driven *intonarumori* failed to effectively evoke the industrial and urban landscape, the argument for noise-sound generators, however imperfect their design, was placed within the public domain. Even if later practitioners effectively rejected Russolo's ideas regarding the creative application of noise-forms without incarnating such performed aurality through an imitative or mimetic process, the fact that there was a philosophy of sound art to argue against is perhaps one of the greatest triumphs of Futurism. As Marianna Torgovnick observes 'that the "truest greatness" of the modernists may lie "in their aspirations after ideas and alternative modes of being whose time had not yet come."' ²³¹

It will not be through a succession of noises imitating those of life, but through a fantastic combination of the various timbres and rhythms that the new orchestra will achieve the newest and most complicated aural emotions. For that purpose every instrument will have to offer the possibility of varying its pitch, or will need a more or less extended range.²³²

²³¹ Marianna Torgovnick quoted in Richard Sheppard, *Modernism – Dada – Postmodernism*, (Illinois: Northwestern University Press, 2000), 20.

²³² Russolo, *L'Arte dei rumori* (1913).

The contribution made by the Futurists, not only to the development of a twentieth-century sound art, but also an engagement with sound across a range of creative practices, should not be underestimated. As stated, there was: ‘approximately 100 years between the eyes and ears’,²³³ which means there was a hundred-year gap between the establishment of photography and recorded actuality as accepted art forms. Right at the start of that century of conceptual aural hiatus came the Futurists. It is significant that unlike photography, phonography had no creative provenance. The issues with, as Edison called ‘phonology’, was that it emerged from a cultural vacuum – there had been no precedent for its existence, unlike photography which, as Kahn states, benefitted from ‘the tenure of other mass produced forms. The photographic mode of literacy, in other words, was predisposed long before the widespread availability of photography proper and, therefore, its social embeddedness preceded phonography to an even greater extent.’²³⁴

2.4 The Limitations of Futurism & Technology.

Russolo and Marinetti’s practical approaches to the reproduction of ‘noises’ were therefore largely dictated by the embryonic stage in the development of apposite technologies. The processes of production with regard to the acquisition and subsequent delivery within a creative context of auditive reality were simply not in place. Of course, the phonograph/gramophone and the typesetter were both commercially available at the turn of the twentieth century. Whilst these devices would appear at first sight to be ideal technology in the realisation of Futurist public works, there were fundamental problems with both of these technologies. The gramophone was a rigid medium, for it was not

²³³ Kahn, *Audio Art in the Deaf Century*, 3.

²³⁴ *Ibid.*, 1.

possible to edit the recorded actuality, nor could you deliver this recorded actuality within a performance environment at an appropriate amplitude, given the thematic context of urban driven and industrial aurality. Indeed, if one were to set aside these performative limitations, one might still argue that the gramophone and phonograph were ill suited to fulfil the role of the engines of mediated noise-sound and sound art, having already been appropriated, even by this early stage in their development, to the dissemination of traditional popular music forms. Whilst it is the case that Pierre Schaeffer's initial experiments with *musique concrète* involved the manipulation of closed groove gramophone discs, he nevertheless swiftly moved to open reel magnetic tape, as soon as that technology became commercially available.

The tape recorder, a technology that emerged from the Second World War, benefited from a far greater plasticity in terms of editorial mediation and manipulation.

Fundamentally, it was always primarily a production tool, as opposed to the gramophone, which was a reproduction tool. As a consequence, the tape recorder was perceived as an enabling technology, its flexibility allowing to transform the way music was recorded, altering the notion of the recording studio, from the capture of a live performance within controlled acoustic environments, to a creative and multi-tracked/multi-faceted entity, separate and distinct from the live performance. The Beatles were the pioneers of the creative studio space as a place for sonic experimentation, taking the practices of composers such as Schaeffer and Stockhausen and applying them to popular music. They benefitted directly from the work of avant-garde composers in the same way that the tape recorder benefitted from the creative provenance of a concept of sound art praxis that had developed subsequent to the publication of *L'Arte dei rumori*. Neither the gramophone nor the phonograph enjoyed

such a provenance, and from the futurist viewpoint, potentially they could have been perceived as the very engines of passéism. As Seth Kim-Cohen points out:

Audio recording, despite Edison's best intentions and predictions, has prospered primarily as a conveyor of a pre-existent form of art and entertainment. Music didn't come into being with recording. Instead, recording technology was trained upon music and used to disseminate and corporatize it.²³⁵

The typesetter was more flexible and entirely suited to the demands of a commercial publishing industry. However, whilst you could alter fonts and font sizes, presented in regular, bold and italic typefaces, it was difficult to position text in perspective or at any angle other than vertically or horizontally. Marinetti certainly pushed the technical limitations of the typesetter to the extreme, yet in 1914 it lacked the functionality to realise Marinetti's design for the front and back covers of *Zang Tumb Tumb*.

In order for anything to be regarded as art, there must be an element of mediation and control. One must be able to employ an editorial process. What the Futurists required in the first decades of the twentieth century, in order to achieve their creative goals, was an electronic amplifier and magnetic coil speakers.

Amplification increases the range of the audible, both in terms of breadth (variety of sounds to be heard) and depth (distance of audibility).

Phonograph and gramophone technology is entirely bound up with amplification (whether through horns, circuits or chips), and amplification is not just behind transmission; it *is* transmission.²³⁶

Electronic amplification became commercially available after World War One.²³⁷ Indeed,

²³⁵ Seth Kim-Cohen, *In the Blink of an Ear: Towards a Non-Cochlear Sonic Art*, (London: Continuum, 2009), 102.

²³⁶ Hegarty, 24.

the first great modernist musical instrument, the theremin, which was invented in 1918, was the first electronic acoustmatic instrument that relied on electronic amplification to produce an audible sound from the frequencies generated by the musician.²³⁸

One of the great questions about the Futurists unequivocal embrace of industrial modernity is why they so often failed to recognise it when it was placed directly in front of them. Perhaps the best example of this was their initial rejection of photography, specifically the Bragaglia brothers concept of *fotodinamismo futurista* (futurist photodynamics 1911), which was inspired by the work of Muybridge and the French photographer and bio-physicist Jules-Étienne Maery. The essay *Fotodinamismo futurista*, written by Anton Giulio Bragaglia in 1911 and published in *Lacerba* in 1913, argued that photodynamism was different from conventional photography, which was static, and was more similar to Maery's chronophotography, which depicted physical movement through a series of exposures upon a single plate. According to Poggi, Bragaglia maintained that:

Every stage of a movement is linked to every other stage, without the gaps or intervals that shatter the enduring identity of an object. He further claims that photodynamic distortion and dematerialization are proportional to the speed of the moving object, so that by increasing its speed, one can achieve greater synthesis, derealization, and lyricism, ultimately revealing the spiritual essence (or vibration) of an object.²³⁹

Bragaglia never specified the techniques employed to achieve *fotodinamismo*, possibly because it was his brother Arturo, rather than himself, who was the accomplished

²³⁷ Although it would not be until de Forest's patent for the continuous wave arc, which was a number of his Audion power vacuum tubes linked together in series, that commercial radio and sound on film became viable. However, power amplification was possible using just a single Audion tube and electronic sound machines began to emerge in the late teens and early twenties. The most significant of which was the theremin. See footnote below.

²³⁸ Invented in 1918 by Russian scientist, Professor Léon Theremin, (patented in American and licensed to RCA in 1928.) The electric signals from the theremin are amplified and sent to a loudspeaker.

²³⁹ Christine Poggi, "Introduction to Part Two", in: *Futurism: an Anthology*, eds. Rainey et al, 314.

photographer. The Bragaglia brothers' work is similar to chromophotographic techniques insofar as both depict movement caught in transition. Bragaglia was rather dismissive of Marey's work, suggesting it was best suited to teaching gymnastics. Each image captured by Marey was sharply focussed and opaque, with up to twelve images captured on the same frame. This was the technique of rapid multi-image exposure, using flash powder lighting and partial negative masking – i.e. the masking would shift proportionately with each flash, across the negative, exposing only a portion of the negative frame to prevent earlier images becoming increasingly insubstantial with each subsequent exposure. The Bragaglia technique was most probably a single long exposure in ambient light, where the subject would hold still in one pose and then move to a second pose, often travelling from the right of the image to the left. The rate of transition from one static state to the next generated different visual manifestations of dynamic movement. With Marey, one views a series of static images depicting an object in motion, whereas *fotodinamismo* captured the dynamic act of varying rates of physical velocity, represented by both sharp and blurred images. Despite being invited to join the Futurist movement by Marinetti, urged on by an enthusiastic Balla, the brothers' membership was to be short lived. Boccioni, the de-facto leader of the Futurist painting division, was openly hostile to *fotodinamismo*, believing that photography, in all its manifestations, was 'merely [a] mechanical means of capturing objective appearances [and as such was a] threat to the creative power of the true artist.'²⁴⁰ Basically, photography could only capture movement through a linear sequence of images – a cheap light show with no genuine artistic force behind it. This is perhaps a defensible statement when comparing the work of Boccioni with that of Marey, yet this accusation is more problematic when evaluating examples of *fotodinamismo*. As Enda Duffy points out:

²⁴⁰ Ibid.

Boccioni followed Rodin in believing that sculptors should work to represent the movement of a figure between two poses; it was in representing this version of the *durée* that the artist betters the photographer. . . . In this sense, Boccioni's work resembles the early accounts of car speeds by observers on the roadside, astounded by this new force hurtling by.²⁴¹

It could be argued that *fotodinamismo* was capable of achieving exactly this representation of movement, where two static poses are linked by the blurred image of the subject shifting from one pose to another.



Fig. 2. Anton Bragaglia *Cello-violinist* (1911)

The images produced by Bragaglia, such as *Cello-violinist* (1911) fundamentally undermine Boccioni's argument. This is not a series of still images depicting movement, but a

²⁴¹ Enda Duffy, *The Speed Handbook: Velocity, Pleasure, Modernism*, (London: Duke University Press, 2016), 172.

dynamic representation of action. The movement of the left hand across the fretboard of the instrument in a sense compresses the temporal frame of an act of performed music into an instant, and it is expanded and returned to its original temporality through its reception. The actions of the right hand across the bridge depict dynamic movement, generating force lines of velocity as the bow is scrapped across the strings. The head and body of the musician remains static, representing his first position. Movement, as represented by the multiple images of the arms and hands, juxtapose the static and still body as a depiction of concentration across a longer timeframe, with the temporally dynamic multiplicity of the processes of the production of musical sound. Boccioni could not have failed to comprehend this as a legitimate example of his own ideas contained within his published manifestos of this period, particularly *Forme uniche della continuità nello spazio* (Unique Forms of Continuity in Space) published in 1913. Perhaps Boccioni believed that photography was simply not a legitimate visual art, or perhaps he felt that such photographic techniques were simply just too easy to achieve. It is indicative of Boccioni's authority within the Futurist elite that despite the firm support of Balla, the Bragaglia brothers were formally expelled from the Futurist movement in 1914 in what could only be described as a passèist act.

The other principal example of the Futurists rejecting or ignoring technological developments that would have helped them realise their creative ambitions must be, as mentioned earlier, the thereminvox (theremin). One could argue quite strongly that although Russolo's *intonarumori* was the first example of a practically realised noise instrument, the first true modernist musical instrument was the theremin, which had its first public performance in the Soviet Union in November 1920, the year that Marinetti was invited by the Society for Great Lecturers to give a series of eight lectures in Moscow and St Petersburg. Yet never once do any of the Futurists mention it in any

manifesto or any correspondence found during the research of this thesis. In an interview conducted by Olivia Mattis in 1989, Leon Theremin was asked if he had any association with the Futurists:

Theremin: When I made the first instrument, with the first method of regulation, the character of the sound it could create surpassed all the abilities of all the instruments then in existence. So that's why I considered that composers should write new music for this new timbre, and that in addition to knowing traditional musical techniques, that they had to know new ones. So, in this respect, I thought that there would be progress in the world of instruments, as well as the world of composition.

Mattis: Now I would like to ask you about the artistic world. Did you know the Futurists?

Theremin: No.

Mattis: Neither the Italians nor the Russians?

Theremin: No. No.²⁴²

At first glance it seems almost inconceivable that an enharmonic acoustmatic instrument, powered and amplified electronically, requiring no physical touch to operate it, should be so ignored by the Futurists. Yet by 1920, Russolo was far less active in the Futurist movement and was still suffering from ill health after the serious head wounds he received during the war.²⁴³ His concept of noise-sound art was solely focussed on mechanical processes to evoke the evidential and experiential modes of both industrial modernity and the natural world, as defined by his '6 families of noises'. The theremin was a product of the electronic age and produced a new 'tone' – a sine tone, in point of fact. It did not look to emulate the industrialised world because it was, of itself, created from the world that was soon to come. It was manifestly electronic, whereas Futurism, for all its propaganda, was manifestly acoustic, insofar as its self proclaimed embrace of the future, was always about recognising the present through the destruction of the suffocating past. Yet even though the theremin is an instrument that generated a new

²⁴² Leon Theremin, Interview by Olivia Mattis in Bourges, France, 16 June 1989.

²⁴³ Russolo underwent a medical procedure called 'trepanning', where a portion of the skull is completely removed and replaced with a metal (usually silver) cap, permanently fixed to the skull, before the skin was allowed to cover it once more. For a detailed account of the Futurist's experiences during the First World War, see: Serena Daley, *Italian Futurism and the First World War*, (London: Toronto University Press, 2016).

‘tone’, rather than a noise-sound, it is hard to reconcile Futurist proclamations regarding music with their total failure to recognise a new musical instrument, the product of, or at least, the precursor to, the electronic age. As with Boccioni’s hostility towards photography being raised to the status of art – resulting in the expulsion from the Futurist movement of the Bragaglia brothers, despite the clear evidence that photodinamismo was capable of dynamically manipulating time and space within a single visual object – neither Russolo nor, less understandably, Pratella demonstrated any interest in the possibilities of the theremin. It would be some years after Boccioni’s premature death in 1916 before Marinetti and the Futurists acknowledged photography as a creative Futurist art form. The theremin would never receive that recognition. In retrospect, it would appear that Marinetti was entirely prescient when he stated in *The Founding and Manifesto of Futurism*:

When we are forty, others who are younger and stronger will throw us into the wastebasket, like useless manuscripts. – We want it to happen! ... They will find us, at last – one wintry night – in an open field, beneath a sad roof drummed by monotonous rain, crouched beside our trembling airplanes and in the act of warming our hands by the dirty little fire made by the books we are writing today, flaming beneath the flight of our imaginings.²⁴⁴

2.5 Creating Order with Chaos: Industrial Noise to Futurist Noises 1909 – 1913.

The terminology employed in Futurist manifestos reflect the common usage of existing words, especially ‘noise’ and ‘sound’, which in 1909 had very specific meanings, and which have since become widened to accommodate the evolution and development of cultural practices in western civilisation. In 1909 ‘sound’ almost exclusively meant the aural emanations generated by musical instruments operated by a trained practitioner. Sounds were tonal, whether produced by a single instrument or the polyphonic delivery

²⁴⁴ Marinetti, *The Founding and Manifesto of Futurism*, 1909.

of the performed score and its multiplied reflections within the recital space by the orchestra. The purity and sanctioned sacrament of the word ‘sound’ is reinforced by definitions of that word within different contexts.

Here are some of the definitions for ‘sound’ contained within the 1913 edition of Webster’s Dictionary:

1. Whole; unbroken; unharmed; free from flaw, defect, or decay; perfect of the kind; as, sound timber; sound fruit; a sound tooth; a sound ship.
2. Founded in truth or right; supported by justice; not to be overthrown or refuted; not fallacious; as, sound argument or reasoning; a sound objection; sound doctrine, sound principles.
3. Undisturbed; deep; profound; as, sound sleep.
4. The perceived object occasioned by the impulse or vibration of a material substance affecting the ear; a sensation or perception of the mind received through the ear, and produced by the impulse or vibration of the air or other medium with which the ear is in contact; the effect of an impression made on the organs of hearing by an impulse or vibration of the air caused by a collision of bodies, or by other means; noise; report; as, the sound of a drum; the sound of the human voice; a horrid sound; a charming sound; a sharp, high, or shrill sound.

The warlike Sound

Of trumpets loud and clarions.

- Milton.²⁴⁵

So, it seems, sound is very much the Abel to noise’s Cain: the sacred versus the profane.

In the Futurist lexicon of auralità, sound means ‘tone’ – the aural emanation of sanctioned musical artefacts – the instruments of the symphonic orchestra. This was an anathema to Marinetti and Russolo and, by 1913, the rest of the Futurist elite. Noise though – that was intrusive, unsanctioned and linked to power in all its manifestations. So for Marinetti in 1909, the wealthy boy racer, noise meant thrilling velocity and, to quote a Beat poet from fifty years into the future:

²⁴⁵ These are some of the definitions for ‘sound’ contained within the 1913 edition of Webster’s Dictionary.

A minute holds them, who have come to go:
The self-denied, astride the created will.
They burst away; the towns they travel through
Are home for neither birds nor holiness,
For birds and saints complete their purposes.
At worse, one is in motion; and at best,
Reaching no absolute, in which to rest,
One is always nearer by not keeping still.²⁴⁶

2.6 *Noise and The Founding and Manifesto of Futurism.*

Sussultammo ad un tratto, all'udire il rumore formidabile degli enormi tramvai a due piani, che passano sobbalzando, risplendenti di luci multicolori, come i villaggi in festa che il Po straripato squassa e sràdica d'improvviso, per trascinarli fino al mare, sulle cascate e attraverso i gorghi di un diluvio.²⁴⁷

Suddenly we jumped at the tremendous *noise* of the large double-decker trams which jolt along outside, shimmering with multicolored lights, like villages on holiday which the flooding Po suddenly strikes and uproots, dragging them all the way to the sea, over waterfalls and through gorges.²⁴⁸

- The Founding and Manifesto of Futurism (1909).

As Enda Duffy states:

The dream of destroying the notion of artistic distance that had been based on a classical perspectival scheme was indeed imbued with a “tragic lyricism,” because in Marinetti’s original manifesto in *Le Figaro*, it could only, notoriously, be imagined as a car crash, albeit a glorified one, in which the uninjured Futurist mechanic artist enjoys the communion of metal and mud in the “infernal ditch” into which he dries his car.²⁴⁹

In Marinetti’s *Founding and Manifesto of Futurism* noise was employed as a weapon against

²⁴⁶ Thom Gunn, "On the Move" from *Collected Poems*. (New York: Farrar, Straus & Giroux, 1994)

²⁴⁷ Marinetti, *Fondazione e manifesto del futurismo*, (1909).

²⁴⁸ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

²⁴⁹ Duffy, *The Speed Handbook: Velocity, Pleasure, Modernism*, 52.

the seemingly intractable traditionalism of Italy's cultural past. Within this context, noise was an evidentiary component of industrial modernity, symptomatic, an adjective to dynamic urban auralty and the evidence of velocity. So, it was 'the tremendous *noise* of the large double decker trams' which jolted the 'friends' from their reverie, confronting them with the dichotomous subjective 'gloomy' silence of the 'prayers muttered by the old canal and the bones of ailing palaces'.²⁵⁰ It was the 'famished automobiles roaring beneath the windows' that provoked these friends, with Marinetti in the vanguard, into action.²⁵¹ It is noise, or rather, technologised noise and its adherence to speed and velocity, which acts as a provocation to this action. If the past is metaphorically realised through the muttering liturgy of the canal, then the present, with a route map to the future, is represented by the 'famished automobiles'.²⁵² If the past is a gloomy silence, then the future is speed, adrenaline and amplitude. Marinetti evokes noise as the audio-visual dynamism of daring acts, replacing the sedentary and ordered practices with the chaos of adventure, careening with death on its shoulder. And so, noise was to be celebrated as a positive force because of its evidentiary connection with industrial processes, including industrialised war. Yet Marinetti also used noise as a weapon against the traditional passéist cultural practices of a nation imprisoned within a glamour cast by its Classical and Renaissance past. At this stage in the Futurist evolution, Marinetti employs noise, very much in the Attalian sense where 'noise is an eruption of violence, a destruction of the code, and an attack on the norms of the social domain in which it operates'.²⁵³ Attali believes that 'all cultures associate noise with pollution or dirt, and experience it as a weapon, desecration, or blasphemy'.²⁵⁴ This encapsulates Marinetti's ambition in 1909 precisely. However, if noise was initially employed exclusively as a

²⁵⁰ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

²⁵¹ Ibid.

²⁵² Ibid.

²⁵³ JAttali, *Noise: The Political Economy of Music*, 23.

²⁵⁴ Ibid., 27

weapon against the dominant hegemony of traditional Italian art, then logically, it must also become transformed into the status of Futurist art. This begs the question as to whether noise, the inhibitor of the message, the unsanctioned dissonance to the harmony, could ever become the message in and of itself.

The function of noise as an aural resource, ‘organising’ the world, or as an enharmonic musical instrument capable of evoking an emotive, non-mimetic sense of industrialised modernity and, as a graphological and performative representation of a distilled poetic deconstruction of a specific environment as a reflective process of aural recollection, would later emerge under the influence of Russolo as Futurism sought to commodify the evidentiary aspects of modernity, from the reaction against traditional creative practices into the creation of new art forms and methodological practices. However, all of these practices would involve the filtering process of mediation and critical reflection, an anathema to the notion of noise as an unsanctioned profanity. As Poggi states:

The futurist use of noise operates according to this double logic. Its promotion of noise to the status of art functions both to attack prevailing cultural norms, now deemed outmoded, and to proclaim a newly mechanized, intensified order of aural sensations.²⁵⁵

However noise, as an attack on ‘prevailing cultural norms’ in the *Founding and Manifesto of Futurism*, was not yet an attempt by Futurism to promote noise ‘to the status of art’. Nor was this a promotion of unmediated noise as a condition of art. Marinetti’s use of ‘noise’ is itself a conscious mediation, an adjectival descriptor of industrial and mechanized kinetic action, evincing velocity and power. The noise, which drove the languid Marinetti and friends from the passéist environs of the apartment he inherited from his father – still decorated to his father’s oriental tastes – and into the streets, was not noise in the

²⁵⁵ Poggi, *The Futurist Noise Machine*, 828.

sense that it is unsanctioned and unknowable. In this instance, it is employed to describe the aural emanations from the passing trams in a very traditional way. Indeed, in the modern vernacular, one might just have easily employed the word ‘sound’ – ‘the tremendous *sound* (*din*) of the large double-decker trams.’²⁵⁶ This is not an issue merely of semantics. Throughout the manifesto, Marinetti employs the word ‘noise’ when today he might have used the word ‘sound’, because in the twenty-first-century lexicon of aurality, whilst the definition of unclassified noise remains unchanged, associative noise – isolated and intrinsically linked to an ‘object’, for example a visual manifestation of action, be it direct or in recollection – loses its noise status. It has become classified and so is transformed into a ‘sound’. We employ adjectives to quantify these sounds within a subjective context – noisy, a racket, a din. Therefore an associative sound can contain attributes of noise without ever losing its status as a sound, even when it is the ground, which inhibits the message.

My attempt to overhear the muttered conversation down by the canal, was undermined by the sound of three sports cars roaring/barreling/hurling down the road.

My desire to take a short afternoon nap was defeated by the sound of my neighbour cutting his grass with that big old noisy/chuntering lawnmower of his.

Consequently, it is important to evaluate aurality through the lexicon of Futurist terms, for the Futurists never attempted to create art from noise – they only ever attempted to create art from sound, as we understand the term to mean today.

For Marinetti, who introduces noise as a positive force in his founding manifesto in 1909, and for the Futurist movement in general, noise is a weapon with which to attack

²⁵⁶ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

the Italian cultural status quo. Futurist noise is the mirror image of passéist noise, which was defined much in the way it has subsequently been set down by Attali in *Bruit: l'économie Politique de la Musique*, as a de-structuring, dissonant force inhibiting the communication of the message.²⁵⁷ As Poggi observes: "The presence of noise in the cultural sphere may evince the immanent, entropic collapse of the code and its system of transmission, such that repressed elements rise to the surface."²⁵⁸ For Marinetti, noise, the enemy of harmony, would later become 'one of the most dynamic elements of Futurist poetry. Noise is the language of the new human-mechanical life.'²⁵⁹ Except, of course, one must then question whether Marinetti's mediated onomatopoeic mimesis is still noise. Indeed, this is a paradox insofar as noise, the fundamental inhibitor of the message, and initially used as such by Marinetti when he was still a *Vers libre* Symbolist poet, is transformed into a language, a principal conveyor of the message. If the figure or ground becomes the message, if dissonance is employed as harmony, what then becomes of harmony? Is it destroyed? Are we, as twenty-first-century citizens, living in the digital age, guilty of applying high modernist and post-modern definitions to evaluate processes devised in the acoustic age?

Noise is tricky because it is subjective and ever changing – or rather, the definition of silence within the cultural sphere is ever-changing. Silence, as we define it today, is very different to the silence of the eighteenth century. Indeed, philosophically there is no silence that is not a condition of noise, for silence is not the absence of sound.²⁶⁰ One might argue that Cage's 4'33" illustrates silence as a condition of sound and that we define silence constantly and individually by defining it by the sounds which surround it. If one were to trawl through the Futurist manifestos published between 1909 and 1912,

²⁵⁷ Attali, Jacques. *Noise: Political Economy of Music*, 47.

²⁵⁸ Poggi, *The Futurist Noise Machine*, 823.

²⁵⁹ Marinetti, "Manifesto of the Futurist Dance", in: Rainey et al, 236.

²⁶⁰ That would be 'mute'. It doesn't exist as a totality.

one would find that aurality, as a creative aspect of Futurism, is not present because the term *noise* is entirely adjectival in its employment, when it is employed at all. Indeed, it would be three years before Marinetti approached the concept of noise as a creative discipline in his *Technical Manifesto of Futurist Literature* (1912), where he states:

1. Noise (a manifestation of the dynamism of objects);
2. Weight (the capacity for flight in objects);
3. Smell (the capacity of objects to disperse themselves).

Whilst Marinetti had evolved as a creative practitioner from the free verse Symbolist, to the art-action destroyer of syntax – he had abjured his Symbolist masters in *Le Futurisme* in 1911²⁶¹ – his concept of noise had not. Noise, a manifestation of the dynamism of objects, is ideologically identical to his employment of that word in 1909. Indeed, in 1912, as in 1909, the automobile still ‘roars’, although in this instance it is a metaphorical roar to describe the actions of a machine gun:

Ah yes! little machine gun, you are a fascinating woman, and sinister and divine, at the steering wheel of an invisible hundred-horsepower engine that roars with explosive impatience. Oh! surely you will soon leap into the circuit of death, to a shattering somersault or victory!²⁶²

And so in the *Founding and Manifesto of Futurism*, noise is the adjective employed to describe instances of dynamic action. It is only used twice – ‘the tremendous *noise* of the large double-decker trams’ and ‘Death, domesticated, was overtaking me at every turn, gracefully holding out a paw, or sometimes stretching out on the ground with a *noise* like that of grating jawbones, casting me velvety and tender looks from every puddle.’²⁶³ This is intriguing insofar as its mediation is the construct of a singular image. He does not say ‘the noise’ of the city, generic and multiplied.

²⁶¹ Marinetti, *We Abjure our Symbolist Masters: The Last Lovers of the Moon*, (1911).

²⁶² Marinetti, “Technical Manifesto of Futurist Literature”, in: Rainey et al, 107-19.

²⁶³ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

The audio/visual artist Bill Viola would later describe this manifestation of urban auralty as the ‘undersound’ of the city, perhaps unconsciously adapting the musical term ‘underscore’ – a musical composition designed to emotionally underscore a visual diegesis – to describe multiplied and reflected sounds generated by the city, when viewed from a distance. It is fundamentally a synaesthetic analogy because for Viola this is not an Attalian noise, intrusive and de-structuring, but a contextualising influence upon which extra detail can be added in close perspective. The Viola ‘undersound’ is more akin to the wash of colour applied to a watercolour landscape painting. In a sense, this manifestation of auralty could be described as an urban post-industrial archetypal sound-colour wash.²⁶⁴ Of course, Viola’s art is not inherently urban; rather it deals with immersion within wide, empty spaces filled with Cagean subjective silences. With Viola, one gets the sense that they have walked from the city into an adjacent place and this perception of the city is one of emotional and geographic displacement, where the urban undersound is a keynote signifier of the silence they inhabit. Marinetti’s experience was quite the reverse. He travelled from the relative, agrarian silence of Alexandria to the streets of Milan and Paris.²⁶⁵ He embraced the dynamism of the ‘modern city’, from his self-confessed drinking and whoring as a student in Paris,²⁶⁶ to his presence on the barricades in Milan during the ‘Events of May’ in 1898. For Marinetti, noise equalled the dynamism of living an urban life. It was the ‘roar’ of the automobiles which provoked Marinetti and friends from their Symbolist contemplation of *La Conquête des étoiles*

Our chests swelled with immense pride, for at that hour we alone were
still awake and upright, like magnificent lighthouses or forward sentries

²⁶⁴ Rhys Davies, “The Frequency of Existence: Bill Viola’s Archetypal Sound”, In: *The Art of Bill Viola*, edited by Chris Townsend, (London: Thames and Hudson, 2004), 142 - 58.

²⁶⁵ I accept that Alexandria was not ‘silent’ in terms of generated amplitude. In this instance, I am making the distinction between subjective and perhaps ‘noisy’ silence of Alexandria, with the compact urban ‘noise’ of an industrialised European cultural centre.

²⁶⁶ F.T. Marinetti, “Self-Portrait”, in: *Critical Writings*, 7.

facing an army of enemy stars that eyed us from their encampments in the sky.²⁶⁷

From that point on, aurality is inherent only within the visual imagery. Noise is not mentioned again, yet in those two instances, Marinetti associates it with speed and death. It is, however, an undoubtedly noisy manifesto, contrasting the ‘muttering’ of the canal and the ‘creaking’ of the ailing palaces with the ‘roaring’ of the automobiles. The roar achieves the status of a secular immanence throughout the rest of the manifesto’s preamble by virtue of the fact that Marinetti and his friends then race the automobiles through the cobbled streets of Milan, where the noise of the racing engine, whilst not commented upon directly, is nevertheless always ontologically present. Marinetti and his friends inhabit the present – and they exist only in the present for they are living in the ‘now’ – to confront the past. If the ‘muttering’ canal is the papacy and the ‘ailing palaces’ represent the monarchy, disgraced by the actions of Umberto I, then the ‘two bicyclists right in front of me, cutting me off, as if trying to prove me wrong,’ likely represent the two dominant Italian politicians of the age, Crispi and Giolitti, the corrupt curators of the *Risorgimento*, champions of the past, of the monarchy, self-serving opponents of the *nuovo*. Marinetti, the ‘secular anarchist-socialist who wanted to rid Italy of the papacy and what was perceived to be the inertia and powerlessness of parliamentary democracy,’²⁶⁸ swerves to avoid this obstacle, which for so long had proved an insurmountable barrier to young artists seeking out new modes of expression, and flips his car into a ditch. He, like others before him, had been defeated by the passéist forces of traditionalism, the ague of Italian society in all of its cultural manifestations.

Marinetti’s apparent demise at the hands of the two bicyclists, the very antithesis of the

²⁶⁷ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

²⁶⁸ Marjorie Perloff, “The First Futurist Manifesto Revisited”, In *Rett Kopi: Manifesto issue: Dokumenterer Fremtiden*, (2007), 152-6.

dynamism of velocity, further underscores the frustration of Italian artists unable to rise above the perpetrated cultural myths of the *Risorgimento*. The notion that speed is a spiritual force, when manifest as power, would be a central tenet of Futurist polemics and intermedial creative practice. As Lista states: ‘Rejecting any and all metaphysical systems, Futurism replaced the goddess Reason by “the new religion of speed,” the emanation of the expanding cosmos of the industrial city.’²⁶⁹ Yet Marinetti emerges from beneath his upturned Fiat, reborn as The Futurist, a carapace of industrial waste, like armour, inuring him from the careless ministrations of an Italy infatuated by its own past. Of course, Marinetti is also somewhat infatuated by his own past, as the fictionalisation of his own experience of a motorcar accident on the 15 October 1908 serves to cast him in a much more heroic light. Whereas, in his manifesto he has to swerve to avoid two cyclists, in reality it was just the one. Rather than emerging triumphant from the seemingly fatal crash, covered in mud and industrial waste products, he was in fact rescued from his crash by two racing car drivers who worked at the Isotta and Fraschini factory.

Oh! materno fossato, quasi pieno di un'acqua fangosa! Bel fossato d'officina! lo gustai avidamente la tua melma fortificante, che mi ricordò la santa mammella nera della mia nutrice sudanese... Quando mi sollevai - cencio sozzo e puzzolente - di sotto la macchina capovolta, io mi sentii attraversare il cuore, deliziosamente, dal ferro arroventato della gioia!²⁷⁰

Oh! Maternal ditch, nearly full of muddy water! Fair factory drain! I gulped down your bracing slime, which reminded me of the sacred black breast of my Sudanese nurse. . . . When I climbed out, a filthy and stinking rag, from underneath the capsized car, I felt my heart – deliciously – being slashed with the red-hot iron of joy!²⁷¹

²⁶⁹ Giovanni Lista, *Futurism*, trans. Charles Lynn Clark, (England: Art Data, 1986), 19.

²⁷⁰ Marinetti, *Fondazione e manifesto del futurismo*, (1909).

²⁷¹ Marinetti, *The Founding and Manifesto of Futurism*, (1909).

In reality, Marinetti was not alone in his racing car and both he and his mechanic, Ettore Angelini, suffered only minor wounds, indeed Marinetti was transported directly to his apartment, having only received ‘a scare’.²⁷² Angelini was taken to hospital to treat his minor wounds. The local newspaper, the *Corriere della sera* reported the event, presenting a very different account:

This morning, a bit before noon, F. T. Marinetti was heading down Via Domodossola in his car. The vehicle’s owner was at the wheel accompanied by a 23-year-old mechanic Ettore Angelini. Although the details of the incident remain sketchy, it appears that an evasive manoeuvre was required by the sudden appearance of a bicyclist, and resulted in the vehicle being flipped into a ditch. Marinetti and mechanic were immediately rescued by two racecar drivers from the Isotta and Fraschini factory, Trucco and Giovanzani, each in his car. Marinetti was transported to his apartment by the former and seems to have received little more than a scare. The mechanic was taken by Giovanzani to the institute on Via Paolo Scarpi, where he was treated for minor wounds.”²⁷³

There is little doubt that Marinetti, in retrospect, was entranced by his own daring, to the extent he chose to use a version of it to illustrate his new literary school. The factual account printed the next day compares poorly to Marinetti’s heightened memories of that event, and so rather than being driven home after experiencing a fright, the Futurist Marinetti constructs a more dynamic conclusion. As Duffy observes: “The Futurists’ first assumption was that the force of movement and speed needed necessarily to be embodied. From the start, Marinetti was interested in speed, not as an abstract, and not as an element “always behind your back” as Deluze claims that Bergson represents movement, but only as it is embodied in the clamouring, active artist himself.”²⁷⁴

²⁷² Poggi, *Inventing Futurism: The Art and Politics of Artificial Optimism*, (London: Princeton University Press, 2008), 8.

²⁷³ Ibid.

²⁷⁴ Duffy, *The Speed Handbook: Velocity, Pleasure, Modernism*, 172.

Once his automobile had been pulled out of the ditch by ‘a crowd of fishermen armed with hooks’, he was able to start it up again and continue. ‘And so, our faces covered with the good factory slime – a mix of metallic scum, useless sweat, heavenly soot – our arms bruised and bandaged, we, still fearless, have dictated our first intentions to all the living men of the earth.’²⁷⁵ Marinetti, seeking the future and confronted by the oppressive and repressive past, survives the ordeal, renewed, reborn as a machine-man Adam, and spoiling for the fight. As Duffy states:

The dream of destroying the notion of artistic distance that had been based on a classical perspectival scheme was indeed imbued with a “tragic lyricism,” because in Marinetti’s original manifesto in *Le Figaro*, it could only, notoriously, be imagined as a car crash, albeit a glorified one, in which the uninjured Futurist mechanic artist enjoys the communion of metal and mud in the “infernal ditch” into which he drives his car.²⁷⁶

2.7 Marinetti’s Noise and Russolo’s Noises.

Marinetti’s interaction with noise is therefore quite mainstream. He does not pursue it within this, or later manifestos, as a condition of art in any significant sense until after Russolo publishes *L’Arte dei rumori* on the 11 March 1913. It is noteworthy that it was at that point that Futurist ‘noise’, as a condition or even symptom of industrial modernity, became ‘noises’. It is generally thought that it was Marinetti who influenced Russolo and inspired him to consider noise-art, yet there appears to be no direct evidence of this apparent one-way street of influence and it is perhaps Marinetti’s philosophical, financial and charismatic dominance of the movement that provokes this assumption. Russolo did not have the force of personality that other Futurist directors had. Marinetti, Boccioni, Carrà, Severini and Pratella, with whom Russolo had most affinity, were all strong

²⁷⁵ Marinetti, *The Founding and Manifesto of Futurism*, 1909.

²⁷⁶ *Ibid*, 52.

personalities.



Fig. 3. From left to right: Luigi Russolo, Carlo Carrà, Filippo Tommaso Marinetti, Umberto Boccioni and Gino Severini in front of Le Figaro, Paris, 9 February 1912

Russolo, by comparison, was taciturn. One need only read the account of his performance at the Teatro Storchio on 2 June 1913, when he, along with his assistant Piatti, unveiled his *intonarumori scoppiatore* to two thousand spectators, where he read out his manifesto ‘with a feeble and thin voice.’²⁷⁷ This was a man who had already participated in at least ten *serate*²⁷⁸ since joining the movement in 1910 and would have been only too aware of the confrontational nature of Futurist performance events. He had, according to Berghaus, declaimed ‘speeches on Futurist painting’ as early as 1911 and so, whilst not necessarily being in the vanguard of Futurist performers, nevertheless, held his own and played his part.²⁷⁹ Yet at the Teatro Storchio, that experience seems to have deserted him. Perhaps this apparent crisis in confidence had afflicted all of the Futurists who habitually performed at these events, worn down by the increasingly

²⁷⁷ Berghaus, *Italian Futurist Theatre 1909-1944*, 120.

²⁷⁸ His first was at the Teatro Mercadante in Naples, 20 April 1910, where Boccioni declaimed the *Manifesto of Futurist Painters*. Berghaus, *Italian Futurist Theatre 1909-1944*, 100.

