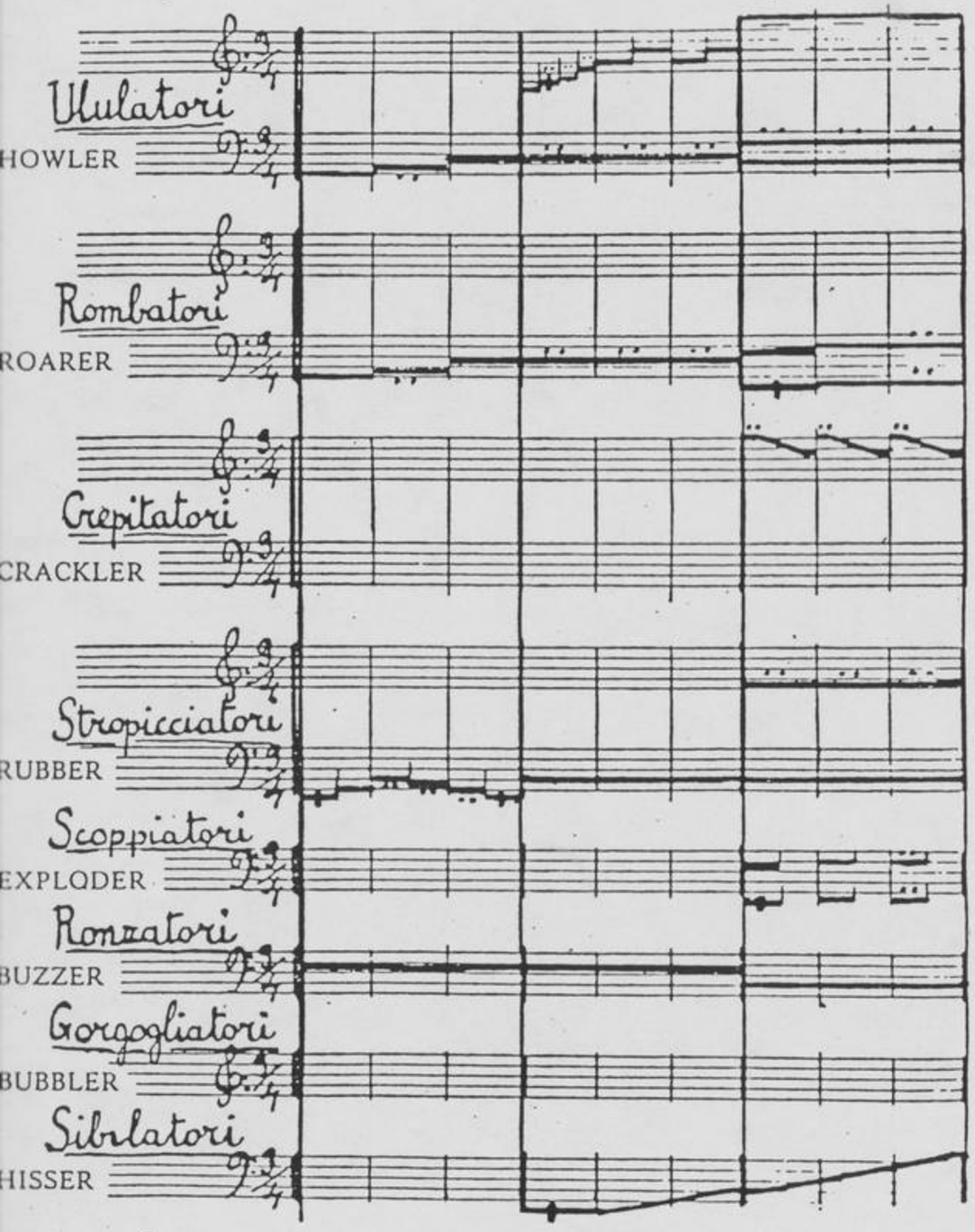
RUSSOLO.

