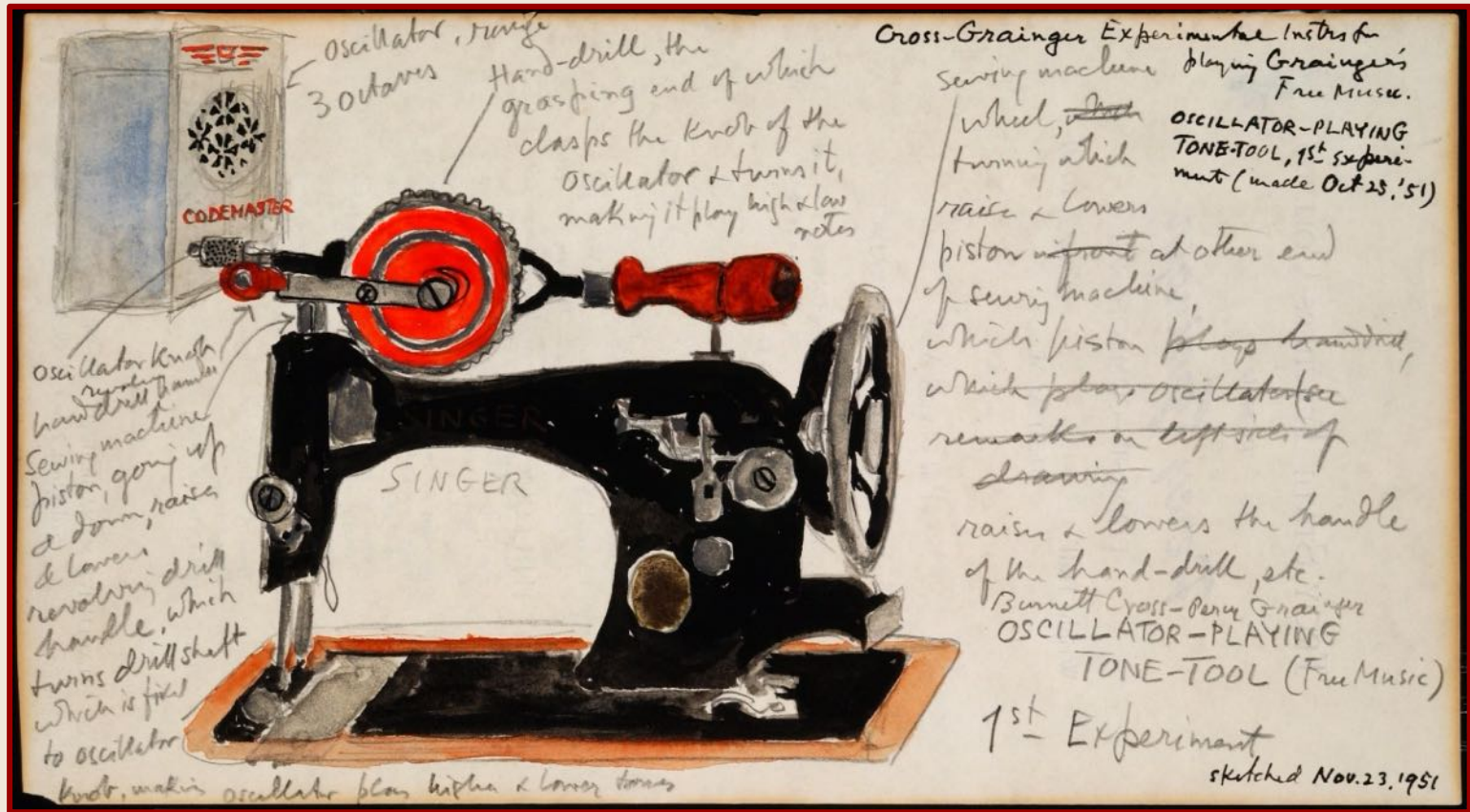
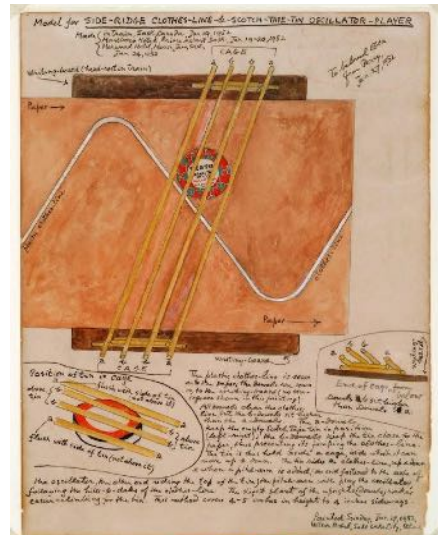
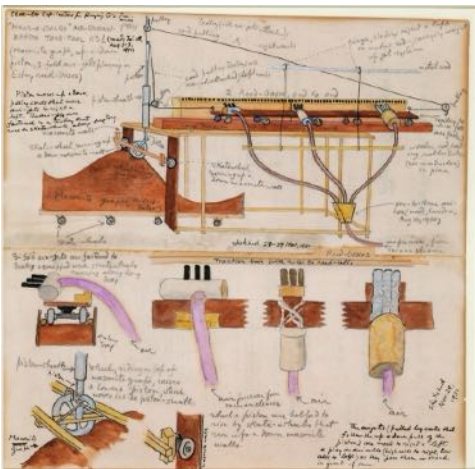