²⁷⁹ Berghaus, *Italian Futurist Theatre 1909-1944*, 105.

hysterical reaction of audiences to each Futurist *serata*. Perhaps it was the fact that Marinetti had scheduled this *serata* when only one of the *intonarumori*, the *scoppiatore*, had been constructed. In a letter to Pratella, dated 31 May 1913, Marinetti stated that ‘Russolo has constructed a machine which imitated the noise of a motor.’²⁸⁰ This statement directly contradicts Russolo’s assertion in *L’Arte dei rumori* that the ‘Art of Noises must not be limited to an imitative reproduction.’²⁸¹ However, it was a machine instrument designed to evoke the aural sensation of a motor engine and was perceived negatively as such by the audience who shouted: ‘It’s all a cheat! Open the box! You are imitators and passeists!’ And perhaps most damningly, ‘Why listen to a fake noise when we can hear the original sound on the street?’²⁸² Apollinaire would make a similar criticism of Marinetti’s onomatopoeic noise poetry in *L’Esprit et les Poètes* (1917), when he stated: ‘Why would anyone want to verbally imitate worldly sounds ... when auditive reality will always be superior?’²⁸³

Perhaps the source of Russolo’s disquiet, apart from taking over the role from Pratella, albeit temporarily, of the infallible ‘creator-composer’, was the fact that there was only one *intonarumori* for the *serata* because ‘the three others, *crepitatore*, *ronzatore*, and *stropicciatore* had not been finished in time.’²⁸⁴ Russolo’s concept of noise-art was to be realised by the dynamic combination of *intonarumori*, each evoking a different aural manifestation of industrial modernity. As he stated in his manifesto: ‘It will achieve its greatest emotional power in acoustic pleasure in itself, which the artist’s inspiration will evoke from combined noises.’²⁸⁵ A dynamic performance of an *intonarumori* orchestra of six sections, each section evoking one of the ‘6 families of noises’ – a mediation of noise into distinct classifications of noises – would achieve that notion of evocation, as

²⁸⁰ Ibid., 119.

²⁸¹ Russolo, *The Art of Noises*, (1986), 41

²⁸² Berghaus, *Italian Futurist Theatre 1909-1944*, 121.

²⁸³ Kahn, *Wireless Imagination*, 9.

²⁸⁴ Berghaus, *Italian Futurist Theatre 1909-1944*, 121.

²⁸⁵ Russolo, *The L’Arte dei rumori* (1913).

opposed to imitation. However, when presenting a single instrument, mechanical and acoustic within a closed environment where the dominant source of amplitude was the raucous audience, then a notion of evocation, which lacks a contextualising support, will emphasise the mimetic attributes of the designed noise.



Fig. 4. From left to right: Boccioni, Pratella, Marinetti, Carrà & Russolo

Benjamin Thorn observes: ‘In his 1912 *Technical Manifesto of Futurist Literature*, Marinetti wrote that poetry must have noise, weight and smell. Russolo took the first of these and developed the concept of noise as an autonomous musical entity.’²⁸⁶ There is a strong argument to make that Russolo and Marinetti were an equal influence upon each other and that the Futurists’ raising of noise to the status of art was an on-going and developmental collaboration between the two. Thorn’s implication that Marinetti was the instigator of Russolo’s research is not born out by the facts. As stated in *L’Arte dei rumori*

²⁸⁶ Thorn, “Francesco Balilla Pratella (1880-1955)”, 380.

and the Futurist Elite, it was Russolo who brought the concept of *Arte dei rumori* to Marinetti, when he, Boccioni and Carrà joined Marinetti's Futurist literary school, effectively transforming it into an intermedial avant-garde movement in February 1910. In the 1913 manifesto, Russolo was not advocating 'the concept of noise as an autonomous musical entity'. Whilst that may well have been his long term goal, and his actions subsequent to the publication of the 1913 manifesto support this notion, particularly the performance of three of his noise-sound compositions, *Risveglio di una città* (Awakening of a City), *Colazione sulla terrazza del Kursaal Diana* (Breakfast on the Terrace of the Kursaal Diana), and *Convegno di automobili e di aeroplani* (A Meeting of Automobiles and Aeroplanes), with a fifteen piece orchestra²⁸⁷ of *intonarumori* for the *serata* at the Teatro dal Verme in Milan on 21 April 1914. Nevertheless, initially he was publically advocating the enlargement of the traditional orchestra with an additional noises section, equipped with mechanical enharmonic machines. However, this initial prognosis does not take into account Marinetti's words-in-freedom poetry, specifically his account of the Battle of Adrianople, an extract of which is included in Russolo's manifesto. In *Scatole d'Amore in conserva*, written in 1927 Marinetti states:

Vivevo le mie giornate su un balconcino di legno in una sognante intimità con le grasse tortore, che, appollaiate fra i regimi di datteri a due metri da me, tubavano melodiosamente, forse per preparare nelle mie orecchie la mia futura sensibilità ai suoni.²⁸⁸

I lived out my days on a wooden balcony in a dreamy sort of closeness with some fat turtledoves which, perched up amongst the date palms, just a couple of meters from me, cood away melodiously, perhaps preparing my ears for their future sensitivity to sounds.²⁸⁹

²⁸⁷ There is some confusion here. The numbers of *intonarumori* present at the *serata* range from fifteen to twenty-three machines.

²⁸⁸ Marinetti, *Scatole d'Amore in conserva*. Roma: Edizioni d'Arte, V. nazionale 89, (1927), p.10.

²⁸⁹ Marinetti, *Self-Portrait*, 6.

He employs the word ‘sounds’, rather than ‘noises’, perhaps because of melodiousness of the turtledoves. Yet, the sensitivity he describes relates to his identification of significant aural elements within the context of the landscape of war, the identification and isolation of aural keynotes configured against one another, their amplitude and dominance represented by font size and placement upon the printed page, and by extension, their declamation at Futurist *serata*. In the following sentence, he describes ‘when the noise of the merchants disturbs my friends’, using the word noise in an Attilian fashion, as a de-structuring inhibitor of the message.²⁹⁰ Perhaps by 1929, in the electronic age, the contemporary lexicon of aurality had transformed to the point where ‘sounds’ could not necessarily be solely attributed to the aural emanations resultant in the performance of a music score. In this sense, ‘sounds’ represent a mediation of noise insofar as a sound is everything that is not noise and that noise is the manifestation of unclassified and therefore unidentified sounds.

What Russolo did take from Marinetti’s *Technical Manifesto of Futurist Literature* was point five in the Programmatic element of the manifesto, where Marinetti states that ‘every noun must have its double, i.e., the noun has to be followed, without the use of conjunctions, by that noun to which it is linked by analogy. For example: man-torpedo boat, woman-bay, crowd backwash, piazza-funnel, door-tap.’²⁹¹ Marinetti was speaking of physical objects and yet from this, Russolo derived the term: noise-sound, meaning a mediated/isolated noise employed musically, in the sense that sound is the aurality of the musical score in performance. The term is an objectifying ‘designed analogy’. Therefore, a noise-sound is a traditionally non-musical noise employed musically. He also adapted Marinetti’s concept of ‘networks of imagery’ to support his notion that a creative combination of noise-sounds taken from his noise-classifications could musically, or in

²⁹⁰ Ibid.

²⁹¹ Marinetti, “Technical Manifesto of Futurist Literature”, in: Rainey et al, 108.

terms of designed sound, scenographically, evoke a sense of place – an emotive evocation of geographic and temporal location. Thus, what we see and what we hear become inextricably linked, from noise-objects printed on the page to the noise-tuners placed upon the stage. Both are inherently physical noise structures insofar as the body of both contain and generate noises, which resonate within the physical objects that contain them.

It is the sunset director of the orchestra who, with a wide gesture, brings together the flutes of the birds scattered in the trees, and the mournful harps of the insects, and the crushing of stones. It is he who, all at once, silences the tympani of mess tins and of jostling rifles, to permit all the golden stars, standing high, arms wide open, to sing out, full voiced, upon the stage of the heavens above the muted orchestra. And here is the great lady at the performance... in a gapingly low cut dress, indeed, the desert reveals the melting curves of her huge breasts, rose tinted, beneath the cascading gems of this exuberant night. (*La battaglia di Tripoli*)²⁹²

This account, which Marinetti included in his technical manifesto as an example of ‘networks of imagery’, still contains the echoes of the free verse Symbolist Marinetti, albeit somewhat more lyrically restrained. It is the work of a writer still in a transitional stage between *Vers libre* and *parole in libertà*. What makes this descriptive colour passage so interesting from Russolo’s standpoint, and what might have provoked him into considering the practical realisation of his *L’Arte dei rumori* as a ‘network of noises’ – a term he first employs in his 1914 essay, included in the 1916 collected edition of *L’Arte dei rumori*, called *Polemics, Battles and First Performances*, when he describes his ‘three compositions, or “networks of noises”’ – was that Marinetti employed musical terminology to describe the scene.²⁹³ He uses the lexicon of musical sounds to describe an environment comprising of non-musical noises. From the perspective of a

²⁹² Ibid., 110.

²⁹³ Russolo, “Polemics, Battles and First Performances”, in: *The Art of Noises*, (1986), 33.

soundscape analyst or contemporary sound designer, Marinetti defines location and narrative through the identification of the soundmarks and keynotes of that location.

1. flutes of the birds. (Birdsong: keynote - location defining sound)
2. scattered in the trees. (Tree sounds: keynote – implied)
3. the mournful harps of the insects. (Insect sounds: keynote)
4. the crushing of stones. (Soldiers marching: signal/narrative – implied)
5. tympani of mess tins and of jostling rifles. (Military sounds: soundmark)

It is a remarkably elegant and restrained example of Marinetti's prose, using the traditional orchestra as an analogy for the beautiful sunset that silences, even enraptures, the soldiers in the trenches. One might argue that once again aurality has been subsumed by visuality. The 'music' of the landscape is silenced by the 'sunset-director' to 'permit all the golden stars, standing high, arms wide open, to sing out, full voiced, upon the stage of the heavens above the muted orchestra.'²⁹⁴ Real noises are subjugated by analogous sounds. And yet the orchestra is merely muted, it is not mute. The moon, rose tinted by the sand in the desert atmosphere, an operatic diva of the sky, is accompanied by a subservient, yet tuneful, orchestra of non-musical sounds. It seems that in Marinetti's universe, industrial war – real, visceral war – has resulted in an understanding, a muted, yet harmonious accord between the earth and the stars.

So whilst Marinetti influenced, or perhaps even inspired, Russolo as he developed his concept for *L'Arte dei rumori*, it would be misleading to suggest, as Thorn does, that Russolo was inspired to write his noise manifesto as a direct result of Marinetti's *Technical Manifesto of Futurist Literature*. Marinetti continued to use the word 'noise' as an evidentiary element in the manifestation of velocity and he would not employ the term 'noises' in his

²⁹⁴ Ibid.

writing until after the publication of *L'Arte dei rumori* on 11 March 1913. This was the exact date when Futurist noise, as a manifestation of industrial modernity, particularly of velocity, was transformed into Futurist noises, a process of identification, classification and mediation. Indeed, 1913 became the year of Futurist noises, with the subsequent publications of Carrà's *The Painting of Sounds, Noises, and Smells*, on 11 August and of Marinetti's *Destruction of Syntax – Radio Imagination – Words in Freedom* on 11 May. Marinetti states: 'So these are some of the elements of a new Futurist sensibility which have generated our pictorial dynamism, our antigraceful music devoid of steady continuous rhythm, our Art of Noises and Futurist words-in-freedom.'²⁹⁵ It is interesting to note that Marinetti, only two months after the publication of the noises manifesto, makes a clear distinction between 'our antigraceful music devoid of steady continuous rhythm', by which we can assume he meant the compositions of Pratella, and 'our Art of Noises.'²⁹⁶ This strongly implies that they were separate art forms, distinct from each other. This is examined in detail in a later chapter examining Futurist performance, yet it can be affirmed that it is vexing that later practitioners and academics persist in maintaining the fiction that Russolo was directly influenced by Marinetti, and directly inspired by Pratella's concert of Futurist Music given on 9 March 1913 at the Teatro Costanzi in Rome, just two days before the publication of *L'Arte dei rumori*. Examining the Futurist timeline in the creation of *L'Arte dei rumori* in another chapter, it appears that Russolo, whilst being credited for the establishment of a concept of noise-sound art, nevertheless is dismissed somewhat for seemingly failing to envision noise-sound art as a distinct art form. Yet Marinetti makes that distinction a mere two months later, a distinction that could only have come from Russolo himself. However, within that noise manifesto Russolo introduces three separate categories of noise: noise art, noise design and noise

²⁹⁵ Marinetti, *Destruction of Syntax – Radio Imagination – Words-in-Freedom* (1913).

²⁹⁶ Ibid.

classification. Indeed, there is an argument to be made that he also conceptualized the inherently twenty-first-century practice of the audio walk.²⁹⁷

It is indisputably true that (1) silence is static and sounds, noises, and smells are dynamic; (2) sounds, noises, and smells are none other than different forms and intensities of vibration; and (3) any continued series of sounds, noises and smells imprints on the mind an arabesque of form and color. We, therefore, have to measure these intensities and envisage their arabesques.²⁹⁸

What makes *L'Arte dei rumori* such an influential manifesto is that it contains three distinct practices within it – noise art, sound design and noise classification; and it is also why a definition of Futurist noise is so hard to pin down. Whilst Russolo promotes noise as a potential art form, both in the address to Pratella and in the eight point programmatic component of the manifesto, much of it deals with how we should seek to classify noise. Noise is an unclassifiable intrusion, whether through close proximity to amplitude, where recognition is consumed by volume, or through distance, where reflection and saturation prevent a cognitive assimilation of the aural environment. Noises, however, suggest an initial mediation. A distinction has been made between different values or sources of noise. Indeed, this is the crux of Russolo's argument – that the urban landscape lacked mediation in music. If music evoked the natural world, employing instruments constructed from the materials of that age – the 'pierced' reed, the 'taut string' – then new instruments were needed to evoke the industrial world, wrought from the materials of that age. Yet before these instruments could be designed and constructed, a mediation of the aurality of the industrial and urban landscapes needed to be conducted and through this process of classification, noise becomes noises. Once the instrument has been constructed to evoke one of those classified noises, then isolated noise becomes a sound, meaning a musical tone, or rather a noise-sound, a

²⁹⁷ 'Let us cross a large modern capital with our ears more sensitive than our eyes.' *The Art of Noises*, (1986), 26.

²⁹⁸ Carlo Carrà, *The Painting of Sounds, Noises, and Smells*, (1913).

musical ‘monochord’, which has its provenance within industrial modernity and not within the agrarian, pastoral past. As Russolo states: ‘It’s no good objecting that *noise* is simply loud and disagreeable to the ear. It seems to me pointless to enumerate all the graceful and delicate *noises* that afford pleasant acoustic sensations’.²⁹⁹ In two sentences, Russolo makes the distinction between the ‘loud and disagreeable’ *noise* and the ‘graceful and delicate’ *noises*.³⁰⁰ Within the lexicon of Futurist auralty, this is a fundamental distinction. To Russolo, noises are mediated unmusical *sounds* and one might state that, for clarity, one should think of *L’Arte dei rumori* as the *L’Arte dei Suoni*. The traditional definition of sound, within the context of creative practice, was that of a musical tone – sound was the auralty that resulted from an orchestra performing music – a written classification contained within the twelve tone octave, a music score. The orchestra produced the sound of music.

In older times life was completely silent. In the nineteenth century, with the invention of machines, Noise was born. Today, Noise is triumphant and reigns supreme over the sensibility of men.³⁰¹

2.8 The Classification of Noises: Reductive and Distilled: Parole in Libertà.

Thus we will have the new orthography which I call free expressive. This instinctive deformation of words corresponds to our natural tendency to use onomatopoeia. It matters little if a word, having been deformed, becomes ambiguous. For it will be wedded with onomatopoeic harmonies, synopses of noises, and these will enable us to swiftly reach an onomatopoeic psychic harmony, the sonorous but abstract expression of an emotion of pure thought.³⁰²

²⁹⁹ Russolo, *The Art of Noises*, (1913).

³⁰⁰ Ibid.

³⁰¹ Russolo, *The L’Arte dei rumori* (1913).

³⁰² Marinetti, *Destruction of Syntax – Radio Imagination – Words-in-Freedom* (1913).

Much has been made about Russolo's statement: 'Here are the 6 families of noises of the futurist orchestra that we will soon realise mechanically'.³⁰³ It was a bold statement, given that *L'Arte dei rumori* was supposedly written within two days of the *serata* on the 9 March 1913, when he was inspired by the orchestra performance of Pratella's 'revolutionary MUSICA FUTURISTA' to 'conceive a new art: *L'Arte dei rumori*, the logical consequence of your marvellous innovations.'³⁰⁴ Of course, the only part of the manifesto composed within that timeframe was the introductory and concluding paragraphs. Russolo had long completed the rest of the manifesto³⁰⁵ and so we should evaluate the 6 families of noises as a classification of noises, long considered and refined by Russolo, possibly in collaboration with Marinetti, linking Marinetti's development of free verse into onomatopoeic noise poetry. Compared to the 1914 art book edition of *Zang Tumb Tumb*, the section included within *L'Arte dei rumori* is conventionally presented. Whilst it contains the notion of words-in-freedom as defined in the *Technical Manifesto of Futurist Literature* (1912), with the removal of adjectives, adverbs and punctuation, with the exception of exclamation marks, it is applied as standard typographic text on the printed page. It is very dense, full of analogy and onomatopoeia, and very different to the visually expressive style of the book published the following year. It is as if Marinetti approached the composition of *Zang Tumb Tumb* by simply writing out every sensation he experienced in a mad expression of improvised simultaneity. When one reads this dense brick of text it is as if everything he hysterically describes is all happening at the same time. There is no mediation, merely sensation. As Barclay Brown states in his introduction to the 1986 edition of the *AoN 16*: 'Set in a poetical context that largely disdained the conventions of syntax, that used verbs only in the infinite, that required nouns to fill the role of adjectives, even Marinetti's earliest efforts in the new idiom managed to portray

³⁰³ Russolo, *The L'Arte dei rumori* (1913).

³⁰⁴ Ibid.

³⁰⁵ Lista states in his introduction to the 1975 edition of *The L'Arte dei rumori* that the manifesto had been completed the year before, some five or six months before the publication date. See *The L'Arte dei rumori and the Futurist Elite*.

vividly the turmoil, speed, and confusion of modern warfare.³⁰⁶ What Marinetti's early experiments lacked was the visual depiction of the written narrative, the sense of space between the actions, the dominance of one source over another. Marinetti's text lacked movement, like a traffic jam. Noise, weight and smell are all present, but they are hegemonically undifferentiated, as if Marinetti had dumped them all in one place. In his next manifesto, published five months after *L'Arte dei rumori*, whilst Russolo and Piatti were designing and building their *intonarumori* and after the unveiling of the first, the burster (*scoppiatore*), at the Teatro Storchi on 2 June 1913, Marinetti looked to address this in the section Typographic Revolution:

My revolution is directed against the so-called typographical harmony of the page, which is contrary to the flux and reflux, the leaps and bursts of style that run through the page itself. For that reason we will use, in the very same page, three or four different colors of ink, and as many as twenty different typographical fonts if necessary. For example: italics for a series of swift or similar sensations, boldface for violent onomatopoeias, etc. The typographical revolution and the multicolored variety in the letters will mean that I can double the expressive force of words.³⁰⁷

It is as if Marinetti in 1912 developed the poetic technique of aural acquisition through the application of onomatopoeia and by 1913, after the publication of *L'Arte dei rumori*, he sought and discovered a way to arrange, compose or, to use a modern term, mix these captured sounds typographically to represent their relationship with each other on the field of battle.

The '6 families of noises' is a mediation.³⁰⁸ Whilst the noises contained within each section are non-specific, Russolo delves into noise and identifying noises, or at least types of noises: from the low frequency and slow attack registers of group 1, to the percussive noises of group 5. It is highly likely that, after having developed the concept of *L'Arte dei*

³⁰⁶ Brown, *Introduction*, 3.

³⁰⁷ Marinetti, *Destruction of Syntax – Radio Imagination – Words-in-Freedom* (1913).

³⁰⁸ See Chapter One, Fig.2.

rumori since at least 1910, when he joined the movement with this idea already fixed in his mind, he had by 1912, when the bulk of this manifesto was written, a fairly detailed idea of how his *intonarumori* would become manifest and that these classifications correspond to the functionality of his proposed *intonarumori*. They are evocative, rather than representative, of dealing with specific types of noise. This is not a classification based on referential aspects, in the sense that these sounds are produced by familiar objects – certainly in the first four groupings. One could argue that groups five and six are indeed referential as they relate to specific sources, yet even those are presented in a non-specific way. It is significant that the first four *intonarumori* produced for the *serata* on the 2 June (the *crackler*, the *hummer*, the *rubber* and the *burster*) correspond to the first four groupings. It is groups five and six which deal with percussive, fast attack sounds and human sounds that may have influenced Marinetti into mediating the sensations he experienced in the theatre of war, through the identification of the dominant keynotes of that location and situational context. This is also the case when Russolo describes wandering through ‘a great modern city with our ears more alert than our eyes.’³⁰⁹ Again, this is a reductive and distilled mediation, where the unclassified noise is muted and the dominant aural manifestation fore-grounded. Schaffer would classify this as a ‘soundwalk’, which he defines as, ‘an exploration of the soundscape of a given area using a score as a guide. The score consists of a map, drawing the listener’s attention to unusual sounds and ambiances to be heard along the way’.³¹⁰ Brown points out that ‘by the time of Russolo’s manifesto, then, Marinetti had already conceived and put into practice the idea of “noise as poetry”’. Nor can there be any doubt that Marinetti’s ideas were instrumental in shaping the writings of Russolo.³¹¹ Whilst agreeing with Brown that Marinetti was an influence on Russolo – he was an influence on all of the Futurist elite –

³⁰⁹ Russolo, *The Art of Noises*, (1913).

³¹⁰ Murray R. Schaffer, *The Tuning of the World*, 213.

³¹¹ Brown, *Introduction*, 3.

it is difficult to reconcile the implied notion that Russolo was directly influenced by Marinetti at a conceptual level. Of course, the structure of Russolo's manifesto corresponds to Marinetti's compositional structure that he set down with *The Founding and Manifesto of Futurism*, which itself is structurally similar to the compositional and thematic structure of acts of parliament, with the preamble setting out the issues which the new law intends to address, the law itself in detail, and a postscript detailing how this law will address those issues. Indeed, the large majority of Futurist manifestos adhere to this style guide. It is likely that Marinetti was directly influential in re-working the manifesto as an address to Pratella. If the onomatopoeic representations of specific actions within the theatre of war can be regarded as "noise in poetry", then Brown is right. However, one wonders if Marinetti was aware of this much before 1913. Marinetti barely mentions noise between 1909 and 1912. His concept of noise, whilst much more foregrounded in *The Technical Manifesto of Futurist Literature*, had not significantly altered since 1909. However, Marinetti employs the word 'noises' in his *Response to Objections*, published on the 11 August 1912, when he states:

The destruction of the traditional period, the abolition of the adjective, the adverb, and punctuation, will necessarily bring about the collapse of that well known type of harmonious style, with the result that the Futurist poet will finally use all the onomatopoeias, including the most cacophonous ones, that reproduce the countless *noises* of matter in motion.³¹²

Again, Marinetti links noise with dynamic action, with motion, and his use of the plural refers to 'matter in motion', nevertheless, this is the first time that 'noises' was used in a Futurist publication and it is indicative of the fact that Marinetti had begun to regard onomatopoeic noise as a manifestation of aurality, as well as an evidentiary manifestation of speed. It is possible that Russolo was inspired by this at the time he was writing his manifesto, but it is more likely that both Russolo and Marinetti's evolving concept of

³¹² Marinetti, "Response to Objections" in Rainey et al, 125.

noise as a potential status of art was the evidence of a much more symbiotic and developmental collaboration between the two.

2.9 *The Typographic Revolution: Spaciality and Perspective in Zang Tumb Tumb*



Fig. 5. - *The Electrical War (Vision Futurist Hypothesis)*. First published in French in 1911 and in Italian in 1915 by Poesia as part of a collection under the title 'Guerra sola igiene del mondo' (War, the only hygiene of the world).

Oh! How I envy the men who will be born in my beautiful peninsula, in a hundred years, entirely enlivened shaken and pinned down by the new electric forces!³¹³ [my translation]

The products of industrialisation potentially available to Marinetti and Russolo, as the processes to the realisation of creative expression, were ineffective at that time in their development. The typography contained within the body of the text, supporting the radical nature of Marinetti's free expressive orthography found in *Zang Tumb Tumb*, (1914) is relatively standard. Marinetti is able to alter fonts, font sizes and he employs the use of negative space through the positioning of the text upon the page. He is able to slant text and, to a certain extent, create a notion of perspective through a process of increasing the font size of individual letters. The most radical typography contained

³¹³ Marinetti, *Electrical War*, (Milan: Le Futurime, 1911).

within the body of the book is the designed analogy of ‘Pallone Frenato Turco’ (Restrained Turkish Balloon), depicting a Turkish observation balloon being shot at and surrounded by shrapnel.

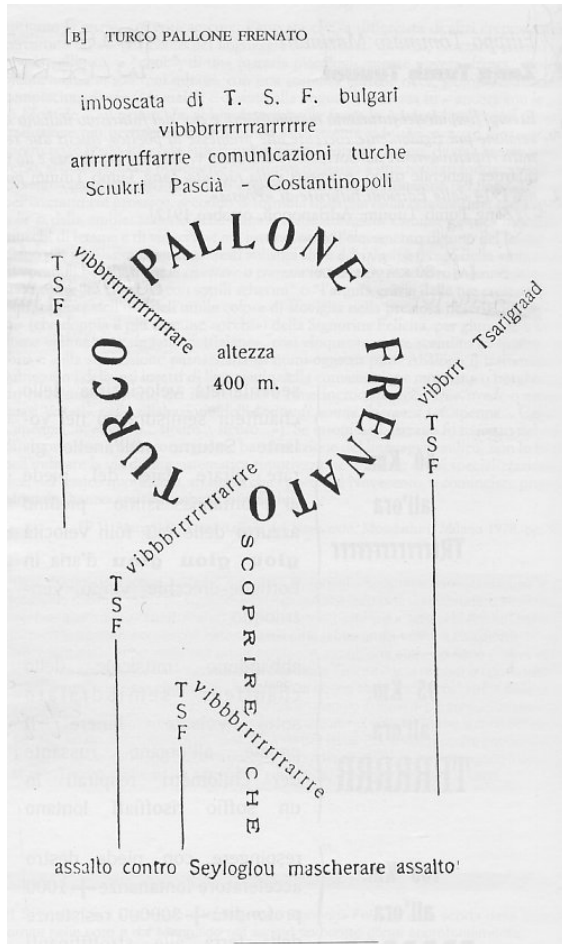


Fig. 6. Pallone Frenato Turco, *Zang Tumb Tumb*, 1914

An example of auto-illustration, as defined by Marinetti in *Lo splendore geometrico e meccanico e la sensibilità numerica*, differentiated them from Apollinaire’s Calligrammes. For example *The Landscape* (1914), a collage of four word images, where the words are positioned on the page to evoke the visual manifestation of the objects that the text describes, observing that Futurist auto-illustrations were not singular and autonomous, but were the part of a greater whole. Apollinaire attempted to create a poetic simultaneity, where several different and seemingly insular ideas are presented on the same page to mirror

our ability, in life, to experience a multiple range of sensations instantaneously and recreating them as single, or whole, experiences. *The Landscape* contains four such seemingly individual sensations – a house, a shrub, a lovers’ kiss and a cigar.

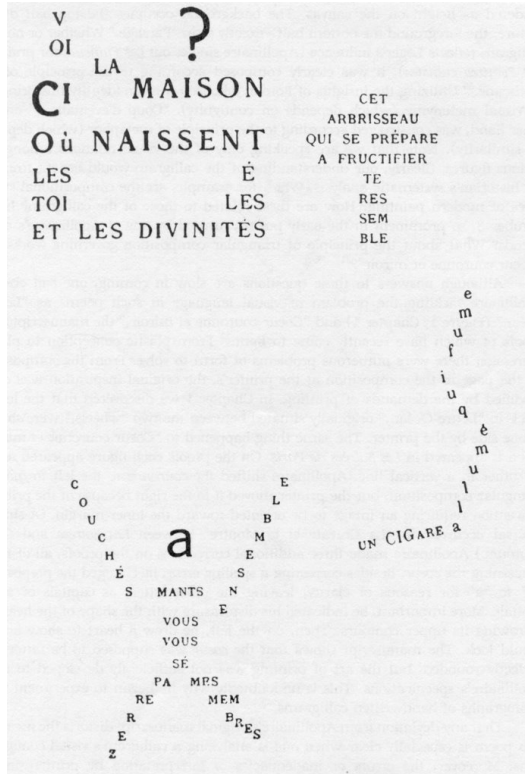


Fig. 7. *La Landscape* (1914)

a house ‘here is the home in which you are born the stars and the gods’

a shrub: ‘this scrub ready to fruit is you’

a lovers’ kiss – ‘sleeping together you are separated my members’

a cigar – ‘lit smoking’

Whilst there are certainly structural compositional parallels with Marinetti’s auto-illustrations – the positioning on the page, the changes in font size and style. It also demonstrates the still limited functionality of the typesetter machine with regard to the distortion of text and the positioning of any text in other than horizontal or vertical lines. However, as Marinetti accurately points out, the Apollinaire Calligrammes were indeed autonomous and self contained – one page per poem, whereas the Futurist auto-illustrations were the natural culmination or ‘staging points’ of a much larger poem. As Marinetti states in *Lo splendore geometrico e meccanico e la sensibilità numerica*.

Le parole in libertà, in questo sforzo continuo di esprimere colla massima forza e la massima profondità, si trasformano naturalmente in auto-illustrazioni,

mediante l'ortografia e tipografia libere espressive, le tavole sinottiche di valori lirici e le analogie disegnate.³¹⁴

The words in freedom, in this ongoing effort to express things with maximum strength and maximum depth, are transformed naturally into self-illustrations, using free expressive orthography and typography, synoptic tables of lyrical values, and designed analogies. [my translation]

It is interesting to note that Marinetti praises Francesco Cangiullo's words-in-freedom poem 'Smoking Car, Second Class': 'fu felicissimo nel dare con questa analogia disegnata:

FUMARE le lunghe e monotone fantasticherie e l'espandersi della noia-fumo di un

lungo viaggio in treno' (had the felicitous idea of conveying the long, monotonous reveries and self expansion of the smoke boredom during a long train journey by means of this designed analogy: TO SMOKE).³¹⁵ The text is auto-illustrative insofar as the notion of smoking a cigarette is linked to the smoking stack of the locomotive engine, emphasising both the static Cangiullo, stilled in the second-class compartment, and the train in motion. Stillness and motion are encapsulated within that one word. *The Landscape* also includes the act of smoking a cigar, using the text 'un cigare allume quifume' pictorially in 1914, and perhaps Marinetti chose this example to underline the philosophical difference between both. However, it might also be the fact that Marinetti himself cannot point to the quality of his own work as an example. John White is of the opinion that Marinetti's ambition for auto-illustration outstripped the reality of application amongst the Futurists. As he states:

Marinetti explains how these 'auto-illustrations', 'in a continuous effort to express things with the greatest force and profundity', at a certain point in the flux of the poem 'naturally transform themselves into auto-illustrations As soon as this greater expression is reached', however, they automatically 'return to their normal flow'. At vital poetic junctures, in other words, horizontally linear sequences of

³¹⁴ Marinetti, *Lo splendore geometrico e meccanico e la sensibilita numerica*, (1914).

³¹⁵ Francesco Cangiullo, *Futurism: An Anthology*, 178.

Futurist poetry would find their apotheosis in a pictogram or some other form of experimental effect. If, however, one actually turns to the best known examples of auto-illustrations in the poetry of the time, it becomes difficult to reconcile the indifferent quality of much Futurist practice with Marinetti's own evident enthusiasm.³¹⁶

Quite accurately, White observes that Marinetti's own auto-illustration for the Turkish balloon 'hardly amounts to more than a static object-image, with the main dynamic aspect coming from the sounds radiating outwards as signals from the balloon. The words 'auto-illustrated' do not stand out in any substantial degree of poeticity from the lines that precede them and those that follow, except that their appeal will now be primarily to the aesthetic eye, rather than our intellectual ready faculty alone.'³¹⁷ Yet, when read as a visual design for sound within the environment, in this sense 'designed analogy' means 'designed sound', this is an effective evocation of the sonic environment surrounding the balloon. We are provided with the information that the balloon is four hundred metres above ground, directing the enemy fire through radio transmissions to fire on bakeries. On the following page, Marinetti lists the subsequent price rises for sugar, rice, oil and salt. Indeed, Marinetti's concept of auto-illustration has, to a certain extent, the quality of a 'static object-image' inherent within the concept, insofar as the over-arching theme of *Zang Tumb Tumb* and of the Futurist movement itself, is that of a journey – movement and velocity, in this instance, the journeys across the landscape of war. Much of *Zang Tumb Tumb* is concerned with train journeys to and from the battlegrounds in both a descriptive and experiential way. Yet, like Cangiullo, the modes of travel often evoke the static situation of the poet. Cangiullo is travelling on a train and yet the image is one of confinement and boredom. So we have the juxtaposition of the static poet enclosed within a moving train. One can then argue that the static quality of

³¹⁶ John J. White, *Literary Futurism: Aspects of the first Avant-Garde*, (London: Clarendon Press, 1989), 15.

³¹⁷ *Ibid.*

the auto-illustration is juxtaposed with the movement of the poet within that landscape as he describes and evokes, through onomatopoeia, the dynamism of the theatre of war. For the perspective of sound design, one agrees with Marinetti's concept of auto-illustration as the culmination of a poetic flow. In this way, Marinetti's auto-illustration of the captured Turkish balloon is a wide-shot of the action, with the poet moving within its geography, capturing the dynamic aural environment and interaction through the positioning of text upon the page.

Train (dynamic) Poet (static)

Battleground (static) Poet (dynamic)

When Marinetti contemplated his design for the dust cover, it was clear that the typesetter machine would not be capable of reproducing the design. Therefore, another process was required in the attempt to realise the sophisticated graphic composition, specifically the perspective arcs of *Zang Tumb Tumb*, which move from the front cover to the back cover, linked by 'tumb' on the spine. As Kahn states:

Marinetti takes on the role of phonograph by enacting an onomatopoeic reportage of the *ZANG-TUMB-TUUMB* of the cannons, the *taratatata* of the machine guns, and other sounds interspersed with musical instructions.³¹⁸

Taking exception to this, this thesis argues that Marinetti absolutely did not take on the role of phonograph. A recorder has a capture field, defined by the sophistication or character of the microphone. It merely stores that data and does not engage in an editorial process. In the same way that a phonograph is not a 'voice', as imagined by

³¹⁸ Douglas Kahn, "Art and Sound", in: *Hearing History: A Reader*, ed. Mark M. Smith, (London: University of Georgia Press, 2004), 39.

Villiers de l'Isle-Adam in his 1886 novel *L'Ève future* (Future Eve)³¹⁹, a phonograph is not a brain. As Seth Kim-Cohen observes:

We ignore the real in everyday conversing, filtering out noise in favor of signal. The neutral ear and tongue of technology, on the other hand, have no such filters and convey the feral real with the same fidelity as the domesticated symbolic.³²⁰

Marinetti's onomatopoetic works are therefore, the very antithesis of 'originated' auralty.

Zang-Tumb-Tumb is much more conceptually linked to the modern theory of sound design, where a commonality of aural recollection through a process of emotive semiotic distillation defines location. Modern sound design can be defined as:

Originated auralty (Kahn's notion of Marinetti as a human phonograph),

minus

Non-transcribed noise' (all of the auralty Marinetti discards as irrelevant to his narrative – for example, vocal sounds of the soldiers and other passengers on the train),

multiplied by

A shared recognition in recollection (we, as receivers collectively, yet unconsciously recognise these 'sounds' as appropriate to the location),

equals

Designed sound. (poetic sound).

So whilst Marinetti appears, at least to Kahn, to assume the mantle of the phonograph, he is in fact undergoing a process of critical engagement through an analysis of his aural environment, making decisions about the significant elements contained inherently within and isolating them from background/unclassifiable noise. This is much more

³¹⁹ *The Future Eve (L'Ève future)* a Symbolist science fiction novel by Auguste Villiers de l'Isle-Adam. Begun in 1878 and originally published in 1886.

³²⁰ Seth Kim-Cohen, *In the Blink of an Ear*, 95.

philosophically in keeping with the function of the soundscape analyst. As Schafer states: ‘What the soundscape analyst must do first is discover the significant features of the soundscape, those sounds which are important either because of their individuality, their numerousness or their dominion. Ultimately some system of generic classification will have to be devised [but for now] it will be enough to categorise the main themes of the soundscape by distinguishing between what we call keynote sounds, signals and soundmarks.’³²¹

Of course, the typographic evocation of the dynamics of certain words, re-enforcing the description of movement in the form of composed placements of the word-image and the creation of evocated-action through the manipulation of font size and shape means that, as White states: ‘Futurist poetry is more likely to advance towards its goal of rendering dynamism typographically by using shaped writing to indicate *lines of movement*.’³²²



Fig. 8. The front and back cover of Marinetti's *Zang Tumb Tumb* art book

³²¹ Schafer, *Features of the Soundscape*, 152.

³²² White, *Literary Futurism*, 52.

The dust cover of the artist-book *Zang Tumb Tumb*, produced in 1914, illustrates Marinetti's desire to visually represent, as well as onomatopoeically evoke, the aural landscape. Much of what is contained inside is considerably less radical, if not in content, then certainly in form. The typesetter machine was not versatile enough to compose anything other than vertical & horizontal lines of print, and a range of fonts and font sizes. This is perhaps why the cover's manufacture employed long established wood block printing techniques – the Futurists were not above utilising past technologies to create iconic and celebratory works of modernity.

The perspective of *Zang Tuuumb Tuuumb* on the back cover has been constructed to create the sense of space and distance through the positioning of a font, decreasing in size and positioned lower or higher to emulate the parabolic arc of an artillery shell being fired. The *Tuum Tuuum Tuuum* on the front cover, placed upon a downward diagonal line from left to right, have their individual perspectives, different from the velocity arc of the back cover, and could just as easily be read as radio masts or tower blocks reaching into the sky, observed from above. The first *TUUUMB*, close to our point of observation, is not in perspective – possibly because of our proximity. White believes that these force lines of text 'convey the impression of battle sounds reverberating and dying away', but it can be argued that whilst this is undoubtedly correct, in terms of the dynamic representation of these sounds, they are not presented as a parabolic, in the way that *Zang Tuuumb Tuuumb* appears on the back cover. In this the positioning of the text is able to convey two ideas, the second being the semiotic resonance of modernity. This becomes clear when you evaluate the relationship between the *Tuum Tuuum Tuuum* and the arc of *Parole in Libertà*, which bisects the *Tuuumb Tuuum Tuuum Tuuum*. White states that 'the shield-like arc of the words *parole in libertà* would seem to

conflict with this force-line pattern and give the impression of being either some defensive ground position assailed by the sound or the radiation of further battle-sounds from the other side of the front.³²³ Disagreeing with this somewhat convoluted explanation, consider our perspective as the reader of this book and our physical position in relation to the front cover. Our positioning is god-like, or perhaps from the point of view of an aviator, flying over the battlefield viewing from a great height, the ‘conflict’ below. The TUUUMB is not presented in perspective because it represents the sound of an exploding shell reaching high into the atmosphere, seemingly close to us as the reader/aviator. It is this word that bisects the Parole in Libertà because it has transcended the environment, the geographic location. Arguably, Parole in Libertà represents the edge of the world – the curvature of the horizon, and therefore the future. As White states: “The layout of Marinetti’s *Zang Tumb Tumb* cover shares with the radiating noises of battle a certain centrifugality and a diminution of volume, as we move away from the focus of attention.”³²⁴

Perhaps the most radical choice that Marinetti made is use of the words themselves:

Zang = action

The sound of an artillery shell being fired (*close perspective*).