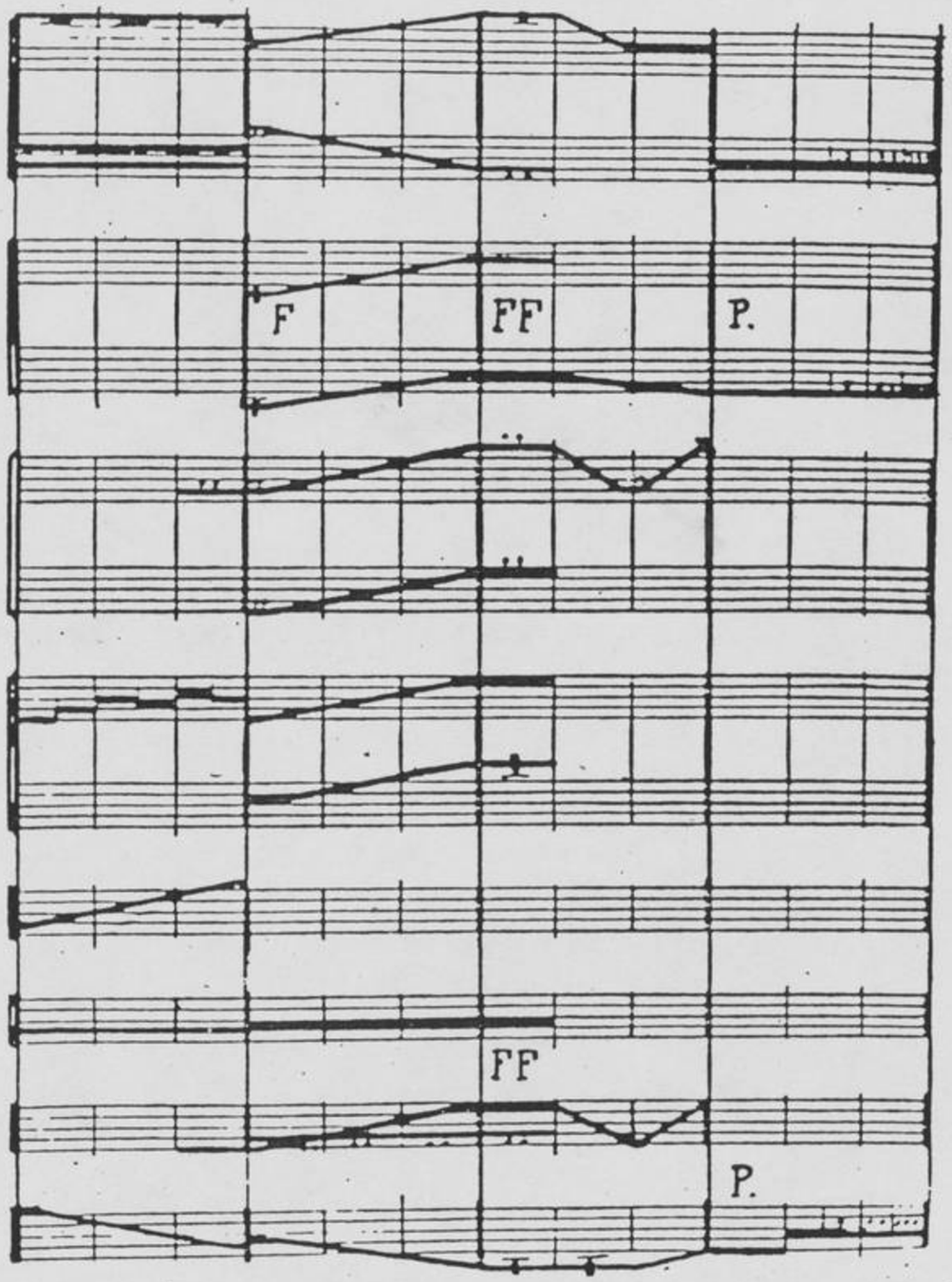
Dalla rete di rumori:

From the "Net of Noises":



SVEGLIO DI UNA CITTÀ

AWAKENING OF A CITY



horns of more than one tone at a time may also have accidental tunings not in the 12-tone scale.

This takes us back to another important subject: Early in this century, Russolo and Marinetti, the Italian Futurists, proposed the "intoning of noises", creating a new Art of Noise based on the element of pitch in many of the mechanical noises which had recently come into their environment. They invented instruments called Intonarumori for consciously controlling and manipulating these ideas. By now, some 70 years later, all their dreams have come true with a vengeance. The problem is not how to get to hear these effects; it is how to escape them so that you can have some sleep.

I feel that musical-instrument manufacturers and music-teachers spend a lot of time inducing their customers and students respectively to expend much needless and futile effort ignoring the facts just presented above.

* * * *

In late August I attended an all-percussion concert at Exposition Park in Los Angeles. The only unorthodox item was an electric bass - all the rest of the ensemble was acoustic, with more drums than I could count, vibes and marimbas galore, one grand piano, tubular bells, and the usual traps. The youngish conductor did only his own compositions and obviously had rehearsed a very tight ship with all the absolutely simultaneous attacks.

One sure missed the strings and the horns...two hours without stopping once for breath, since there were no wind instruments to compel phrasing. No singing either. But this was a most important acoustics lesson: the inharmonic partials of piano bass strings and the noise of hammering on the top notes of the piano blended perfectly with chimes, glockenspiel, xylophone, marimbas, and vibes, since these too have inharmonic components, and some of them are as loud as the nominal pitches of the tones in question. At the top end of the piano keyboard, the hammer noise is lower-pitched than the strings are and is actually louder - it is the piano-tuner's nightmare to hear the evanescent high-pitched tones through all that distracting noise. The longitudinal and possibly torsional vibrations of wound bass strings, especially in a new piano, are loud and clear and this is incidentally why all the electronic imitation pianos can't quite make it. You can put in the right amount of noise and have the right envelope, but still not have these inharmonic longitudinal vibrations which are NOT in the 12-tone scale. Of course, the different kinds of tubular chimes and metal and wooder bars in the other per-

cussive instruments have assorted inharmonic pitches that are not in the 12-tone scale either. This causes an unexpected surprising blend with the piano, which is shown to be primarily a percussion instrument, not the singing stringed instrument that the music critics of piano recitals and the teachers of Romantic period pieces keep arguing that it is.

(Ivor Darreg is well-known for his work in non-12 tone scales. The inventor of the Megalyra and a specialist in refretting guitars for non-12 tone scales, his work has been written up in Guitar Player, Interval, Omni, and other publications. The above is reproduced with permission from his newsletter "Beyond 12" and from personal correspondance with the editor.)

a hammer, and the thumping of a big drum behind the scenes"; the *Observer* describes how "with a hammer and a piece of wood he gave an excellent imitation of a machine gun which punctuated his words" and how he "concluded his poem by the beating of a big drum, which boomed like guns heard across the hills." It seems clear that the sound, too, was spatially distributed: it came from different parts of the room and moved with Marinetti when he moved.

The manifesto entitled "Geometrical and Mechanical Splendor and Numerical Sensibility'" was published on March 18, 1914, after *Piedigrotta* but before the presentations in London; in it Marinetti justifies "direct onomatopoeia," in which sounds imitate realistic elements, as a means to "enrich lyricism with brutal reality." Specifically using *Zang-Tumb-Tumb* as an example, he claims that such use of sound can prevent poetry from becoming "too abstract and too artistic." But the overwhelming emphasis in the "Dynamic and Synoptic Declamation" manifesto is on the generalized, the abstract, and the impersonal. Marinetti transforms, at least in theory, every aspect of the performer: he should wear anonymous clothing without any details of color or relief; his face should be free of personal expression; his voice should make no use of "modulation or nuance"; his movement should be "geometric." In describing the use of gesture, Marinetti suggests a repertoire of "cubes, cones, spirals, ellipses, etc." that prefigures the basic geometrical vocabulary of Bauhaus theory.