TONE RHYTHM PITCH : EXPLORING PERCY GRAINGER'S FREE MUSIC



An exhibition at The Percy Grainger Home & Studio - Fall/Winter 2023-2024

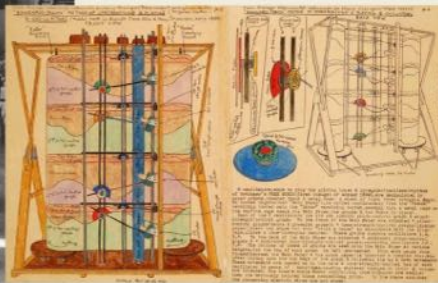
Percy Grainger and Free Music



For Percy Grainger, Free Music drew its inspiration from the sounds of nature and was music free from the constraints of conventional rhythm and individual pitch. From an early age, he imagined music that would glide continuously across the pitch spectrum, without the need for metrical rhythms and, ultimately, without the need for a performer; the composers' ideas would be translated directly into sound.

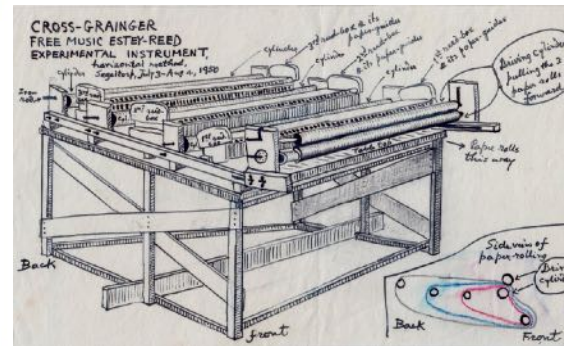
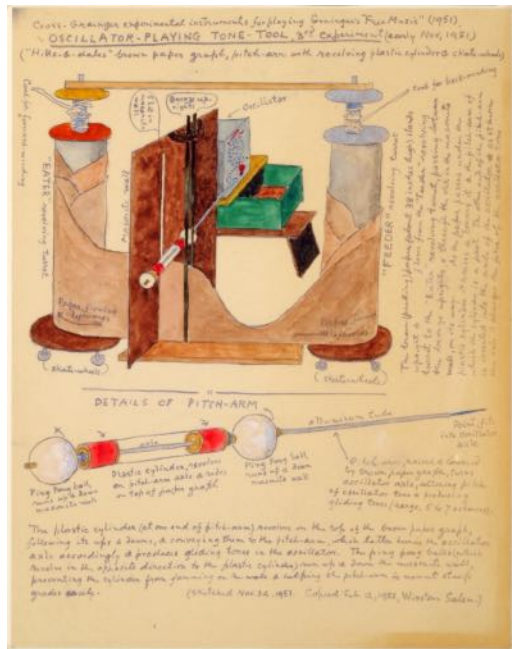
Elements of Free Music can be found in much of Grainger's instrumental and vocal compositions, where the use of sliding notes and irregular rhythms often feature. Between 1935 and 1937, Grainger wrote three short pieces – Free Music No. 1, Free Music No. 2 and Beardless Music – which further demonstrated his ideas in practice.