Tumb = re-action

The sound of the shell exploding (*distant perspective*).

Tuuumb = reflection

The multiplied sound of the explosion as it reflects across the landscape (*dynamic perspective*)

³²³ Ibid., 53.

³²⁴ White, *Literary Futurism*, 51.

The Zang is the sound of an artillery shell being fired, the Tumb is the sound of the shell exploding and the Tuuumb is the echo of that explosion reflecting within the geography of space. This is an example of immersive sound design because it is not merely part of a catalogue of sounds, contained within that location positioned artfully upon the printed page, but a visual onomatopoetic representation of how these sounds act and interact with the physical landscape. White observes that a ‘further important feature of the layout is the way in which the basic acoustic pattern is organized iconically, so as not to conflict with readability. This was, after all, the title of the movement’s major poetic work at that stage, and, as such, it needed to avoid impairing its functionality.’³²⁵



Fig 9. Correction of Proofs and Desires in Speed

Marinetti represents the movement of a train through spacing and type. Although he refers to it as his train, he chooses to represent the sound of the train as thus: train train train train **tren tron tron tron**

³²⁵ Ibid., 53.

This representation provides a double perspective, insofar as it gives two locations. The first and most dominant is the notion of the character that Marinetti inhabits – that of the fearless, intrepid reporter heading towards the battlefield. The repetition of the words ‘train’ and ‘tron’ are constant and linear, invoking the sense that Marinetti is aboard the train and consequently the rhythm of the train remains, in terms of representation of amplitude and perspective, fixed. However, whilst representing his own perspective as a passenger on the train, Marinetti also provides a perspective for an observer from a fixed position as the train passes by. His use of the word ‘tron’, presented in the same font size but in bold type has a significance in terms of the creation of a spatial recognition, which might not be signally obvious, nevertheless will have a semiotic resonance with the reader. The semiotics of sound, and the semiotics contained within the literary text, are usually very different animals. However, with this phrase, they combine to bridge that gap. So, whilst no sound is heard in terms of generated amplitude, within the mind’s ear of the reader, who is simultaneously present with Marinetti on the train and watching Marinetti’s train pass in front, he or she is experiencing the Doppler effect.³²⁶ The transformation of ‘train’ to ‘tron’, combined with the use of bold type, changes the frequency of the recited word (repeat both words and you will find that there is a lowering of frequency or pitch by about a quartertone) and consequently the imagined or recalled sound undergoes a Doppler transition. Marinetti uses the word ‘tren’ only once to convey the immediacy of cognition in close perspective and it inherently contains a performative element insofar as it is intended to provide a dynamic change in recitation. Temporally, this is paradoxical. For the observer of the

³²⁶ The Doppler effect was named after the Austrian physicist Christian Doppler who proposed it in 1842. It can be observed for any type of wave - water wave, sound wave, light wave, etc. We are most familiar with the Doppler effect because of our experiences with sound waves. Perhaps you recall an instance in which a police car or emergency vehicle was travelling towards you on the highway. As the car approached with its siren blasting, the pitch of the siren sound (a measure of the siren's frequency) was high; and then suddenly after the car passed by, the pitch of the siren sound was low. That was the Doppler effect - an apparent shift in frequency for a sound wave produced by a moving source. The Physics Classroom. “The Doppler Effect.” Accessed 10 September 2016 <http://www.physicsclassroom.com/class/waves/Lesson-3/The-Doppler-Effect>

train, situated at a fixed point in the landscape, the progression of time is linear. The ‘train’ sound is a future sound as the train approaches. The ‘tren’ sound is a dynamic and instant moment of the present, immediately followed by the ‘tron’, as the train, whilst moving in a forward direction, is nevertheless, from the point of view of the observer, moving into the past.

Yet because Marinetti, and by extension the reader, is also riding the train, they are in a constant state of experiential present, moving towards the future, much in the same way the Futurist protagonists were, riding ‘famished automobiles’ in the *Founding and Manifesto of Futurism*. We experience the sound of the train crossing an iron bridge, where the action of the wheels on the track produce the rhythmical ‘**tatatluuuntlin**’ followed by the sounding of the steam horn, ‘**sssssssiiii ssiissii ssiissssiiii**’.³²⁷

Had Marinetti required only the fixed point of observation then he would have used increasing and decreasing font sizes to create the motion of the train from a fixed perspective, much as he had done with the phrase ‘poetry being born’, which can be read as the creative arc of Marinetti’s own progression as an artist from the free verse Symbolist personification of 1909 to the words-in-freedom action-art agitator of 1912.

train train **train tren tron tron tron**

His decision not to change font size indicates that he is fulfilling the journalistic role of observer, combined with the Futurist function of protagonist. With this phrase, positioned as it is across the horizontal, Marinetti establishes his position of observer/protagonist. This phrase also serves as the movement of time within the

³²⁷ Marinetti, *Zang Tumb Tumb*, (1914).

landscape, moving from left to right as a journey from the past through the present and into the future.

train (approaching) – future sound (major)

tren (arrived) – present sound (chromatic)

tron (departing) – past sound (minor)

A modern sound designer would regard *Zang Tumb Tumb* as a paper edit, where the isolated and mediated sound is constructed first on paper before the incorporation of assigned aural elements. Marinetti lays out – through repetition of words and abstract word shapes, font sizes, the mediation of the keynotes of a specific geographical and environmental location, the deconstruction of whole words into fragments to create repetition, perspective and velocity on the printed page – the blueprint for a sound design.

Chapter Three: The Classification of Noises: Dziga Vertov's Laboratory of Hearing and the Modernist Lexicon of Aurality.

Only the phonograph can record all the noise produced by the larynx prior to any semiotic order and linguistic meaning.³²⁸

If Russolo and Marinetti were conceptual collaborators in the depiction of noise(s) in Futurist artworks, specifically in terms of the *intonarumori* orchestra and the depiction of aurality as a poetic evocation of dynamic spatiality, then it was Vertov who, inspired by both the 6 families of noises and Marinetti's words-in-freedom text included within the body of the manifesto to attempt to 'organise the world' through a process of noise(s) classification in the form of literary transcription. Indeed, Russolo also stated in *L'Arte dei rumori* that 'every manifestation of life is accompanied by noise. Noise is therefore familiar to our ears and has the power of immediately reminding us of life itself.'³²⁹ Vertov's film *Laboratory of Hearing* has been presented as a failed attempt to capture originated aurality using bespoke, though primitive, audio capture technology. However, it can be argued that this was never Vertov's goal and that his sole purpose was to classify the aural world through literary transcription, to a certain extent like Marinetti, through phonetic and onomatopoeic transcription. Although, it must be noted that Vertov sought to classify all aurality through an additive process, whereas Marinetti selected the dominant keynotes and soundmarks of the environment and discarded the rest. Critical examinations of the period in Vertov's life and work have regarded his *Laboratory of Hearing* as a failed attempt to create a sound effects library, through a process of primitive location sound recording. There appear to be no dissenting voices or published works which question this assumption, and yet there seems to be no evidence to support this dominant perception. It can be argued that this

³²⁸ Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Witz (Stanford: Stanford University Press, 1999), 12.

³²⁹ Russolo, *L'Arte dei rumori*, (1913).

misrepresentation of Vertov's purpose is the result of later practitioners and academics employing a late Modernist lexicon of aurality to reflect upon the actions of the historical avant-garde during the first decades of the twentieth century.

Begin with the most self evident of all, the debasement of Tone to Noise in imitating the sounds of nature – the rolling of thunder, the roar of forests, the cries of animals; then those somewhat less evident, symbolic – imitations of visual impressions, like the lightning flash, springing movement, the flight of birds; again, *those intelligible only through the mediation of the reflective brain*, such as the trumpet-call as a warlike symbol.³³⁰

The chapter looks closely at Vertov's *Laboratory of Hearing*, re-evaluating his actions and his creative ambitions for his laboratory, which, can be seen to have been misinterpreted by later academics, who confused the early twentieth-century lexicon of aurality with that of the late twentieth-century. This shift was the result of evolving creative practices and significant technological developments that altered processes of production and caused the definitions of specific words, depicting actions and instances of aurality, to be transformed.

Vertov was born David Abelevich Kaufman³³¹ into a Jewish book-dealer's family from Bialystok, Poland in 1896. He began writing poetry at the age of 10 and from 1905 to 1914, was a pupil at the Bialystok Modern School. From 1912 he also studied violin, piano, and music theory at the City's conservatory. In the autumn of 1914, Vertov enrolled at Vladimir Bekhterev's Psychoneurological Institute in Petrograd. In 1916, Vertov joined the military academy in Chuguev, near Khar'kov, Ukraine, abandoning his studies at the Psychoneurological Institute, never to return.

³³⁰ Ferruccio Busoni, "Sketch For a new Aesthetic of Sound Art", in: *The Art of Noise: Destruction of Music by Futurist Machines*, 82-3.

³³¹ Later changed to Denis Arkadievich. This deliberate attempt to appear more 'Russian' was not uncommon amongst Jews living in Russia at the time.

He had by then begun to refer to himself as a Futurist and was, according to George Sadoul, inspired by Russolo's suggestion to walk across a modern city with 'the ear more attentive than the eye' to find his laboratory of hearing.³³² Vertov's motivation to capture sound within phonetic groupings reflected Marinetti's 'words-in-freedom' concept and Russolo's 6 families of noises, rather than the literary symbolism of modernity found within the 1909 manifesto. It is possible that Vertov felt a recognition, an affinity, with both concepts because of their similarity to the technique he developed at school to help him remember geographical place names: 'place the names in a rhythmic order.'³³³ Vertov later stated, 'As a result of these self-enforced experiments I became interested in the rhythmic organisation of separate elements of the visible and audible world in general.'³³⁴

It is important to note that these Futurist concepts form a praxical approach to an evocation of aurality, not a mimetic, pictographic, or emulatory representation. It is therefore likely that Vertov was inspired by both the noise-sound concept of Russolo's *L'Arte dei rumori* and the distilled onomatopoetic reportage of Marinetti's *Zang Tumb Tumb*, with its non-linear typographic placement on the page. Arguably, both Russolo and Marinetti were philosophically and creatively undifferentiated by the teenage Vertov. This conflation of the rhythmic groupings and literary evocation of aurality, and Vertov's eventual, if temporary, rejection of the former in favour of the latter³³⁵ – a visual analogue acting as a trigger for re-collected, collective sound – would later form the leitmotif of his future practices as a documentary filmmaker, which reached its zenith with his final 'silent' film *The Man With a Movie Camera* (1929).

³³² Richard B. Wedgewood, "Dziga Vertov's 'Enthusiasm': Musique Concrète in 1930," 113 – 121, in: *College Music Symposium* 23/2, (Autumn, 1983), 114.

³³³ Andrei Smirnov, *Sound in Z: Experiments in Sound and Electronic Music in Early 20th Century Russia*, edited by David Rogerson and Matt Price, (Köln: Walther König, 2013), 25.

³³⁴ Ibid.

³³⁵ There is an argument to be made that if *Man with a Movie Camera* (1929) employed a poetic distillation of implied sound captured within the visual, then *Enthusiasm*, with its synchronised and non-synchronised soundtrack and its concrète-like rhythmic noise-sound constructs, is a return to the noise-art ideas of Russolo.

In 1916 Vertov created what he later described as a ‘Laboratory of Hearing’ to document the aural world through literary transcription and onomatopoetic evocation. ‘Impressed and influenced, like many others of his generation, by Futurism, he began to write science fiction and sound poems, experimenting with the perception and arrangement of sound. During the summer 1916 vacation he began his first experiments with sound, producing verbal montage structures.’³³⁶ As Vertov explains in ‘The Birth of Kino-Eye’ (1924):

It began early in life. With the writing of fantastic novels (The Iron Hand, Uprising in Mexico). With short essays (“Whaling,” “Fishing”). With long poems (Masha). With epigrams and satirical verse (“purishkevich”, “The Girl with Freckles”). It then turned into an enthusiasm for editing shorthand records, gramophone recordings. Into a special interest in the possibility of documentary sound recording. Into experiments in recording, with words and letters, the noise of a waterfall, the sounds of a lumbermill, etc.³³⁷

Vertov makes a clear distinction between ‘the possibility of documentary sound recording’ – which one often assumes meant *location* sound recording, through the employment of a technological device, placed in the audio field of a specific location, and ‘experiments in recording, with words and letters, the noise of a waterfall, the sounds of a lumber mill, etc’.³³⁸ Whilst he is vague with the former, offering no potential subjects, he is quite specific with the latter, offering not only two subjects, but also an ‘etc’, strongly indicating that this methodology was his primary focus. One should also be wary of his use of the word ‘record’. Our modern understanding of this word has not altered,

³³⁶ Monoskop. “Dziga Vertov.” Accessed 10 September 2016. <https://monoskop.org/DzigaVertov>

³³⁷ Dziga Vertov, *Kino-Eye: The Writings of Dziga Vertov*, ed. Annette Michelson, trans. Kevin O’Brian, (London: The University of California Press, 1984), 40.

³³⁸ Ibid.

yet its primary meaning today, especially in the present tense, is the capture of rich media content³³⁹ through the employment of bespoke technology – to ‘record’ one’s favourite television programme, to ‘record’ the BBC Radio 1 Top 40 on Sunday afternoons. Yet, when pre-fixed by the definitive article, ‘let the record state’, or used in its past tense, ‘the hottest July since records began’, its primary meaning reverts to as it was in 1916 – to make a ‘record of’. Therefore when Vertov states, ‘so I set out to record a sawmill’,³⁴⁰ it would be misguided to naturally assume his intent was technology driven location sound recording.³⁴¹ Yet Kahn states: ‘Toward the end of 1916, Vertov attempted to build a “Laboratory of Hearing” with a 1900 or 1910 Pathéphone wax disc recorder. “I had the original idea of the need to enlarge our ability to organise sound, to listen not only to singing or violins, the usual repertoire of gramophone discs, but to transcend the limits of ordinary music. I decided that the concept of sound included all the audible world. As part of my experiments, I set out to record a sawmill”’³⁴²

The verb “to record” is a curious composition. The prefix *re* means “again” (as in “to retell”) or suggests a backward movement (as in “to recall”). The root *cor* comes from the Latin for heart, still evident in the French *le coeur*. To record, then, is to encounter the heart again or to move back to the heart. The implication is that a recording captures and replays the heart of its source. The heart of the thing might be its life-giving component (as in a biological heart), but more commonly it indicates an essential, fundamental disposition. When we remember something verbatim, without recourse to clues or aids, we remember it “by heart,” as if it is now inextricably inside us, part of us. In its own linguistic body, “to record” carries both the sense of essential physiology and of the nonphysiological essence, something akin to the soul.

³³⁹ Which, in the context of this article, is defined as video and audio, captured and held within a fixed storage medium, be it wax cylinder, a shellac disc, wire recorder, magnetic tape, compact disc, digital binary code.

³⁴⁰ Kahn, *Hearing History: A Reader*, 40.

³⁴¹ Of course, Vertov was using this word in the 1920s and 30s to describe his activities in the period 1916-8. Whilst it is possible he was employing the term ‘record’ as we understand it today, it is unlikely that its meaning had altered in the intervening years. Whilst one could ‘record’ using a phonograph, it is likely that the primary meaning of the word did not change until the advent of magnetic tape recording in the late 1940s and possibly as late as 1965, when the first cassette ‘recorder’ by Phillips became commercially available, designed for the consumer market.

³⁴² Kahn, *Hearing History: A Reader*, 17.

Questioning this assertion by Kahn, it is clear that when Vertov states, ‘as part of my experiments, I set out to record a sawmill’, that he was using the word ‘record’ to describe literary transcription, especially when one considers a different English translation of the extract from his notebooks quoted earlier:

It then turned into an enthusiasm for editing shorthand records, gramophone recordings. *Into a special interest in the possibility of documentary sound recording.* Into experiments in recording, with words and letters, the noise of a waterfall, the sounds of a lumbermill, etc.³⁴³ [My italics]

All was transformed into a fascination with a montage of stenographic notes and sound recording – *in particular a fascination with the possibilities of documenting sounds in writing*, in attempts to depict in words and letters the sound of a waterfall, the noise of a sawmill, in musical-thematic creations of word montage.³⁴⁴ [My italics]

So perhaps the confusion lies in the translation of Vertov’s original text. The quotes above are different English translations of the same original text. The first translation is taken from *Kino-Eye: The Writings of Dziga Vertov*, edited by Annette Michelson, and translated by Kevin O’Brien (1984). The second translation can be found in Lucy Fischer’s excellent essay “‘Enthusiasm’: From Kino-Eye to Radio-Eye” (1985), citing *The Writings of Dziga Vertov*, edited by P. Adams Sitney and translated by S. Brody (1970).³⁴⁵ O’Brien’s translation has the phrase: ‘a special interest in the possibility of documentary sound recording’.³⁴⁶ Whereas, Brody’s translation of the same Russian text reads: ‘in

³⁴³ Vertov, *Kino-Eye: The Writings of Dziga Vertov*, 40.

³⁴⁴ Lucy Fischer, “Enthusiasm: From Kino-Eye to Radio-Eye”, in: *Film Sound: Theory and Practice*, eds. Elisabeth Weis and John Belton, (New York: Columbia University Press, 1985), 248.

³⁴⁵ Interestingly, Fischer cites the Annette Michelson version immediately before she cites the P. Adams Sitney version. One wonders why she didn’t use the Michelson version for both.

³⁴⁶ Vertov, *Kino-Eye: The Writings of Dziga Vertov*, 40.

particular a fascination with the possibilities of documenting sounds in writing'.³⁴⁷ This confusion, combined with Vertov's use of the word 'record', to describe his experiments in literary transcription, or 'word montage' have combined to create a myth surrounding the activities and experiments contained within Vertov's *Laboratory of Hearing*.

In this instance Vertov was not attempting to record the actuality of the sawmill, using a '1900 or 1910 Pathéphone wax disc recorder'.³⁴⁸ Indeed, the assertion that he used a machine of this description is problematic, for no such device was ever commercially released. The phonograph, a cylinder-based technology, was invented in the Thomas Edison Laboratory in 1877, using tinfoil as the recording medium. It was inherently a research and development machine, with no commercial potential until it was improved by Alexander Graham Bell, Chichester Bell and C. S. Tainter in 1887-8, when they substituted hardened wax for the tinfoil.³⁴⁹ The phonograph employed the 'hill and dale' method, where a diaphragm, vibrating with impulses imparted by sound waves, inscribed the audio signal, through the means of a stylus attached directly to the diaphragm, by cutting vertically into the wax. The phonograph was the precursor to the magnetic tape machine, insofar as a commercial phonograph was capable of both recording and playing back.³⁵⁰

The gramophone, a disc-based technology invented by Emile Berliner in 1888, was a playback machine only. Recording masters were made using a variety of media, but in the period between 1901 and 1925 wax was indeed used with the stylus inscribing the signal

³⁴⁷ Lucy Fischer, 248.

³⁴⁸ Kahn, *Hearing History: A Reader*, 17.

³⁴⁹ Bell and Tainter improved upon the phonograph at their Volta laboratory, beginning in 1879-80. In 1885 they released the Graphophone and this inspired Edison to re-develop the original phonograph as a commercial machine.

³⁵⁰ Actually, the phonograph was more like the pre-cursor to the re-writable compact discs of the 1990s. The true precursor to the tape recorder was the wire recorder, which like the tape recorder used magnetic fields and was greatly improved by electronic amplification and advanced DC Bias in the 1920s and AC Bias in the 1940s. For more information read Greg Milner's *Perfecting Sound Forever: The Story of Recorded Music* (2009), which is an excellent account of the development of sound recording technologies.

using the lateral or ‘side to side’ method. The master was then electroplated and from the electroplate a ‘stamper’ was made to stamp the warm shellac ‘biscuits’ into disc copies for commercial distribution.³⁵¹ Pathé Frères, established in 1896, produced phonographs and cylinder records from about 1897 onwards.

A peculiarity of Pathé technology was to cut the master recording on a huge cylinder approximately 8 inches long and 5 inches diameter. The masters for the moulds were pantographed from the giant master and these could be made in standard, intermediate, and concert sizes. In 1906, when the company began releasing music on discs, they too were made from the same pantographed master and pantographed onto anything up to seven different sizes of master disc moulds. The churning of the original master can often be heard in the background noise of both their cylinders and discs.³⁵²

From this we can conclude that whatever ‘talking machine’ Vertov used, it was not a Pathéphone wax disc recorder.

However, another account by Vertov of the process of ‘recording’ the sawmill makes it clear that this was an exercise in literary transcription:

On vacation, near Lake Ilmen, there was a lumber-mill which belonged to a landowner called Slavjaninov. At this lumber-mill I arranged a rendezvous with my girlfriend... I had to wait hours for her. These hours were devoted to listening to the lumber-mill. I tried to describe the audio impression of the lumber-mill in the way a blind person would perceive it. In the beginning I wrote down words, but then I attempted to write down all of these noises with letters.

Firstly, the weakness of this system was that the existing alphabet was not

³⁵² Clpgs. “Pathe Freres.” Accessed on 10 September 2016. <http://www.clpgs.org.uk/patheacute-fregraveres.html> Interestingly, Pathé gramophone records also used the ‘hill and dale’ inscription method, probably because the record masters were recorded on a cylinder phonograph. They also played from the centre outwards and needed specific Pathé gramophones to work. Early commercial discs were produced consisting of wax mounted on a cement base – though these machines could not record and so it is unlikely Vertov was using one of these.

sufficient to be able to write down all of the sounds that you hear in a lumber-mill. Secondly, except for sounding vowels and consonants, different melodies, motifs, could still be heard. They needed to be written down as musical signs. But corresponding musical signs did not exist. I came to the conviction that by existing means I could only achieve onomatopoeia, but I couldn't really analyze the heard factory or a waterfall. . . . *The inconvenience was in the absence of a device by means of which I could record and analyze these sounds.* Therefore I temporarily left aside these attempts and switched back to work on the organization of words. Working on the organization of words, I managed to destroy that contrast which in our understanding and perception exists between prose and poetry. . . . Some of these works, which seemed to me more or less accessible to a wide audience, I tried to read aloud. More complex works, which required a long and careful reading, I wrote down on big yellow posters. I hung out these posters in the city. I attached them myself.

My work and the room where I worked were called the 'Laboratory of Hearing.'³⁵³ [My italics]

Had he owned or had the use of a phonograph then he would have been more specific, perhaps substituting 'a device' with 'my phonograph'. It was not his original intention to conduct this experiment, for he was just killing time whilst waiting for his long overdue girlfriend to arrive. In light of this, Vertov, had he access to a phonograph, would have lamented his failure to bring this machine to the location. His words 'the absence of a device by means of which I could record and analyze these sounds' lacks even a basic specificity, which strongly indicates he had no physical device, or bespoke technology in mind.³⁵⁴ Nevertheless, he does state that the abandonment of his analysis was temporary and so it is possible he acquired his phonograph later and repeated the experiment. Perhaps the 'lumber-mill' and the 'saw-mill' were two specific locations, rather than two different translations. However, there is currently no empirical evidence available to support this notion.

³⁵³ Dziga Vertov quoted in Smirnov, *Sound in Z: Experiments in Sound and Electronic Music in Early 20th Century Russia*, 25-6.

³⁵⁴ Ibid,

Vertov makes what appears to be a similar observation about an occasion ‘in the spring of 1918’ in the much quoted passage taken from *The Birth of Kino-Eye*, detailing the epiphany he experiences when he decides that his future practical research should be focussed upon photographing rather than transcribing representations of auralty. Kahn states in *Noise, Water, Meat* that:

It has been assumed he [Vertov] became frustrated with the poor sound quality of the available technology. Indeed, he spoke of his transition to film in terms of the inadequacy of phonographic technology, remembering how: “one day in the spring of 1918... returning from a train station, there lingered in my ears the signs³⁵⁵ and rumble of the departing train ... someone's swearing ... a kiss ... someone's exclamation ... laughter, a whistle, voices, the ringing of the station's bell, the puffing of the locomotive ... whispers, cries, farewells ... And thought while walking: I must get a piece of equipment that won't describe, but will record, photograph these sounds. Otherwise, it's impossible to organize, edit them. They rush past, like time. But the movie camera perhaps? Record the visible ... Organize not the audible, but the visual world. Perhaps that's the way out?”³⁵⁶

Kahn, in *Art and Sound*, develops this perceived wisdom regarding Vertov’s growing disenchantment with acoustic recording technologies:

Presumably, he became frustrated with the poor sound quality, the nonplasticity of the medium, or the stricture of one generation. ... His inability to “phonograph sounds,” in Edison’s words, resulted in a desire to “photograph these sounds.” Thus, the famed *Kino-Eye*, the fetish of much post- World War II experimental film, was ironically the result of a frustrated ear.³⁵⁷

This is similar to Fischer’s earlier account when she states:

In 1916 he set up a Laboratory of Hearing in which to conduct such Futurist-influenced sound experiments. Thus we find, strangely, that the filmmaker

³⁵⁵ Signs, meaning signal, keynote or soundmark.

³⁵⁶ Kahn, *Noise, Water, Meat*, 140.

³⁵⁷ Kahn, *Hearing History: A Reader*, 41.

known most for his concern with the eye was really, at first, most concerned with the ear. And one can see *Enthusiasm*, which Vertov referred to as “a symphony of noises,” as an almost postponed event – one that he was somehow ready for in the twenties, but which was not, technologically speaking, ready for him.³⁵⁸

Fischer makes no claim that Vertov was frustrated by nascent technologies, whilst Kahn presents us with a clear narrative. His argument is that Vertov was reflecting upon another failed attempt to capture ‘auditive reality’.³⁵⁹ However, it seems clear that Vertov, in this instance at least, did not attempt to record the train station environment with a phonograph. He does not compare the poor quality of the audio captured by his ‘1900 or 1910 wax disc recorder’ with his re-collection of those keynotes and soundmarks which defined that location.³⁶⁰ Crucially, when he contemplates this aural memory, manifesting itself visually in recollection, he expresses a desire to acquire a technology ‘that won’t *describe*, but will *record*, photograph these sounds’.³⁶¹ He does not refer at all to an audio capture, indeed, the inference is that he never used ‘a piece of equipment to... record... these sounds’ in the past, be it a sawmill or a train station.³⁶² Therefore, his railing against sounds that ‘rush past, like time’ is expressing a frustration with literary transcription and not phonographic inscription.³⁶³ It is Vertov’s perceived inadequacies of literary aurality that motivates him to ‘organize not the audible, but the visual world’.³⁶⁴

If he had he used a recorder of some description, then it might have been used as an aid memoire – a means of capturing the aural actuality of that location – allowing him to transcribe the environment in a more controlled and reflective space. This, however, is

³⁵⁸ Lucy Fischer, “Enthusiasm: From Kino-Eye to Radio-Eye”, in: *Film Sound*, 248.

³⁵⁹ Apollinaire, *The New Spirit and the Poets*, (1918).

³⁶⁰ Kahn, *Hearing History: A Reader*, 17.

³⁶¹ Kahn, *Noise, Water, Meat*, 140.

³⁶² *Ibid.*

³⁶³ *Ibid.*

³⁶⁴ *Ibid.*

mere speculation. John MacKay, when discussing Vertov's 'montage of stenographic recordings' and 'experiments with gramophone recordings, where [he created] a new composition out of separate fragments [taken] from gramophone records',³⁶⁵ postulates that 'Vertov might have employed a Dictaphone (given that device's relative availability in cities globally after around 1910) or blank Pathé phonograph cylinders for work on a different project, his long lost "remixes" from existing recordings. It is almost impossible to determine, in truth, which recording apparatus Vertov actually used.'³⁶⁶

This is an intriguing idea. The technology MacKay suggests, which could have been in Vertov's possession, was a wire-recorder, conceptualized in 1878 by American mechanical engineer Oberlin Smith, and practically realised by the Danish inventor Valdemar Poulsen in 1889, who called his invention the 'telegraphone'.³⁶⁷ It was refined and improved upon in 1911 by Lee de Forest, who had patented the Grid-Audion power vacuum tube some four years earlier, a three triode power 'valve' which, when combined in series, would usher in the electronic age.³⁶⁸ MacKay concedes this as pure speculation in order to reconcile the claims made by Vertov in the 1920s and 1930s about this period in his life, with the dearth of evidence supporting those claims. In accordance with MacKay, it is difficult to see how Vertov could have made a montage from 'stenograph recordings'. Perhaps these were rich media recordings, and not written stenograph records. The chairman of the American Telegraphone Company in 1904, 'predicted that one day "everywhere in the field of human endeavor, where an accurate record of the

³⁶⁵ "Kak Rodilsia i Razvivalsia Kino-Glaz," Stat'i i Vystuplennia, quoted in MacKay, *Dz'iga Vertov: Life and Work*, 17.

³⁶⁶ John MacKay, *Dz'iga Vertov: Life and Work*, (forthcoming from Indiana University Press), 17.

³⁶⁷ Marketed as a telephone answering machine, it was further improved in 1918 by German inventor Curt Stille who used electronic amplification. It wasn't until the 1940s, when The Armour Research Foundation – who had invented an improved wire-recorder in 1939 which was used by the US armed forces throughout World War Two – licensed machines for commercial release. In the Arthur Miller stage play, *Death of a Salesman* (1949), Willy Lomax's boss, Howard Wagner, extols the qualities of his wire answering machine to Willy.

³⁶⁸ Lee De Forest, "The Audio – Detector and Amplifier", Proceedings IRE, vol. 2, (March 1914), 15-36.

spoken word is required or desired, the machine will be ... doing its work.”³⁶⁹ It is possible that these stenograph records were, in fact, wire recordings.

It is the greater plasticity of the wire recorders, when compared to the wax cylinder phonograph, which encourages one to contemplate this unsupported notion. The wire recorder worked in a way similar to the magnetic tape recorder of the post World War Two era, insofar as it employed a magnetic recording process where the media was very editable. With magnetic tape, one edits using a cutting block, a razor blade, splicing tape and a grease pencil to mark the edit point. With the wire recorder, one snips the end of one sound extract with a pair of wire cutters to tie or flux-solder to the beginning of a different extract.

In 1929, Vertov stated that his work during that period (1916-18) consisted of four related areas of practical experimentation.

1. the montage of words (“cities of Asia”)
2. the montage of noises (“sawmill”)
3. the projection of music fragments on words (Scriabin)
4. the ‘Laboratory of Hearing’³⁷⁰

The ‘montage of words’ refers to Vertov’s early experiments in rhythmic groupings of words to aid recall. Like Kahn, Yuri Tsivian believed the ‘montage of noises’ was ‘to make music out of environmental sounds (a local sawmill offered him sonic material for this).’³⁷¹ However, this was much more likely to have been a literary transcription of that environment and not an attempt to record the actuality of that space. It is possible he did both, but he does not specifically refer to this, except in very vague terms. His work with

³⁶⁹ Greg Milner, *Perfecting Sound Forever: The Story of Recorded Music*, (London: Granta Publications, 2009), 109.

³⁷⁰ Yuri Tsivian, “Introduction”, in *Lines of Resistance: Dziga Vertov and the Twenties*, ed. Yuri Tsivian, (New York: Indiana University Press, 2005), 23.

³⁷¹ Ibid.

‘the projection of music fragments on words (Scriabin) involved writing poems to recite to Scriabin’s music.’³⁷² The Laboratory of Hearing as MacKay states, ‘consisted of nothing more than “his work and the room in which he worked” – it was not a recording studio but rather a space for non-mechanical, manual inscription and transcription of various kinds, whether the medium be notes, words, or some other nomenclature.’³⁷³ In his footnotes, MacKay also confirms that ‘when Vertov writes of his “experiment in the recording of the sounds of the sawmill” [moj opyt po zapisi zvukov lesopil’nogo zavoda], it seems, judging from his text, that he has in mind written transcription rather than mechanical sound recording.’ [Kak Rodilsia i Razvivalsia Kino-Glaz]³⁷⁴

3.1 Aurality as Memory: ‘collected’ versus ‘re-collected’ Sound.

There is nothing in sonography corresponding to the instantaneous impression which photography can create. With a camera, it is possible to catch the salient features of a visual panorama to create an impression that is immediately evident. The microphone does not operate this way.³⁷⁵

It appears that Vertov’s reflective train station epiphany forms the natural conclusion to his experiments with literary transcription and, if we are to believe his assertion that he also used a phonograph in some capacity, of audio recording. Vertov is very likely to have experienced a disconnect of perception between the environmental sounds he transcribed, the aural environments he captured (assuming he at least attempted to do this) and his later recollection of those environments – the sounds that ‘lingered’ in his ears. Arguably, it was this that shaped the substance of his epiphany. Modern sound design practice understands that sound is associative, insofar as our memory of sound is most efficient when attached to a visual object. We remember sounds visually and those

³⁷² For more information on this read chapter three of John MacKay’s forthcoming book: *Dzjiga Vertov: Life and Work*.

³⁷³ MacKay, *Dzjiga Vertov: Life and Work*, 18.

³⁷⁴ Ibid.

³⁷⁵ Schafer, *Our Sonic Environment and the Tuning of the World*, 6.

sounds that do not have an associated visual image are more easily forgotten, regarded as unclassifiable noise. Schaffer classifies these visual sounds as ‘keynotes’³⁷⁶ and ‘soundmarks’³⁷⁷. They are the sounds required to define a specific environment. For example, the keynote classifiers for a forest glade, mid afternoon on a warm summer day in a temperate climate are:

1. Birdsong.
2. Leaves rustling on the trees (the action of light wind).
3. Insect sounds.
4. A small babbling brook (optional).

These are all the sounds required when combined in montage to trigger a collective recognition of that environment. A location, or ‘natural’, sound recording would certainly contain those keynotes, but there would also be a great deal of unclassifiable noise and unexpected sounds. Therefore, there is invariably a cognitive disconnect between what we hear experientially and what we recall retrospectively. In this sense, sound design is a poetic construct distilled from the natural. What makes Vertov’s ‘lingering ear’ so compelling is this sudden realisation that the camera has the ability to capture sound(s) visually. Because sound attaches itself to the visual,³⁷⁸ all sound that lacks a visual context is not, within the context of creative practice, worthy of classification. As Michel Chion observes in *Audiovision: Sound on Screen*: ‘What does a sound typically lead us to ask about space? Not “Where is it?” – for sound “is” in the air we breathe or, if you will, as a

³⁷⁶ ‘The keynote sounds of a landscape are those created by its geography and climate: water, winds, forests, plains, birds, insects and animals. Many of these sounds may possess archetypal significance; that is, they may have imprinted themselves so deeply on the people hearing them that life without them would be sensed as a distinct impoverishment.’ Schafer, *Our Sonic Environment and the Tuning of the World*, 9-10.

³⁷⁷ ‘The term soundmark is derived from landmark and refers to a community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community. Schafer, *Our Sonic Environment and the Tuning of the World*, 10.

³⁷⁸ Chion, *Audio-Vision: Sound on Screen*, 69-71.

perception it's in our head – but rather, “Where does it come from?” The problem of localising a sound therefore most often translates as the problem of locating its source.³⁷⁹

Vertov's personal revelation is a move away from his notion of literary transcription, in the sense that it dismisses the need to classify all aural emanation contained within a specific environment. As Vertov later stated: ‘Within the concept “I hear,” I included the entire audible world’. Philosophically, this is akin to Russolo's concept of noise-sound found in *L'Arte dei rumori*, when he states that ‘the variety of noises is infinite’³⁸⁰ and ‘we must break out of this limited circle of sounds and conquer the infinite variety of noise-sounds.’³⁸¹ Indeed, with his attempt to ‘record a sawmill’, Vertov was trying to do just that.³⁸² However Russolo in his 1913 manifesto, was advocating the development of noise-intoners or *intonarumori*³⁸³ as an augmentation of the traditional orchestra; an additional orchestral section making it: woodwind, brass, strings, percussion & *intonarumori*. Vertov, when describing his inability to accurately notate the entirety of noises emanating from the lumber-mill of 1916, wished for a ‘device by means of which I could record and analyze these sounds.’³⁸⁴ He was not wishing for a phonograph, but rather some kind of classification machine. A machine that could listen to all aural emanation and then deconstruct, classify, notate and transcribe all noises. A soundscape analysis machine.

So, it could be argued that Vertov's epiphany was in fact a rejection of Russolo's additive methodology of noise classification, where one adds layers of sound as one first perceives an unidentified noise and classifies it, thus transforming it into a sound. With

³⁷⁹ Ibid., 69.

³⁸⁰ Russolo, *The Art of Noises*, (1986), 29.

³⁸¹ Ibid., 25.

³⁸² Kahn, *Hearing History: A Reader*, 40.

³⁸³ Microtonal kinetic emulators capable of evoking noise-sounds found within the industrial landscape.

³⁸⁴ Vertov quoted in Smirnov, *Sound in Z: Experiments in Sound and Electronic Music in Early 20th Century Russia*, 25-6.

his audio-visual recollection of the train station, Vertov employed the reductive process that is to be found in Marinetti's 'words-in-freedom', leaving only the keynotes of that environment within a specific context.

By wireless imagination, I mean the absolute freedom of images or analogies, expressed with disconnected words, and without the connecting syntactical wires and without punctuation.³⁸⁵

Vertov's recollection of the train station is like a paper edit for a modern sound design – a location's 'significant form', identical to Marinetti's, so the sound 'subject' of his literary transcriptions of auralty eventually becomes the visual sound 'object' found in *Man With a Movie Camera*, particularly during the opening auditorium sequence. This 'recollection' of sound(s) is much more conceptually linked to Marinetti's 'words-in-freedom', which is indeed a poetic distillation of aural actuality. So, whilst Vertov was initially simultaneously influenced by the concept of noise-art (Russolo) and the concept of sound design of *Zang Tumb Tumb*, it is Marinetti's reductive mediation of the aural environment that proves to be inspiration for Vertov's use of visual and implied sound in *Man with a Movie Camera*. As Rick Altman observes in *Sound Theory, Sound Practice*:

Far from arresting and innocently capturing a particular narrative, the recording process simply extends and complicates that narrative. Just as the upholstery of a particular soundscape has an impact on the sound narrative, so the way in which sound is collected and entered into memory becomes part and parcel of the overall sound phenomenon.³⁸⁶

Vertov's abandonment of his Laboratory of Hearing in favour of 'recording the visual' was an admission that his initial ambition to classify sound as the 'entire aural world' was undermined by his inability to isolate and label individual sounds from the 'noise' that surrounded them, whether through a process of literary transcription or phonographic

³⁸⁵ Marinetti, *Destruction of Syntax – Radio Imagination – Words-in-Freedom* (1913).