To what extent these concepts of the "Dynamic and Synoptic Declamation" manifesto were actually put into practice is not clear. First person descriptions are not that specific. Marinetti was undoubtedly a forceful, energetic, and "dynamic" interpreter, but if he did move toward the elimination of idiosyncratic detail, it was his personality that the spectators remembered. As theory, however, the proposals of "Dynamic and Synoptic Declamation" are significant in clearly establishing what could be called "the mechanization of the performer." This is an important and continuing concern of Futurist performance, leading to the marionettes and mechanical costumes of later years.

v] Russolo and the Art of Noise

Futurist performance is a complex phenomenon; different concerns developed simultaneously in the various disciplines. In order to trace the most important Futurist developments in music, we must now go back again to early 1913, before "The Variety Theatre" manifesto was published and before the evenings of "dynamic and synoptic declamation." On March 11, 1913, one of the most significant of all Futurist manifestos appeared. Although the subject was music, its author, Luigi Russolo, was a painter. The title of the piece was "The Art of Noise."

The theory of "The Art of Noise" was simple, profound, and far-reaching. In essence, it implied that although sound itself was limited only by the physiology of the ear and contained an infinite number of gradations of tone, pattern, and quality, only a small part of that infinite field of sound was acceptable in Western culture as "music." Russolo wanted all sound to be possible material for music.

In this case, theory may have preceded actual accomplishment. From the manifesto it is clear that Russolo could not demonstrate his theories in a practical form at that time. Indeed, he began by saying that Francesco Balilla Pratella (1880–1955), the futurist composer, was the only one who could create the "new art." At the same time, however, there was the suggestion that Russolo had been working to develop the physical means for embodying his theories: his description of the type of instrument that would be required by "the new orchestra" was quite specific and realistic, and he stated confidently that "we soon will accomplish" the theoretical goals "mechanically."

Certain suggestions for Russolo's ideas can be seen in the work of Pratella, the Futurist composer to whom "The Art of Noise" was addressed. In "The Technical Manifesto of Futurist Music," published

exactly two years before "The Art of Noise" on March 11, 1911, Pratella had urged "enharmonic music": a music that exploited small changes in pitch rather than being limited to the notes that could be indicated on the traditional staffs. Later, in "Enharmonic Notation for the Futurist Intonarumori," Russolo was to claim "the total conquest of the enharmonic system." Pratella also wanted to employ complicated, changing, and subtle rhythms in order to expand the sequential possibilities of music and to "crush the domination of dance rhythm." Russolo stated emphatically in "The Art of Noise" that "the rhythmic movements of a noise are infinite."

In "The Art of Noise," Russolo says that he "conceived of a new art" while listening to Pratella's Futurist music at the Teatro Costanzi. And indeed, Pratella conducted his own *Musica Futurista per Orchestra* at the Teatro Costanzi in Rome on February 21, 1913, and again on March 9, 1913. The later date is two days before the publication of "The Art of Noise," and it is entertaining to imagine Russolo having a sudden and complete aesthetic revelation during the performance. But if Pratella did work toward a music of greater tonal and rhythmic scope, he never seems to have considered abandoning the traditional musical instruments. He may have fought against the limitations of the instruments, saying in the "Technical Manifesto" that "the known technique of instrumentation must be conquered." He may have been dissatisfied with the standardized composition of orchestras, positing "a particular orchestra for every particular and diverse musical condition." But Pratella's *Musica Futurista per Orchestra* was for traditional instruments and orchestra.

Russolo, on the other hand, conceived of a music that made use of sounds that could not be produced by traditional instruments. Even though the limits of traditional musical sound could be expanded by artists like Pratella, Russolo wanted to include all of the sounds of everyday life. Perhaps he was taking Pratella literally when the older composer wrote in his "Technical Manifesto" that: "Sky, water, forests, rivers, mountains, the entanglements of ships and swarming cities are transformed . . . into marvelous and powerful voices." Certainly there is a literalness about Russolo's desire to