'I have heard free music in my head since I was a boy of eleven or twelve ... it is my only important contribution to music.'



Grainger regarded all of his music up to this point as merely a stepping stone to the full development of Free Music, and he was to increasingly devote his time to this from the late 1940s onwards. Using his White Plains home as a studio, he worked alongside his wife, Ella, and in close collaboration with a young physicist, William Burnett Cross, to design and build machines that were able to produce Free Music.

'Free Music ... is the goal that all music is clearly heading for now and has been heading for through the centuries. It seems to me the only music logically suitable to a scientific age.'



Most of the machines, given Graingeresque names such as the Side-Ridge Clothes-Line & Scotch-Tape-Tin Oscillator-Player, or the Kangaroo-Pouch Method of Synchronising & Playing 8 Oscillators, were constructed from wood, paper, cardboard, string, and other found objects. The machines were in a constant state of flux and were often dismantled or repurposed as soon as sounds were recorded. The final machine, the Electric Eye, remained unfinished at the time of Grainger's death, but was the most sophisticated and was able to produce seamless electronic pitch glides. It is this machine that places Grainger's experiments in electronic music squarely alongside other experimental composers.

A Collaboration

My first models for playing some aspect of Free Music date from 1900. But it is only in the last 5 years or so that Burnett Cross, and my wife and I have built machines capable of presenting all aspects of Free Music. —Percy Grainger, June 1, 1957

The house at 7 Cromwell Place was a hive of activity with much of the downstairs dedicated to Free Music experiments. Ella worked with Percy, providing input and assistance, such as tuning (adjusting) reeds for the Reed-Box Tone-Tool machine or suggesting ways to fasten connections with the Solovox-Melanette Tone-Tool. Together they foraged the neighborhood for scraps of wood and other materials. Starting in 1948, Burnett Cross began assisting Percy with his machines and became an important collaborator as well as a close friend of both Percy and Ella. Additionally, he documented their work with photographs and recordings. Cross's contributions on the Free Music machines became greater as Percy's health declined in the late 1950s.



A Collaboration



Percy , Ella & Burnett
working on Free Music
machines at 7 Cromwell
Place White Plains, NY
1950-1960