³⁸⁶ Rick Altman, "The Material Heterogeneity of Recorded Sound", in: *Sound Theory, Sound Practice*, ed. Rick Altman, (London: Routledge, 1992), 24.

capture. However, when Vertov began cataloguing sounds in 1930 for his first sound on film movie, *Enthusiasm/The Donbass Symphony*, using optical sound film stock and directional radio-microphones, he was far more successful because he was working with both image and sound – whether that sound was synchronous, asynchronous or a combination of both. Indeed, when one places a synchronised sound within a montage of asynchronous sounds, it has the effect of locking all those other sounds to the visual diegesis. For example, when you place related yet asynchronous sounds over a master shot of a beach scene where children are playing football – the keynotes are: seabird cries, wind, the distant shouts of children, sea and sea-wash (all taken from a sound effects library) – and then you place the library sound of a wave breaking over rocks along the shore, synchronised to its visual analogue, then all the other sounds are accepted as ‘authentic’ by the receiver. The synchronised wave crash is the gateway sound, which allows for all other related post-production aural to be perceived as specific to that environment. Within the context of non-fiction, it is the illusion of naturalism. Yet, a catalogue of individual sounds that are divorced from a contextualising source has no intrinsic value without either a visual reference, or a plastic technology that will allow for a process of aural simultaneity. The value of a library of sounds only becomes apparent when one is able to present a selection of keynote-signifiers delivered simultaneously so that a scenographic construct is achieved, much like the woodland glade example given earlier. Many isolated sounds have no semiotic resonance or signification without a separate, but related, visual or aural contextualising component. In purely auditive terms, a single sound will not necessarily ‘read’ as that sound when presented in isolation. So, whilst it is possible to present the evocative signal-keynote of a factory whistle or an air raid siren by auditive means only and be relatively confident that the receiver will understand and recognise this aural artefact, it is more problematic with,

for example, the sound of rain.³⁸⁷ When presented with a complimentary visual diegesis, such as a rain swept city street, the aural signification of rain is illuminated by what Chion calls the ‘spatial magnetisation of sound by image.’³⁸⁸ Conversely, when rain is presented unaccompanied by a visual reference or another contextualising sound, then the collective cognisance of this sound is undermined by its non-uniqueness, insofar as the textural and modulated frequency range of the sound of rain is shared with other evidentiary aural activities. Consequently, the sound of wind or thunder – two of the keynote-archetypes denoting inclement weather – will pull the rain effect within that environmental context. Similarly, the sound of a kettle boiling and the clinking of cutlery being placed on a table will transmogrify that effect into the frying of food. It is an aural Schrödinger's cat, for without a contextualising visual or auditive source, the sound can represent both contexts simultaneously.³⁸⁹

It could be argued that if *Man With a Movie Camera* is the natural conclusion of Vertov's distilled and reductive approach to implied auralities, inherent within the visual object as recollected or remembered sound, inspired by Marinetti's concept of ‘words-in-freedom’, then *Enthusiasm* sees Vertov return to the philosophy of Russolo, where the classification of noises is an additive process. Asynchronous recorded actuality contextualised by a synchronous sound component – a process which defines the documentary aesthetic of sound as an inclusive and non-distilled component to this day. Whereas the selective and reductive scenographic constructs – the recollected sound of Vertov's lingering ear, remains an integral component of the photo-play.

³⁸⁷ Both the factory whistle and the air raid siren could be classified as post-industrial archetypes. However, during World War Two the signal warning of invading forces on the shores of Britain was the ringing of church bells. The removal of the signal-archetype of the daily landscape – the chiming of the hour and quarters and the call to prayer – creates a separateness of that sound through the provision of an altered semiosis based on a specific context. The situation defines this aural message. But this meaning existed only between the years 1939-45. For that sound to achieve the same meaning today, one must juxtapose it with supporting images or sounds.

³⁸⁸ Chion, *Audio-Vision: Sound on Screen*, 70.

³⁸⁹ Although, of course, if a sound can read as both simultaneously, then effectively it also reads as neither, and the integrity of the design is entirely undermined.

Chapter 4: L'Arte dei rumori and the Futurist Serate.

It seems to me that this game has been going on too long.³⁹⁰

On April 21 1914, at the Teatro dal Verme in Milan, Russolo unveiled his *intonarumori* orchestra comprising eighteen instruments that he and his assistant, Ugo Piatti, had constructed over the previous year, since the publication of *L'Arte dei rumori* on March 11, 1913. During that period, Russolo had also found the time to compose three pieces of noise-music: *Risveglio di una città* (Awakening of a City), *Colazione sulla terrazza del Kursaal Diana* (Breakfast on the Terrace of the Kursaal Diana), and *Convegno di automobili e di aeroplani* (A Meeting of Automobiles and Aeroplanes). Apart from a seven bar fragment of the score for *Risveglio di una città*, which he included in chapter eight of his 1916 *AoN 16* entitled *Grafia enarmonica* (Enharmonic Notation), no examples of Russolo's compositions remain, be it printed scores or audio recordings of the *intonarumori* orchestra. Nor are there any of the *intonarumori*, all of which were destroyed during an Allied bombing raid in World War Two. Very little evidence of, or material from, the Futurist's performed works remains, other than the paintings and the publications. Marinetti recorded some examples of his *parole in libertà* (Words in Freedom) work *Zang Tumb Tumb* in 1922 and these survive and are included on *Musica Futurista: L'Arte dei rumori 1909 – 1935* (1978).³⁹¹ The dearth of original recordings compared to the re-created recordings made in 1978, perfectly illustrates the lack of audio material that survives from this era. Russolo does not directly feature at all, for the recordings of his *intonarumori*, the *gorgogliatore* (gurgler), the *ronzatore* (buzzer), the *ululatore* (hooter) and the *crepitatore* (crackler), were made by Daniele Lombardi employing *intonarumori* that had been reconstructed in 1977 by Mario Abate and Pietro Verardo at the Historical

³⁹⁰ Marinetti addresses the Florentine audience at the Teatro Verdi, December 12, 1913.

³⁹¹ Originally released in 1978 as a vinyl double album, a remastered version, with slightly different track listings, is available to buy as a compact disc (2004). It is also available as a download on iTunes.

Contemporary Art Archive of the Venice Biennale. However, his brother Antonio Russolo does feature with two of his compositions, *Corale* and *Serenata*, recorded in 1921 at the time of the Paris concerts (fig. 2). These are the only surviving recordings that feature original *intonarumori*, incorporated, as his brother had originally envisaged in the 1913 manifesto, within a conventional orchestra. It is perhaps fortunate that Antonio Russolo chose to follow the approach advocated in the 1913 edition of the *L'Arte dei rumori*, rather than the one Russolo had later envisaged and which he set forth in the *AoN 16*. The mediocrity of these compositions is apparent and the incorporation of the *intonarumori* clumsy, uninspired and lacking in dynamic range. Had Antonio produced noise-sound compositions only, there would be no opportunity to accurately evaluate the functionality of the *intonarumori*, due to the lack of a legitimate framework. By applying a qualitative assessment to his conventionally orchestrated music, and then applying that same criteria to the use of the *intonarumori*, one can conclude that the *intonarumori* were not made manifest in their best light. As Luciano Chessa states: "The *intonarumori* do indeed sound disturbing ... in a context otherwise so annoyingly conventional and mundane that it is almost anodyne."³⁹² It is interesting, perhaps perplexing, that it should be Antonio who made these recordings, even though he performed three concerts for a mixed orchestra in Paris at the Théâtre des Champs-Élysées in that year and the recordings were made at that time. As the publicity photograph shows, Russolo was present for these concerts, but was not directly involved. Indeed, his presence for this photograph (fig. 1.) is likely indicative not of his collaboration in the concerts but of loyalty to his old mentor, Marinetti.

³⁹² Chessa, 222-3.



Fig. 1. From left to right: F.T. Marinetti, Luigi Russolo & Antonio Russolo. The poster advertising these concerts illustrates the Futurist hierarchy. Russolo is well represented, but the biggest font-type of all is reserved for Marinetti. Antonio, whose concert this was, and whose compositions were being performed, comes quite a distant third in the pecking order. This has led to confusion from some academics later attributing these concerts to Russolo. However, the concert was for a mixed orchestra and Russolo never once composed for anything other than an orchestra exclusively comprising of his intonarumori.

The composition of the photograph and the body language of the three protagonists is quite revealing. All three are arranged around the poster. Marinetti, looking prosperous, wearing his signature bowler hat and bow tie, gazes resolutely at the camera. As we look at it, Antonio is positioned to the right of the poster and appears to be self-consciously attempting to convey a relaxed state. Russolo, looking slight and frail, is positioned behind and to the right of Marinetti, almost like a passing bystander who had just turned the corner, only to be frozen in the instant. This is also strangely in keeping with the nature of their relationship as the two principal conceptualists of noise in art. It is an oddly composed photograph and one might imagine that in an earlier setup the poster was framed by Marinetti and Antonio— the featured players in the concert – before Russolo was then persuaded to also pose. He seems distant and abstracted. Yet, as the faithful ‘Futurist friend’ he positions himself next to Marinetti, rather than his brother, and this has the effect of isolating Antonio, distancing him from both Futurists, survivors of the movement’s heroic age. Russolo would most likely have been distinctly

unimpressed that Antonio had composed his works for a mixed orchestra, rather than for an orchestra comprised exclusively of *intonarumori*, something Russolo had advocated in every publication, save for the first in 1913. Loyalty to Marinetti, rather than filial affection, appears to be Russolo's prime motivation.

The concerts were actually a success and over the course of the three nights some pre-eminent composers attended, including Manuel de Falla, Maurice Ravel, Igor Stravinsky, Arthur Honegger, and Sergi Prokofiev. Writing of the Paris concerts, Piet Mondrian stated that the *intonarumori* were an important step towards a reform of the means of creative expression.³⁹³ It would prove to be the last real, yet transitory, triumph for Russolo's *intonarumori* and, for Russolo at least, it must have been bitter-sweet. Russolo himself believed he had only performed at one event where his orchestra was practiced enough to fully demonstrate the functionality of the *intonarumori*. This was at the Teatro dal Verne seven years earlier, but regrettably the audience refused to quieten down to listen. All other performances had been ill-prepared or dogged by ill-fortune, the result usually being that the instruments were operated by inexperienced *intonarumoristi*. Antonio enjoyed the benefits of a long rehearsal process and an audience willing to listen. However, were it not for the success of the Paris concerts, it is unlikely that recordings would have been made of *Corale* and *Serenata*. In retrospect, one can question why Russolo did not perform one of his noise-sound compositions at these concerts. Antonio was not the only composer on the programme. Two pieces were composed by Nuccio Fiorda, who would later go on to become a composer for film. There were apparently twenty-seven *intonarumori* included within the mixed orchestra and it seems like a missed opportunity, given his presence at the event. During that period, Russolo was developing his noise-harmonium and perhaps he believed there would be

³⁹³ Mondrian, "De 'Bruiters Futurists Italiens' en 'Het' nieuwe' in de musik", in: *De Stijl* 4, no. 8 (1921), 114-8.

opportunity enough to demonstrate this new mechanical device, with greater functionality, at a later date.



Fig. 2. The programme was somewhat more evenly balanced, yet even so, all names receive equal weighting. Marinetti was present to give an introductory talk and Russolo is credited as the inventor. He receives joint credit as the constructor of the *intonarumori*, along with Piatti.

To return once again to the present, there have been *intonarumori* constructed in recent years, based on the patents Russolo filed in 1914 and on period photographs of the cases. Occasionally photographs of the interior of an *intonarumoro* appear – there is a good example to be found in Berghaus' *Italian Futurist Theatre: 1909 – 1944* (1996),³⁹⁴ credited to the Fondazione Russolo-Pratella, but that is a scale model, constructed at a later date – a fact not sign-posted by Berghaus.³⁹⁵ This and other examples show only the most basic structural design, no different to the re-created *intonarumori* included in appendix 1 (fig. 3). This chapter looks at the construction of the *intonarumori* and their specific function within a performative context. Exploring the acoustic nature and

³⁹⁴ Berghaus, *Italian Futurist Theatre: 1909 – 1944*, 121.

³⁹⁵ The Fondazione Russolo-Pratella was founded by G. Franco Maffina, author of the biography, *Luigi Russolo e l'arte dei rumori* (1978).

mechanical structure of these machines in chapters one and two, this thesis examined the Futurist's position in the technological timeline of the twentieth century. In many ways, indeed, in all fundamental ways, the *intonarumori* were obsolete at the instant Russolo made the move from the conceptualisation of his noise-intoners to their design and fabrication. There is no doubt, given the contemporary accounts of by fellow Futurists, Marinetti the chief amongst them, that Russolo obsessed over the research and development of his bespoke instruments, exploring the use of different materials in the construction of their inner workings, situated in what were essentially acoustic resonating boxes as defined by Hermann von Helmholtz in his treatise *On the Sensations of Tone* (1882). Russolo would experiment with metal crankshafts and toothed flywheels rubbing metal cables, cables coated with latex and so on, in order to develop a range of aural textures and signals. Yet, the influence Russolo would have on later practitioners, especially in the second half of the century, was because of his *L'Arte dei rumori* manifesto, not his instruments, which were dismissed out of hand, almost from when he first demonstrated his *scoppiatore* at the Teatro Storchi on 2 June 1913.. Russolo would of course dispute this assessment, pointing to the various composers who had expressed a great interest in his new instruments, but arguably this interest was generated by the fact that new instruments had been created, and that despite this interest, not one of those composers would go on to incorporate *intonarumori* into their compositions. Indeed, one might propose that the manifesto's influence lies not in the content of the argument, but in the fact that the argument was made at all. The *intonarumori*, within the context of the development of noise-art in modernism, were a Darwinian evolutionary dead-end, an anachronism from their inception. They never truly achieved the status of musical instruments and remained, as Marinetti put it, philosophical engines.

This is why the photograph (fig. 1.) is so compelling. It is 1921, and whilst this is still apparently in the acoustic era – one should look to date the start of the electronic era as between 1924-6, with the establishment of commercial radio, the electrification of the recording signal in the manufacture of music discs, and the commercial release of a synchronised sound feature film, *Don Juan* (1926)– nevertheless, electric amplification was now widely available. Leo Theremin’s instrument, which did not even require physical touch to produce the brand new tone of the age – the sine tone – had been in existence for over two years and had been publicly demonstrated in Russia and throughout Europe.

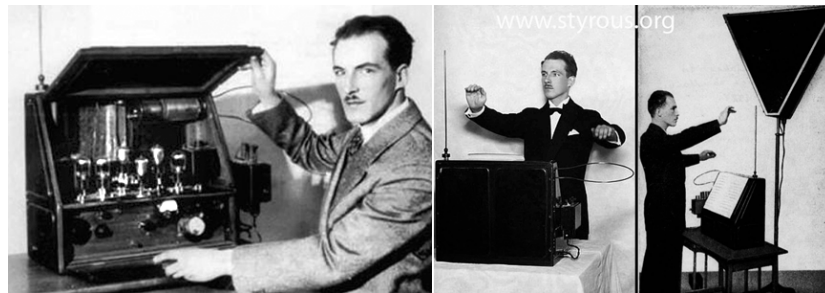


Fig. 3. Leon Theremin, from right to left: (a) Reveals the inner workings of his Thereminvox. Note the entirely electronic design, with a series of six Audion valves, providing both pre-amp and power-amp functionality, and a magnetic coil. b Theremin demonstrates the playing action. The vertical ‘aerial’ manipulated pitch and the horizontal ‘horseshoe’, volume. The original 1918/19 model was able to produce a three octave range, but this was increased to five octaves in 1928 at the behest of Clara Rockwood, the most noted thereminist of the age. (c) Leon Theremin performing on his instrument, with the speaker in close proximity. This, above all other things, separates the functionality of the *intonarumori* with that of the Theremin. By the time of the Paris concerts in 1921, the acoustically amplified *intonarumori* must have seemed an anachronism. Yet even so, Russolo was at that time, developing his acoustic noise-harmonium. These pictures probably date from 1928, although sources vary. The picture on the right is often dated 1922, but this is unlikely, given that the images on the right do date from 1928 and the same Theremin model is used throughout.

Yet, here were Russolo - by this time almost completely abstracted from the Futurist movement - and Marinetti uniting to promote distinctly average orchestral music, simply because it incorporated some noise-intoners, with their handles, levers, drum skins, stops and acoustic horns – wooden machines entirely antithetical to the future as it emerged, still clinging on to a future as it was envisaged a decade previously.

This chapter examines accounts of the three *Grand Serate* where *intonarumori* featured, the smaller scale Futurist Coffee-Afternoons and the performances at the London Coliseum in 1914. Whilst, as is now clear, no recordings or instruments have survived, there exist those two pages of the score for *Risveglio di una città*. This will be examined in detail by exploring the tonality and frequency range of each instrument, their inter-relationship within the simultaneity of performance through textural evocation and the dynamic and rhythmic differentiation between the different *intonarumori* designs.

The Instruments of the Orchestra

The image shows a page of a musical score titled "Dal « Risveglio di una città » per Intonarumori. - L. Russolo". It features eight staves, each representing a different type of noise instrument. From top to bottom, the instruments are: Ululatori, Rombatori, Crepitatori, Stropicciatori, Scoppiatori, Ronzatori, Gorgogliatori, and Sibilatori. Each staff contains musical notation with various notes and rests. Dynamic markings are present: "F" (Forte) and "FF" (Fortissimo) are used for the Rombatori and Gorgogliatori instruments, while "P" (Piano) is used for the Rombatori and Sibilatori instruments. The score is written in a 3/4 time signature.

Fig. 4. *Risveglio di una Città per intonarumori* – L. Russolo.³⁹⁶

Although Russolo presented an orchestra of eighteen *intonarumori*, performing his three original compositions at the Teatro dal Verme, the only original score of his known to

³⁹⁶ Brown, *The Art of Noises*, (1986), 72-3.

survive is this fragment (fig. 4).³⁹⁷ It provides the orchestration for eight instruments, although on the score Russolo uses the plural *ululatori* (Howlers), rather than the singular *ululatore* (Howler), indicating that the disposition of the noise-orchestra was sectional. This division is reinforced by the notation itself which, in the example of the *ululatori*, present two different frequencies playing simultaneously on the 'bass or F clef'.³⁹⁸ The *intonarumori* were, by virtue of their design, all monophonic instruments, meaning they could only play one pitch at a time, and so the polyphonic demands of the score suggest that more than one instrument was used to play that line. The $\frac{3}{4}$ time signature is interesting, for it means that *Risveglio di una città* is, in fact, a waltz. This at first appears quite charming; that the composed evocation of industrialised modernity, the noises of the city, should be performed in waltz time. Yet on further reflection, it is difficult to see why Russolo should choose to deviate from the more conventional 4/4 signature. The scoring of the *intonarumori* provides a great deal of information regarding the functionality of each instrument and their names are very descriptive of the nature of the noise-sound they produced. Russolo describes the exterior of the *intonarumori* thus:

Gl'intonarumori hanno esternamente la forma d'una scatola più o meno grande a base generalmente rettangolare. Dal lato anteriore esce una tromba che serve a raccogliere e rafforzare il suono-rumore. Posteriormente hanno una manovella per dare il movimento che determina la produzione della eccitazione rumoristica. Sulla parte superiore, una leva con una lancetta che si muove sopra una scala graduata in toni e semitoni e frazioni di tono. Questa leva serve a determinare con i suoi spostamenti l'altezza cioè il tono del rumore, che si legge sulla scala graduata.³⁹⁹

Externally, the noise instruments take the form of boxes of various sizes, usually constructed on a rectangular base. At the front end, a trumpet serves to collect and reinforce the noise-sound. Behind, there is a handle to produce the

³⁹⁷ There is some debate about how many *intonarumori* made up the orchestra. Berghaus states that there were eighteen (Berghaus, *Italian Futurist Theatre 1909 – 1944*, 130). Russolo in *AoN 16* includes a newspaper account of the *serata* at the Teatro dal Verme that states that there were twenty three instruments on stage. (Russolo, *L'Arte dei rumori*, 34).

³⁹⁸ Russolo, *The Art of Noises*, (1986), 69.

³⁹⁹ Russolo, *L'Arte dei rumori*, (1916), 75.

motion that excites the noise. On the upper part, a lever with a pointer is moved along a scale graduated in tones. Semitones, and fractions of a tone. Through its displacements, this lever is used to determine the highness, that is, the pitch of the noise, which can be read on a graduated scale.⁴⁰⁰

The next section of this chapter deconstructs the whole arrangement, examining the score (now on referred to as the pitch-map) in relation to the acoustic and rhythmical properties of each instrument, described by Russolo in chapter nine, *Gli intonarumori* ‘The Noise Instruments’, of *AoN 16*.⁴⁰¹ On first inspection, the pitch-map appears to be exactly how the design of the *intonarumori* appeared – ad-hoc and crammed into existing musical practice. Yet, as described in chapter one, Russolo rarely rushed anything, and certainly not in terms of conceptualisation. The *intonarumori* were the products of a considerable period of research and development, even if their construction was undertaken within an incredibly condensed timeframe. The same is true with the pitch-map. At first glance it looks as if he has attempted to force noise into a signal language designed exclusively for tone. Russolo addresses this in chapter eight of *AoN 16*, *Grafia enarmonica*. In it he states that he had considered different systems of notation, but they proved to be ‘impractical or useless’.

Un sistema che è certo logico e razionale è quello della scrittura musicale coi numeri chiamando 1 il primo grado della scala e 2, 3, 4, 5, 6 e 7 i gradi successivi. Ma questo sistema così logico in apparenza diventò però enormemente complicato e soprattutto di lenta e difficile lettura [...] per avere un’idea completa del grado di complicazione armonica e ritmica della musica, una pagina musicale scritta col sistema dei numeri non ci apprende nulla fino a che non l’abbiamo letta tutta, identificando numero per numero.⁴⁰²

One system of musical notation that is certainly logical and rational is that with numbers, labelling the first degree of the scale with the number 1, and the following degrees with 2, 3, 4, 5, 6, and 7. Although logical in appearance,

⁴⁰⁰ Russolo, *The Art of Noises*, (1986), 75-6.

⁴⁰¹ *Ibid.*, 75-80.

⁴⁰² Russolo, *L’Arte dei rumori*, (1916), 67.

this system was enormously complicated and particularly slow and difficult to read ... while a rapid glance at a page of music written on the usual staff is sufficient to give a complete idea of the degree of harmonic and rhythmic complication of the music, a page of music written with a system of numbers tells us nothing until we have read it all, identifying each number.⁴⁰³

Russolo's argument is convincing, insofar as a numerical system would prove entirely impractical. One would have to solve the equation before the piece could be performed. An analogical notion of time and space features here. In the twenty-first century, musical notation is not as systemic as once it was, and there are new models of inscription/notation which are popular, particularly amongst musicians who have not been classically trained. Indeed, some of these models of notation, from the 1950s onwards, derived not from the sound to be extracted from the prescribed instrumentation but from the tradition of the visual arts, demanding an interpretive aural response to an object rather than the cracking of a code. The DAW⁴⁰⁴ timeline and the MIDI⁴⁰⁵ piano roll are good examples of such notation, looking remarkably similar to Russolo's pitch-map, employing blocks of audio on a linear timeline. The piano roll, which notates pitch, velocity and duration across a timeline delineated by beats and bars, is philosophically identical to Russolo's system. Russolo's criticism of the numerical system of notation was that it was difficult to read and you did not know the 'answer' until you had completed the entire sequence. Within this digital system, the reader exists only in the present, with no notion of the past or future. Musical notation, the post-digital refinements of the timeline and the piano roll allow the reader to perceive the trajectory insofar as a reader can see where they are going, where they are, and where they have been. It has spatiality; it exists not in the instant, but over time. It is the difference between a digital and an analogue watch. A digital watch will tell the exact

⁴⁰³ Ibid.

⁴⁰⁴ Digital Audio Workstation

⁴⁰⁵ Musical Instrument Digital Interface.

time at a precise moment. An analogue watch will show the time now, but it will also show what the time will be in fifteen minutes. The face of an analogue watch contains a half day (12 hours) and one rarely ever needs to know the exact time for this precise moment. One usually needs to know what the time will be in ten minutes, or what time it was twenty minutes ago. Russolo, after conducting the research, recognised this and so adapted the existing system of musical notation, where both time and space exist.

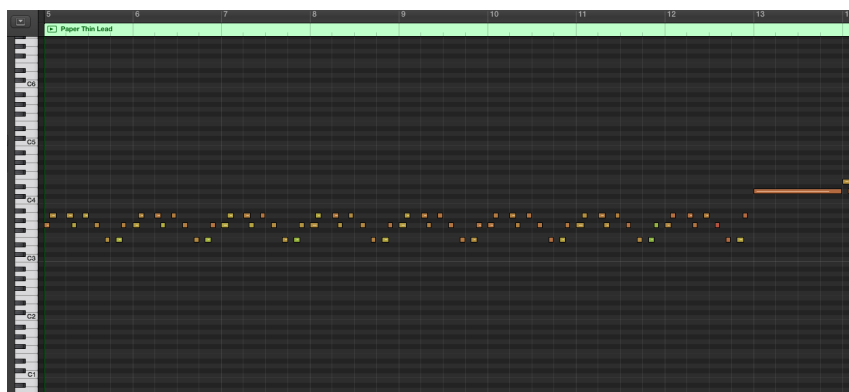


Fig. 5. The piano roll in Logic X. Note the beats and bars grid and the piano graphic on the left of the images, depicting what notes are played on which octave. The blocks are very similar in appearance and function to Russolo’s pitch-map, but with extra information. The differences in colour denote the different velocities in playback of each ‘note’.

This piece by Russolo - how would it have sounded? This is a different question to - what did it sound like? There are several practitioners and practicing academics who have attempted to answer that question. Lombardi was perhaps the first to do so in the late 1970s, and was responsible for producing a commercial double album of noise music in 1978 using *intonarumori* re-created from the patented schematics. Chessa is the best known practitioner today, and performances of his *intonarumori* orchestra can be found on YouTube. His orchestra publicly performed *Resveglio di una città*, for the first time since 1914, in his *Music for 16 Futurist Noise Intoners* on 12 November 2009 in New York.⁴⁰⁶ These examples are both approximations that go only some way in providing us with practical information. But the question – *how* would it have sounded? – is a sound design

⁴⁰⁶ “Music For 16 Futurist Noise Intoners,” YouTube video, 29:47, posted by “Performa,” (March 9 2012), <https://www.youtube.com/watch?v=Lqei96ZVoo8>.

question. Having already made it abundantly clear that sound design is a poetic process, distilling naturalism into something more immediate and condensed, this thesis argues that the same is true of Russolo's composition – it is the poetic evocation of a city waking up. Through experience, professional sound designers are able to 'see' sound in their mind's eye – that is they are capable of Synesthetic memory, and in deconstructing the pitch-map for each instrument and taking into account the specific nature of evocation of each *intonarumori* section, as described by Russolo himself, we will have a better understanding, in practical terms, of just what he meant by *L'Arte dei rumori*.

Examining Russolo's hybrid system of notation, the end of this section deals with his dynamic compositional approach through, for want of a better phrase, his 'frequency mapping' by the selective employment of the *intonarumori*. However, for the sake of clarity, it is important to first note that the twenty-one intervals – the vertical lines that bisect the staves – are not 'bars', as one might expect. As Russolo states in chapter eight of *AoN 16*:

La lettura sarà sempre riferita alle due chiavi di violino o di *sol* e di basso o di *fa*, che saranno segnate al principio della riga. Questa linea sarà intersecata da sottili linee verticali (come le attuali che segnano la battuta) le quali segnano invece *i quarti di battuta* e da linee ugualmente verticali, ma più grosse (oppure da due sottili vicine) che segnano le battute.⁴⁰⁷

The reader will always be referred to two clefs, the treble or G clef, and the bass or F clef, which will be written at the beginning of the staff. This staff will be intersected by thin vertical lines (like those which presently indicate the measure) which will show instead the *quarters of the measure*, and by lines, likewise vertical, but thicker (or rather, by two close lines) which indicate the measures.⁴⁰⁸

⁴⁰⁷ Russolo, *L'Arte dei rumori*, (1916), 70.

⁴⁰⁸ Russolo, *The Art of Noises*, (1986), 69.

The ‘oppure da due sottili vicine’ (or rather, by two close lines) is confusing because these are not in evidence, except perhaps, next to the time signature, at the very beginning. It is possible, even likely, that the reduction in print resolution, which allows the score to fit the book, has coagulated the ‘two close lines’ into one thick line. Nevertheless, when one examines the score it is vital to note that the interval lines are not bars and they are present to denote the three beats, which are represented by the spaces in between, with the thicker vertical line denoting the bar. So, at first glance it appears as if this fragment of score lasts for twenty-one bars, when in fact, those are twenty-one beats, or seven bars. Referring to figure 5, the piano roll, with the beats and bars delineated by a grid, on the timeline, which Russolo’s system for intervals, or

measures most closely resembles.

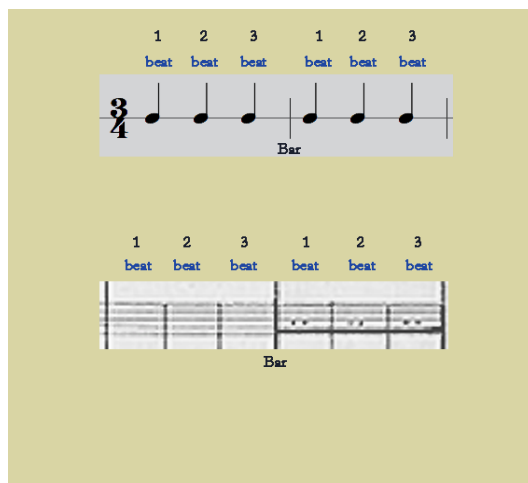


Fig. 6. The difference between conventional scoring and the methodology employed by Russolo. In the tempered system, each crotchet represents a beat. With Russolo’s system, the space between each interval line represents one beat and the thicker line indicates the bar. Three beats to the bar is represented here by spaces, rather than notes.

4.1 *The Instruments of the Futurist Orchestra.*

Ululatori – Three Instruments.

Gli Ululatori sono i più musicali, dirò così, fra gl’intonarumori. L’ululato che danno é quasi umano, e mentre ha qualchecosa che ricorda la sirena, assomiglia pure un po’ ai suoni del contrabbasso, del violoncello e del violino e

possono in un certo senso farne le veci rispettivamente con l'ululatore basso per il contrabbasso con il medio per il violoncello e con l'acuto per il violino.⁴⁰⁹

The *ululatori* or 'howlers' are the most musical of the noise instruments. The howling that they produce is almost human; and while they recall the siren to some extent, they are also a little like the sounds of the string bass, the cello and the violin. In a certain sense, they could be substituted for each other, the low howler for the string bass, the medium for the cello, and the high for the violin.⁴¹⁰

Russolo produces three howlers, each intended to cover a distinct pitch range or, as he calls them, 'families'. This is confirmed by the score, which requires three instruments to realise it.

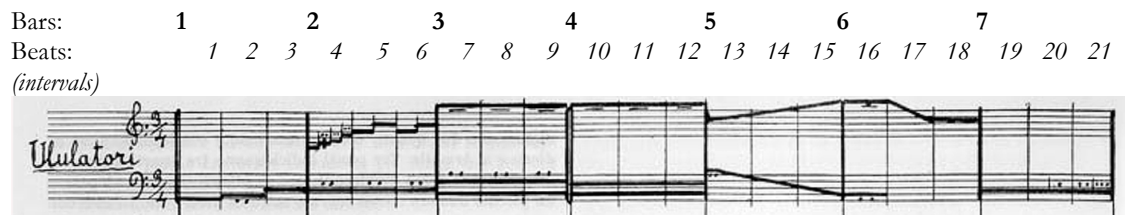


Fig. 7. The pitch-map for the *Ululatori*



Fig. 8. The musical notation for the *Ululatori* – this is somewhat an approximation. For example, it is very difficult to conventionally notate bar 7 on the bass clef. The single dot above the line in the second half of the sub-divided interval 2 indicates a quarter-tone shift and the three dots over the second half of the sub-divided interval 3 indicate a three quarter-tone shift.

It is tempting to search for an appropriate lexicon with which to deconstruct this composition. One can use 'bar' in much the same way as if describing a composition that employs conventional notation, but it would be problematic to use the word 'beat'. For example, one would have to say: 'Beat four on the treble clef contains four distinct pitch

⁴⁰⁹ Russolo, *L'Arte dei rumori*, (1916), 74.

⁴¹⁰ Russolo, *The Art of Noises*, (1986), 78.

shifts.’ This patent absurdity will be examined later in the chapter. So, instead of the word ‘beat’, the word ‘interval’ will be used to describe these equally delineated units of space and time.

The line begins with a single howler playing a constant low **G** on the bass clef for an interval, followed by a low **A** with two dots placed directly below it, which indicates a pitch shift of a semi-tone down to **Ab**.

Un punto indicherà così un quarto di tono, due punti indicheranno due quarti, cioè un semitono e corrisponderanno al diesis e al bemolle. Tre punti indicheranno tre quarti di tono.⁴¹¹

A dot will indicate a quarter-tone. Two dots will indicate two quarter-tones, that is, a semitone, corresponding to the sharp or flat. Three dots indicate a three quarters of a tone.⁴¹²

There follows an interval of **C**, followed by three intervals of **C** with two dots placed above the line indicating a raise of one semi-tone across all three. So in terms of a tonal range, it runs as one interval of **G**, one interval of **Ab**, one interval of **C** and three intervals of **Db**, corresponding to bars 1 and 2 on the bass clef. A second howler begins, starting on bar 2, (interval 4) on the treble clef. The resolution of printed score is quite poor, and so it is difficult to be absolutely certain of the notes. Nevertheless, the pitch shifts are far more dynamic, like a melody-line placed over a background bass drone, similar to acoustic stringed instruments equipped with a drone string. This fourth interval seemingly contains four distinct pitches beginning with **B**, followed by **C**, **D** and then **F**, with the **C**, **D** and **F** pitched up by a two quarter-tones each, resulting in **B**, **Db**, **Eb** and **Gb**, followed by intervals 5 and 6 repeating a two note sequence of **G** and **B**.

⁴¹¹ Russolo, *L'Arte dei rumori*, (1916), 70-1.

⁴¹² Russolo, *The Art of Noises*, (1986), 70.

Bars 3 and 4, (intervals 7 - 12) are confusing, with Russolo having drawn a thick line which seems to denote a high **A**, but with a short line positioned on the **G** below in each of the intervals. From that, it seems as though Russolo has drawn the **A** line onto the staff for two bars and underscored that with six dashes of **G** to signpost that **A**, just as you would place a dash beneath a conventionally scored **A**. On the bass clef, bar 3 (intervals 7 - 9) indicate two distinct tones, meaning the third howler is incorporated. The two pitches are **B** and **F**, although the **F** is pitched up two quarter-tones to **G_b**. The two dots signifying the two quarter-tone shift above the **G_b** are removed in bar 4 (intervals 10 - 12), returning that pitch to **F**. In bar 5 (intervals 13 - 15), two howlers perform an enharmonic shift. On the bass clef the pitch shifts downwards from **B_b** down a complete octave to the lower **B_b**, whilst on the treble clef, the pitch shifts from **C** up to **A**, over the same three intervals. Bar 6 (intervals 16 - 18) on the bass clef is **B_b** for interval 16, followed by two 'rest' intervals. On the treble clef it holds on **A** for one interval and then shifts down to the middle **C** and holds for interval 18. For bar 7 (intervals 19 - 21), the treble clef indicates three intervals of rest, whilst on the bass clef, interval 19 is **C** and intervals 20 & 21 are subdivided, resulting in, so it seems, half an interval of **C**, half an interval of **C** pitched up one quarter-tone to **D_{bb}**, half an interval of **D_b** and half an interval of **D_b#**.

BARS	1	2	3	2	5	6	3	8	9	4	1	1	1	5	1	1	7	1	1	20	21
Interval	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
Treble Clef	-	-	-	B Db Eb Gb	B G	B G	A	A	A	A	A	A	C	↑	↑	B	↓	C	-	-	-
Bass Clef 2	-	-	-	-	-	-	Gb	Gb	Gb	E	E	E	Bb	↓	↓	Bb	-	-	-	-	-
Bass Clef 1	G	Ab	C	Db	Db	Db	B	B	B	B	B	B	-	-	-	-	-	-	C	C	Db Db#

Table 1: *Ululatori*: three instruments across the Bass and Treble clefs.

The two bass clef rows correspond to the two bass lines simultaneously playing (intervals 7-12). Bass Clef 1 represents the lower frequency ‘string bass’ pitch-map. Bass Clef 2, the higher frequency ‘cello’ pitch-map. The rows and columns shaded in blue indicate enharmonic shifts in pitch (Intervals 13 – 15, Treble Clef and Bass Clef 2). When a number of notes are presented in a single column (E.G. Bar 4, Treble Clef), these are the pitches contained within one interval and should be read from top to bottom.

What is apparent is that the *ululatore* is a versatile instrument, able to pitch between three octaves. For Russolo, this was the equivalent of the string section of the conventional orchestra and his description of this *intonarumore* reinforces that, equating the low range with the ‘stringed bass’, the mid range with the ‘cello’ and the high range with the ‘violin’. The low frequency bass clef plays for one bar – indeed, all of the low frequency *intonarumori* inhabit this one bar introduction – the *rombatori*, the *stropicciatori* and the *ronzatori* all are playing, creating a low frequency pad of different textures, perhaps evoking the non-specific noise-silence of a city. The high pitched *ululatore* begins on the second bar and it pitches incrementally at a rapid pace, with four ascending pitches contained within one interval, followed by two notes repeated over two intervals.

These shifts are not enharmonic. They do not slide from one pitch to another with a slow portamento, but switch from one pitch to another. We know Russolo included that level of functionality on some of his instruments because he states ‘a lever with a pointer

is moved along a scale graduated in tones, semitones and fractions of a tone.⁴¹³ What is perhaps not so apparent is that these shifts were possible through the employment of a fast attack. There are only two instances of enharmonic shifts within the pitch-map for the *ululatori*, the most significant of which is the one bar portamento, performed by two *ululatori*, one rising and one falling in pitch between intervals 13 to 15. All *intonarumori* present, provide enharmonic pitch shifts at that point, with the exception of the *ronzatori*, which lacks that functionality and the *scoppiature*, which rests, having enharmonically pitched up throughout the previous bar. Russolo observes that his *ululatori* ‘have an advantage over their brother instruments in the traditional orchestra, being able to hold a note as long as desired without a change of bow, which produces not only a suspension (or better, modification) of timbre but also a rhythmic renewal in the held note.’⁴¹⁴

***Rombatori* – Three Instruments.**⁴¹⁵

I Rombatori danno un rumore rotondo, pieno, puro, molto musicale, che assomiglia nei bassi al rombo lontano del tuono, hanno un timbro ricchissimo di suoni armonici, gradevoli ed assonanti fra i quali, nei rombatori acuti soprattutto é sensibilissimo e forte un suono che é sesta sopra al tono fondamentale. Questo suono dà ai passaggi enarmonici un curiosissimo effecto, come di toni che si rincorrono continuamente, effecto che mentre nei bassi dá fascino e mistero, negli acuti invece é gaio, giocoso e burlesco.⁴¹⁶

The *Rombatori* (Roarers) produce a full, round and very musical noise, which in the low roarers resembles the distant rumble of thunder. They have a timbre quite rich in harmonic sounds, pleasing and assnant. Very strong and audible amongst them, especially in the high roarer, is a sound a sixth above the fundamental. This sound gives a very curious effect to enharmonic passages, as of tones that are continually recurring, an effect that is fascinating and

⁴¹³ Ibid., 76.

⁴¹⁴ Ibid., 78.

⁴¹⁵ Russolo mentions three instruments of this design, but the score only requires two to be realised. It is likely that two *rombatori* (see fig. 9) doubled up on the bass parts.