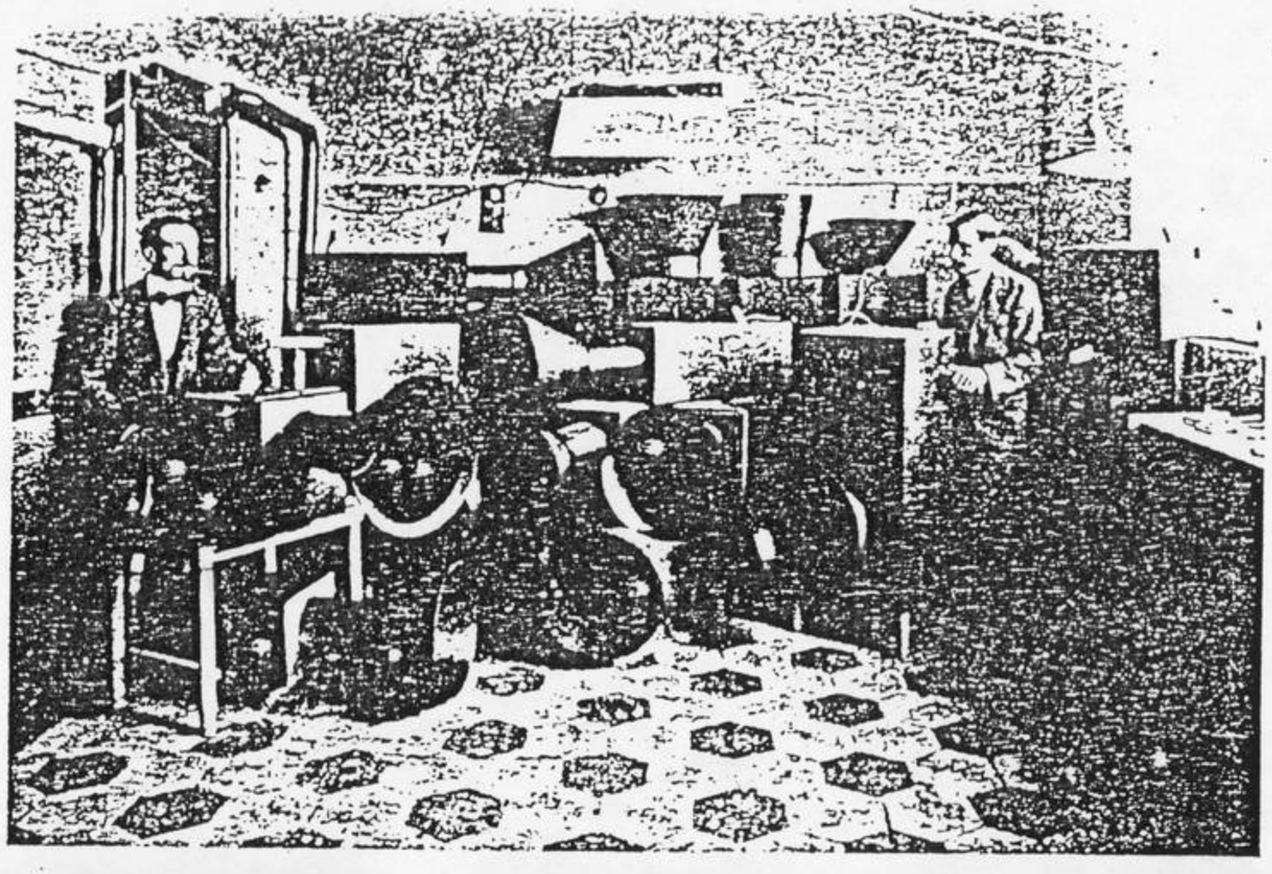
incorporate everyday sounds into music. This literal approach stems most directly from Marinetti's *parole in libertà.*

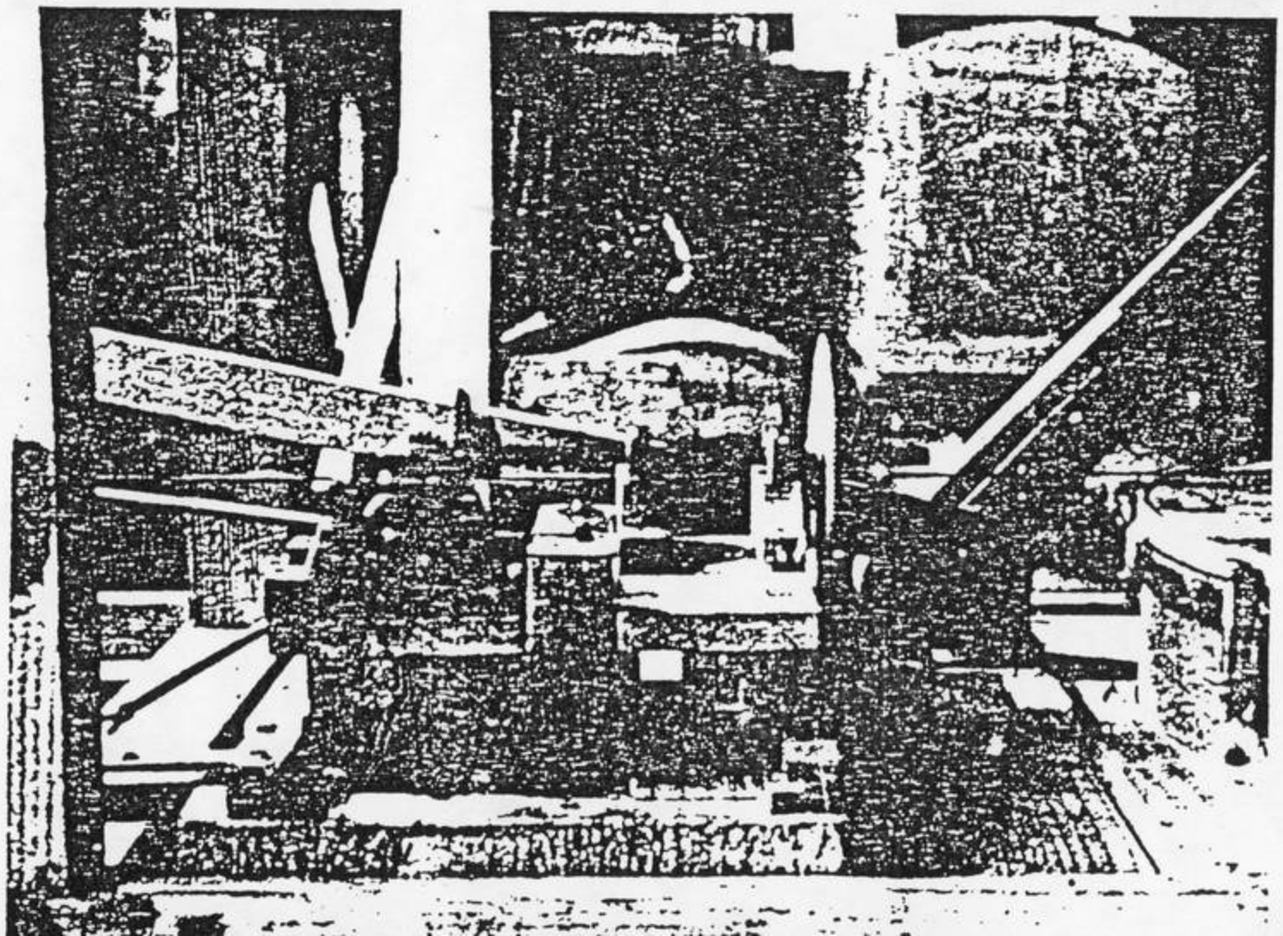
In "The Art of Noise," Russolo quotes extensively from Marineti's *Zang-Tumb-Tumb,* describing it as "one of his letters from the Bulgarian trenches at Adrianople"—and there is no reason to doubt that Marinetti had sent the piece to Russolo, as well as to other Futurists, at the time it was written in 1912. It was the same *Zang-Tumb-Tumb* Marinetti was to recite during the "dynamic and synoptic declamation" evenings in London. In attempting to translate into literature the sights, sounds, smells, and special relationships provided by the modern world, such *parole in libertà* made use of neologisms, compressed stream-of-consciousness structure, and onomatopoeic spelling: the title of *Zang-Tumb-Tumb* invokes the sound of artillery shells striking and exploding. Especially when read aloud, such writing had an intense musical flow and rhythm. It might have been no greater an influence than this, combined with Pratella's urgings that the range of music be increased, that brought Russolo to his extreme position.