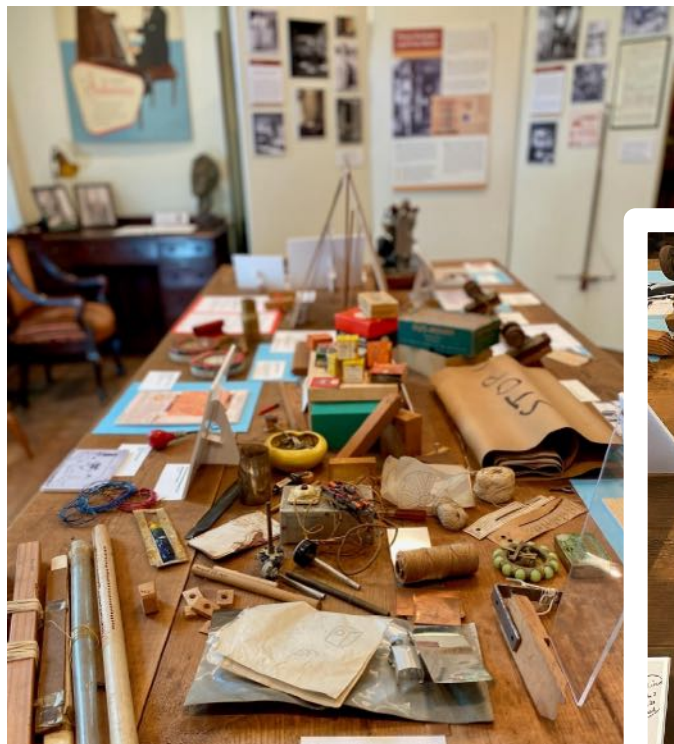
7 Cromwell as a Workshop

For the Graingers, the house at 7 Cromwell Place was very much a studio and workshop, a space that was continuously changed to accommodate their creativity. Pianos were moved from room to room, to allow for duets with guests, for example, and seating and furniture moved to the periphery to make space as needed. Multiple areas of the house were given over to projects and experiments as the rooms transformed into work spaces. Photographs show Ella using the living room as a painting studio and Percy seated working on compositions, the front porch with Burnett Cross and Percy testing free music machines, and Percy using the kitchen floor as a large flat space to draw, cut and glue large templates. Free Music Machines spanned floor to ceiling in the living room. Tools and supplies were stored nearby in the butler's pantry.

Free Music machines and experiments were all over the house, including the second floor, though the majority of work happened here, in the living room. In the mid to late 1940s, the Graingers replaced the living room fireplace with a large picture window, one of the few modifications they made to the house. Percy wanted more natural light in the downstairs rooms as he worked on his experiments and projects.



Exhibition



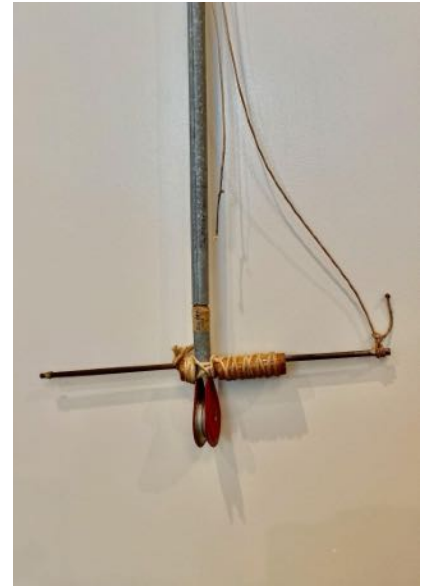
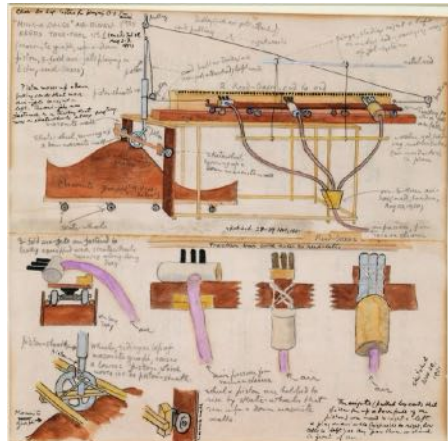
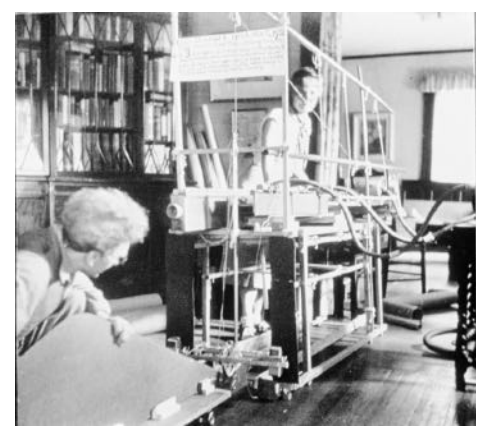
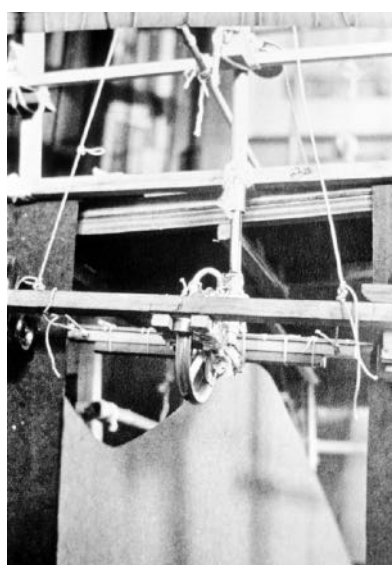
Views of the exhibition's recreated work table showing materials used to create Free Music machines. The objects were found throughout the home while preparing the exhibition.