⁴¹⁶ Russolo, *L'Arte dei rumori*, (1916), 78.

mysterious in the low roarers, and in the high ones, gay, playful, and humorous.⁴¹⁷



Fig. 9. The pitch-map for the *Rombatori*

It begins, like the *ululatori*, with a low **G** on the bass clef, followed by **Ab**, and then **C**. Bar 2 is a continuous **Db**. At the beginning of bar 3, a second low *rombatori* is introduced, playing simultaneously with the first, both occupying the lower frequency range, evoking, if Russolo is to be believed, the distant rumble of thunder. It is likely that the second *rombatori* plays the lower of the frequencies, meaning that *rombatore one* plays **E**, **F** and **Gb**. *Rombatore two* plays the same notes, an octave lower, over the same three intervals (7 – 9). In Bar 4 the *rombatori* rests, indicating a dynamic shift in the composition and a change in texture, perhaps transitional between the opening and concluding nine intervals.

Up to this point there are no enharmonic pitch shifts, but bar 4 (intervals 13 - 15), see two enharmonic pitch shifts on the bass and treble clef. On the treble clef, it starts on **C** and shifts up an octave to **C** by the end of interval fifteen, still in transition. It holds on **C** for all of interval 16. On the bass clef, it starts with **F** and shifts up to **C**, still in transition and holds on **C** throughout interval 16. Interval 17 sees the **C** enharmonically shift down to **G**, still in transition, and holds on **G** for interval 19, where it continues to the end of the bar, modulating to **A(bb)**, **Ab** and **A(b#)**, bisecting intervals 20 and 21

⁴¹⁷ Russolo, *The Art of Noises*, (1986), 78.

equally. The sub-interval line is positioned in the centre of each interval, indicating that every modulation lasts for half an interval.

BARS Interval s	1	2	3	2	5	6	3	8	9	4	11	12	5	14	15	6	17	18	7	19	20	21
Treble Clef	-	-	-	-	-	-	-	-	-	-	-	-	C	↑	↑	C	-	-	-	-	-	-
Bass Clef 2	-	-	-	-	-	-	E	F	G b	-	-	-	-	-	-	-	-	-	-	-	-	-
Bass Clef 1	G	Ab	C	Db	Db	Db	E	F	G b	-	-	-	F	↑	↑	C	↓	↓	G	G	Ab b	Ab#

Table 2: *Rombatori*: two instrumental lines across the Bass and Treble clefs.

The function of the *rombatori* in this fragment of composition is to produce low textural sounds, evoking perhaps either distant thunder or a distant and reflected industrial action. (For most of the score only the low *rombatori* feature, the exception being bar 5 where, like all of the *intonarumori*, with the exception of the *ronaztori*, distinctive enharmonic shifts take place.) This sequence within the composition as a (fragment) whole is obviously a set-piece dynamic shift, perhaps evoking an increased action. There is also an ‘**F**’ (*forte*, meaning ‘loud’) placed above the bass clef on bar 5, and ‘**FF**’ (*fortissimo*, meaning ‘very loud’) above bar 6. Bar 7 contains the instruction, ‘**P**’ (*piano*, meaning ‘soft’). So along with the dynamic shift, there is an increase in amplitude across six intervals, followed by a sudden decrease for bar 7 (intervals 19 - 21), with a corresponding cessation of amplitude on all instruments, save the *ululatori* and the *sibilatori*.

***Crepitatori* – Four Instruments.**

I Crepitatori danno un creptio metallico al quale è difficile trovare un paragone. Hanno una fortissima intensità, intonazione perfetta e facile, timbro ricco di suoni armonici acuti, offrono gradissime risorse, variazioni di intensità

soprattutto negli acuti, che possono dare come una specie di grugnito regolabile, netto, staccato, argentino. Il crepitatore acuto si presta magnificamente a degli a di solo grand effetto ed é forse lo strumento col quale e piú possibile fare delle virtuosità.⁴¹⁸

The *crepitori* (cracklers) produce a metallic cracking for which it is difficult to find an analogy. They have great intensity, easy and perfect intonation, and a timbre rich in harmonic sounds, offering very great resources, especially in the variations of intensity in the high cracklers, which can produce a high-pitched grunting like a pig being skinned, or just as well, a very sweet and controlled tinkling, staccato and silvery. The high crackler lends itself magnificently to very effective solo passages. It is perhaps the instrument on which the greatest virtuosity is possible.⁴¹⁹



Fig. 10. The pitch-map for the *Crepitatore*.

The *crepitatore* is used more sparingly than both the *ululatori* and the *rombatori*. Bars 1 and 2 across both the bass and treble clefs are rests. Bar 3 (intervals 9 – 12) on the treble clef each contain a repeating enharmonic figure of **G_b** descending to **C**. Intervals 10 and 11 are rests and interval 12 is **A_b**. This transitions enharmonically over bar 3, ascending to **A_b**, by interval 16. Intervals 17 and 18, see the **A_b** dramatically drop down to a **G** and returning to **A_b** at the end of interval 18, with no hold at the end. Bar 7 is a rest. On the bass clef, bars 1 - 4 are rests. Bar 5 starts on **A_b**, with no hold, and immediately enharmonically ascends one octave to **A_b** on interval 16. Intervals 17 - 21 are rests.

⁴¹⁸ Russolo, *L'Arte dei rumori*, (1916), 79.

⁴¹⁹ Russolo, *The Art of Noises*, (1986), 78.

The low *crepitatori* are employed to add resonance and richness to the composition, covering the enharmonic shift of bar 5. The treble *crepitatori* is present to add high end sparkle, although, given the lack of information on the score regarding the preset for this instrument, it is uncertain whether Russolo intended it to evoke the high-pitched grunting like a pig being skinned, or the very sweet and controlled tinkling, staccato and silvery. One suspects the latter.

BARS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Interval																					
Treble Clef	-	-	-	-	-	-	Gb ↓ C	Gb ↓ C	Gb ↓ C	-	-	Ab	↑ Ab	↑	↑	Ab	↓ G	Ab ↑	-	-	-
Bass Clef	-	-	-	-	-	-	-	-	-	-	-	-	↑ Ab	↑	↑	Ab	-	-	-	-	-

Table 3: *Crepitatori*: two instrumental lines across the bass and treble clefs.

Russolo states that ‘the high crackler lends itself magnificently to very effective solo passages. It is perhaps the instrument on which the greatest virtuosity is possible.’⁴²⁰ The *crepitatori* then does not provide textural noise pads, it provides detail with the dynamic enharmonic descents of bar 3 and the lingering enharmonic shifts down and up in intervals 17 and 18. This fills the space absented by the majority of the *intonarumori*, yet mirrored by the gurgling water sounds of the *gorgogliatori*, creating a dynamic shift, filling the space, before the low frequency and low intensity of the final bar. An analogy might be that of a flute or piccolo playing over an orchestral swell of strings and timpani.

⁴²⁰ Russolo, *L'Arte dei rumori*, (1916), 79.

Stropicciatori – Three Instruments

Gli *Stropicciatori* hanno un timbro come di metallo stropicciato, sono ricchissimi di armonici non sempre assonanti, sono meno intensi dei crepitatori, hanno meno risorse virtuosistiche, ma hanno un timbro metallico curioso, utilissimo quando sia unito a quelli di altri strumenti, coi quali forma degli ottimi amalgami. Essi rappresentano nell'orchestra un *trait-d'union* fra crepitatori e i rombatori.⁴²¹

The *stropicciatori* (rubbers) have a timbre of metallic rubbing, are quite rich in not always assonant harmonies, are less forceful than the *crepitatori* (cracklers), have fewer virtuosic resources, but have a curious metallic timbre that is very useful when joined with that of other instruments, with which they blend very well. In the orchestra, they represent a *trait d'union* between the cracklers and the *rombatori* (roarers).⁴²²



Fig. 11. Pitch-map of the *Stropicciatori*

Given Russolo's description of the *stropicciatore*, one might assume that this *intonarumore's* function was predominantly as textural pad, linking together the more diverse tonal outputs of the *crepitatori* and the *rombatori* and bars 2 and 3 on the bass clef. Bar 3 on the treble clef would reinforce that notion, playing a constant **B** and **G_b** respectively. However the opening bar on the bass clef indicates a fairly dynamic sequence across the low frequencies. Indeed across the whole orchestra, bar 1 contains only bass clef figures performed by four *intonarumori* sections (the others are the *ululatori*, *rombatori* and

⁴²¹ Ibid.

⁴²² Russolo, *The Art of Noises*, (1986), 79.

ronzatori). The three intervals that make up bar 1 are further sub-divided equally into six, each a half beat in duration. The first interval begins with **E** followed by a **G**. Interval 2 is **Bb** descending to **Ab**. Interval 3 begins with **Gb** and ends with **E**. This has the feeling of a figure or a round. It begins with an **E**, rises to **G** and then descends through **Bb**, **Ab** and **Gb**, returning back to **E**. This dynamic range inhabits the low frequencies and must have taken some practice to perform because the incremental changes are very small, microtonal rather than enharmonic. Bars 2 and 3 (intervals 4 – 9) are a constant **B**, with no modulations in pitch indicated, so perhaps this sequence evokes the starting an automobile engine and then letting it idle in neutral. This constant **B** is added to, when a second *stropicciatore* plays a constant **Gb** in the treble clef for bar 3 (intervals 7 – 9). The bass *stropicciatore* rests for bar 4 (intervals 10 – 12), whilst the treble *stropicciatore* plays a six note ascending figure across the bar, with each interval sub-divided into two equal parts – **E, G, B, A, C, B**. Bar 5 (intervals 13 – 15), is where the significant enharmonic shift across all the *intonarumori* takes place. In this instance, on the bass clef, it starts on **E**, holds for half an interval before it transitions upwards for two intervals, ending on bar 6, playing an **E** for Gb interval. On the treble clef, it begins on **E** and immediately transitions upwards, with no hold, for two intervals before holding on **E** on bar 6 for one interval. Intervals 17 – 21 are rests.

BAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Intervals																					
Treble Clef	-	-	-	-	-	-	Gb	Gb	Gb	E G	B A	C B	E↑	↑	E↑	E	-	-	-	-	-
Bass Clef	E G	Bb Ab	Gb E	B	B	B	B	B	B	-	-	-	↑ E	↑	↑	E	-	-	-	-	-

Table 4: *Stropicciatori*: two instrumental lines across the bass and treble clefs.

The evidence of notes played within a subdivided interval is intriguing, especially as this only features on the bass *stropicciatore*. Whilst the *scoppiatori* do play half interval notes on bar 3, they do not shift in pitch and they rest in between, a little like horn stabs.

At the beginning of the *stropicciatori* pitch-map, one is confronted with the instruction that is most confusing about the score – the first sub-interval with either a thick line, or a dot placed approximately in the centre. One might assume, based on Russolo’s description of his system of notation, that this is an additional interval, essentially bisecting sub-interval 1 into two, resulting in two sub-intervals of $\frac{1}{4}$ of a beat each, both playing the same note, perhaps as a rhythmic or dynamic instruction to the musician. This would mean that the opening bar is sub-divided into eight sub-intervals (two semiquavers, followed by four quavers and finally two more semiquavers)



Fig. 12. Musical notation of Bar 1, if the opening sub-interval is further subdivided into a semi interval.

However, repetitions of this notation elsewhere in the score, for example interval 7 on the *scoppiatori* pitch-map (lower), repeats this notation and also has an interval subdividing line. This leads to the conclusion that this notation is in fact a tonal instruction Russolo has borrowed to signpost a note lower than the low F. In conventional notation, this would be represented thus:



Fig. 13. Low E (conventional notation on the bass clef)

This is very similar to:

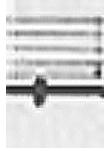


Fig. 14. Low E (noise-sound intonarumori notation)

Russolo mentions this in *Grafia enarmonica* (1916):

La linea nota, può naturalmente oltrepassare le righe, per segnare così le note che sono sotto o sopra le righe stesse. Queste note verranno identificate mediante le solite righe orizzontali che segnano attualmente i tagli in testa e i tagli in collo. Per maggior chiarezza, le note che sono sopra o sotto le righe e che avrebbero il taglio in testa saranno segnate da una piccola barra che incrocierà la linea-nota.⁴²³

The note-line can naturally extend beyond the staff to show notes that lie above or below the staff itself. These notes can be identified by means of the usual small horizontal lines that are presently written as slashes through the head of the note and slashes through the stem. For greater clarity, notes that are above or below the lines and might have a slash through their head will be indicated by a little bar that crosses the note-line.⁴²⁴

In this sense, the horizontal line on the pitch-map serves a dual purpose. In the first instance, it provides information about the duration of the noise-tone, in this case, a half interval hold. The thick line or dot positioned near the centre of the horizontal line indicates that the note played is a low **E**. This criterion is applied when continuing the analysis of this fragment of *Risveglio di una Città*.

⁴²³ Russolo, *L'Arte dei rumori*, (1916), 70.

⁴²⁴ Russolo, *The Art of Noises*, (1986), 69.

The *Scoppiatori* – Four Instruments

Gli *Scoppiatori* sono diversi. Due danno come degli scoppi di oggetti che si rompano o frantumino, gli altri due invece, danno il tipo del rumore di un motore a scoppio. Ho già notato le varietà grandissime della intensità del suono. (regolabile per mezzo di una leva) in questi due ultimi tipi, che ne fa rassomigliare il timbro a quello dei motori nell'automobile in corsa con o senza scappamento, oppure con motore acceso e automobile ferma. In questi strumenti gli effetti dei passaggi enarmonici in discesa o in ascesa danno col più o meno rapido susseguirsi dei colpi (regolabile con la manovella) una perfetta illusione dell'accelerare di uno di quei motori il cui rumore è tanto simpaticamente noto ai nostri orecchi, e che spingono a velocità tanto inebbrianti le automobili, i motoscafi e gli aeroplani.⁴²⁵

There is a variety of BURSTERS (*scoppiatori*). Two produce noises like the bursting objects that break and shatter. The other two make a noise similar to that of a gasoline engine. I have already mentioned the great variety of intensity in the sound of these last two (controlled by means of a stop) whose timbre is like that of motors in a moving automobile, with or without exhaust, or even with the automobiles standing still and the motor running. In these instruments, the effect of rising or falling enharmonic passages, with faster or slower repercussions (controlled with the handle) produce a perfect illusion of the speeding up or slowing down of one of those motors that push automobiles, motorboats and airplanes to such intoxicating speeds.⁴²⁶

The *scoppiatore* was the first of the *intonarumori* to be completed by Russolo and Ugo Piatti and was publicly demonstrated at the Teatro Storchi in Modena, less than three months after the publication of *L'Arte dei rumori*. Russolo's assertion that its 'timbre is like that of motors in a moving automobile' is confirmed by Marinetti, who 'on 1 May 1913 ... informed Pratella that Russolo has constructed a machine which imitated the noise of a motor.'⁴²⁷ Russolo's insistence that his *intonarumori* evoke, rather than imitate, is undermined somewhat by Marinetti's assertion of its mimetic properties, and this

⁴²⁵ Russolo, *L'Arte dei rumori*, (1916), 79.

⁴²⁶ Russolo, *The Art of Noises*, (1986), 70.

⁴²⁷ Berghaus, *Futurist Variety Theatre 1909 – 1944*, 119.

confusion, even amongst the Futurist elite, is probably partly responsible for a confusion regarding the purpose of the *intonarumori* in later years. Marinetti's continued insistence on calling the *intonarumori* 'machines' or 'engines', rather than, as Russolo unfailingly does, an 'instrument', only adds to this confusion. The audience at the *serata* first leveled such accusations. As Berghaus reveals:

Then, Russolo and Piatti demonstrated their machine to the audience's shouts of "It's all a cheat! Open the box! You are imitators and passéists! Why listen to a fake noise when we can hear the original sound everyday on the street?" Apparently, the "noise orchestra" in the auditorium drowned all the sound that issued from the one instrument on stage.⁴²⁸

Having already examined the issues surrounding the ineffective amplitude of acoustic instruments in chapter two, this will be revisited in more detail later in the chapter, specifically within the context of a large scale venue and more intimate gallery settings. What is clear is that the first *intonarumore* to be designed and built by Russolo and Piatti was a highly effective machine in evoking the 'timbre' of a running motor, to the point where it endangered Russolo's own pronouncements regarding the purpose of the *intonarumori*. Actually, even Russolo's own declaration to this effect in his 1913 manifesto was confused when he stated: 'l'arte dei rumori non deve limitarsi ad una riproduzione imitativa' (the Art of Noises should not limit itself to an imitative reproduction).⁴²⁹ The word 'limit' implies that his *intonarumori* should, in fact, be able to produce mimetic sound, but that this should not be the sum of their ambition and that *intonarumori* should also look to evoke a sense of the contemporary world. It is a conflict between sound art and music, which has never truly been reconciled.

⁴²⁸ Ibid., 121

⁴²⁹ Russolo, *L'Arte dei rumori*. (1913).

As the *scoppiatore* was the first instrument to be completed, it therefore also enjoyed the longest period of on-going research and development, perhaps explaining the reason behind why there were so many model variations of this design. Based on the information contained within the pitch-map, one does not know what particular version was used, or whether all three versions played the same part. This will be examined when evaluating the effectiveness, or lack thereof, of Russolo's scoring methodology.

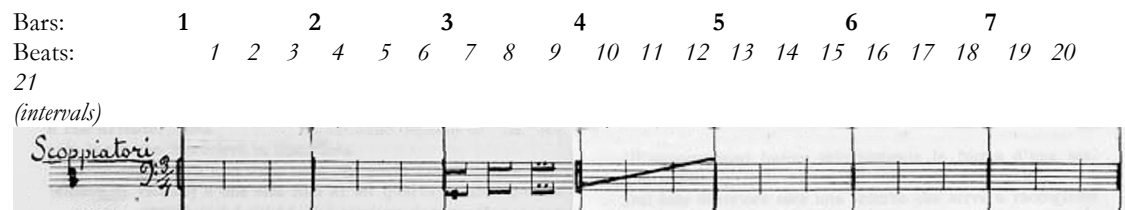


Fig. 15. Pitch-map of the *Scoppiatori*.

The *scoppiatori* is employed quite sparingly in the score, bearing in mind once again that this is a mere seven bar fragment and the *scoppiatori* might well have featured much more prominently later in the composition, perhaps in a more dynamic sequence. The *scoppiatori* at this point is scored exclusively on the bass clef and is the only instrument to rest during the enharmonic shifts in bar 5, strongly suggesting that it produces quite a dominating sound and that Russolo was saving the higher frequency output for later in the composition. The first two bars are rests and there follows three duophonic (two sounds playing simultaneously) 'stabs', each lasting half an interval, meaning one $\frac{1}{2}$ beat, followed by one rest, for the remaining half of the interval, repeated three times over bar 3. Both *scoppiatori* mirror each other in terms of position, duration and note played, although these are an octave apart, (**E Q**, **F Q**, **Gb Q**). The manner in which the *scoppiatori* is manifest in this score indicates that these were quite loud and percussive, compared to the other *intonarumori*, suggesting that these specific *scoppiatori* were the 'other two' models with the built in stop. It is uncertain as to whether this stop was in fact a gearing system, which allowed the flywheel within the body of the instrument to

rotate without engaging the resonating cable attached to the drum, whether it was a valve of some kind, much like those you would find in a church pipe organ – an instrument Russolo would have been very familiar with from his childhood – or whether it merely stopped the machine, like a stick thrust between the spokes of a bicycle wheel in motion.⁴³⁰ If it was the former, then the *scoppiatore* would have been equipped with a very quick attack and release, almost immediate, like a perpendicular vertical line. If it was the latter, then it would have had a fast release only. Although no evidence has been found to support this argument, one might suggest that Russolo had incorporated a clutch, allowing it to idle, much like an engine in neutral. If these were the *scoppiatori* version 2.0, then one would expect them to have been refined and the functionality of the instrument would, to some degree, to mirror the characteristics of the auralty it was designed to evoke.

After the ‘stabs’ of bar 3, there follows in bar 4 (intervals 10 – 12), an enharmonic ascending transition from **A** to **B**. There are no holds insofar as it does not establish **A** before the transition commences, nor does it remain on **B** for any duration. It is singularly an enharmonic transition, with no real beginning or end, merely the journey. It finishes abruptly with the enharmonic shifts of bar 5.

BARS	1	2	3	2	5	6	3	8	9	4	11	12	5	14	15	6	17	18	7	19	20	21
Interval s																						
Bass Clef 2	-	-	-	-	-	-	E	F	Gb	-	-	-	-	-	-	-	-	-	-	-	-	-
Bass Clef 1	-	-	-	-	-	-	E	F	Gb	A↑	↑	↑B	-	-	-	-	-	-	-	-	-	-

Table 5: *Scoppiatori*: two instrumental lines across the bass clef.

⁴³⁰ Russolo’s father was a church organ restorer.

Ronzatore – One Instrument

Il Ronzatore ha un suono-rumore dolcissimo armonioso, pieno di fascino, che ricorda il ronzo delle dinamo e dei motori elettrici, quel suono curioso che riempie le grandi centrali elettriche e che resta nel nostro cervello sempre associato alla visione di quelle grandi, lucide, modernissime e meravigliose officine. Il ronzatore ha un timbro in cui sono sensibili degli armonici dolcissimi, una quinta sopra l'ottava e la sua terza, suo suono fondamentale.⁴³¹

The Hummer, has a sweetly harmonious noise-sound, full of fascination and recalling the humming of dynamos and electrical motors, whose curious sound fills the great electrical centres and is always associated in our minds with the vision of great, gleaming, very modern and marvellous factories. The timbre of the hummer includes some very charming harmonies, the fifth above, the octave, and its third, over the fundamental.⁴³²

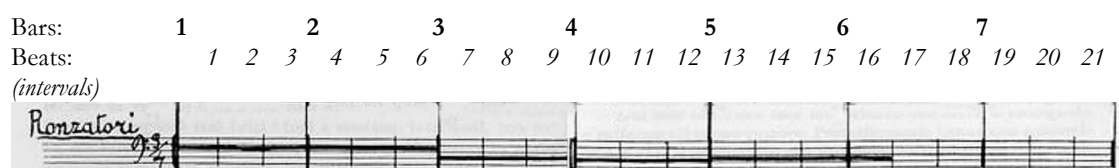


Fig. 16. Pitch-map of the *Ronzatore*.

This is by far the least problematic of the featured *intonarumori* to evaluate. Bars 1 and 2 (intervals 1 – 6) feature a continuous **E**, bars 3 and 4 (intervals 7 – 12), a continuous **B**, and bar 5, (intervals 13 – 15), a **C**. All of these changes take place along the bass clef and so Russolo uses it, in this fragment at least, as a textural pad, providing the composition with, as musicians and motorcar reviewers might say today, ‘a bit of low end grunt’.

The extent of its functionality is uncertain. As mentioned, it was not capable of enharmonic shifts, however, it must be noted that this assumption is predicated entirely on the fact that it is the only example of the featured *intonarumori* playing throughout bar

⁴³¹ Russolo, *L'Arte dei rumori*, (1916), 80.

⁴³² Russolo, *The Art of Noises*, (1986), 79.

5 that does not enharmonically shift, remaining at a constant **C** throughout. Again, this reinforces the notion that Russolo employs the *ronzatore* as a textural noise-pad, evoking a kind of city silence, the undersound of the city, the city in repose. In modern day parlance, one might describe it as ‘urban-tone’, a city-wide version of ‘room-tone’. This is an unchanging wash of subjective ‘silence’, over which detail is added. It is dynamism subsumed by resolution, the conflated, reflected auralty of the *urban* and as such could not affect dynamic shifts, for it defines the arena, and not the action contained within it. The only question that arises from the scoring of this *intonarumore* is the constant **C** in bar 5. This is a much thicker line, which appears to cover both the **C** and the lower **B**. It is possible that two *ronzatori* are playing at this point. Of course, the quality and resolution of the printed score is poor and was obviously handwritten by Russolo. The reason this is questioned is because at the beginning of the score he labels this particular *intonarumore*, ‘Ronzatori’. If there was only one instrument he would surely have labelled it as the singular ‘Ronzatore’, so potentially, the table below could feature two bass clef sections with two *ronzatori*, each playing either the **C** or the **B**. This would make a compositional sense from the perspective of an abstracted or musical sound design. The *ronzatori* pitch-map shows a steady descent in pitch as the *intonarumori*, providing high-end detail, are introduced. The thick line, which seems to cover both **C** and **B** begins at bar 5, the most enharmonic and dynamic sequence present in this fragment and so, perhaps a second machine is added to ‘beef up’ this section in the lower register. It finishes on interval 17 like all other bass clef instruments, with the exception of the *sibilatori*. If this sound does represent the subjective city silence, then logically, it should continue, an ever-present aural element within the composition. Yet after interval 17 it rests until the fragment is complete and one does not know when, or if, it will return. One can suggest that it would re-establish itself fairly quickly, for this is arguably a musical manifestation of ear-fogging. When confronted with a loud and wide frequency noise which builds and then

ceases abruptly, all aurality perceived by the listener temporarily ceases, possibly with the exception of high frequencies. It takes a short time for the ears to reset themselves and the period of five intervals (or more) represent that listening subjectivity.

BARS Interval s	1	2	3	2	5	6	3	8	9	4	11	12	5	14	15	6	17	18	7	20	21
Bass Clef	E	E	E	E	E	E	B	B	B	B	B	B	C	C	C	C	-	-	-	-	-

Table 6: Pitchmap of the *Ronzatori* bass. One/two instrumental lines across the bass clef.

The *Gorgogliatori* – Two Instruments

I Gorgogliatori dànno un timbro complesso come di acqua che cada in una grondaia di cui si sente il suono metallico e il ritmo curioso, e possono dare, pure a mezzo di un registro, il rumore della scrosciare della pioggia. E' fra gl'intonarumori forse quello che ha gli armonici più complicati, e gli effetti più curiosi. Così, avendo apparentemente un timbro poco intenso, è viceversa uno degli intonarumori che più si distinguono anche nei fortissimi. Anzi si può dire che lo si sente molto più da lontano che da vicino, e meno di tutti lo sente l'esecutore che resta dietro la tromba. Questo ultimo fenomeno, comune a tutti gli intonarumori, è però molto più accentuato in questi due. Il gorgogliatore ha un gruppo di suoni che rispondo in un certo modo ad una tonalità in minore, e c'è un contrasto interessante fra questa tonalità in minore che si percepisce e i suoi ritmi curiosi, che formano la complessità del suo rumore.⁴³³

The Gurglers, produce a complex timbre, like water running through a rain gutter, with its metallic and curious rhythm. By means of a stop, it can make the hissing noise of the rain. Although it apparently has a weak timbre, it is one of the instruments most easily distinguished in loud passages. It may even be heard better at a distance than nearby – and least of all by the performer who stands behind the trumpet. This last effect, common to all noise instruments, is most pronounced in the gurglers. The gurglers have a group of harmonics that correspond in a certain way to minor tonality. The interesting

⁴³³ Russolo, *L'Arte dei rumori*, (1916), 81.

contrast that is heard between this minor tonality and the curious rhythm makes up the complexity of its noise.⁴³⁴



Fig. 17. Pitchmap of the *Gorgogliatori*.

The *gorgogliatori* are employed to increase the dynamic range of the set-piece sequence of the score, the enharmonic shift, across the entire spectrum with all ranges (1, 2 and 3) represented. They rest for the first eleven intervals and then the first instrument (Treble Clef 2 on the table below) comes in on interval 12 with an **E** and holds until bar 5 (intervals 13 – 15), when it enharmonically transitions upwards for two and a half intervals until it reaches the **E** an octave above by the second half of interval 15. Here, it holds until interval 17, when it shifts back down to the low **E** and back up to the high **E**, over the course of intervals 17 and 18, where it ends without a hold. These last two intervals mirror exactly the enharmonic shifts down and up of the *rombatori*, scored on the bass clef. Both *intonarumori* cut out at the same point of the score, at the end of interval 17, without a hold, so effectively, both instruments end their passage whilst still enharmonically transitioning upwards. The second *gorgogliatore* comes in an interval later (bar 5) and holds a constant **G^b** until it finishes on interval 16, just before the enharmonic shift of the first *gorgogliatore*. Bar 6 contains the instruction **FF** – it can be assumed that these instructions hold until a new instruction appears, as with the *rombatori* which contains the instructions **F**, **FF** & **P** in one bar intervals. The **FF** of the *rombatori* is repeated by the *gorgogliatore* at the same point in the score.

⁴³⁴ Russolo, *The Art of Noises*, (1986), 80.

BAR	1	2	3	2	5	6	3	8	9	4	11	12	5	14	15	6	17	18	7	19	20	21
Interval	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Treble Clef 2	-	-	-	-	-	-	-	-	-	-	-	E	↑	↑	↑	E	↓ E	E ↑	-	-	-	-
Treble Clef 1	-	-	-	-	-	-	-	-	-	-	-	-	Gb	Gb	Gb	Gb	-	-	-	-	-	-

Table 7: *Gorgogliatori* - two instrumental lines across the treble clef.

The *Sibilatore* – One Instrument

Il Sibilatore dà un suono che imita perfettamente il sibilo del vento con tutte le sue variazioni. Dà un timbro ricchissimo di suoni armonici aumentabili a mezzo del 1° registro, che fa dare tutto un nuovo gruppo di armonici acuti. A questo timbro un secondo registro aggiunge pure il rumore caratteristico dello scroscio della pioggia. E' uno strumento, dunque che ha grandissima varietà di timbri, grandi risorse, passaggi enarmonici bellissimi, misteriosi, armonici acuti dolcissimi; é certanmnete uno degli intonarumori più riusciti e più completi.⁴³⁵

The Whistler makes a sound that imitates perfectly the whistling of the wind with all its variations. It produces a timbre very rich in harmonics, which can be increased by means of the first stop, which allows the production of an entirely new group of harmonics. To this timbre a second stop adds the characteristic hissing noise of the rain. It is an instrument with a variety of timbres, many resources, very beautiful enharmonic passages, mysterious and full range of fascination, round and full harmonics. It is certainly one of the most successful and complete of the noise instruments.⁴³⁶

Again, Russolo labels the score *sibilatori*, indicating more than one instrument, so perhaps the orchestra had more than one, doubling up the single score line, or perhaps he anticipates the multiple instruments of a much larger noise orchestra. In his description

⁴³⁵ Russolo, *L'Arte dei rumori*, (1916), 80.

⁴³⁶ Russolo, *The Art of Noises*, (1986), 79-80.

of this instrument, Russolo lauds its enharmonic functionality and this is certainly borne out by the score. It is a low frequency instrument and so it is scored on the bass clef.

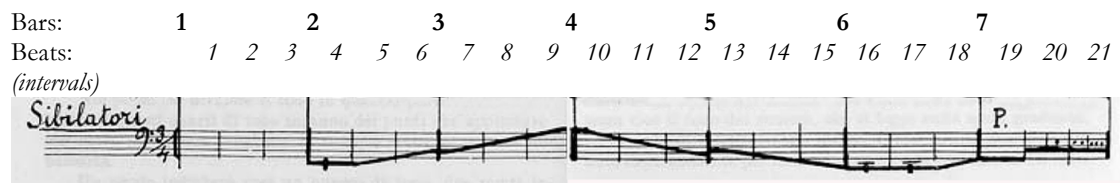


Fig. 18. Pitch-map of the *Sibilatori* bass. One/two instrumental lines across the bass clef.

The first bar is a rest followed by a low **E** in bar 2, interval 4. The *sibilatori* then enharmonically transitions upwards for the rest of bar 2 and all of bar 3 until it reaches **G**, where it holds for half an interval before shifting down for the rest of bar 4. It seems to move down as far as **A**, without a hold, yet immediately after, it begins another downward transition starting not at **A**, but at **C**. This could be a resolution issue with the copy of the printed score, but it does appear that the *sibilatori* moves to **A** and then immediately to **C**, holds for half an interval at the beginning of the fifth bar before enharmonically shifting down for the rest of bar 5. The first two intervals of bar 6 are **G**, before transitioning up for the duration of interval 16. Bar 7, interval 1 is **C**, followed by the sub-divided interval 20, holding on **C** and **D $\flat\flat$** respectively. Interval 21 is also sub-divided, the first holding on **D \flat** and finishing on **D \flat #**.

BARS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Interval s	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Bass Clef	-	-	-	E	↑	↑	↑	↑	↑	G ↓	↓	↓	C ↓	↓	↓	D	D	↑	G	C D $\flat\flat$	D \flat D \flat #

Table 8: *Sibilatori* - one instrumental line across the bass clef.

The inclusion of the *sibilatore* could be indicative of the designed sound aesthetic of the composition. Clearly Russolo understood the compositional need for dynamic shifts, alternating between periods of activity and inaction, evoking the sense of the breathing

city. The *sibilatore* fulfils no real musical function, for its constant enharmonic transitions sign-post this as a sound effect of low wind, evoking the archetypal and therefore emotive resonance of wind moving through the physical structures of the city. It is a simple part with no complex in pitch modulations until we reach the final bar, where it shifts microtonally through the last two intervals, adding movement and subtle texture to the composition once it has transitioned from a dynamic to a passive phase in bars 6 and 7. In terms of technical design, this *intonarumore* is possibly closest to the ‘Wind Machine’, part of the nineteenth-century stage machinery, which this thesis has recognised as one of the principal inspirations for Russolo’s concept of the *intonarumori*. The wind machine generates aurality through the rotation of a wooden drum with slats fixed lengthwise along its circumference over which sail canvas is stretched. When the drum is rotated, a wind-like sound is generated and pitch is enharmonically altered according to how fast the drum is rotated. Whilst we do not know the specific design for this *intonarumore*, it would not be unreasonable to suggest that the aurality generated by the *sibilatore* is achieved employing a similar mechanical process. That said, the wind machine was capable of enharmonically transitioning across a number of octaves and was best represented across the low-mid to high-treble frequencies. The *sibilatore* was designed as a low frequency instrument and so perhaps there were fundamental differences, although these could be accounted for by the use of materials Russolo employed.

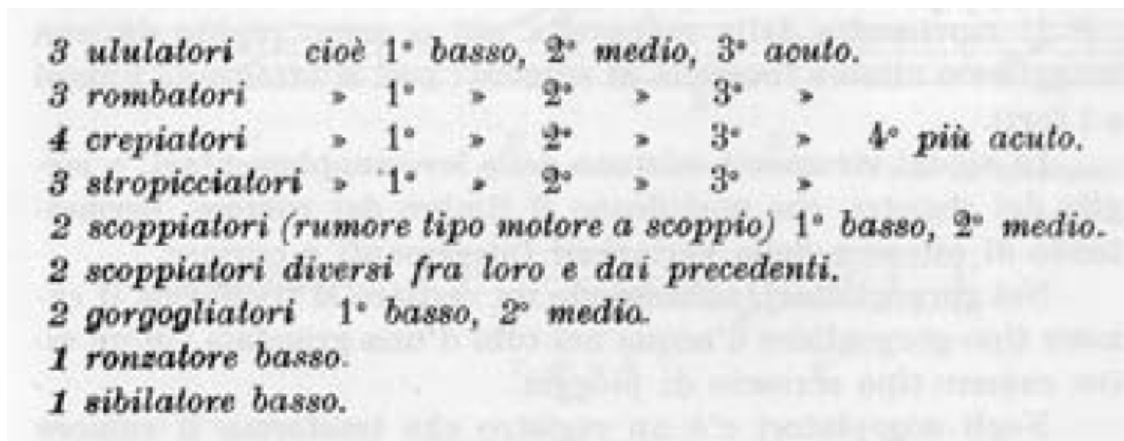
4.2 The Strengths and Weaknesses of Russolo’s System of Notation.

Così passarono lunghi mesi, così, a poco a poco, andò crescendo il numero degl’intonarumori; così a poco a poco si colmarono le lacune che rimanevano nell’orchestra, che noi volevamo tale da poter bastare per una esecuzione pubblica. E quando l’orchestra fu quasi ultimata, io iniziai, negl’intervalli fra i diversi lavori, la composizione di alcuni pezzi musicali da eseguire coi nuovi strumenti, le ricerche coloristiche per i diversi timbri d’intonarumori e quelle

per superare le difficoltà che mi si presentavano nella grafia musicale, date le possibilità enarmoniche ormai raggiunte...⁴³⁷

As the long months passed, little by little, the number of noise instruments began to grow; little by little, we filled the gaps that remained in an orchestra suitable for public performance. When the orchestra was almost complete, I began in the free moments between various tasks to compose some pieces of music to perform with the new instruments. I also made studies of the coloristic possibilities of the different timbres and of the means for overcoming the difficulties presented by musical notation, given the new enharmonic possibilities...⁴³⁸

Russolo, when describing the tonal range of his *intonarumori* at the beginning of chapter nine of *AoN 16, L'Orchestra d'intonarumori*,⁴³⁹ details the frequency range of each *intonarumore*. For example:



3 ululatori	ciòè 1° basso, 2° medio, 3° acuto.
3 rombatori	> 1° > 2° > 3° >
4 crepiatori	> 1° > 2° > 3° > 4° più acuto.
3 stropicciatori	> 1° > 2° > 3° >
2 scoppiatori (rumore tipo motore a scoppio)	1° basso, 2° medio.
2 scoppiatori diversi fra loro e dai precedenti.	
2 gorgogliatori	1° basso, 2° media.
1 ronzatore	basso.
1 sibilatore	basso.

Fig. 19. The frequency range of the *intonarumori* (1916)

⁴³⁷ Russolo, "Polemiche, battaglie e prime esecuzioni d'Intonarumori", in: *L'Arte dei rumori* (1916), 20 -1.

⁴³⁸ Russolo, "Polemics, Battles and the First Performances", in: *The Art of Noises* (1986), 32.

⁴³⁹ Ibid., 75.

<i>That is to say</i>	Bass	Middle	Mid-treble	High-treble
	(L/F)	(Lo/MID)	(Hi/MID)	(H/F) ⁴⁴⁰
	30-200hz	200hz-1000hz	1khz-7.5hz	10khz-20khz
3 Howlers	1	2	3	
3 Roarers	1	2	3	
4 Cracklers	1	2	3	4
3 Rubbers	1	2	3	
2 Bursters	<i>Noise type internal combustion engine</i>			
	1	2		
2 Bursters	<i>Different from each other and from the preceding two</i>			
2 Gurglers	1	2		
1 Low Buzzer				
1 Low Whistler				

This list provided by Russolo makes clear that each ‘section’ of the *intonarumori*, made up of between one and four instruments, was responsible for the delivery of noise-sound within a specific frequency range. So, the *ululatori* section comprised three instruments and each was assigned to a distinct frequency range and this is reinforced by the score. The bass *ululatore* and the mid *ululatore* are both scored on the bass clef, whilst the high (mid-treble) *ululatore* is scored on the treble clef. This is replicated throughout, with the exception of the *gorgogliatori*, with two instruments making up the section that is scored exclusively on the treble clef. However, according to Russolo’s chart, one would expect both to be scored on the bass clef, suggesting that there were no clear distinctions made regarding the functionality of frequencies in performance. Having made that point, it is entirely possible that for this composition Russolo preferred the tonal qualities of the low frequency instrument when pitched to a higher frequency, much like a bass guitar performing a motif at a higher register. In this instance, the bass guitar no longer fulfils its traditional function of triggering notes low down on the fret board, mirroring the kick drum. Nevertheless, the high frequency tones remain distinctive because of the thickness

⁴⁴⁰L/F – Low frequencies, Lo/MID – Low mid-range frequencies, Hi/MID – High mid-range frequencies, H/F – High frequencies. Note that the frequency range of a shellac disc dating from 1914 was approximately 200hz-3khz, occupying the mid range frequencies only – far less than the *intonarumori* were capable of.

of the strings when compared to a guitar. Perhaps this effect worked well, when set against the tonal qualities of other *intonarumori*.