Just as the alphabet can be used to approximate phonetically the diverse sounds of the environment, traditional musical instruments can, of course, also approximate those sounds: a drum can represent artillery, a flute can represent a twittering bird, and so forth. But Russolo realized that traditional instruments can *only approximate* many qualities and types of sound. The instruments are designed to provide only a limited range of auditory possibilities.[1]

Russolo went beyond Pratella in realizing that, in order to increase significantly the sound potential of an orchestra, new instruments would have to be created. Exactly how much Ugo Piatti contributed to the design and construction of these instruments is not clear. Piatti, who was also a painter, collaborated with Russolo, but only Russolo's name appeared on the manifestos, and he is usually given all the credit for the practical developments as well.

[1] A corollary of Russolo's position, which he does not state but which follows naturally from his basic concepts, is the realization that traditional instruments are used in limited ways and that the ways in which the instruments themselves can actually produce sound are much more numerous.





At any rate, whether or not work actually had begun on the innovations at the time "The Art of Noise" was published, a working model was completed within three months; it was demonstrated at the Teatro Stocchi in Modena on June 2, 1913. The new musical instruments were called *intonarumori* or "noise-intoners."

Externally, all of the *intonarumori* were quite similar. All were rectangular wooden boxes with funnel-shaped acoustical amplifiers, or megaphones, projecting from the front. The boxes, averaging about two-to-three feet in height, and the megaphones varied in size, but the general appearance was the same. They were "played" by means of a protruding handle that moved in a slot on the top or side of the instrument.

Inside the *intonarumori* were various motors and mechanisms, each producing one of the types of sound that Russolo had charted in "The Art of Noise." As he described in "The Futurist *Intonarumori*," *exploding, crackling, humming,* and *rubbing,* for example, were all achieved by activating a stretched drumlike diaphragm in various ways. Although the quality of the sound remained constant, its pitch was variable. Just as the pitch of an electric motor changes as its rotors spin faster or slower, each "noise-intoner" had to create a variable sound; the most important technical aspect of the mechanical devices was the necessity that they produce a range of ten whole notes. Thus only certain options were available to the operator: He could start and stop the particular sound, and he could change its pitch by moving the protruding handle of the *intonarumori* in relation to a scale marked off next to the slot.

The new instruments needed a new kind of musical notation. In keeping with their basic characteristics of intoning the sound, Russolo eliminated the notes with which music had traditionally

OPPOSITE: Fig. 4 (ABOVE). A battery of *intonarumori.* Luigi Russolo is at the left and Ugo Piatti at the right. Note the handles used for changing the pitch of the instruments. Fig. 5 (BELOW). The sound-producing mechanism of an *intonarumori.* Part of what appears to be a drum can be seen at the right. (*La Biennale di Venezia,* #54, September, 1964.)

been written. In his system, the constant flow of sound was indicated by continuous solid lines that moved across the staff; the lines terminated and began again, indicating the cessation and reintroduction of the sound. He also made changes in the way duration was indicated by vertical lines, but these were relatively unimportant, and when, in May, 1914, Pratella published a composition that combined *intonarumori* and traditional instruments, he was able to use the same durational indications for his whole orchestra.

It was not long before Russolo, who had given up painting to devote all of his time to his new inventions, and Piatti had created an entire orchestra of *intonarumori*, and concerts replaced demonstrations. The first public performance was at Marinetti's Casa Rossa in Milan on August 11, 1913.

Soon after the "dynamic and synoptic declamation" evenings at the Doré Gallery, Russolo directed the "noise-intoners" in a program at the Coliseum in London on the afternoon of June 15, 1914.[2] They played two "noise spirals," listed by the London *Times* as *The Awakening of a Great City (Risveglio di una Città)* and *A Meeting of Motorcars and Aeroplanes (Convegno d'Aeroplani e d'Automobili)*. According to the *Times* the music of the

> weird funnel-shaped instruments . . . resembled the sounds heard in the rigging of a channel-steamer during a bad crossing, and it was, perhaps, unwise of the players—or should we call them the "noisicians"?—to proceed with their second piece . . . after the pathetic cries of "no more" which greeted them from all the excited quarters of the auditorium.

Later, Marinetti used the *intonarumori* when his play *Il Tamburo di Fuoco* was produced in 1922, but the instruments were reduced to playing "background music" and providing sound effects. They could not be seen, and, for the most part, they were asked to produce realistic imitations of a drum in the distance, an elephant trumpeting, fowl clucking, and so forth.

[2] Actually, the program did not belong entirely to the *intonarumori*. There was also a ballet, described by the *Times* (London), June 16, 1914, p. 5, as demonstrating "superb illustrations of old-fashioned ballet technique" in telling a story involving, in part, "the village maiden locked in by her cruel parents, and the poor lover . . . who jumps in at the window."