Experiments in Sound

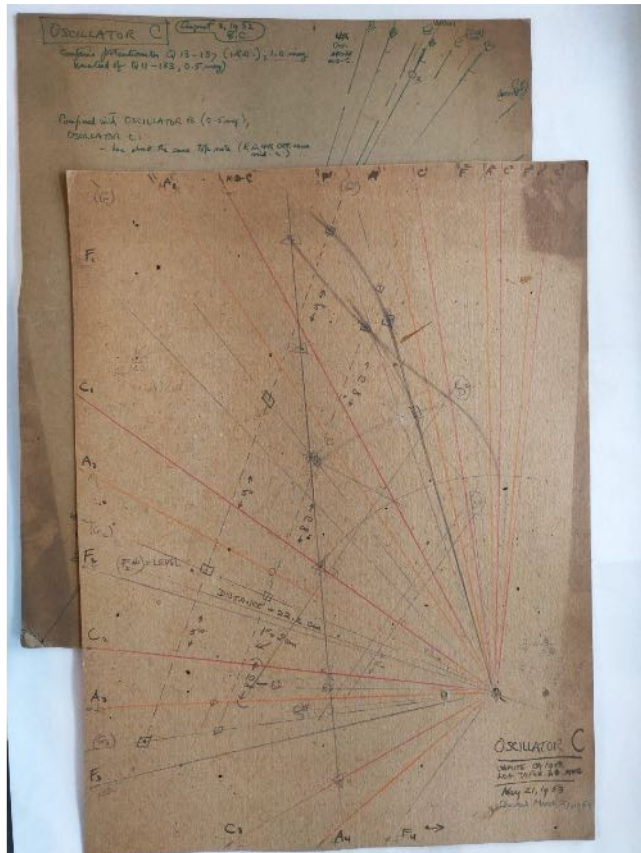
There is such an infinite variety in sound - the waves that lap against a boat, the delicate variation in the hum of telegraph wires as you pass - so many things I wanted to put into music. But there was no instrument. —Percy Grainger, October 19, 1955

From an early age, Percy Grainger was captivated by and curious about sounds—the wind in a ship’s rigging, the squeaky hinges of a door, or the rhythm of a bouncing ping pong ball. He wanted to construct new instruments and create “Free Music”. The early experiments incorporated and often combined modified instruments, such as early synthesizers harnessed to pianolas. Later, entirely new instruments were developed, including the final experiment, the Electric-Eye Tone-Tool, which used light sensitive circuits to translate shapes into music.

Most of the Free Music machines were lost or dismantled, and only two of the original machines are extant and fully complete. The experiments were described in letters, notes and diaries, and detailed in Percy’s elaborate watercolor images. Photographs were taken and sound recordings made. In addition to the documentation, what remains here are the many elements: bits and pieces of experiments, hardware and supplies. If you look closely, Grainger dated many of the items, which we can sometimes match to entries in his day books. Other items remain a mystery as to how or where they were used in his Free Music experiments.