What appears at first glance as an improvised system of notation, was in fact, considered and quite elegant, with a performative functionality that equals the conventional notated score. Whilst there are certain problems and quite important information omitted from the score, these issues are not fundamental flaws and could easily have been addressed as the definition of a typical noise-score became refined over time and practice, although no evidence remains to indicate that they were. These problems are examined later in the chapter. As mentioned earlier, Russolo's system most closely resembles the graphic user interface of digital audio workstations of the twenty-first century. Whilst at first glance, Russolo's system appears to have been clumsily prised into traditional music notation, using the traditional five stave manuscript, the bass and treble clefs and the time signature, it was in fact quite intuitive, anticipating future notational methodologies. Other traditional notational instructions are included to denote amplitude (**F**, **FF**, **P**), although how an *intonarumorista* was able to increase amplitude is more open to question.

Russolo addresses this when he states:

Gl'intonarumori si suonan impugnando con la mano sinistra la leva e con la destra facendo girare la manovella, o premendo il bottone. Regolando le leve si muta il tono come si vuole, con qualsiasi possibilità di salti di tono, di tono e di semitoni non solo, ma si può anche ottenere il passaggio graduale enarmonico fra un tono e l'altro. Per ottenere questo, basta muovere gradatamente in su o in giù la leva. La rapidità di questo movimento determina la durata del passaggio enarmonico. Il movimento della manovella più o meno rapido da una maggiore o minore intensità al rumore: così si ottengono i piani e i forti.⁴⁴¹

⁴⁴¹ Russolo, *L'Arte dei rumori*, (1916), 76.

The noise instruments are played by gripping the lever with the left hand and turning the handle or pushing the button with the right. By adjusting the lever, the pitch is changed as desired, with any possibility of change – not only leaps of tones and semi-tones but also gradual enharmonic passages between one pitch and another. To produce the latter, it is only necessary to move the lever gradually up and down. The speed of motion determines the length of the enharmonic passage. Moving the handle more rapidly or less rapidly produces a greater or lesser intensity in the noise: thus soft and loud passages can be obtained.⁴⁴²

Whilst there would certainly be an increase in intensity, when the handle is rotated more rapidly, this does not necessarily result in an increase in amplitude, rather than an increase in dynamism. The increase in rotation might boost the signal for certain *intonarumori*. The *scoppiatore*, for example, would most likely have used a toothed flywheel of some description, so that rather than there being a constant sound, as one would likely get with the *ronzatore*, where the flywheel would have been in constant contact with the cable attached to the drum, the sound of cogs connecting with the cable would have created an intermittent sound as each cog hits the cable. Therefore, the faster the rotation, the quicker the intermittent noise. But there would have been no function available to hit the cable harder and yet it is unlikely that amplitude could be increased solely through an increased repetition: if you hit a drum ten times or twenty times at the same velocity, amplitude is unaffected. However, there is the notion of the resonant frequency. Sometimes it is easy to forget that all of these *intonarumori* are fundamentally stringed instruments. A taut cable is fixed within the body of the box. This cable could be of any thickness and of any physical composition. It is fixed to the rear at one end and at the other it is attached to another resonating object, the drum, which is positioned directly behind the horn (trumpet). It is important that the horn is not confused with our modern day concept of the speaker. No *intonarumori* ever had a speaker because the horn

⁴⁴² Russolo, *The Art of Noises*, (1986), 76.

is the amplifier and so the drum, positioned directly behind the horn, acts as a form of pre-amplifier, generating an acoustic signal, which is then amplified by the horn. The philosophy of the design of the acoustic *intonarumori* is not conceptually dissimilar to the design of the electric guitar, where sound is produced when an impulse is imparted onto the resonating string(s), captured by the electro-magnetic pickup and amplified enough to generate a signal, which is then sent to the electronic amplifier, often with a speaker built in. With an electric guitar, an increase in amplitude can be triggered in three ways: the volume control on the guitar, the volume control on the amp, or the strength of the impulse imparted onto the string – that is, the harder you hit, or pluck the string, the greater the amplitude. This is known as a variable velocity. The mechanical *intonarumori* are unlikely to have enjoyed the benefits of a variable velocity – their design strongly supports the notion of these instruments being of a fixed velocity. However, Russolo did make that assertion, but used the word intensity rather than volume, level or amplitude. This increase in intensity may have been a result of frequency saturation. When the string is plucked, it has a natural ADSR.⁴⁴³ The release is quite short, because the pre-amp resonator – the drum – has a naturally short decay. Any drum sound that produces a long decay will do so only within a large and reflective environment, as the direct sound is reflected within the large ‘shiny’ space. For a slow rotation, the resonance of the previous sound will have decayed significantly. However, with a fast rotation, not only is the interval shorter, the previous pluck has yet to decay and so new frequencies become shared with old frequencies as they bounce around the interior of the resonating box, which also adds yet more reflection. Indeed, the interior construction of the box might also have the capacity to alter timbre when rotations are increased. If, for example, the interior of the resonating box is lined with tin, a surface far more reflective than untreated chipboard – which would absorb as much sound as it diffusely reflects – then

⁴⁴³ Attack, Decay, Sustain, Release.

the overall timbre of the *intonarumore* would be brighter and sharper. When revolutions are increased, the sound waves generated by the action of the cogwheel on the cable become multiplied exponentially through the directional reflection of the sound waves bouncing around the smooth metal surface. This results in the reflected metallic sound being established as the dominant auralty, subsuming beneath it the direct sound of the cogwheel's action on the cable attached to the drum. That is, the ratio between direct and reflected sound changes as rotations are increased. This additive process of frequency saturation would not only result in an increase in amplitude, it would also create a significant tonal or timbre shift, making the timbre far more metallic in nature. Consequently, the instructions **F** and **FF** placed within the score for the *rombatori* and the *ronzatori* meant an increase in rotation for those specific instruments, whilst the P would have instructed the musicians to rotate more slowly.

The system of notation is also quite effective when dealing with pitch and duration and would have been very intuitive, particularly for those musicians with little or no formal education in music. An *intonarumorista* would merely have to learn how each notated pitch corresponded to the position of the lever. They would not need to know conventional music notation – what a crotchet or a semi-quaver, semibreve, or a dotted minim denoted in terms of pitch and duration. Indeed, the long, drawn note-lines running across the bars and intervals suited the needs of the performer perfectly and a trained *intonarumorista*, familiar with the functionality of his or her instrument, would most likely have been able to performatively realise the score fairly quickly. Unfortunately, Russolo expressed his satisfaction regarding the preparedness of his *intonarumori* orchestra only once. He felt that the performance at the Teatro dal Verme in 1914 was the only time the musicians were experienced enough, and the orchestra practiced enough, to effectively

realise his vision. This will be looked at in more detail when examining the *intonarumori* in performance later in the chapter.

To return to the fragment of *Risveglio di una città*, what was particularly elegant in his system of notation was his method of denoting micro-tonal shifts. This, perhaps, was his biggest challenge. The conventional score is predicated around the tempered system of chromatic and diatonic scales, where it is a simple matter of raising or lowering by one semitone, through the employment of a flat or sharp. Although, as Russolo states:

Dopo l'introduzione nella musica del sistema temperato la parola Enarmonismo resta solo per indicare dei valori che non trovano più i loro corrispondenti nella realtà musicale. Infatti si chiama enarmonia la differenza tra un mi diesis e un fa e tra un si diesis e un do quando il sistema temperato rendendo uguali i semitoni, ha tolto queste differenze e reso quindi omofone le due note. Ma purtroppo l'inconveniente portato dal sistema temperato non è solo nella parola. L'aver diviso l'intervallo d'ottava soltanto in 12 frazioni uguali tra loro l'aver naturalmente impostato su questa scala così temperata tutti gli strumenti, ha portato una considerevole limitazione di numero nei suoni adoperabili e reso stranamente artificiali quelli stessi che si adoperano. Si sa quanto sia diversa la scala del sistema temperato da quella naturale.⁴⁴⁴

After the introduction of the tempered system in music, only the word *enarmonicisim* remained to indicate the values that no longer found correspondences in music reality. Indeed, the difference between E sharp and an F, and a B sharp and a C are called enharmonic, while the tempered system, in rendering the semitones equal, has removed this difference and made the two notes into the same sound. But unfortunately, the inconvenient result of the tempered system does not lie only in the word. Once the octave was divided into only twelve *equal* fractions and applied in the tempered scale, there resulted a considerable limitation of the number of practical sounds and a strange artificiality in those that were adopted. The difference between the scale of the tempered system and the natural one are well known.⁴⁴⁵

⁴⁴⁴Russolo, *L'Arte dei rumori*, (1916), 59.

⁴⁴⁵Russolo, *The Art of Noises*, (1986), 61.

Russolo's background as a painter comes to the fore when he makes the analogy between the tempered, harmonic system and painting:

Il sistema armonico temperato può in un certo modo essere paragonato a un sistema di pittura che abolisse tutte le infinite gradazioni che possono dare i setti colori (rosso, arancio, giallo, verde, azzurro, indaco, violetto) e che di questi accettasse solo il colore tipo, quindi un solo giallo, un solo verde, un solo rosso, ecc. Una pittura che ignorasse le diverse *tonalità* dello stesso colore; quindi, nessun rosa e nessun rosso lacca, nessun giallo chiaro e nessun giallo scuro, ecc. Questa pittura sarebbe paragonabile nei suoni alla scala diatonica temperata. Coll'aggiunta poi di *cinque* sole gradazioni darebbe quella che è la nostra scala cromatica.⁴⁴⁶

A tempered system can be compared in a sense to a system of painting that abolishes all the infinite gradations of the seven colours (red, orange, green, blue, indigo, and violet) and only accepts their type of colour, having only one yellow, one green, one red and so on. A kind of painting that was ignorant of the different tonalities of the same colour would have no rose, no scarlet lake, no bright yellow, no dark yellow. This kind of painting would be comparable to the sounds of the tempered diatonic scale. With the addition of five gradations, it might produce what is our chromatic scale.⁴⁴⁷

It is a compelling argument and one that Russolo, as the Futurist dilettante, was in a perfect position to make. Whilst it is a simple task to make semitonal incremental changes in pitch using the tempered scale system, it is problematic to notate quarter-tonal changes or less. Having said that, Russolo's solution is also a tempered system, but with a greater resolution. He cannot, for example, notate a pitch change of less than a quarter-tone without the employment of fractions listed above or below the note-line, which he chooses not to demonstrate in the example of his score.

Se poi si vorrà dividere il tono in ottavi, si potrà adoperare un piccolo numero messo sopra o sotto la linea-nota, intendendo sempre questo numero come il

⁴⁴⁶ Russolo, *L'Arte dei rumori*, (1916), 60.

⁴⁴⁷ Russolo, *The Art of Noises*, (1986), 62.

numeratore di una frazione che avrà per denominatore 1'8 così un 3 vorrà dire 3/8, un 5 5/8, ecc.⁴⁴⁸

If it should be desired to divide the tone into eighths, a small number placed above or below the note-line may be used. This number always denotes the numerator of a fraction whose denominator is 8: thus, a 3 means 3/8, a 5 means 5/8 and so on.⁴⁴⁹

However, his system works effectively for pitch changes that are either enharmonic or microtonal, covering pitch modulations of up to three quarter-tones, without the *intonarumoristo* having to resort to mental arithmetic and magnifying glasses.

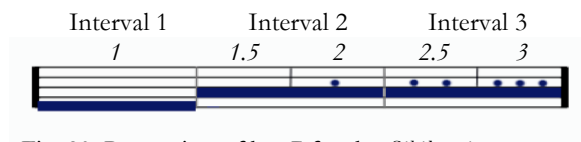


Fig. 20. Recreation of bar 7 for the *Sibilotori*

The diagram above is an expanded and reconstructed view of the final bar of the *sibilotori* pitch-map. Intervals two and three of this bar have been sub-divided equally. This is mirrored by the two other *intonarumori* operating in this final bar – the *ululatori* and the *rombatori*. It starts with a low **G** and this plays unchanged for all of interval 1. It changes up to a **C** for the first half of interval 2. In the second half of interval 2, a single dot is placed above the line. This denotes a pitch-shift up of one quarter-tone. Had the dot been placed below the pitch-line, then it would represent an instruction to modulate the tone down in pitch by one quarter-tone. This detailed examination of the score lists this note as **D_{bb}** to try and represent this shift using the tempered scale system. The logic is that it is a **D_b** which has been flattened. Essentially, this acts in the same way as a dot placed to the right of a note on the tempered score, which adds another increment of time onto the note, worth half the value of the note itself. So, a dot placed next to the semibreve (whole note) will add the equivalent of a minim (half note) to its duration.

⁴⁴⁸Russolo, *L'Arte dei rumori*, (1916), 71.

⁴⁴⁹Russolo, *The Art of Noises*, (1986), 70.

Similarly a dotted crotchet (quarter note) will have a quaver (eighth note) of duration added. The dotted note lines have been transcribed in a similar manner, although in this instance they denote pitch rather than duration. Consequently, a single dot above a **C** note-line is a quarter-tone in Russolo's system and so, transcribing this to a tempered system means it is one quarter-tone less than a **D \flat** , therefore the flat is flattened where the second flat has half the value of the first flat. This system is employed for the final sub-interval, where the **C** note-line has three dots placed above it, indicating an increase of three quarter-tones. The first two quarter-tones make a **D \flat** and the third sharpens that flat. It is an effective, though inelegant, solution.

The first half of interval 3 contains two dots, indicating a pitch-shift upwards of one semitone. Yet this presents an issue: is that semitone shift, a shift up from the original root note of **C**, or a shift up from the **D $\flat\flat$** of the previous interval? The second half of interval 3 indicates a three quarter-tone shift up. Again, it is uncertain whether the 'intonarumorist' counts these shifts from the original root or from the last note played. So, the sequence could either be **G, C/D $\flat\flat$, D \flat /D \flat #**, with the score defaulting back to the root before the next enharmonic tonal shift, or **G, C/D $\flat\flat$, D \flat #/F \flat** , with the score remaining on the last modulated pitch before enharmonically shifting up a further two semitones and then a further three semitones. In the two concluding paragraphs of his chapter *Grafia enarmonica* in *AoN 16*, Russolo states:

Noi possiamo dividere il tono in quattro parti. Il modo per indicare questi quarti di tono saranno dei punti che applicheremo sopra se occorre innalzare la nota, o sotto, se occorre abbassarla. Un punto indicherà così un quarto di tono, due punti indicheranno due quarti, cioè un semitono e corrisponderanno al *diesis* e al *bemolle*. Tre punti indicheranno tre quarti di tono.⁴⁵⁰

⁴⁵⁰ Russolo, *L'Arte dei rumori*, (1916), 70.

We can divide the tone up into four parts. The method of indicating these quarter-tones will be dots, placed above if we need to raise the tone, or below if we need to lower it. A dot will indicate a quarter-tone. Two dots will indicate two quarter-tones, that is, a semitone, corresponding to the sharp or flat. Three dots will indicate three quarters of a tone.⁴⁵¹

Russolo does not address whether these microtonal changes are all defined by the original root note or the previous played modulated note. It is most likely the former and whilst it is not a significant issue and one Russolo could have addressed directly to the musicians in rehearsal, we do not, and regrettably cannot, know for certain. Yet, this dotted note-line system, for all its deficiencies and information gaps, would have been the most effective and intuitive system available to Russolo. It was also a notational system capable of development and refinement as the demands of the *intonarumori* orchestra evolved into greater manipulation and complexity.

The deficiencies of Russolo's system of notation will now be examined. This investigation begins by looking at his decision to employ a bars and beats system, which resembles closely the piano roll notational system employed in contemporary digital audio workstations. Whilst it is an excellent solution for scoring noise-sound compositions, especially when dealing with inexperienced musicians, it makes complex scoring difficult to transcribe and, more importantly, very difficult to read, especially within the context of performance. The problem with a bars and beats system is that it is the spaces that are counted, not the notes. Meaning, in the tempered system, time inhabits the notes and the notes inhabit the space, whereas in Russolo's system, space and time are linked and uniform. Consequently, all the spaces – which have been called intervals – need to be equidistant. One cannot have a longer space denoting a beat, even when there is a great deal of information contained within that interval. In Russolo's

⁴⁵¹ Russolo, *The Art of Noises*, (1986), 70.

system, a beat is an interval – a space that must be traversed with a note-line. This is not the case for the chromatic or diatonic tempered system because time is not measured by the space between the bar lines – the vertical lines which bisect the staff, denoting a new bar – but by the notes contained within that space. So, if the four beats of a bar are filled with semi-quavers or semi-demi quavers, then a lot more linear space is needed to make those notations before the bar is complete. As a consequence, a bar can take as much room on the page as is required, just as long as it contains exactly four beats (or three beats in waltz time). With Russolo's system of notation, a beat is represented by a defined space, an increment of time, and so he does not have the luxury of lengthening that space to easily transcribe the notation.



Fig. 21. The first four bars of the *ululatori* pitch-map, converted to a tempered system of musical notation. Because time is represented by the notes, the second bar on the treble clef is much wider than the other three bars because it takes more semi-quavers and quavers to make up three beats, whereas bars three and four only require dotted minims (a minim represents two beats. A dot added slightly above and to the right of the note adds another beat, or rather, half of the original note). Consequently, a composer or arranger doesn't have to struggle to fit all the notes into one defined bar, should they choose to add a string glissando using semi-demi-quavers.



Fig. 22. This is the identical first four bars of the *ululatori* pitch-map. The thick vertical lines denote bars and the thin lines denote intervals. The small vertical lines contained within interval 4 denote sub-intervals. In this system, Russolo must fit in three sub-intervals, four distinct note-lines and their enharmonic modulations in the same space as the single modulated note-line beneath it on the bass clef. One accepts that this score is a poor resolution copy, reduced from the original A4 size to an A5 to fit the publication, and that Russolo wrote it by hand. Nevertheless, even when viewed on a printed score at full resolution, this would be very difficult to perform, and that is before any fractional eights are added for more detailed enharmonic modulation.

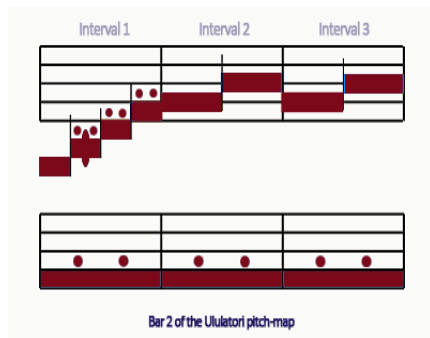


Fig. 23. This is a higher resolution detail of the second bar (intervals 4-6), roughly equal to the A4 size of the original score. Even with a great increase in resolution it is clear that Russolo's notation system was not without its difficulties. Russolo suggests placing fractions to denote microtonal shifts with less than the measure of one quarter. It is difficult to imagine how this could be realised in a way that it is possible to read. Indeed, the beats and bars system, without the benefit of a resolution bar, might, in fact, dictate the complexity or lack thereof of a composition for an intonarumori orchestra.

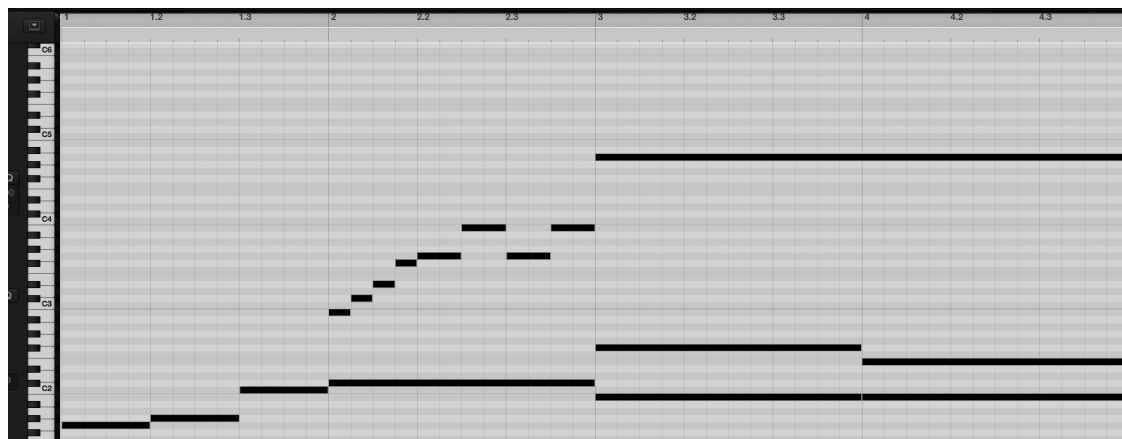


Fig. 24. This is the first four bars of the *ukulele* pitch-map, notated on a piano-roll.⁴⁵² The piano icon provides octave information. Note the similarity between this bar spacing with that of Russolo's system. It lists both the bars and the beats at the top, and like Russolo's system, time is defined by space and therefore every space or interval must be equal. The piano roll, however, is still a chromatic diatonic tempered system and so there is no facility to alter notes by less than a semi-tone. The benefits over Russolo's system are that rather than just displaying the bars and beats, it also includes sub-intervals on a grid system. Russolo would not have needed to add extra sub-interval lines on his note-lines. Also, this piano-roll system has the benefit of vertical and horizontal resolution bars, so if the composition becomes 'a bit fiddly' (an industry term), it is possible to simply zoom in.

⁴⁵² This Logic X piano-roll has been treated by inverting the image to negative and colouring the note-lines black.

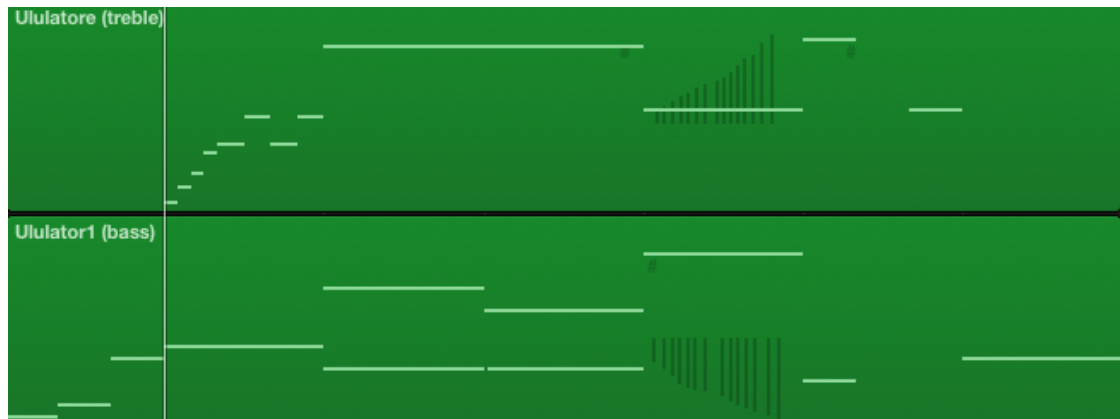


Fig. 25. This is the whole seven bar *ululatore* pitch-map, notated on a Logic X timeline. Note the enharmonic shifts in bar 5 are represented by a note-line, over which are superimposed a series of straight lines spaced at close, but irregular, intervals. These lines represent the enharmonic shift of these notes, as performed by the digital version of the *intonarumore* lever – the PITCH wheel, set to shift across two octaves, (+/-) one octave. Note the curve, particularly prominent on the treble clef. All of Russolo's enharmonic note-lines are linear – they are straight. Yet the curve shown here is the result of human interaction. A shift conducted through human agency is never linear because humans will not push the wheel or pull the lever in equal *increments*. They will *begin slowly and speed up in the middle and slow down near the end*. This type of fade is called an *exponential fade*.

Another problem with the score is that it does not list the tempo and so there is no indication as to how long this fragment lasts in duration. This is important insofar as there is therefore no constructive way to evaluate the dynamic qualities of the composition. If, for example, the tempo is sixty beats per minute (60 bpm) then the seven bars would equate to a duration of twenty-one seconds. If this is indeed the case, then the composition is very dynamic indeed, with a significant range of pitch enharmonic transitions contained within a fairly short duration. However, there is no reason to suppose that this composition had such a short duration. The fact that this is a waltz-time composition and that most waltzes at that time had an approximate tempo of sixty beats per minute (60 bpm), suggests that this composition might have a similar tempo. However, there is no reason why the tempo could not be as slow as nine beats per minute (09 bpm), which would give a duration of two minutes, twenty seconds. The dynamic shifts would therefore be much less dramatic. For example, a beats per minute count of sixty would mean that interval 4 for the *ululatore* on the treble clef, containing four pitch modulations, would have to be completed in exactly one second. At nine beats

per minute, the musician would have just over six seconds to complete those modulation shifts for that interval. Likewise, with bar 5, the enharmonic shifts across most of the *intonarumori* over the three intervals would take six seconds at sixty beats per minute or forty seconds at nine beats per minute. Without this information it is impossible to make an informed decision regarding either the demands of complexity for the musicians or the dynamism of the composition itself.

BPM ⁴⁵³	DURATION
9	20m 20s
18	1m 10s
27	46s
36	35s
45	28s
54	23s
60	21s

There would be a distinct difference in the performance of the score depending on the tempo. A tempo of sixty would result in a rapid and intense progression, vibrant and dynamic in its enharmonic shifts. The lower the beats per minute, the less dynamic and the more sedate this composition would be manifest. Consequently, unless information could be discovered regarding any one of the performances of *Risveglio di una città*, preferably within the setting of a Futurist gallery afternoon performance, where there was less likely to be interventions from the audience and perhaps, less adrenalin pumping through the musicians and the conductor, then one really has no idea how this composition would sound. One would need the running time of the entire composition in performance, coupled with the number of bars that comprise the full composition, to be able to extrapolate the duration of this fragment. Russolo, when promoting his new system of notation, emphasises that the note-lines and the modulation dots allow for a graphic realisation of dynamic continuity. One wonders if that is exactly what he meant.

⁴⁵³ All beats per minute are divisible by three because *Risveglio di una città* is a waltz, with three beats to the bar.

Arguably, if Russolo's score demonstrates one thing, then it demonstrates that there is no dynamic continuity contained inherently within. Perhaps Russolo meant that there was a *thematic* or *narrative* continuity, which denotes the enharmonic shifts and dynamic variations in an effective manner.

As mentioned earlier, Chessa attempted to recreate *Risveglio di una città* in performance, using re-imagined *intonarumori* and making some kind of educated guess at the tempo. Lacking more detailed information; this is as close as it is possible to get to realising the composition. The running time for the performance in New York in 2009 was one minute, fourteen seconds, counting from the first evidence of noise-sound reproduction to the last. This equates to a beats per minute of seventeen (17 bpm). In the excellent documentary accompanying this production, Chessa does not discuss his methodology in choosing this duration, which suggests it emerged organically during rehearsal. Indeed, in his book on Russolo, whilst criticising Edward Venn's analysis of the score,⁴⁵⁴ Chessa states:

Venn argued that the piece "deploys all the resources" far too soon ("Clearly the city is awaking quickly!" he states), evidently forgetting that he is not analyzing a whole composition but only a musical example of seven bars, the length of which in terms of absolute time is actually impossible to determine, as Russolo did not indicate in this excerpt any tempo or metronome markings.⁴⁵⁵

In light of this, it seems this duration should not now be regarded as definitive, in the way the pianist David Tudor defined the duration of John Cage's 4' 33' when he was first to publicly perform the work. The piece was then untitled, but listed three movements under which the word 'tacet' (Latin for 'silent') was printed. Cage never specified the

⁴⁵⁴ Venn, 'Rethinking Russolo', 8-16.

⁴⁵⁵ Chessa, 270.

duration, indeed, he stated that the work could be of any duration. Yet, the first performance both defined the duration and nominated the work. Chessa's performance, whilst interesting, nevertheless feels somewhat brief, even when taking into account the fractional nature of the score. Judging by his actions with the baton, Chessa apparently conducts in waltz time, but actually instead of those conducting movements calling a $\frac{3}{4}$ time – 1, 2, 3, 1, 2, 3, he adds another beat when moving from the gesture for the third beat, a horizontal swish, to the first beat, a vertical switch, so in fact his time-keeping, whilst ostensibly 1, 2, 3, 1, 2, 3, is actually 1, 2, 3, *and* 1, 2, 3, *and*... So, Chessa's orchestral performance of the work is in a 4/4 time signature. This was possibly because the musicians were inexperienced – something Russolo would have empathised with. Nevertheless, whilst this performance is of real value in terms of a practical approach to this research, it should not be regarded in any way as definitive.

The next issue with Russolo's scoring methodologies is that we have no idea about the handle revolutions that generate the noise-sound. This is quite important because, as Russolo often states, changes in the revolutions per minute (rpm) of the *intonarumori* handles result in a change in timbre and so it would be vital to know the establishing rpm of each *intonarumore*, when it changes and what it changes to. Russolo states that an increase in rpm will increase intensity, making the instruments seem louder. Having looked at this earlier, it has been concluded that increased revolutions result in aural saturation, increasing the amplitude by some factor. This is perfectly acceptable and Russolo uses the musical instructions '**F**, **FF** and **P** to denote increases and decreases in intensity and therefore increases and decreases in rpm. One might reasonably expect there to be an rpm instruction for all *intonarumori* at the beginning of the sequence. Of course, this might well be an extract taken from within the composition, rather than the start of it, yet had Russolo considered rpm to be a valid notated instruction, one might

reasonably expect him to include it in his score example or mention it in *AoN 16*. He does neither, which implies that either he had yet to consider it, or he regarded it as part of the rehearsal process and at the discretion of the conductor. Perhaps he felt that to include rpm instructions within the score were far too prescriptive. Yet, timbre shifts are as important to his concept of the noise orchestra as enharmonic shifts in pitch and so one might reasonably expect their inclusion, particularly for those *intonarumori* whose timbre alters according to the rate of revolutions. The enharmonic shifts of bar 5 provide notations covering the pitch-shift range and duration. Did Russolo intend the relevant *intonarumori* to increase revolutions at this point, to sign-post this dynamic shift with different timbres? The inferred rpm instructions have to do with intensity only and these instructions address only the *intonarumori* that are not involved in the bar 5 enharmonic shift. Therefore, one must conclude that the revolutions remain constant throughout the enharmonic shift, although this seems unlikely. It can be argued that Russolo would have intended the pitch-shifting *intonarumori* to increase revolutions throughout the enharmonic shift because the pitch-shifts were designed by Russolo to alter timbre and the main motivation for these shifts would have been the timbre change and the change in frequency. The score does not reflect this, suggesting that it was either not an issue for Russolo, or he dealt with this in rehearsal.

The final issue about the score to be addressed is the lack of instruction to the *intonarumoristi* regarding the presets for their instruments before the start, and the *stop* changes throughout the performance of *Risveglio di una città*. In chapter nine of *AoN 16*, *Gli Intonarumori* (The Noise Instruments), Russolo states:

In alcuni strumenti esistono delle leve supplementari, o meglio dei registri, che modificano il timbro del rumore, permettendo di ottenere delle variazioni interessanti e curiose. Nei gorgogliatori, abbassando un registro si trasforma il rumore tipo gorgogliare d'acqua nei tubi d'una grondaia, in un altro rumore

tipo scroscio di pioggia. Negli scoppiatori c'è un registro che trasforma il rumore tipo motore a scoppio d'automobile in corsa, al rumore di questo stesso motore acceso, ma con automobile ferma. Nel sibilatore esistono due registri che trasformano il rumore tipo sibilo del vento (timbro chiuso basso e lontano). Il primo registro aggiunge a questo il sibilo acuto e vicino che fa il vento fra le fessure della porte e delle finestre. Il secondo registro aggiunge lo scrosciare dell'acqua che accompagna molte volte il vento e ne segue il tono, come abbiamo visto nell'analisi dei rumori della natura.⁴⁵⁶

In some instruments supplementary levers, or better stops, change the timbre of the noise, allowing some interesting and curious variations. In the gurglers, a noise like the gurgling of water in the pipes of a gutter is transformed by pushing a stop to become another noise like the roaring of rain. In the burster, there is a stop that transforms a noise like a motor of an automobile into the noise of the same motor running with the automobile at rest. There are two stops in the whistler to change its noise, which resembles the whistling of the wind (a closed, low and distant timbre). The first stop adds the sharp and nearby whistling that wind makes through cracks and windows. The second stop adds the roaring hiss of water that often accompanies the wind and follows its pitch, as we have seen in analysing the noises of nature.⁴⁵⁷

So, quite apart from the two principal operational mechanisms to modulate the noise-sound, the handle (or electric motor) and the lever, several *intonarumori* had a range of what could only be described as timbre presets, resembling most closely the operational parameters of a bellows fed church organ. This makes sense because, as mentioned, Russolo's father was a church organ restorer and the young Russolo would most likely have gained a real and practical understanding of the functions of the church organ, the mechanical processes involved in generating sound/tone and the use of stops to route the air into specific reeds and horns for either of the two manuals. Indeed, the mechanical nature of the design of the *intonarumori* is not dissimilar to the church organ. The handle replaces the bellows as the kinetic power source and the enharmonic lever

⁴⁵⁶ Russolo, *L'Arte dei rumori*, (1916), 76.

⁴⁵⁷ Russolo, *The Art of Noises*, (1986), 76.

replaces the tempered scale of the musical keyboard. But both use stops to alter the aural timbres they generate. Again, one might then reasonably expect there to be some form of abbreviated instruction for those *intonarumori* equipped with this functionality. The score for a piece of organ music certainly contains this information.

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2 **Forty Days and Forty Nights**

Sw. Oboe 8
Gt. Flutes 8, 4, Flute Celeste 8
Ped. Light 16, Gt. to Ped.

Lyndell Leatherman
Tune: AUS DER TIEFE RUFLICH
Attributed to Martin Herbst

Slowly and reverently ♩ = ca. 76

Duration: 2:10

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Fig.26. An example of a score for church organ. Also, note the differences in the width of the bar intervals depending on the complexity of the score at that stage.

When examining an example of a score for organ (fig. 26), the opening preset states:

Sw. Oboe 8
Gt. Flutes 8, 4, Flute Celeste 8
Ped. Light 16, Gt to Ped

Sw. refers to the Swell manual (keyboard). The Swell manual is linked to pipes enclosed in a box, which the musician can operate using a foot pedal in order to change the output level of the tones played on the Swell keyboard.

Gt. means the ‘Great’ manual (keyboard) – usually situated beneath the Swell manual, the Great manual will usually be assigned to principal stops (settings)

Ped. refers to the pedal which can be linked to either the Swell or Great manual.

Therefore the instruction on the score means that the Swell manual is to be preset with an oboe sound, the Great manual is set with flutes and a flute celeste. The pedal is linked to the Great manual. These are the presets to be configured in preparation for the performance of this piece of music. Throughout the score, there are instructions provided to alter the original preset (bars 7 and 15). No such instructions are to be found in Russolo’s score, neither does he present any such methodology in *AoN 16*, nor indeed, in any writings by him dealing with his *intonarumori* orchestra. This is perhaps the most major omission from the score. It is possible to accept that Russolo chose not to be prescriptive with regard to revolutions and even tempo, to allow for individual and unique interpretations of the score by later conductors. A musical score is like a theatre script – neither are performances and both are open to significant interpretation by the conductor and director respectively. Yet the presets for the instruments should not be open to interpretation and therefore should be included within the score. It would be like leaving out all the stage directions. Russolo’s failure to include stop presets changes for his *intonarumori* is perhaps the least forgiving omission. In *AoN 16*, included in the quote above, Russolo describes his *gorgogliatore*: ‘In the gurglers, a noise like the gurgling of water in the pipes of a gutter is transformed by pushing a stop to become another noise like the roaring of rain.’⁴⁵⁸ In Russolo’s pitch-map of these particular *intonarumori*,

⁴⁵⁸ Russolo, *The Art of Noises*, (1986), 80.

we have two note-lines playing from bar 5 for four intervals. What are their settings? Is one unstopped to evoke the timbre of rain in a gutter and has the other had its stop depressed to create the timbre of roaring rain? Or are they both set up the same way? Russolo's score does not provide us with that information and this is indeed a significant omission, making it impossible to realise the composition with just the printed score.

The final query regarding the functionality of the *intonarumori* within a performance setting is not linked to the inconsistencies of the score and goes much more towards the definition of the *intonarumori* as musical instruments, as Russolo insists they are, or as noise-sound generators capable of modulation, as Marinetti seemed to regard them in his observations. It is the question of calibration – how are these instruments tuned? This refers to the default pitch of the *intonarumori* when the lever is in the first position. It can be assumed that the original tuning was conducted during the final stage of construction. One does not know how such a process was calibrated. Of course, one might argue that tuning these instruments was not as crucial a process as it would be for a conventional orchestral instrument, yet Russolo seems to advocate here that his orchestra, like the conventional orchestra, is sectional – a section of *ululatori*, a section of *scoppiatori* and so on. One would expect each instrument within that section to be tuned equally in relation to the others. How was that accomplished, either in the workshop or on stage, prior to a performance? Arguably, there are two primary variables, the cable and the drum. The drum, to which the cable is attached, would surely have had a system for tightening or loosening the skin, resulting in an alteration of frequency. A kettle-drum has this functionality, indeed, it has a lever which can alter the skin tension in performance. Perhaps Russolo's instruments had a similar functionality, other than the cable attached to the centre of the drum skin head, which would alter the tension of the drum skin according to the operation of the lever, although Russolo does not make a reference to

any such device. The same is true for the cable, which would be tightened to a specific tension in order to operate within a pre-defined frequency range. Again, no mention is made as to how this was calibrated in relation to other *intonarumori* of the same design.

The drum and the cable are both physical objects and as such will be affected by environmental factors like heat, cold and humidity. Did Russolo take these factors into account and design a re-calibration device? Was there a fine-tuner like, for example, the cable being attached to an adjustable screw mount at the back of the instrument? Based on the pictures and the patented plans submitted by Russolo in 1914, this seems unlikely. Perhaps, like the church organ, where the tuning process was conducted during the manufacture of the tone-pipes and thus would require no further micro-calibrations, Russolo felt that once the original calibrations were completed during manufacture, no further alterations would be required.