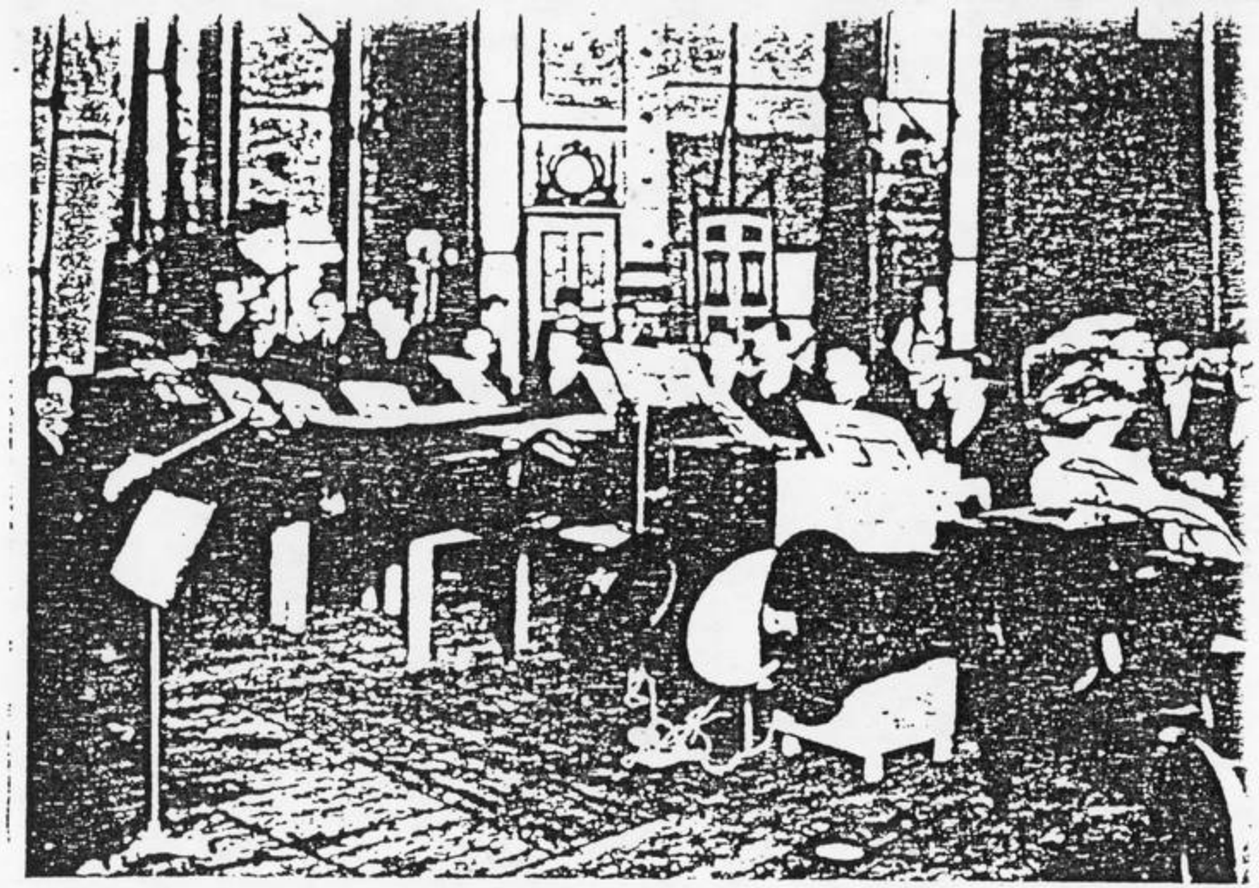


Fig. 6. An orchestra of *intonarumori* conducted by Luigi Russolo. (From a reproduction in *Teatro F. T. Marinetti* edited by Giovanni Calendoli [Rome: Vito Bianco Editore, 1960].)

Similarly, when Russolo went on to develop other instruments, their qualities were specifically related to nature. In 1926 he described his *psofarmoni*, keyboard instruments that, in a sense, seem to foreshadow John Cage's "prepared piano": "Some of these new sounds imitate nature: wind, water, etc. Others the voices of animals: frogs, cicadas, . . . "

But this later tendency toward literal representation seems to compromise some of the most important tenets of "The Art of Noise" and to be a concession to popular taste. In his basic manifesto Russolo states in capital letters that: "THE ART OF NOISE MUST NOT LIMIT ITSELF TO IMITATIVE REPRODUCTION," and stresses in his conclusions that the new orchestra will succeed "not by means of a succession of noises that imitate life." Again, in "The

Futurist *Intonarumori,*" Russolo attempts to correct the misunderstanding that his machines are intended for an "imitative or impressionistic" copy of the noises of life, and he discusses how noise, when used in music, "must . . . lose its own accidental character in order to become an element sufficiently abstract." Thus Russolo's theory, if not always his practice, is in keeping with the general tendency of Futurist performance toward the nonsymbolic and alogical.

Russolo seems to be one of the most underrated figures in the history of the arts in the twentieth century. His importance is certainly very great. It does not matter if a composer like Pierre Schaeffer can say that he knew nothing about Russolo when he began his own work on noise-music and *musique concrète.*[3] Russolo was responsible for putting certain ideas "in the air" where they were available, and he should be given full credit. Not only did he seek a greater variety of quality, pitch, and rhythm in music, but he extended the concept of music itself to include sounds that never before were accepted. He made available for musical composition all the sounds of everyday life. With his own *intonarumori* and *psofarmoni,* he demonstrated that the practical limits of music were only those of technology and inventiveness, preparing the field for such developments as *musique concrète,* electronic music, and the Moog Synthesizer. He rejected the "weak acoustical results" of traditional orchestras, and his emphasis on volume and intensity has now become widely accepted. He invented his own system of musical notation, showing the way for countless composers. Although more or less traditional music has retained at least statistical strength since Russolo, a very important segment of contemporary work, and some aspects of popular music, stem directly from this Futurist.