Exhibition



Templates, Oscillator C

August 3, 1952

May 21, 1953

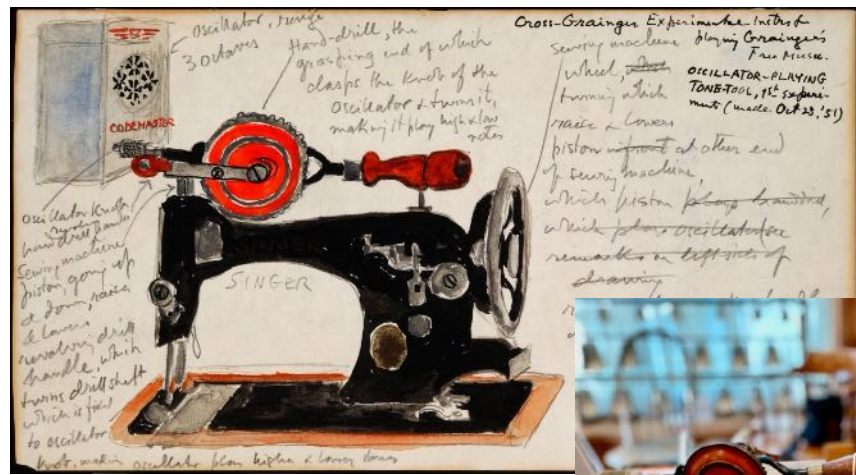
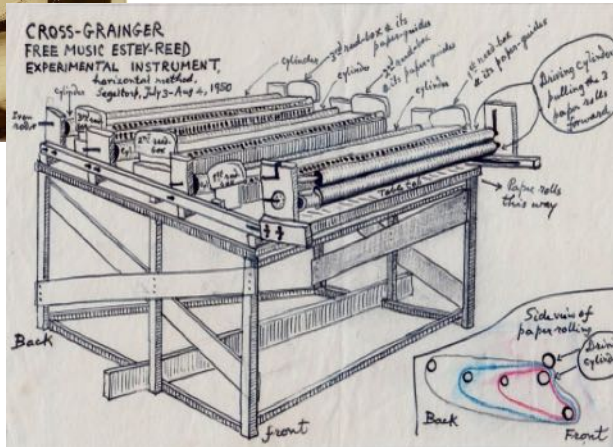
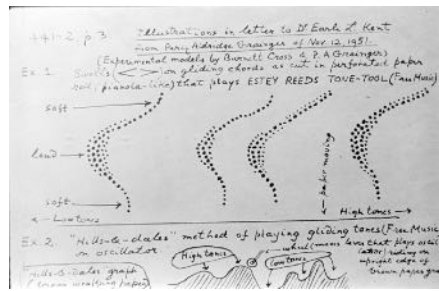
These templates are likely from the Cross-Grainger Kangaroo Pouch Tone Tool, showing the calculations for the tone arms.

First Knitting Needle Guillotine Model

December 18, 1951

Mentioned in Percy's day books, the "Guillotine" is an early version of the guiding mechanism for paper, later used in the Cross-Grainger Kangaroo Pouch Tone Tool.





Illustrations in letter to Dr. Earle L. Kent

Ex. 1 Swells on gliding chords as cut in perforated paper roll (pianola-like) that plays "Estey Reeds Tone-Tool" (Free Music).