In many ways, the inadequacies of the score provide a testament to the turbulent age in which the *intonarumori*, *Risveglio di una città* and Russolo's system for scoring, were created. Russolo would perform with his *intonarumori* orchestra on only a handful of occasions. The Futurist Grand *Serate* were all but over by the time Russolo was able to field more than one *intonarumore*. The *serata* at the Teatro Dal Verme was the penultimate, before the Futurists retreated to within the galleries once more. Russolo and Marinetti performed with the *intonarumori* orchestra in London, before then going to war, where Russolo was seriously injured. He was still recovering from his head wound whilst compiling the various manifestos and articles that make up *AoN 16*. And so, when considering the score and the instruments of the orchestra themselves, there is a feeling of art-interrupted; of a hiatus that was never fully overcome. One would imagine that Russolo would have refined his notational methodology over the subsequent years, and perhaps

he did. Perhaps the scores for the Paris 1921 concerts contained such refinements to his original methodology. Russolo and Piatti had demonstrated such energy and focus throughout 1913 and 1914, designing and constructing the many *intonarumori* models in time for the Dal Verme *serata*, and after that it all seemed to fizzle out. Russolo spoke of his hopes that important contemporary composers, like Stravinsky, Ravel, Casella, Honegger and Varèse, impressed by his noise instruments, would incorporate them within their own orchestral compositions.⁴⁵⁹ Whilst Russolo was only really concerned with creating compositions exclusively for his noise-orchestra, there is a detectable sense of pride, a sense of validation, in these comments. Yet, these incorporations within classical music never took place and in hindsight, these hopeful expectations expressed by Russolo in *AN 16* have a certain fragility, a poignancy. In truth, whilst these composers were indeed impressed with the concept of *intonarumori*, they were not impressed enough by the instruments themselves, except for Pratella, who in all likelihood felt obliged to include some in his *gefälschte* Futurist opera *Aviatore Dro*, (Drothe Aviator) and of course his brother, Antonio, which returns us to the Paris concerts of 1921. Whilst Luigi Russolo's last notable public performance, introduced by Edgard Varèse, was for the opening of an exhibition of Futurist painters at the Galerie 23, Paris in 1929, and despite Russolo's continuing research into acoustic mechanical noise-intoners throughout this decade, it was arguably the Paris concerts of 1921 that marked the end of Russolo's singular vision of the acoustic noise orchestra.

⁴⁵⁹ Russolo, *The Art of Noises*, (1986), 36.

4.3 *The Noise Orchestra: Performances 1913 – 1914.*

Russolo's foray into the live event as a composer and conductor of his *intonarumori* orchestra all began so promisingly. It is true that when he first unveiled his *scoppiatore* at the Teatro Storchi in Modena on 2 June 1913, the reaction from the audience was principally one of ridicule. Russolo would have taken some comfort from the fact that this scorn was not as the result of the audience actually hearing the instrument, but possibly because they could not. Had Russolo reflected further upon this fact, then he might not have been quite so enthusiastic about the potential of his *intonarumori* orchestra a year later. Nevertheless, this was merely one *intonarumore* demonstrating the range of timbres it was capable of generating. The fact that in terms of amplitude it could not compete with the raucous crowd might have given Russolo a sense of foreboding, yet this does not seem to be the case. It is likely that the very positive reaction to Russolo's first performance of his orchestra, referred by him as the 'dress rehearsal', which took place at Marinetti's apartment in August 1913 to a select audience, appeared to give Russolo a sense of real optimism. Russolo's anticipation of the *serata* at the Teatro dal Verme where he was to unveil his eighteen piece *intonarumori* orchestra is palpable, even when describing his rehearsals with the 'performers', in a book written two years after the event.⁴⁶⁰ It is interesting that he calls his *intonarumoristi* 'performers', rather than musicians. He uses the word '*esecutori*' when one would have expected, given his insistence that his *intonarumori* were instruments and not machines, that he would use the term '*musicisti*' to describe them.

Lunghe e faticose furono le prove. Soltanto all quarta, gli esecutori cominciarono ad orientarsi. Devo però riconoscere che ci misero molta buona

⁴⁶⁰ Accounts vary regarding the number of *intonarumori* present for this concert. Berghaus states that there were eighteen *intonarumori* present on stage (Berghaus, *Italian Futurist Theatre 1909 – 1944*, 130.) Russolo includes an excerpt from a Parisian newspaper review of the event (Russolo, *L'Arte dei rumori*, 32) where it mentions twenty three noise instruments. In the *AN 16*, Russolo lists eight model variations and twenty-one instruments in total (see fig. 19).

volontà, e che alle ultime prove riuscii ad ottenere una esecuzione veramente ottima. All prova generale, assisterono soltanto pochi amici intimi.⁴⁶¹

The rehearsals were long and tiring. Only at the fourth did the performers begin to get adjusted. I must admit, however, that they suffered with much good will, and that the last rehearsals succeeded in achieving really excellent performances. Only a few intimate friends were present at the dress rehearsal.⁴⁶²

By the time of the Milan *serata*, Marinetti was tiring of the entire process. Four years earlier, he sought to provoke the audiences of the Grand *Serate*, to engender a sense of conflict between the Futurists on stage, the Futurists and the passéists in the audience, and on the streets outside the venue. However, in Marinetti's eyes, what had started out as art-action, promoting Futurist creative and political programmes and the manufacture of furore to advance the Futurist cause, had now descended into chaos, with audiences primed with missiles to hurl at the Futurists on stage and pre-disposed to raucous behaviour, regardless of the programme of events. Marinetti never had a problem with audiences rejecting the creative works or polemics of the Futurists. Indeed, he sought it out in order to reject it in dismissive and contemptuous declamation. It was just part of the show. Yet, by the time of the *serata* at the Teatro Verdi, in Florence, on 12 December 1913, audiences would no longer listen to the Futurists before hurling missiles and invectives. As Ardengo Soffici recalled:

An inferno broke out. Before any of us could open his mouth, the hall was boiling over, resounding with savage voices in the fever of excitement. There was an atmosphere like that of an execution field before the capital punishment is about to be carried out.⁴⁶³

⁴⁶¹ Russolo, *L'Arte dei rumori*, 1916), 21.

⁴⁶² Russolo, *The Art of Noises*, (1986), 33.

⁴⁶³ Ardengo Soffici, "Fine di un mondo", in: Berghaus, *Futurist Variety Theatre 1909 – 1944*, 328.

After what became known as the ‘Battle of Florence’, Marinetti had determined that the Futurists should take a sabbatical from these Futurist evenings.⁴⁶⁴ There were two more *serata* between then and the penultimate event in Milan, but they had been arranged some time before the *serata* in Florence and, in a sense, Marinetti and company were simply going through the motions, fulfilling their contractual obligations. The audiences of both these *serata* acted in much the same way as the audience had done in Florence, although perhaps with less violent abandon. It seemed that audiences were no longer present to be confronted with new ideas and new art. They had, as Marinetti stated, ‘just come for fun.’⁴⁶⁵ The quote used at the beginning of this chapter sums up Marinetti’s attitude to the Grand *Serate* by that point. Gone was the joy at provoking an audience. The pleasure of being booed had been diluted by the ignorant and ebullient violence of audiences primed and ready. The Futurists were in real danger of losing their avant-garde credentials and becoming merely figures of fun. The truth of the matter was that to some extent all Futurist *serate* were like that, but until Florence Marinetti saw himself as the instigator, the puppet master. A tipping point had now been reached and Marinetti, the poet-recitator, the master performer, had lost control of his audience. Perhaps this very thought was on his mind when he addressed the Florentine audience and said: ‘this game has been going on too long.’⁴⁶⁶

This sentiment was acted upon and the Futurists moved away from the Grand *serate*. Between 12 December 1913 and 21 April 1914 there were just three and none of those were *serata* in the classic mould. There was a protest action at the University of Milan on 12 January followed by a performance at the Teatro del Corso of *Electricita* (Electricity) by the touring company Tumiatì three days later. Giovanni Papini was upset not to have

⁴⁶⁴ Berghaus, *Futurist Variety Theatre 1909 – 1944*, 119.

⁴⁶⁵ Marinetti quoted in Berghaus, *Futurist Variety Theatre 1909 – 1944*, 119

⁴⁶⁶ Marinetti addresses the Florentine audience at the Teatro Verdi, December 12, 1913.

been invited to attend this, but Marinetti informed him that it was not a real *serata*. However, throughout 1914 the Futurists ran a series of ‘Gallery *Serate*’ – small-scale events to an invited audience, held in art galleries in the afternoons. The first of these was held at the Galleria Sprovieri on 14 December 1913, followed by another in the same venue, where Russolo demonstrated one of his *intonarumori*. By 21 April 1914, the date of the *serata* in Milan, the Futurists had held eight of these gallery events and it seemed as if the Grand *Serate* might never return.

Yet despite all this, Marinetti and the Futurists decided to make one more great effort for the *serata* in Milan, the very last of its kind. It was done to promote Russolo and his *intonarumori* orchestra. The event had initially been banned because of potential threats to public order and it was only at the personal behest of Umberto Giordano and two police deputies that it was allowed to proceed. Marinetti pulled out all the stops for its promotion. Copies of *L’Arte dei rumori* were distributed throughout the city and posters fly-posted on walls. The Futurists’ well-oiled publicity machine was in full flow once more. One wonders why Marinetti returned to the grand *serate* format on this final occasion with so much zeal, when he was clearly disillusioned with what it had descended into. Did he suppose that it would be different on this occasion, perhaps because the *serata* was being held in his home town, the birthplace of the Futurist movement? It is unlikely, although he may have hoped that the location would ameliorate the confrontations between the Futurists and the Milanese audience. Perhaps it was a sense of loyalty to Russolo that this *serata* was organised, because Russolo and Piatti had been working like demons, ‘alone and intent, in anxious research and feverish activity’ to create the instruments and compose the scores.⁴⁶⁷ Just at the point when Russolo was ready, after years as a *serate* veteran, Marinetti was calling an end the Futurist

⁴⁶⁷ Russolo, *The Art of Noises*, (1986), 32.

grand *serate*. Perhaps Marinetti felt that Russolo was at least owed this day, this moment in the sun. We do not know how Russolo found the finance for his research, development and construction of the noise-orchestra, yet it is well documented that Marinetti often used his great wealth to subsidise Futurist activities – the exhibitions, the publication and printing costs for the manifestos and so on. It is therefore entirely possible that Marinetti was Russolo's principal investor and he was keen to see a return on that investment. Or, as already stated, Marinetti saw the inclusion of the noise-orchestra within Futurist performance as a partner to his concept of noise-poetry, in the sense that *Parole in Libertà* and *L'Arte dei rumori* were always conceptually intrinsically linked, the two sides of the same coin.

Whatever the motivation, the event was almost as chaotic as the one in Florence. The audience would not listen and eventually, after running out of missiles to throw, became distinctly aggressive. An excellent account of this and all other early *serate* can be found in Berghaus. It is enough to know that Russolo, the orchestra of *intonarumori* and the music programme were dismissed out of hand by the audience. The sound of the performed works was drowned out by the noise coming from the auditorium and the event concluded, as so many had in the past, with violence within the theatre and outside in the streets. As Russolo reflected in his *AoN 16*:

La prima esecuzione pubblica dell'orchestra d'intonarumori ebbe luogo la sera del 21 aprile 1914, al Testro Dal Verme di Milano. Il pubblico si accalcò si ammassò nel vastissimo teatro, ma *non volle* udire. – Quella folla immensa tumultuava già, rumorosissima, mezz'ora prima che l'esecuzione incominciasse, e i primi proiettili cominciarono a piovere dalla gallerie sul velario ancora chiuso... Così il pubblico *non sentì niente*, quella sera semplicemente perché i rumori, non intonati, preferì farli lui!⁴⁶⁸

⁴⁶⁸ Russolo, *L'Arte dei rumori*, 1916), 21.

The first public performance of the orchestra of noise instruments took place the evening of April 21, 1914, at the Teatro dal Verme in Milan. The public pressed, thronged into the vast theatre, but *not* to listen. – The immense crowd was already in an uproar a half hour before the performance began; the first projectiles began to rain upon a still closed curtain. – Thus, the audience heard nothing that evening, simply because they preferred to make their own – non-instrumental – noises!⁴⁶⁹

Whilst one can empathise with Russolo, it is difficult to feel sympathy with Marinetti's dismay at the chaos into which the grand *serate* had descended. Without doubt, he was the architect of this chaos, through the series of *seratas* conducted between 1909-14, where he and his cohort, of which Russolo was one, constantly provoked and insulted the audience. There was method to this madness in his efforts to bring art into the everyday minutiae of daily life and politics, declaring every act of violence, every denunciation of futurism as a triumph against the traditionalists. He should not have become so dismayed or offended by the fact that the reputation of the *serate* for exuberant conflict and ribaldry had grown to the extent that the audience had become primed and ready for such festivities, to the point that they no longer showed any inclination to listen to the Futurist performers before engaging in dissent. In the classical mode of these *serate*, the programme was simple. As Berghaus states:

In the beginning the term 'Futurist serata' meant: presenting the key ideas of the Futurist movement in a large theatre and offering the audience examples of how these principles could be translated into performative language. The first *serate* always contained a combination of (a) the reading of manifestos, and (b) the presentation of artistic creations that had arisen from these theories. This allowed Marinetti to introduce the Italian public, successively, to Futurist poetry, painting and music. However, from the first *serata* onwards, another key element formed an integral part of the programme: Futurist politics. The *serata* not only had the function of familiarizing the art world with

⁴⁶⁹ Russolo, *The Art of Noises*, (1986), 33.

the aesthetic principles of Futurism, but also of propagating their ideology of anti-traditionalism, patriotism etc.⁴⁷⁰

Ideas, artworks and politics would prove to be a tempestuous conflagration within the context of Futurist performance, although Marinetti refrained from any political declamations on the 21 April 1914. It seems the *serata* was designed to follow the classic template of Futurist performance, the reading of the manifesto and the demonstration of a creative artwork that had arisen from the theory. Marinetti was undoubtedly aware that most confrontations that erupted during previous *serata* were a reaction against the political sentiments violently expressed by those performers on stage, rather than the manifestos or the resulting poetry, painting and music. Yet in the *serate* of the past, this violent reaction was not necessarily manifest as a united audience versus the Futurist performers, for usually fights would break out amongst the differing factions, which comprised the make-up of the audience. Proto-Futurists would fight with traditionalists and supporters of the triple alliance. Almost invariably after the performance, the Futurist performers would retire to a favoured café, along with their supporters from the auditorium and from the surrounding streets to celebrate their victory. Regardless of the success or failure of the performance itself, the Futurists always claimed victory based on the reaction of the audience – the active participation of the audience was evidence enough of art in action. Who won the fight was irrelevant because it was enough that the fight was fought. Indeed, that was how Marinetti met Umberto Boccioni and Russolo in the first place.

By the time of the *serata* at the Teatro dal Verme, the audience makeup had radically changed to one of a confrontation between them and the Futurists, where the ideas, the artworks and the political diatribes were inconsequential. The Futurist theatre had

⁴⁷⁰ Berghaus, *Italian Futurist Theatre, 1909 – 1944*, 134.

become a circus act. This was the environment into which Russolo's practical realisation of noise-sound music was born, despite Marinetti's efforts to return to the original template of Futurist *serate*. Russolo's acoustic *intonarumori* were no match in amplitude with the noise emanating from the auditorium.

Russolo and his noise orchestra performed at one more *serata* at the Politeama in Genoa on 20 May 1914. This was a much more subdued affair. The *serata* at the Teatro dal Verme had not sold out and the same was true for this *serata*. Perhaps even the Italian public had grown tired of the Futurist brand of theatrical performance. At least in this instance, the audience were prepared to listen. However, by Russolo's own admission, the noise-orchestra gave a poor performance.

Non mancarono i soliti disturbatori, ma la maggioranza li fece tacere. Costì, il pubblico genovese poté farsi un'idea approssimativa di quello che é la mia orchestra. Purtroppo, a Genova l'esecuzione fu pessima poiché per una serie di circostanze bizzarre e imprevedibili, mi vennero a mancare, all'ultimo momento, gli esecutori che avevo già avuti a Milano e che già conoscevano bene gli strumenti. Fui costretto a rimediare con esecutori improvvisati in sole quattro prove, e dovetti rassegnarmi all'impossibilità di far risultare i migliori effetti dell'orchestra.⁴⁷¹

A few nuisance-makers were present, but the majority silenced them. Thus, the Genoese public was able to get some idea of what my orchestra sounded like. Alas, the performance at Genoa was much worse, since a series of bizarre and unforeseeable circumstances deprived me at the last minute of the performers that I had had in Milan, who were already well acquainted with the instruments. I was forced to make do with improvised performers in only four rehearsals, resigning myself to the impossibility of obtaining the best effects of the orchestra.⁴⁷²

⁴⁷¹ Russolo, *L'Arte dei rumori*, 1916), 24.

⁴⁷² Russolo, *The Art of Noises*, (1986), 35.

As Russolo states in *AoN 16*, one month after the *serata* in Genoa, he had arranged a series of concerts with his *intonarumori* orchestra at the London Coliseum. Again, with his original ‘performers’ from the *serata* in Milan still unavailable, Russolo was obliged to use members of the Coliseum’s house orchestra. Significantly, he observes that these musicians had been ‘disposizione dalla Direzione del Teatro’ (assigned to me by the theatre management).⁴⁷³ He did not think much of these ‘inglesi autentici’ (authentically English) musicians, their failure or unwillingness to ‘comprendere bene che cosa fossero gl’intonarumori e per saperne trarre gli effetti voluti’ (understand what the noise instruments were, and how to get the desired effects from them).⁴⁷⁴ Despite having the luxury of eleven rehearsals in which to whip them into shape, Russolo felt the first performance was worse than the one in Genoa, when he had had just four rehearsals. Nevertheless, Russolo seems to have enjoyed these concerts and felt for the first time that his noise-orchestra was receiving the kind of positive attention it deserved. The quality of the performances improved. The musicians were no doubt encouraged by the positive reception and, feeling less exposed and realising that they were not being actively scorned, put more effort into their work. Even then Russolo was not entirely happy with the performances, stating that:

Alle due ultime esecuzioni, anzi, ebbi dei risultati buoni, se non ottimi e il pubblico se ne accorse, poiché gli applausi furono più nutriti e prolungati, tanto che dovetti parecchie volte presentarmi alla ribalta.⁴⁷⁵

At the last two performances, some of the results were good, if not all that could be desired – and the public was aware of it, since the applause was so prolonged and hearty that I had to return several times after the curtain fell.⁴⁷⁶

⁴⁷³ Russolo, *L’Arte dei rumori*, 1916), 24.

⁴⁷⁴ *Ibid.*, 35.

⁴⁷⁵ *Ibid.*, 25.

⁴⁷⁶ *Ibid.*, 36.

Perhaps the confrontational nature of the Futurist *Grand Serate* meant that Russolo retained no affection for them and perhaps this marked the beginning of the end for his active participation in Futurist activities, as a member of the elite circle. He states with some asperity:

Fu cosa veramente insperata l'essere riusciti ad imporre, e a far applaudire gl'Intonarumori al Coliseum di Londra, in un teatro cioè che non ha nessun altro scopo che quello di divertire il proprio pubblico, in un teatro che non ha mai avuto la pretesa di fare delle battaglie artistiche.⁴⁷⁷

It was a truly inspiring thing to succeed in impressing and drawing applause for the noise instruments at the Coliseum in London, at a theatre that has no purpose other than to entertain its own audience, at a theatre that has never had any pretence of waging artistic battles.⁴⁷⁸

Russolo takes greatest pleasure in the enjoyment expressed by an audience who were simply entertained by his compositions, performed using the instruments of his own invention, at a theatre whose sole mission was to programme popular entertainments for the benefit of its paying audience. Russolo basks in the prolonged applause, not because he has made a valid artistic statement or performatively proved an avant-garde manifesto, but because he has provided an entertainment, which was accepted as such by an audience comprising of the whole social strata of London. Of course, his orchestra was of great novelty value to an audience seeking distraction, and novelty was a great mainstay of the English variety halls, of which the Coliseum was pre-eminent. One wonders if Russolo ever truly appreciated this, implying in *AN 16* that the English audience experienced his orchestra with a sense of wonder and bewilderment. It is doubtful that Russolo was correct in this assessment. London in the months running up to the start of the Great War was not a parochial Italian town, but the hub of an empire at the very height of its power and influence. The Coliseum trawled through that empire

⁴⁷⁷ Ibid., 25.

⁴⁷⁸ Russolo, *The Art of Noises*, (1986), 36.

and beyond to find exotic and unusual acts to add to the bill. One could argue that the prolonged applause was as much for the theatre management, who had secured this eccentric diversion, as for Russolo and his orchestra. Nevertheless, it is significant that Russolo experienced such joy from performing to an audience, the majority of whom neither knew nor cared for Futurism or the philosophy of noise-art. It indicates that Russolo was also somewhat battle-worn from the confrontational *serate* and wished only for his orchestra to be treated with the same respect accorded to a traditional orchestra, and not condemned or dismissed by a radicalized audience already primed for scorn.

Russolo had intended to continue on tour with concerts in Liverpool, Dublin, Glasgow, Edinburgh and Vienna, but ‘la guerra fece rimandare tutto’⁴⁷⁹ (the war caused it all to be postponed). It is interesting that he chooses the word ‘postponed’.⁴⁸⁰ Russolo would never go on to complete this tour, so the word ‘cancelled’ would have been more appropriate. Yet Russolo was writing this in 1916, invalided out of the army after sustaining serious head wounds. It is clear that he believed that his project with his *intonarumori* orchestra was merely undergoing a hiatus and that soon he would be continuing his work as a composer and conductor, taking his orchestra back to England and the rest of Europe. It is easy with hindsight to mistake *AoN 16* as the end of an adventure, a summing up of Russolo’s journey from *L’Arte dei rumori* to his marching off to war. Yet it is clear that Russolo did not think this way and that *AoN 16* was merely a consolidation of the 1913 manifesto and subsequent essays and articles he had written up to that point, before moving forward once more. Yet Russolo gave no more concerts of his own compositions, performed by his orchestra – certainly not on the scale he envisaged. He continued to develop more *intonarumori* designs and provided demonstrations and other miscellany, but by the time the war ended, the first age of

⁴⁷⁹ Russolo, *L’Arte dei rumori*, 1916), 24.

⁴⁸⁰ Russolo, *The Art of Noises*, (1986), 36.

Futurism, often called the heroic age, was over. Boccioni was dead, Mussolini was rising to power and Russolo had no new arguments left to make. His *intonarumori* were made obsolete by the rapid developments in electronics and despite a brief resurgence of interest from composers who had attended Antonio's concerts in Paris, not one of them would incorporate an *intonarumori* section into their compositions.

In conclusion, we to return to the summer of 1913, two months after Russolo first unveiled his *scoppiatore* at the Teatro Storchi in Modena. The occasion was a demonstration of his *intonarumori* orchestra, comprising of sixteen instruments, and the performance of two works, *Il risveglio di una Città* and *Convenvegno d'automobili e d'aeroplani* (A Meeting of Automobiles and Airplanes), to an invited audience at Marinetti's home in Milan. Arguably, this performance, given to a small invited audience, was the most artistically successful of all. Fortunately, it was described by an unnamed reporter from the *London Pall Mall Gazette* whose critique was very positive.

At first a quiet even murmur was heard. The great city was asleep. Now and again some giant hidden in one of those queer boxes snored portentously; and a new...born child cried. Then, the murmur was heard again, a faint noise like breakers on the shore. Presently, a far...away noise grew rapidly into a mighty roar. I fancied it must have been the roar of the huge printing machines of the newspapers.

I was right, as a few seconds later hundreds of vans and motor lorries seemed to be hurrying towards the station, summoned by the shrill whistling of the locomotives. Later, the trains were heard, speeding boisterously away; then, a flood of water seemed to wash the town, children crying and girls laughing under the refreshing shower.

A multitude of doors was next heard to open and shut with a bang, and a procession of receding footsteps intimated that the great army of bread...winners was going to work. Finally, all the noises of the street and factory merged into a gigantic roar, and the music ceased.

I awoke as though from a dream and applauded.⁴⁸¹

Earlier, this chapter questioned how *Il risveglio di una Città* would have sounded. This question is subjectively answered here, for we know how it sounded to the correspondent. There is both a collective and individual response to designed sound, based on the cultural and personal experiences of the audience. The description provided by the correspondent is one of a designed sound art, rather than a conventional sound design, because arguably the non-mimetic properties of the *intonarumori* mean that there can really be no collective response, only an individual and subjective one. That said, despite Russolo's assertion that these instruments were evocative rather than representational, certain *intonarumori*, such as the *scoppiatori*, were able to evoke a specific noise-type to the point where the evocative and mimetic properties became indistinguishable. As such, it could be argued that these instruments produced keynotes that were recognised collectively by the audience and that these gateway noises orientated the non-specific noises in a specific cognitive direction and so, in a sense, attached themselves to visual objects in recollection. Sound attaches itself to an image, like a parasite to its host, and an image in recollection will naturally associate itself to a related image. In doing so, auralities not present within the composition or design will also be added by the receiver. Therefore, it can be argued that this work is neither an example of sound design nor of sound art, but is a hybrid of the two, a chimera of authenticity and imagination.

It is unlikely that the correspondent actually heard all of these sounds, especially 'children crying and girls laughing', and these sounds were actually those associational avatars from

⁴⁸¹ Anon, "Untitled", *Pall Mall Gazette*, Nov 18th 1913, quoted in Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America*, (London: MIT Press, 2002), 137.

his own experience – the visual with the aural attached.⁴⁸² In this sense, the correspondent's reaction to the work was entirely emotive and also very strongly indicative of the claim that Russolo's noise-sound composition, even when performed by inexperienced musicians, had the genuine capacity for establishing an emotional resonance within the space. The correspondent takes these evocative and supposedly non-mimetic sounds and associates them with physical and visual objects, with which he was familiar: 'presently, a far away noise grew rapidly into a mighty roar. I fancied it must have been the roar of the huge printing machines of the newspapers.'⁴⁸³

This account offers us the only clue about the nature of the composition in its entirety. The fragment of this score that remains covers only a small part of the description provided by the reporter. One does not know whether this fragment, included in *Lacerba* and reprinted in *AoN 16*, detailed the start of the composition, an extract taken from within the body of the composition, or indeed, even the end. The reporter's description, 'at first a quiet even murmur was heard. The great city was asleep. Now and again some giant hidden in one of those queer boxes snored portentously', strongly indicates that the fragment was taken from the start of the composition.⁴⁸⁴ Given the reporter's description of the rest of the composition, this was a complex and dynamic work. The reporter it seems entered a fugue state, becoming immersed within the designed aural and emerging 'as though from a dream' with the cessation of the 'music'.⁴⁸⁵

This account is in direct contrast to the reception Russolo and the Futurists encountered in the Grand *Serate*. But why should that be? The most significant factor was undoubtedly the environment in which Russolo performed, which was both hostile and

⁴⁸² Ibid.

⁴⁸³ Ibid.

⁴⁸⁴ Ibid.

⁴⁸⁵ Ibid.

humorously dismissive. As previously discussed, Italian audiences were just not prepared to listen. This is partly true, yet by Russolo's own admission, the audience in Genoa was prepared to do just that. The same is true for the concerts at the Coliseum, where audiences enjoyed the novelty and spectacle, but did not take Russolo and his orchestra seriously. Although Stravinsky, who had attended one of these performances, certainly did, though not seriously enough to incorporate any *intonarumori* into his work. The dress rehearsal performance was to an invited audience that was sympathetic or, at the very least, not antithetical to the aims of the Futurist movement and they were therefore pre-disposed to listen. The answer probably lies in the expectations of the audience and the acoustic properties of the venues where Russolo performed.

What does one envision when informed about a composition comprised from noise?

Well, one would expect noise as encountered in everyday life – loud, disagreeable, dissonant saturation. Yet Russolo's score, is backed up by his pronouncements about the agreeable nature of noise-sound:

Non sarà mediante una successione di rumori imitativi della vita, bensì mediante una fantastica associazione di quesati timbri vari, e di questi ritmi vari, che la nuova orchestra otterrà le più complesse e nuove emozioni sonore.⁴⁸⁶

It will not be through a succession of noises imitative of life but through a fantastic association of the different timbres and rhythms that the new orchestra will obtain the most complex and novel emotions of sound.⁴⁸⁷

Russolo presents us with a far more nuanced and sophisticated evocation of noise. It is clear that above all things, Russolo wanted to entertain his audience, yet in doing so, he defied audience expectations within an environment where they were pre-disposed not to

⁴⁸⁶ Russolo, *L'Arte dei rumori*, (1916), 16.

⁴⁸⁷ Russolo, *The Art of Noises*, (1986), 29.

listen. The mechanical acoustic instruments could not hope to compete with a noisy and disruptive audience and so the subtlety of the composed score was lost. Antonio's compositions for mixed orchestra lacked these subtle dynamic variations, for he tended to have the *intonarumori* at his disposal all playing simultaneously.

Another significant factor in the success of the August dress rehearsal was the venue itself. Venues like the Teatro dal Verme were big spaces and the aural quality that the *intonarumori* were capable of generating was simply lost. Add to that the sound absorbing properties of two thousand spectators, even if they had all been as silent as mice, and the truth was that the noise-orchestra was unable to fill the space. Compare that to the dress rehearsal venue, Marinetti's apartment. Lavish though it was, it was tiny compared to the large-scale venues. It is not known exactly where in the apartment this performance took place, but it is likely to have been in the dining room or conservatory. Within a more confined space, the *intonarumori* would have been far more impressive, both visually and more importantly, aurally. It is likely that the acoustic properties of the space were much more conducive, especially if the concert took place in the very reflective conservatory. The direct sound produced by the instruments would have reflected and multiplied within the smaller space, amplifying and intensifying the experiential aural quality to the point where it became immersive, pulling the audience into the composition.

Russolo never gave any performances of his *intonarumori* compositions at the series of Gallery *Serate* which took place throughout 1914, yet had he done so, it is possible that he would have received far more acclaim. His ideas and his works could well have been taken more seriously because the audience would not have been rowdy, the reflective gallery spaces would have been much more conducive to the delivery of designed aural quality from his orchestra and the musicians themselves would have been able to hear the

sounds they generated. One of the major design flaws of the *intonarumori* was the fact that the musician was positioned to the rear of the trumpet or horn and could rarely hear his own instrument. Had Russolo been taken more seriously, thanks to a series of successful gallery performances, then one could envisage the design of the *intonarumori* becoming the basis for future developments, including electrical amplification and the gradual replacement of mechanical noise-making systems with electronic ones. This is what happened to the theremin; it was developed and refined by Leo Theremin and later by Moog, who then took that technology and adapted it to the VCO synthesisers of the 1960s and 70s. Unfortunately for Russolo, the *intonarumori* were to prove to be a technological cul-de-sac, possibly because he chose the wrong venues in which to perform.

Conclusion



Fig. 1 The Technical Manifesto of Futurist Painting and the Directors of the Futurist Movement, 1910.

By 1909, Marinetti had already achieved celebrity status. He was a well regarded, prize-winning poet, critic, publisher and public speaker, already supremely confident in his ability to provoke controversy within literary circles in both Paris and Milan by the reworking of late Symbolism and Kahn's concept of *Vers libre*, into a school of literature expressly designed to reject Italy's stultifying classical provenance. Marinetti owed a great deal to Symbolism. Not only did he adapt its fundamental philosophy to Futurism, he also took inspiration from the manner in which the school was founded, with the publication of the Symbolist manifesto written by Jean Moréas, in *Le Figaro* on 18 September 1886. Marinetti would have appreciated the promotional possibilities of publishing his manifesto in an internationally renowned newspaper, and Marinetti had the instincts of self promotion, honed through his years as a performing poet, to take that step. Whilst the Symbolist manifesto was published in the arts section of *Le Figaro*,

Marinetti's family connections meant he was able to get The *Founding and Manifesto of Futurism* published on the front page.

Thanks to the journal *Poesia*, founded in 1905, where he published new symbolist and *Vers libre* writing from Paris and promoted young Italian writers like Buzzi and Palazzeschi, Marinetti was well known in Milan. The publication of the *Founding* manifesto had amplified that recognition into notoriety. However, it could be argued that he was not entirely prepared for the enthusiasm his *Founding* manifesto would generate throughout Europe and Russia, but especially in Italy, nor that his emphasis on youth and modernity as the arbiters of change in Italian culture would become the *zeitgeist* for a generation frustrated by the myths perpetuated by the *Risorgimento* and Giuseppe Mazzini's idea of a 'third Rome' capable of producing a new 'civilizing unity' where 'Italy would carry out once again its mission of fostering civilization in Europe and in the world.'⁴⁸⁸ Indeed, in retrospect, when one compares the condition of Italy in 1908 with the compelling vision set forth by Marinetti, it is easy to understand why the young creators within all disciplines were attracted by Futurism and would want to be a part of it – to shape the future and not be stereotyped by the past.

It was almost certainly what motivated Russolo and Boccioni to attend the second Futurist serata at the Lirico theatre. As Berghaus observes: 'Amongst the clapping rather than booing were also two painters who had recently been drawn under the spell of Futurism: Luigi Russolo and Umberto Boccioni. They belonged to a Milanese artists' circle, Famiglia Artistica, which had attempted in the preceding five years to bring some life into the art world of the Lombard capital. Naturally, the publication of the *Foundation*

⁴⁸⁸ Giovanni Lista. "The Activist Model; or, The Avant-Garde as Italian Invention", Centre National de la Recherche Scientifique, Paris, trans. Simon Sheridan, *South Central Review*, Vol. 13, No. 2/3, *Futurism and the Avant-Garde*. (Summer - Autumn, 1996), 14.

and Manifesto of Futurism aroused their interest and they sought to make the acquaintance of Marinetti.⁴⁸⁹

It is often stated that Russolo had received no formal training in either painting or music. This is not entirely accurate, although his training in music and painting was episodic and erratic. Born in Portogruaro, he was the son of the town organist, who was also responsible for the maintenance of the pipe organ in the cathedral of Portogruaro. Domenico Russolo was also the director of the Schola Cantorum of Latisana. The cathedral organ is described by Chessa:

Although not endowed with the rich timbral resources that the organ builders of other northern Italian areas could provide (for example, the birdsong [Rosignuoli] or bell-like [Campanelli] organ stops of the Bernasconi or Tamburini organs), this type of organ could display sophisticated acoustic and mechanical tricks. These included such effects as the characteristically Venetian regal stops called Tromboncini and Violoncello (similar to the sound of the Regale) and, above all, the Rollo (drum-roll), a sort of rumble produced by two very deep pipes, tuned almost to the unison and controlled by a pedal that, by means of the two frequencies sounding simultaneously, produces very fast beats and gives a surprisingly accurate illusion of the roll of timpani.⁴⁹⁰

Both of Russolo's older brothers, Giovanni and Antonio, who would go on to compose orchestral works for a mixed orchestra using Russolo's *intonarumori*, and whose compositions *Corale* and *Serenata* featured in the Paris concerts of 1921 described in chapter three, were originally taught music by their father, to a standard which enabled them to pass the entry exam for the Conservatory in Milan.

They passed the exam brilliantly, and whereas one graduated with degrees in violin, organ, and viola, the other took degrees in piano and organ. Luigi took a different path. He started studying piano but passed quickly on to the violin,

⁴⁸⁹ Berghaus. *Italian Futurist Theatre 1909-1944*, 96.

⁴⁹⁰ Chessa, 75 – 76.

and then as quickly abandoned that instrument when he became interested in painting.⁴⁹¹

Although Russolo first studied music like his brothers, starting with the piano and switching to violin, by the time the family moved to Milan in 1901, Russolo had abandoned his music studies and began to study painting at the Brera Academy, where he developed his style, employing divisionist techniques, and using the city and industrial society as his themes. Whilst he did study painting, he was not a fully enrolled student at the academy and his attendance was not compulsory. This somewhat unusual background and his capacity to move from one artistic form to another marks him out as different to the other Futurists who would compose Marinetti's inner circle. Marinetti, Boccioni, Balilla Pratella, Giacomo Balla, Carlo Carrà and the rest, indeed all of the names listed in the *Direzione del Movimento Futurista* (Directors of the Futurist Movement, 1910), written on the reverse of the *Manifesto dei futurista pittori* (Manifesto of Futurist Painters) were all highly educated and trained in those academies and conservatories that they would later affect to despise. Russolo alone amongst them could boast of his Futurist credentials as an autodidact, who had not been subject to the enervating influence of a formal musical or fine art education. He was the perfect Futurist as envisioned by *Marinetti* in his Founding manifesto. Yet whilst he might fit the Futurist profile, his personality and, perhaps, his insecurity about his lack of formal education in the practicing arts might well have set the tone of his relationship with the other Futurists, especially Marinetti. This thesis has described Russolo as the Futurist technician, perhaps even a factotum within the context of the Futurist elite. It is the relationship between Russolo and Marinetti which, the thesis argues, determined the sequence of events surrounding the publication of *L'Arte dei rumori* and indeed, the parallel development of the depiction of noise in poetry and music throughout the three

⁴⁹¹ Ibid.

years between the publication of the *La Pittura futurista: Manifesto tecnico*, where Russolo's notion of *L'Arte de rumori* is first revealed, and the publication of his noise manifesto in 1913.

This thesis has argued that Russolo conceived his notion of noise music over a much longer timeframe than has previously been accepted by later researchers. It has called into question the dominant perception, first encouraged by the Futurists themselves that Russolo conceptualised *L'Arte dei rumori* as an inspired response to the performance of Pratella's *Inno Alla Vita*. The accepted timeline is that he composed his manifesto, where he proposed the creation of specific noise instruments in some detail, including technical aspects of their construction and operation in very short order. Within this manifesto, he was able to establish a process of noise categorisation that was, so the thesis argues, influential in the development of ideas about sound art in modernism, notably in the establishing of Dziga Vertov's 'Laboratory of Hearing'. This thesis has presented a radically different timeline where Russolo had already completed the preamble and programmatic elements of the manifesto some three months before Pratella's concert and that the only text written in the two days between the serata and the publication date of *L'Arte dei rumori* was the opening and concluding paragraph addressed to the composer.

The question then arose to why Russolo chose delay the publication of his manifesto for these months until after the serata, and why he decided to add the address to Pratella. I have shown that this delay in publication and the subsequent alterations to the manifesto was probably at the behest of Marinetti, who had influenced and redacted earlier futurist manifestos, specifically Pratella's *Musica Futurista: Manifesto tecnico* (Futurist Music:

Technical Manifesto, 1911), where Marinetti added an eleventh point to the programmatic section, without first discussing it with Pratella.

Portare nella musica tutti i nuovi atteggiamenti della natura, sempre diversamente domata dall'uomo per virtù delle incessanti scoperte scientifiche. Dare l'anima musicale delle folle, dei grandi cantieri industriali, dei treni, dei transatlantici, delle corazzate, degli automobili e degli aeroplani. Aggiungere ai grandi motivi centrali del poema musicale il dominio della Macchina ed il regno vittorioso della Elettricità.⁴⁹²

Music must contain all the new attitudes of nature, always tamed by man in different ways through incessant scientific discoveries. It must render the musical spirit of the masses, the grand industrial factories, trains, transatlantic steamers, battleships, automobiles, and airplanes. It must add the domination of the machine and the victorious reign of electricity to the great central motifs of the musical poem.⁴⁹³

This reinforces the notion that Marinetti was unhappy with the direction Pratella had taken in defining Futurist music, believing that he was more interested in exploring traditional Italian folk music and detuning the instruments of the traditional orchestra in his quest for enharmonism. Pratella was never truly a Futurist composer, his two significant compositions during his involvement with the movement, *Inno Alla Vita* and *L'Aviatore Dro*, despite Marinetti's active involvement in the second, were not genuine Futurist works. Despite the uproarious response from the audience during the serata, *Inno Alla Vita* was not especially radical. As Berghaus states:

Pratella's Hymn to Life was judged by the critic of *La tribuna* "absolutely passéist in form and substance" and when on 2 June 1913 at the Teatro Storch,

⁴⁹² Pratella, *La Musica futurista: Manifesto tecnico*, (Milan: Poesia, March 11, 1911).