[3] Pierre Schaeffer, "La Galleria Sotto i Suoni Ovvero il Futuro Anteriore," *La Biennale di Venezia* (July–December, 1959).

VI] The Synthetic Theatre

The most important plays of the Futurists took the form of very short pieces called *sintesi.*[1] Marinetti, Pratella, Pino Masnata, and others wrote plays and operas of extended length, but the *sintesi* embody all of the major Futurist contributions in this area. During 1915 and 1916 several acting companies toured Italy presenting programs of *sintesi;* they included the companies of Gualtiero Tumiati, Annibale Ninchi, Ettore Berti, Luigi Zoncada, and Ettore Petrolini. Once again, the basic concepts of this type of performance were elucidated in a manifesto: "The Futurist Synthetic Theatre," written by Marinetti, Emilio Settimelli, and Bruno Corra; it is dated both January 11, 1915, and February 18, 1915.

The most obvious characteristic of the *sintesi* was its length. "Synthetic," it was flatly stated in the manifesto, meant "very brief": although most were somewhat longer, some of the scripts would take only a minute, or even less, to perform. This could be considered their one defining characteristic; however, the term became very popular, at least among the Futurists, and was occasionally attached to rather long works.

As explained by the manifesto, brevity was, most simply, a distillation, condensation, or compression of traditional drama. In keeping with the Futurist concern with speed and motion, the proper work of the playwright was seen as "synthesizing facts and ideas into the least number of words"; his pieces were to be "rapid and concise."

Actually, this compressed brevity was one of the aspects of nightclubs, circuses, and music halls that had been praised two

[1] In Italian, the plural of *"la sintesi"* is *"le sintesi."* Thus the word *sintesi* appears both as singular and as plural when it is used, untranslated, in an English sentence.—Trans.

On the other hand, musical sound is too limited in the qualitative variety of its timbres. The most complicated orchestra can be reduced to four or five classes of instruments different in timbre and sound: string instruments, brass instruments, woodwinds, and percussion. As a result, modern music struggles in this small circle, vainly trying to create new varieties of timbres.

IT IS NECESSARY TO BREAK THIS RESTRICTED CIRCLE OF PURE SOUNDS AND CONQUER THE INFINITE VARIETY OF "NOISE-SOUNDS."

Everyone knows, moreover, that each pure sound carries with it a tangle of foreknown and worn-out sensations that predispose the auditor to boredom in spite of the power of all the innovating musicians. We Futurists have all profoundly loved and enjoyed the harmonies of the great masters. Beethoven and Wagner have shaken our nerves and hearts for many years. Now we are satiated by them, and WE TAKE GREATER PLEASURE IN IDEALLY COMBINING THE NOISES OF TRAMS, EXPLOSIONS OF MOTORS, TRAINS, AND SHOUTING CROWDS THAN IN LISTENING AGAIN, FOR EXAMPLE, TO THE "EROICA" OR THE "PASTORALE."

We are unable to see the enormous display of force that a modern orchestra represents without feeling the most profound disillusionment with its weak acoustical results. Do you know of a more ridiculous spectacle than twenty men who persist in redoubling the mewing of a violin? All this will naturally make the music maniacs scream, which will perhaps arouse the sleepy atmosphere of the concert halls.

Shall we enter together, as Futurists, into one of these hospitals for anemic sounds. See here: the first bar that reaches our ears is boring from being heard already and gives us a foretaste of the boredom of the bar that will follow. In this way, we sip from bar to bar two or three kinds of undiluted boredom while always waiting for the extraordinary sensation that never comes. Meanwhile, we see a repugnant mixture being formed by the monotony of sensations and by the stupid religious emotions of the Buddhist-like listeners who are intoxicated by the thousandth repetition of their ecstasy, which is

more or less snobbish and learned. Away! Let's leave, since we can no longer restrain our desire finally to create a new musical reality with an ample distribution of sonorous musical slaps, altogether skipping the violins, pianos, contrabasses, and moaning organs. Let's leave!

Some will argue that noise is only loud and unpleasant to the ear. It seems useless to me to enumerate all the tenuous and delicate noises that give pleasant acoustic sensations.

To convince you then of the surprising variety of noises, it is enough to think of the roar of thunder, the hissing of the wind, the thunder of a waterfall, the gurgle of a brook, the rustle of leaves, a horse's trot that fades away, the shaky starts of a carriage on the pavement, and the ample, solemn, and white respiration of a city at night, all the noises made by wild and domestic animals and all those that man's mouth can make without talking or singing.

Let's walk through a large modern capital with our ear more attentive than our eye and find pleasure in distinguishing between the gurglings of water, air, and gas inside metallic pipes, the grumbling of motors that breathe and pulse with an indisputable animality, the throbbing of valves, the rising and falling of pistons, the screeching of mechanical saws, the jumping of trams on their rails, the cracking of whips, the waving of awnings and flags. We shall amuse ourselves by ideally orchestrating together the rattle of a store's rolling shutters, banging doors, the hubbub and patter of the crowds, the different rackets of the railroad stations, of the textile mills, of the printers, of the electrical plants, and of the subways.