Ex.2. "Hills-&-dales" method of playing gliding tones (Free Music) on oscillator

Reproduction of sketch by Percy Grainger
November 12, 1951

Bud Codemaster, Model CPO-128

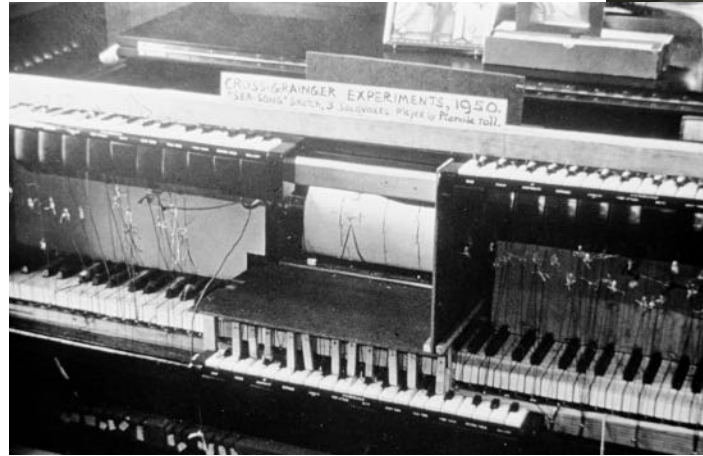
Made in the 1950s

The oscillator was a Morse code practice device with a continuously variable pitch produced by a loudspeaker (in the case). Its single vacuum tube operated on house current (110 volts). PG at once set to work to find out how its pitch knob could be controlled.'

Burnett Cross

3 Melanettes harnessed to Duo-art 1948

As described by Burnett Cross, the Melanette "was a monophonic electric keyboard instrument with small keys and individual tones produced by oscillators".



Solovox 1,2,3 & Ella's Hold - Fast Invention These objects, composed of string and collar stays, were discovered in the house while preparing for the exhibition. They illustrate the process of experimentation and collaboration in creating the Free Music machines.



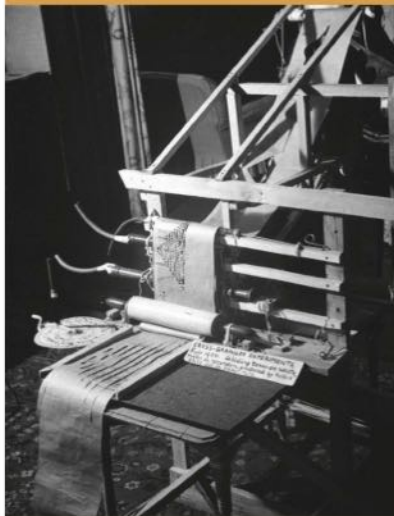


The Hammond Solovox was a keyboard attachment instrument intended to accompany the piano with string, woodwind and organ type sounds. The short keyboard was mounted under the piano keyboard and had a knee-operated volume control. Percy Grainger, shown here in the promotional poster, experimented with Solovox instruments as he developed his Free Music machines.

<https://120years.net/wordpress/the-solovoxhammond-organs-companyusa1940/>



Gliding Tones on Whistle, Notes on Recorders



The Gliding Tones on Whistle, Notes on Recorders machine was constructed in February 1950. It is one of two Free Music machines that remains intact, the others either dismantled, lost, or transferred by the composer to the Grainger Museum in Melbourne, Australia.

In common with all of the Free Music machines, it incorporates a two-part design, a control mechanism and a sound producing element. Grainger drew on his early experiences as a recording artist with player and reproducing pianos in the design of many of the machines, using paper rolls with slits and holes cut into them to play the various instruments. These comprised organ pipes, harmonium reeds, simple electronic oscillators, and, in the case of this machine, two recorders, and a slide, or swanee whistle. The recorders and whistle would have been connected to a vacuum cleaner or hair dryer by means of rubber tubes, which provided the necessary amount of air to produce a continuous sound. As the paper rolls passed over the holes of the recorders, emulating the fingers of a human player, different notes would have been produced.

'Free Music demands a non-human performance. Like most true music, it is an emotional, not a cerebral, product and should pass direct from the imagination of the composer to the ear of the listener by way of delicately controlled musical machines.'

It is unlikely that the Gliding Tones on Whistle, Notes on Recorders machine was particularly successful, as the tension required to ensure that the paper rolls stayed sufficiently close to the body of the recorders would have meant that the paper was liable to tearing and uneven flow, problems that Grainger experienced in many of the machines. But it remains a fascinating testament to Grainger's dogged pursuit of his vision of Free Music, encapsulating his multi-faceted character as visionary composer, performer, artist, designer and inventor.