⁴⁹³ Pratella, "Futurist Music: Technical Manifesto", in Rainey et al, 80 – 84.

Russolo presented his noise intoners, Pratella only read passages from his manifestos.⁴⁹⁴

In light of this, the thesis argues that the final incarnation of *L'Arte dei rumori*, with the late additions of the introduction and postscript was strongly influenced by Marinetti's desire to push Pratella towards a concept of Futurist composition more in keeping with the *capo's* vision of a radical art movement.

One could make the argument that the subsequent dichotomy within music and sound art is the direct consequence of Marinetti's editorial intrusion in 1913. It is an argument that is appealing at first glance; that poor Russolo, the creative dilettante, the Futurist technician, was obliged by the rich, confident and ebullient Marinetti to undermine the integrity of his vision and in so doing, be condemned to an ambivalent legacy, never quite forgotten, always name-checked by the latest contemporary avant-garde practitioner, but never awarded the status of the father of sound art. It is a beguiling narrative, yet this thesis concludes it is an inaccurate, or at least an incomplete one. The address to Pratella aside, *L'Arte dei Rumori* is a considered and well structured document. It flows naturally and develops Russolo's arguments in a cohesive and developmental way. There is no sense that Russolo's call for a sectional addition to the orchestra was in any way inserted at a later date and, had the address to Pratella not been included, then perhaps the subsequent perception that Russolo had only initially envisaged the inclusion of noise within the symphonic orchestra would not have been so pronounced. Actually, Russolo advocates both a noise section and a noise orchestra in the 1913 manifesto, in the first two points of the programic list.

⁴⁹⁴ Lisa Panzera, "Italian Futurism and Avant-Garde Painting in the United States", in *International Futurism in Arts and Literature*, ed. Günter Berghaus, (New York: Walter de Gruyter, 2000), 248.

1. - I musicisti futuristi devono allargare ed arricchire sempre di più il campo dei suoni. Ciò risponde a un bisogno della nostra sensibilità. Notiamo infatti nei compositori geniali d'oggi una tendenza verso le più complicate dissonanze. Essi, allontanandosi sempre più dal suono puro, giungono quasi al suono-rumore. Questo bisogno e questa tendenza non potranno essere soddisfatti che coll'aggiunta e la sostituzione dei rumori ai suoni.⁴⁹⁵

1. - The Futurist Musicians must continue to enlarge and enrich the field of sounds. This responds to a need of our sensitivity. In fact, we note that in the brilliant composers of today, there is a trend toward more complicated dissonances. They are increasingly moving away from pure sound, arrive almost to the noise-sound. This need and trend can be satisfied only with the addition and the substitution of noises for sounds. [my translation]

In this first point, Russolo makes the argument that there is a tendency amongst young composers to try to express more complex ideas through the use of dissonance, to the point where they are close to realising noise-sound. Yet the orchestra, made up of instruments developed in the age before the advent of industrial noise, is incapable of evoking the contemporary world. One can infer from the text that Russolo was sympathetic with their situation, their attempts to build a new industrial art with 'agricultural' tools. Later researchers have pointed to this observation by Russolo as being responsible for the tension created between the notion of music and a notion of a separate sound art. This is arguably inaccurate, for one could counter that this tension is the result of a fundamental misreading of the text by researchers with no practical understanding of the developmental and incremental nature of alterations within musical compositional and performative techniques. Russolo was clearly entranced by the creative possibilities of noise, not through an inspired response to *Inno Alla Vita* - a work hardly likely to provoke such euphoria - but through a longer and considered process of reflection. The tone of his prose and the cogency of his argument are suggestive of a

⁴⁹⁵ Russolo, *L'Arte dei rumori*, (1913).

man who has been thinking about an art of noises for some time. It would not be unreasonable to extrapolate from the text that Russolo believes that the incorporation of a noises section into the symphony orchestra was just the first step of a process in which, as composers became more familiar with the noise instruments, and as the noise-instruments themselves became more refined, they would begin to abandon the traditional elements which make up the orchestra. As that noise section becomes established, and the range of noise instruments within it becomes more settled and perhaps even standardised, composers would first incorporate noise into their arrangements, perhaps followed by a noise instrument movement within a symphony. Composers might then write and arrange some short noise only compositions as programme fillers. Eventually, as composers began to master the art of writing for noise instruments, as they developed a fuller appreciation of the possibilities of noise which mirrored Russolo's own, and as they reflected upon the popularity of noise-music to a public equally entranced, they would understand that they could compose exclusively for the noise-orchestra, whereupon the transition from the traditional orchestra to the noise-orchestra would be complete and the argument won.

2. - I musicisti futuristi devono sostituire alla limitata varietà dei timbri degli
strumenti che l'orchestra possiede oggi, l'infinita varietà di timbri dei rumori,
riprodotti con appositi meccanismi.⁴⁹⁶

2. - The Futurist Musicians must replace the limited variety of timbres weapons
that the orchestra has today, with the infinite variety of timbres of noises,
reproduced with appropriate mechanisms. [my translation]

In point two, Russolo develops this theme of the substitution of sounds with noises. It is clear that Russolo's ambition for the future of music is that noise instruments should replace, and not merely augment sound instruments. There is no unresolved tension

⁴⁹⁶ Ibid.

present in *L'Arte dei rumori*, there are no half measures. Russolo offers a route map which points directly to a noises only orchestra. The rest of the programmatic element extols the virtues of noise and provides some details as to how this could be practically achieved.

Yet the dominant perception of *L'Arte dei rumori* is simultaneously one of a radical vision, the first compelling argument for a brand new art form, and a missed opportunity that was responsible for the subjugation of sound art within music throughout the modernist era.

Why should this be the case? Certainly, there is a strong argument to be made that the obsequious address to Pratella is the principal reason behind this misconception. It is perhaps Russolo's tone as a most humble servant addressing a great artist from which one might infer that Russolo, the gifted amateur, entranced by Pratella's 'futurist genius'⁴⁹⁷ was only searching for a methodology to enhance Pratella's status still further. It is the conceit that Russolo had been inspired to conceive of *L'Arte dei rumori* as a 'logical consequence of [Pratella's] marvellous innovations', which perhaps obfuscated the meta-narrative of *L'Arte dei rumori*.⁴⁹⁸

When evaluating Russolo's legacy, one might also examine the availability of both his 1913 manifesto and his 1916 book. Whilst the manifesto was published and translated throughout Europe, the first English translation appears to be the incomplete version published by Rosa Trillo Clough in 1961, and the first English translation of the 1916 book is the 1986 edition, translated by Barclay Brown. The one significant issue which resonates through the years, and which has only been amplified an interest in Russolo

⁴⁹⁷ Russolo, *The Art of Noises*, (1986), 30.

⁴⁹⁸ Ibid, 24.

subsequent to the publishing of Brown's translation, is that so very little of Russolo's research into musical noise remains. There is the manifesto, the book and other related writings, but there is, to date, nothing else. Russolo's burgeoning reputation amongst contemporary sound artists and scholars has much to do with the availability of Brown's translation. It appeared at a time when experimentation with noise music was shifting into the mainstream, triggered by the commercial release of the Fairlight Mk. 1 emulator. Whilst many of his visual artworks have been preserved, it could be argued that these pale in comparison with those of Boccioni, Carrà and Balla. Yet from 1916 until just a few years before his death in 1947, Russolo's singular focus was the creation of noise instruments and noise compositions. From 1913 until as late as 1920, he continued to develop new variations of *intonarumori*, many of which were used by Antonio for his Paris concerts in 1921. At that time, Russolo was developing the *harmonium rumore* (noise harmonium), converting the monophonic *intonarumori* into a polyphonic, multi-timbral instrument. For some years, before the advent of sound to picture, it was used to provide sound support for silent films, and so, it could be argued, it was the first example of a bespoke sound design/diegetic sound to picture machine. Yet all of the *intonarumori*, the *harmonium rumore*, the *pianoforte enarmonico* (enharmonic keyboard), the *arco enarmonico* (enharmonic bow) as well as the scores for Russolo's compositions were lost through the vicissitudes of time, probably destroyed during bombing raids in World War II.

For much of the time between the original publication of the manifesto and the book and the publication of their English translations, the only available editions were in the original Italian. These were the only meagre evidence that a Futurist had worked within the field of noise art. The movement's emphasis on traditional media, despite its promotion of 'the modern' means that much of the critical reflection on the Futurists has been centred on literature and fine art, where Russolo certainly features, but only in a

supporting role. Interestingly, one of the first significant English language critiques of the Futurist movement was written by Rosa Trillo Clough in 1961, though it was based on her doctoral thesis, 'Looking Back at Futurism', submitted in 1942.⁴⁹⁹ As Lisa Panzera states:

The only major work from this period dedicated to Futurism was Rosa Trillo Clough's 1942 doctoral thesis, published under the title *Looking Back at Futurism* (and later revised in 1961 as *Futurism: The Story of a Modern Art Movement. A New Appraisal*).⁵⁰⁰

Clough's appraisal of Russolo is essentially descriptive. Her chapter on music begins with her translation of *L'Arte dei rumori*, and is interspersed throughout with brief comment. Her translation does not include either the preface or the postscript addressed to Pratella. Clough goes on to provide a brief description of the *intonarumori*:

The noises were produced by means of twenty-one instruments called "Intonarumori" which were invented and constructed by Russolo and Piatti. They had a box-like shape with a rectangular base. In front there was a horn to collect and amplify the "noise-sound" Behind there was a crank to impart the motion which determined the character of the noisy excitation. On top there was a lever which moved on a graduated scale of tones, semi-tones, and fractional tones. By changes of position, the crank determined the height, that is, the tone of the noise, which was read on the graduated scale.

The "Intonarumori" were played by holding the lever with the left hand and turning the hand-crank with the right, or by pressing a button.

Some of the "Intonarumori" which Russolo and Piatti constructed were: Howlers, Roarers, Shufflers, Exploders, Gurglers, Buzzers, and Hissers.

With these "Intonarumori" Russolo gave concerts such as the one in Milan, April 21, 1914 and the one in Paris, June 18, 1921.⁵⁰¹

⁴⁹⁹ Clough, 128.

⁵⁰⁰ Panzera, 224.

⁵⁰¹ Clough, 129.

This passage is all Clough writes about Russolo after her translation of *L'Arte dei rumori*. It is both brief and inaccurate. Clough makes no distinction between the conceptualisation, design and construction of the noise instruments, attributing both the invention and the construction of the *intonarumori* to Russolo and Piatti equally. Clough also claims Russolo 'gave concerts such as the one in Milan, April 21, 1914 and the one in Paris, June 18, 1921'.⁵⁰² Clough makes no mention of the concerts he gave at the Coliseum in London and confuses Russolo with his brother Antonio, who was the Russolo responsible for the concert 'in Paris, June 18, 1921'.⁵⁰³ It is clear that Clough does not believe *L'Arte dei rumori*, nor the development of the *intonarumori* to have any real weight or lasting significance within the Futurist canon. For Clough, the translation and the description quoted above is all *L'Arte dei rumori* warrants in the chapter dedicated to Futurist music.⁵⁰⁴ A novel idea perhaps, something which has to be mentioned, but only in passing, before moving on to reflect upon Pratella's manifestos in detail. Of course, the bulk of Clough's text dates back to her 1942 thesis, before John Cage and Pierre Schaeffer had risen to prominence, and perhaps the brevity of her account might thus be forgiven. That said, when examining the breakdown of her book, chapters one through to eight are formed from her original thesis and the second part is entitled A New Appraisal, which one can reasonably assume was written specifically for the 1961, publication. Here she fails to mention Russolo's *L'Arte dei rumori* even once.

Returning to the text contained within *L'Arte dei rumori*, it is the inclusion of the extract from Marinetti's *Parole in Libertà* description of the battle of Adrianople which seems the most incongruous inclusion. A block of text wedged into the body of the manifesto, with a brief introductory paragraph and an equally brief concluding one – like the master of

⁵⁰² Ibid.

⁵⁰³ Ibid.

⁵⁰⁴ Clough, 123 – 134.

ceremonies introducing a variety act. Although there is no empirical evidence to support it, this thesis proposes that this was also a late inclusion in *L'Arte dei rumori* and was unlikely to have been part of the manifesto as Russolo originally conceived it in late 1912. Again, within the accepted Futurist timeline, this could be seen as Russolo acknowledging his debt he felt towards Marinetti's development of the concept of *Parole in libertà*, or evidence of Marinetti's editorial influence. Yet, this thesis has argued that the addition of the discipline ARTE DE RUMORI in the *Direzione Del Movimento Futurista*, printed on the reverse of the *La Pittura futurista: Manifesto tecnico* (Futurist Painting: Technical Manifesto) in 1910 (fig. 1) fundamentally calls into question this history and, as a consequence, the perception that Marinetti was the influencer and Russolo, the influenced. In this light, the inclusion of Marinetti's noise poem can be interpreted as reflecting a desire to associate his concept of *Parole in libertà* with Russolo's concept of *L'Arte dei rumori*. This thesis argues that it is conceivable that Russolo's concept of noise art in 1910 was the first provocation in Marinetti's evolution from *Vers libre* in 1910 to *parole in libertà* by 1912. Evidence for this comes from his 1912 manifesto *Manifesto tecnico della letteratura futurista* (Technical Manifesto of Futurist Literature), which is dated of 11 May 1912, yet was only published in the August of that year. It is possible that Russolo was inspired to write his manifesto after the publication of *Manifesto tecnico della letteratura futurista*, or perhaps he was encouraged to do so by Marinetti, keen to widen the frame of reference of noise in art. The thesis argues that far from being influenced by Marinetti, Russolo and Marinetti developed their ideas about noise art in tandem, each influencing the other.

The notion is reinforced by Russolo's *L'Arte dei rumori* book, where he writes two chapters: *I rumori della guerra* (The Noises of War) and *I rumori del linguaggio* (The Noises of

Language (Consonants)), where he develops the notions of *Parole in libertà* which directly relate to *L'Arte dei rumori*, where he states:

Ma è del rumore *come elemento stesso* del linguaggio, che io voglio parlare, elemento che fino ad ora non è stato considerato con quell'importanza che ha. *Le vocali rappresentano, nel linguaggio il suono, mentre le consonanti rappresentano indubbiamente il rumore.* Così rumore – che tanta ostilità ha incontrato – quando abbiamo voluto che entrasse nel dominio della musica, - rappresenta una parte importantissima del linguaggio e fa parte quindi anche del canto.⁵⁰⁵

But it is of noise *as an element of language itself* that I want to speak, an element that has not previously been considered in terms of the importance it deserves. Vowels represent sound in language, while consonants clearly represent noise. Hence, – which encountered so much hostility when we attempted to bring it into the realm of music – is a very important part of language, and of song.⁵⁰⁶

This chapter also includes a *Parole in libertà* text with an introduction written by Marinetti, where he quotes from his 1913 manifesto *Distruzione di Sintassi - Immaginazione Radio - Parole in Libertà* (Destruction of Syntax – Radio Imagination – Words in Freedom). It can be argued that for both Russolo and Marinetti, noise-music and noise-poetry were different sides of the same coin and Russolo was content for Marinetti to contribute to both his manifesto and his book. The statement by Russolo quoted above is intriguing and one could postulate that this assertion was part of a long standing discussion between Russolo and Marinetti, something they might have discussed during those many train journeys to theatres across the peninsula during the period of the Grand *Serate*, all of which were attended by both of these protagonists of noise.

The issue of the legacy of Russolo's compositional style and of his *intonarumori* is equally vexed and this thesis has taken the position that the design of these acoustic instruments,

⁵⁰⁵ Russolo, *L'Arte dei rumori*, (1916), 53.

⁵⁰⁶ Russolo, *The Art of Noises*, (1986), 56.

that employed technologies which pre-date the industrial revolution, proved to be an evolutionary dead end, obsolete almost from inception and construction. The electronic era was just a few years away and it is the Theremin that is credited as the first electronic instrument. Indeed, one can trace the evolution of music created electronically, from the Theremin to the Ondes Martinot, the Hammond Novachord to the Univox, all the way through to the establishment of digital emulation in the form of the Fairlight Mk.1. This thesis has explored why Russolo's *intonarumori* were unsuccessful, whereas, Marinetti's wood block print of the front cover of his art book *Zang Tumb Tumb* would prove to be influential in the decades ahead, both in providing the template for dynamic font placements and influencing the art of typography. The contents of the book were printed using the typesetter machine, which at the time did not possess the functionality required to print the cover to Marinetti's specifications. However, that functionality would emerge relatively quickly in the years ahead. By comparison, Russolo's *intonarumori* would not be developed in the same way. Whilst a genuine interest was expressed by contemporary composers, the functionality proved to be too limited to persuade them to include *intonarumori* into their compositions. That is not to say that Russolo was not influential, insofar as he was seen as the instigator of a compelling argument for noise music. Varèse, who was a friend of Russolo, did not want an instrument which produced sounds that could be heard in everyday life. He wanted instruments which could produce the sounds that existed only within his imagination. As Robert Crunden states:

Varèse came down firmly in favour of new instruments and experiments in general, but was convinced that the futurists were making serious errors.

"New instruments must be able to lend varied combinations and must not simply remind us of things heard time and time again," he told an interviewer. He refused to limit himself "to sounds that have already been heard. What I am looking for is new mechanical mediums which will lend themselves to every expression of thought and keep up with thought." He was himself headed in the direction of the Theremin and the Ondes Martinot, and in time electronic

sounds. He wanted to convey more precisely what was in his head, not what anyone could hear on the streets.⁵⁰⁷

If Varèse was of the opinion that the *intonarumori* were essentially mimetic machines, this perception was in complete opposition to Russolo's intent, which was to create acoustic mechanical instruments which, when combined in composition, could evoke the sensations evinced through the experience of daily life. Obviously Varèse believed the *intonarumori* performed this function too effectively, and in his *Ionisation* (1929 – 31) he does include a significant amount of noise-sounds, although these are not created by *intonarumori*, or indeed, noise instruments of any description. As Maffina observes:

By listening to *Ionisation* (1929-31), his perhaps closest work to Russolo experiences, we notice a high component of noise. On occasion there is a fire emergency or air strikes siren that overruns the sound space. The variety of the percussions timbres blends with it and creates a general feeling of disorientation. “(...): For the first time the listener faces a new universe of space and sound, made of noises and instruments that produce an unclear sound. The traditional line between sound and noise is shot down, replaced by an extremely new conception of the sound material.⁵⁰⁸

Varèse employed signal sound effects and dynamic percussion within this composition which seem completely at odds with his earlier pronouncements. Nevertheless, it appears as if Russolo's legacy is that of the conceptualist, rather than instrument designer and this perception has lingered, certainly within academia. This thesis has explored the issue of technology, concluding that whilst Russolo was unfortunate to have created his noise instruments in the intervening decade between the acoustic and the electronic age, it is by no means certain that had he conceived his *intonarumori* ten years later, that his design would have been much different. One suspects that the acoustic horn would have been

⁵⁰⁷ Robert Crunden. *Body & Soul: The Making of American Modernism*. (New York: Basic Books, 2000), 41.

⁵⁰⁸ Gianfranco Maffina. *Luigi Russolo e l'arte dei rumori: Con tutti gli scritti musicali*. (Turin: Martano, 1978), 175.

replaced by the electronic amplifier, but the fundamental mechanical nature of the *intonarumori* would have remained the same. Russolo was both a product of his time and of his upbringing. As Chessa observes:

All of Domenico Russolo's professions — watch- and clockmaker, organist, piano and organ tuner, and later photographer — required considerable mechanical competence, and they were undoubtedly an important influence on his son, Luigi. A passion for levers, cogwheels, and sophisticated clockwork mechanisms, together with acquaintance with the mechanical principles of keyboard instruments such as the organ (justly considered the most complex machine of antiquity), were fertile seeds in Luigi's development.⁵⁰⁹

Russolo's upbringing, steeped in such an environment would naturally have gravitated him towards a mechanical solution to generate the timbres of his *intonarumori* and it is unlikely that he would have chosen an electronic route, other than, perhaps, electric amplification. However, the fact was he never employed electronic components in his continuing developments. All of his noise instruments, from the *scoppiatori* in 1913 to the *Russolophone* in 1930 were mechanical, although, due to the lack of evidence, it is uncertain whether his later instruments were amplified electronically. In the conclusion to chapter three, this thesis muses upon the potential fate of his *intonarumori*, had he chosen to perform with his *intonarumori* orchestra in the Futurist Coffee Afternoons, within smaller and reflective venues to an invited audience, predisposed to listen, and postulates that perhaps the *intonarumori* would not then have proved to be unsuccessful because they would have been employed within a venue that would have presented them in their best light, able to generate the auralty within the more confined space, that was so lacking in the venues used for the *Serate*.

⁵⁰⁹ Chessa, 75.

Since the advent of the digital age, Russolo's reputation has grown immeasurably and the volume of critical evaluations of his *L'Arte dei rumori* and his *intonarumori* has expanded considerably from the brief passage contained in Clough's book. Much of this contemporary research neglects music as a performative art. It also lacks a detailed understanding of the history of recording sound. Many scholars, when describing the actions of early twentieth century practitioners such as Dziga Vertov, interpreted statements made by these practitioners using late twentieth century definitions of the terms used in early twentieth century practices, leading to fundamental misinterpretations of the actions and motivations of these practitioners. Vertov's Laboratory of Hearing is presented here as a case study of such misinterpretation. The lexicon of aurality is never fixed and, like language itself, will adapt to new contexts. Dziga Vertov's use of the word 'record' is perhaps the most apposite example, where researchers have applied a modern definition of the word to his statement – a definition that did not exist at that time and as a result, arrived at the conclusion that Vertov's Laboratory of Hearing was a series of experiments in capturing location sound through the technological means of a phonograph. The term record was not used to describe this function – the word phonographed would have been the term employed in that era. The term record was not used to describe the capture of location aurality until the advent of the magnetic tape recorder in the 1950s.

Perhaps the least obvious legacy of Russolo's *L'Arte dei rumori*, was his conceptualisation of soundscape analysis and, by extension, the audio walk when he stated:

Attraversiamo una grande capitale moderna, con le orecchie più attente che gli occhi, e godremo nel distinguere i risucchi d'acqua, d'aria di gas nei tubi metallici, il borbottio dei motori che fiatano e pulsano con una indiscutibile animalità, il palpitare delle valvole, l'andirivieni degli stantuffi, gli stridori delle seghe meccaniche, i balzi dei tram sulle rotaie, lo schioccar delle fruste, il garrire

delle tende e delle bandiere. Ci divertiremo ad orchestrare idealmente insieme il fragore delle saracinesche dei negozi, le porte sbatacchianti, il brusio e lo scalpaccio delle folle, i diversi frastuoni delle stazioni, delle ferriere, delle filande, delle tipografie, delle centrali elettriche e delle ferrovie sotterranee. Né bisogna dimenticare i rumori nuovissimi della guerra moderna.⁵¹⁰

Let us cross the modern capital with our ears more sensitive than our eyes. We will delight in distinguishing the eddying water, of air or gas in metal pipes, the muttering of motors that breathe and pulse with an indisputable animality, the throbbing of valves, the bustle of pistons, the shrieks of mechanical saws, the starting of trams on the tracks, the cracking of whips, the flapping of awnings and flags. We will amuse ourselves by orchestrating together in our imagination the din of rolling shop shutters, the varied hubbub of train stations, iron works, thread mills, printing presses, electrical plants and subways.⁵¹¹

R. Murray Schafer, the soundscape anthropologist, acknowledges Russolo's contribution to his field of study in his seminal work 'Our Sonic Environment, The Soundscape: The Tuning of the World' when he states:

From our point of view the real revolutionary of the new era was the Futurist experimenter Luigi Russolo, who invented an orchestra of noise-makers, consisting of buzzers, howlers and other gadgets, calculated to introduce modern man to the musical potential of the new world about him. In 1913 Russolo proclaimed the event in his manifesto *The Art of Noises* ... Russolo's experiments mark a flash-point in the history of aural perception, a reversal of figure and ground, a substitution of garbage for beauty.⁵¹²

In summing up, perhaps this increased interest in Russolo could very well be because so little of his work in noise-sound remains. Only his 1913 manifesto and his 1916 book of the same name remain, yet contained within those publications are ideas and concepts which have become realised over time. Perhaps the lack of created work – his compositions, or even recordings of his *intonarumori* orchestra performances, his *intonarumori* themselves only lead to the amplification of his status. Russolo today enjoys a

⁵¹⁰ Russolo, *L'Arte dei rumori* (1916), 12 – 13.

⁵¹¹ Russolo, *The Art of Noises* (1986), 26.

⁵¹² Schafer, 110 – 111.

reputation greater than ever before, certainly amongst practitioners working within the field of noise-music and electronica and perhaps direct evidence of his creative noise works or their instruments might undermine this reputation. Possibly the greatest threat to Russolo's legacy would be the discovery of these missing artefacts and that perhaps in some Italian attic or a boarded up room at the back of an Italian theatre, there lie twenty one original *intonarumori* and copies of the scores of his compositions *Risveglio di una città*, *Convegno di automobili e di aeroplani* and *Colazione sulla terrazza del Kursaal Diana*. Currently, Russolo enjoys a cult-like status amongst artists and practitioners within the creative disciplines of noise music and popular music because of the prescience of his vision and the lack of creative works, other than the tantalising fragment of *Risveglio di una città* published in *Lacerba* in 1913 and reprinted in his *L'Arte dei rumori* book. It is ironic that the very factors which seemed to have pushed him down throughout the analogue era, now serve to raise him up in this digital and immersive world.

As a postscript, I include an extract from an article by the respected music writer Paul Morley, published in *The Guardian* in 2002, which provided the original motivation for research within this field of study and ultimately this thesis.

Occasionally there comes a moment in your life when you get a chance to be in a pop group and give it a name. I'm sure some of you can identify with this. In the early 1980s, I found myself with the opportunity to name a group formed by producer Trevor Horn, using a team of talents that had featured on albums by Malcolm McLaren, ABC and Dollar. Trevor's team consisted of the pianist and composer Anne Dudley, the studio engineer Gary Langan, and a computer programmer called JJ Jeczalik - an odd, engaging company of artists and technicians who were mixing a combination of traditional musicianship, innovative technology, studio wizardry and good old-fashioned daftness to create a new kind of synthesised pop sound. ... When I heard the kind of sounds and noises this team could create, inventing new textures to fill out the shape of songs so that the songs resembled songs - but as if reassembled in the way that Picasso reassembled facial features - I knew exactly what to call the

group. They played me a piece of music that was made up of a computer-generated drum that sounded as big as the sky, the sound of a car ignition starting up an engine, the recording of a tennis match, and a bassline that was a machine's hopeful idea of boogie-woogie. I named them 'The Art of Noises. The "s" got knocked off, and as this was in the days when "The" groups were out of favour, Trevor's team became Art of Noise. But they were named after a manifesto written in 1913 by an Italian futurist named Luigi Russolo. ... Russolo and colleagues built new types of instruments to try to capture the noises he was hearing in his head. They built up whole orchestras of crackers, roarers, bubblers, thunderers and bursters. Russolo scored compositions for noise machines he invented that made loud noises when you rotated a handle. These primitive machines, some of which stored pre-set sounds, reminded me of the Fairlight computer JJ Jeczalik was using to bring sounds from the outside world into music. The Fairlight now seems more primitive than Russolo's glorious boxes, but back in the early 80s it seemed as exciting as a time machine.⁵¹³

⁵¹³ <https://www.theguardian.com/culture/2002/jul/26/artsfeatures3>

Appendix

The *noise-sound* technology timeline.

1913 - The *intonarumori* – a mechanical noise sound instrument capable of evoking mediated auditory aspects of industrial modernity. It was never intended to be a mimetic device, despite later accusations to the contrary. Limited by its primitive acoustic amplification (horn) and its slow attack generated through the manual manipulation of the tension cable.

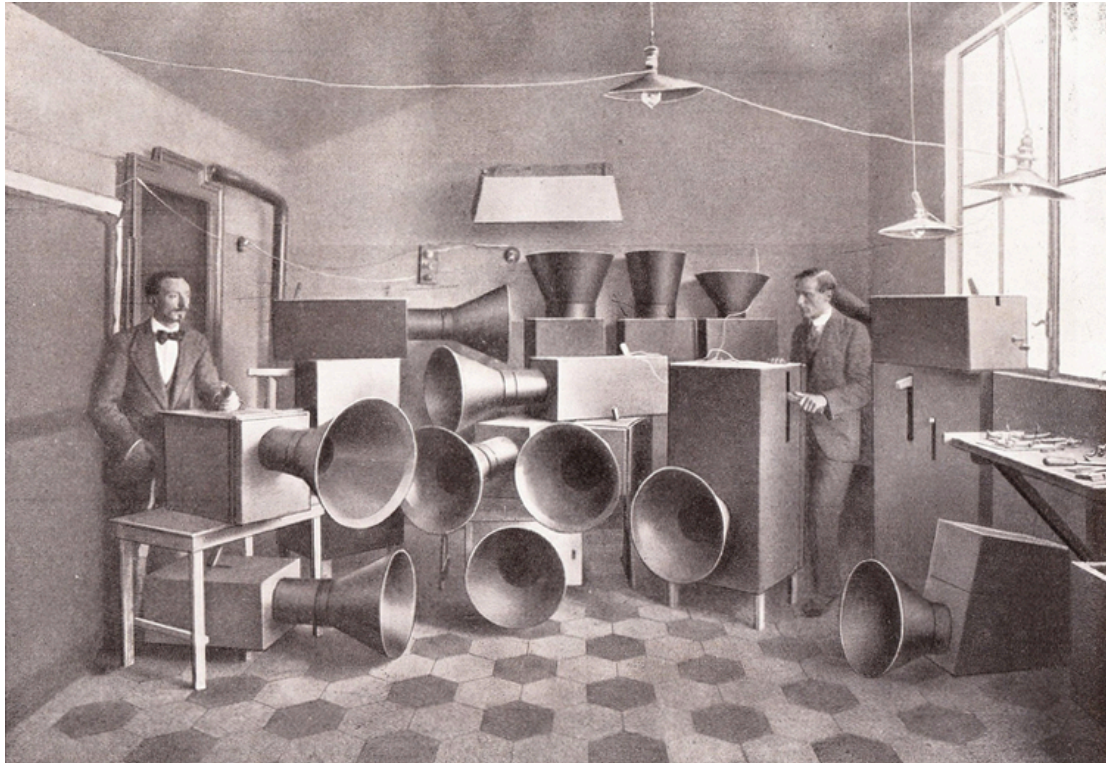


Fig.1. Luigi Russolo (left) and Ugo Piatti demonstrating their intonarumori before the performance at the Teatro dal Verme, Milan in April 1914. Note Russolo operating his intonarumori, using his right hand to generate amplitude and his left hand manipulates the modulation lever at the top.

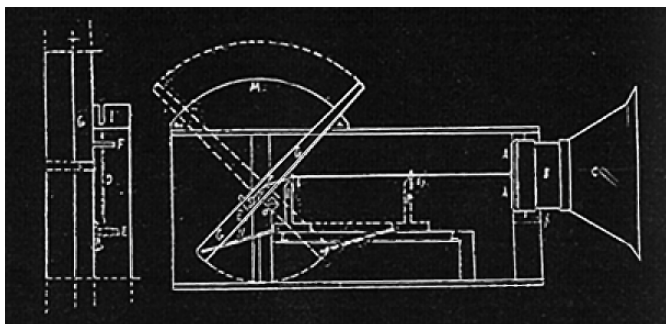


Fig. 2. Diagram for the scoppiatore, patented by Luigi Russolo in 1914. Note the frequency (pitch) modulator – the lever attached to the cable fixed to the resonating drum – to increase or decrease tension. The greater the tension the higher the pitch.

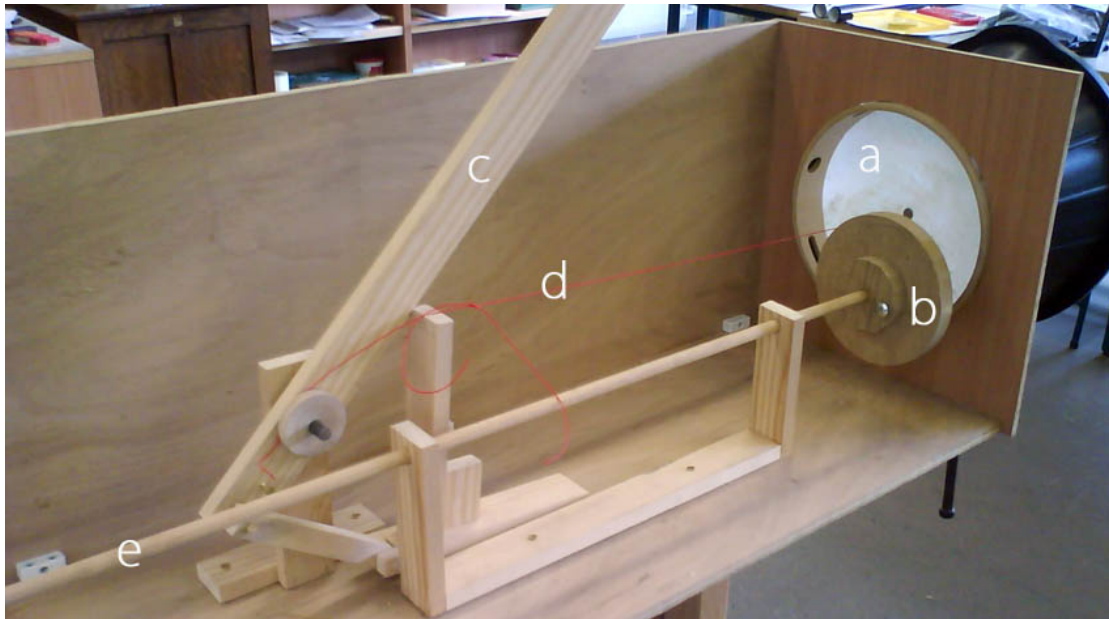


Fig. 3. Interior of an intonarumori.

The taut string or cable (d) is attached to the centre of the resonating drum – in this instance, a tambourine, positioned directly in front of the horn, which acts to amplify and directionally focus the generated aurality. The other end of the cable (d) is attached to the vertical lever (c). When the lever is pushed forward, the tension of the cable is reduced, which also reduces, or resets to default, the tension of the drum skin. When the lever is pulled back, tension is increased in the cable and the drum skin. This system acts as an enharmonic pitch modulator.

The horizontal spindle (e) is attached to the flywheel (b), which is always in direct contact with the cable (d). It is positioned as close to the drum (a) as possible to maximize the amplitude. The other end of the spindle (e) is attached to a rotary handle (not seen). When the handle is rotated, the flywheel kinetically acts upon the cable and generates aurality, which is then frequency modulated by lever (c).

All of Russolo's intonarumori employed this acoustic/mechanical template. Variations in the nature of the aurality were the result of the use of different materials for the flywheel and the drum. The example above is a basic model, where the flywheel is constructed from wood and the drum from animal skin. The resultant sound would be quite organic. With pitch manipulation, it is likely that it could produce an effective wind sound.

Russolo's experimentation throughout the Summer of 1913 – and probably before – was focussed upon sonic vibration, insofar as how sound waves travelled through different substances and surfaces. A drum skin made from latex, for example, would produce a lower frequency, but fuller, richer and with a soft attack. A drum skin made from metal, would produce a different quality of sound.

A different flywheel design – one which included obstructions placed evenly around its circumference, would generate a repetitive, machine like aurality, especially if the rotary handle was geared or replaced with an electric motor and governor.



Fig. 4. A selection of intonarumori, recreated from the Russolo patented designs from 1914, and acoustic megaphones, presented at the **1913 The L'Arte dei rumori 2013** conference at Cork University, 13 December 2013, organised by Paul Hegarty. (personal collection)⁵¹⁴

1948 - Musique Concrete – *Concert de Bruits*⁵¹⁵ by Pierre Schaeffer, regarded as the first example of Musique Concrete, employing the first analogue sampler. This comprised of a number of electrically driven turntables, each playing a closed groove disc of a non-musical sound and triggered by a remote switch linked to each player and arranged in order. The 'musician' could then play this keyboard to create an original composition.



Fig.5. Pierre Schaeffer recreates his closed groove musique concrete techniques prior to the advent of the reel to reel tape recorder for the thirty year anniversary of 'Étude aux chemins de fer' (1948) in 1978.

⁵¹⁴ The conference was organised to mark the one hundredth anniversary of the publication of *The L'Arte dei rumori* manifesto. For more details and to read my abstract: *Why Sound-Art Became the Bastard Unloved Child of Music*, follow the link. <https://modernismsresearchcentreucc.wordpress.com/>

⁵¹⁵ Mark Brend, *Strange Sounds: Offbeat Instruments and Sonic Experiments in Pop*, (London: beackbeat Books, 2005), 49.

1950 - Musique Concrete – employed a similar process of composition, replacing closed groove gramophones with magnetic tape loops.⁵¹⁶



Fig. 6. Delia Derbyshire demonstrating closed loop 'block and blade' editing at the BBC Radiophonic Workshop, 1963

1952 – The Phonogène – enabled a short tape loop to be played at different speeds. It was discovered that playing tape loops at slower or faster speeds altered the nature of the sound produced. The chromatic version was operated using a single octave keyboard. When a key was triggered, the loop would be played on a specific capstan and roller (different sizes of capstan resulted in different playback rates).



Fig. 7. Pierre Schaeffer operating (performing) the Chromatic Phonogène, 1953

⁵¹⁶ The first commercially available tape recorder was the Ampex Model 200 open reel machine, based on the German Magnetophone, in 1948.

1963 – The Mellotron – an electronic/mechanical instrument. Each key triggered an individual tape loop for immediate playback. It was a polyphonic machine. To change the emulated instrument, one had to replace all of the tape loops situated within the body of the machine. I can find no instances when the loops were comprised of noise-sounds, rather than musical tones.



Fig. 8. Made popular by the Beatles in 1967. The instrumental opening to Strawberry Fields Forever (Lennon/McCartney, 1967) was a Mellotron equipped with tape loops of flute tones and performed by Paul McCartney.

1978 – The Digital Sampler – an electronic instrument that converted an analogue signal into digital information (binary code). Originally designed to emulate conventional instruments for classically trained musicians (Keith Emerson was an early user, employing it to orchestrate film scores), it soon evolved into a noise-sound machine. Peter Gabriel and most notably, the avant-garde music collective *The Art of Noise* used the sampler to create rhythm based music using sampled noise-sounds. In *Close to the Edit* (1984), the collective enact Russolo's *L'Arte de rumori* by ritually destroying conventional instruments (violins, a grand piano, a saxophone etc.) using a chainsaw, an angle grinder and a sledge hammer- the sounds of which form the rhythm of the track.



Fig. 9. A still taken from the promotional video for *Close to the Edit*. Band members destroy conventional orchestral instruments and musical scores throughout the video. The Art of Noise were signed to the ZTT (Zang Tumb Tumb) label in 1982).



Fig. 10. The Fairlight CMI (Computer Musical Instrument) Mk. 1 (1978)

Initially 8 bit sampling, this machine was intended to predominantly use pre-recorded samples of musical instruments. The ability to capture new samples was included only as a novelty feature. The Mk.2, which the Art of Noise used, boasted far greater sampling features including a 12 bit architecture and a greater sampling duration.

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