Nor must we forget the very new noises of modern warfare. Recently the poet Marinetti, in one of his letters from the Bulgarian trenches at Adrianople, described to me the orchestra of a great battle using marvelous *parole in libertà:*

> Every five seconds siege cannons disembowel space by a chord TAM-TUUUMB mutiny of 500 echoes to gore it mince it scatter it to infinity. In the center of these crushed TAM-TUUUMBS width 50 kilometers square jump explosions fissures fists rapid-fire batteries Violence ferocity regularity this grave bass scans the strange very very agitated crowds high notes of the battle Fury breathless-

ness ears eyes nostrils open! Beware! Strength! what joy to see to hear to smell everything everything taratatatata of the machine gunners to shriek breathlessly under bits slaps traak-traak lashes pic-pac-pam-tumb bizarre leaps to 200 meters high by rifle shots Below below at the bottom of the orchestra pools to whip buffalo spurs trucks pluff plaff horses rearing up flic flac zing zing sciaaaack hilarious whinnies iiiiiii . . . . pattering tinkling 3 Bulgarian battalions marching croooc-craaac (*very slowly*) Sciumi Maritza or Karvavena croooc-craaac officer's shouts striking like copper plates against each other pan from here paack from there cing BUUUM cing ciak (*quickly*) ciaciacia ciaiaak over here there there all around above look out for your head ciaack beautiful! flames flames flames flames flames flames leap from forts over there behind that river Sciukri Pasha communicates by telephone to 27 forts in Turkish in German hello! Ibraim! Rudolf! hello! hello! actors roles echoes prompters scenery of smoke forests applause odors of hay mire dung I can no longer feel my frozen feet odor of saltpeter rotten odor Timpani flutes clarinets are everywhere low high birds twitter beatitude share cip-cip-cip breeze greenness herds don-dan-don-din neeee Orchestra Madmen are hitting orchestra professors they very beaten play play great crashing noises not erasing stressing cutting off tiny noises very tiny fragments of echoes in the wide theatre 300 kilometers square rivers Maritza Tundzha stretched out Rhodope Mountains standing highground boxes logges 20,000 shrapnel flailing about exploding very white handkerchiefs full of gold TUM-TUMB 20,000 grenades outstretched pulling very black hairs bursting ZANG-TUMB-TUMB-ZANG-TUMB-TUUUMB the orchestra of warfare noise enjoys itself under a note of silence hanging in the sky above spherical golden balloons that oversee the shots

WE WANT TO SCORE AND REGULATE HARMONICALLY AND RHYTHMICALLY THESE EXTREMELY VARIED NOISES. In scoring the noises, we shall not subtract all the movements and irregular vibrations of tempo and intensity from them, but, on the contrary, we shall give a position and tone to the most dominant and the strongest of these vibrations. Noise, in fact, is different from sound only in that the vibrations that produce it are confused and irregular in tempo and intensity. EVERY NOISE HAS A TONE,

SOMETIMES EVEN A CHORD, THAT DOMINATES OVER THE WHOLE OF ITS IRREGULAR VIBRATIONS. Now, the existence of this predominant characteristic tone gives us the practical possibility of scoring noises, that is to say, of giving to a noise not only one tone but a certain variety of tones without losing its characteristic —in other words, the timbre that distinguishes it. Thus certain noises obtained through a rotating movement can give us a complete ascending or descending chromatic scale by speeding up or slowing down the movement.

Every manifestation of our life is accompanied by noise. Noise is, therefore, familiar to our ear and has the power to recall us immediately to life. Whereas sound, foreign to life, always musical, a thing by itself, an occasional element that is not necessary, has come by now to strike our ears no more than an overly familiar face does our eye. Noise, instead, coming confusedly and irregularly from the irregular confusion of our life, is never totally revealed to us and keeps innumerable surprises for us. We are certain, therefore, that in choosing, coordinating, and dominating all noises, we are enriching mankind with a new unsuspected voluptuousness. Although the characteristic of noise is to bring us brutally back to life, THE ART OF NOISE MUST NOT LIMIT ITSELF TO IMITATIVE REPRODUCTION. It will draw most of its emotive power from the special acoustical enjoyment that the inspired artist will get from combining the noises.

Here are six "families of noises" of the Futurist orchestra that we shall soon achieve mechanically:

1. Roars
   Thunders
   Explosions
   Bursts
   Crashes
   Booms

2. Whistles
   Hisses
   Puffs

electric sign into the house across the street *yellow slaps* for that gouty, dozy bibliophile in slippers 3 mirrors watch him the sign plunges to 3 redgold abysses open close open close 3-thousand meters deep horror quick go out out hat stick steps taximeter push shove *zuu zuoeu* here we are dazzle of the promenade solemnity of the panther-cocottes in their comic-opera tropics fat warm smell of music hall gaiety = tireless ventilation of the world's Futurist brain.

LUIGI RUSSOLO

Enharmonic Notation for the Futurist *Intonarumori*

(*March 1, 1914*)

The total conquest of the enharmonic system obtained by Futurist *intonarumori* has rendered several modifications in the current system of musical notation necessary (as written in the November 21, 1913, issue of *Lacerba*).

This system, in fact, as it is today, only considers the subdivision of semitones, whereas the *intonarumori* can produce any fractions of tones. It is necessary, therefore, to find an easy and simple means to indicate these subdivisions, in other words, the means to write down *enharmonic music*. Different systems of present musical writing were proposed on several occasions but quickly dropped because of their uselessness or their impracticality.

A system that is certainly logical and rational is a musical notation using numbers, calling 1 the first grade of the scale, and 2,3,4,5,6, and 7, the successive grades. But this system, though logical in appearance, became enormously complicated and was above all slow and difficult to read, because of the fact that the eye, finding itself in front of a page completely filled with numbers, must read these figures one by one identifying them with the grades of the scale, without the arrangement of these numbers helping to accelerate this operation.

Thus it happens that, although it is enough that a very rapid glance at a musical page having the usual staff gives one a complete idea of the degree of the music's harmonic and rhythmic complication, a musical page written with a system of numbers teaches one nothing except that one has not read it all, identifying them number by number. And this happens because the usual system of musical notation forms a variable and characteristic *arabesque* with dots and lines placed at various heights on the staff. This arabesque, with its complete form, greatly helps us to identify immediately the