The conservation of Gliding Tones on Whistle, Notes on Recorders was supported through the NYSCA/GHNC Conservation Treatment Grant Program administered by Greater Hudson Heritage Network. This program is made possible by the New York State Council on the Arts with support of the Office of the Governor and the New York State Legislature.



"FREE MUSIC" may be said to be strictly an Australian & 19th century innovation, seeing that I had conceived its main outlines & characteristics before I left Australia for the first time, at the age of 12 (1895). I have called it "Free Music" because it is music liberated from the conventional limitations of scale, harmony & rhythm. Nevertheless it is revolutionary & never revolutionary, being in every respect merely an extension of conventional music.

As I regard all simplified interpretations of life as dangerously misleading to humanity I have tried, in my Free Music, to tally as far as possible the complexity & apparent confusion of nature. It seems to me that one of the main duties is to prepare mankind for the unforeseeable irregularities of the universe as we see it.

Free Music, in addition to the new worlds of sound that it opens up, should always be ready to include any or all of the accumulated skills & appeals of conventional music.

The following are some of the ways in which Free Music extends the resources of conventional music:

CLOSE INTERVALS AND GLIDING TONES. In Free Music the intervals are, for the present, 4 times as close as in conventional music. Thus there are 4 differently-pitched G's, & 4 differently-pitched C's sharp, and so on. (Still closer intervallic divisions can be introduced at any moment, of course.) A main feature are accurately controlled gliding tones throughout the entire range of each tone-strand (voice or part). It stands to reason that a high degree of accuracy of intervallic control must be attained in order that gliding chords remain chords while gliding. (Of course there have been gliding tones in conventional music. But they were not accurately controlled and were of very limited intervallic range.)

HARMONIES IN CLOSE INTERVALS. The harmonic vistas opened up by 4-times-closer intervals can readily be imagined. Some of these harmonies are indeed heart-rending. Free Music is essentially an art of the heart.

INDIVIDUALISTIC RHYTHMS. In Free Music there is no need to follow a rhythmic pulse-pattern at all—melody can be quite free of rhythmic domination. Where rhythmic pulsation (metre) is desired each tone-strand (voice or part) can follow its own pulse-pattern, quite independently of the other tone-strands. Rhythms of hitherto unheard speed or irregularity are naturally a feature of Free Music.

MECHANICAL PERFORMANCE. The above-mentioned niceties of accurate intervallic & rhythmic control are possible only in mechanically played music—music played from a graph or from a perforated paper roll. It goes without saying that the delicate intricacies of close intervals, gliding tones & individualistic rhythms cannot be played by human hands or controlled in performance by human minds. In the case of Free Music the composer can stand in direct contact with his audience, avoiding the disturbing & limiting interference of a middle-man or performer. Music in which the composer writes or cuts all his

dynamics (sound-strengths) into a graph or paper roll can enjoy a degree of emotional subtlety, intensity & directness hitherto unapproached.

My first models for playing some aspect of Free Music date from 1900. But it is only in the last 5 years or so that Burnett Cross, my wife & I have built machines capable of presenting all aspects of Free Music. Burnett Cross (instructor in physics at Teachers College, Columbia University, New York) is a brilliant scientist as well as a fine musician. Without his genius, imagination & resourcefulness I never would have been capable of solving the problems of our Free Music-playing machines.

Percy Aldridge Grainger, "Queen Mary", June 1, 1957

"Free Music" may be said to be strictly an Australian & 19th century innovation, seeing that I had conceived its main outlines & characteristics before I left Australia for the first time, at the age of 12 (1895). I have called it "Free Music" because it is music liberated from conventional limitations of scale, harmony & rhythm" - Percy Grainger June 1, 1957

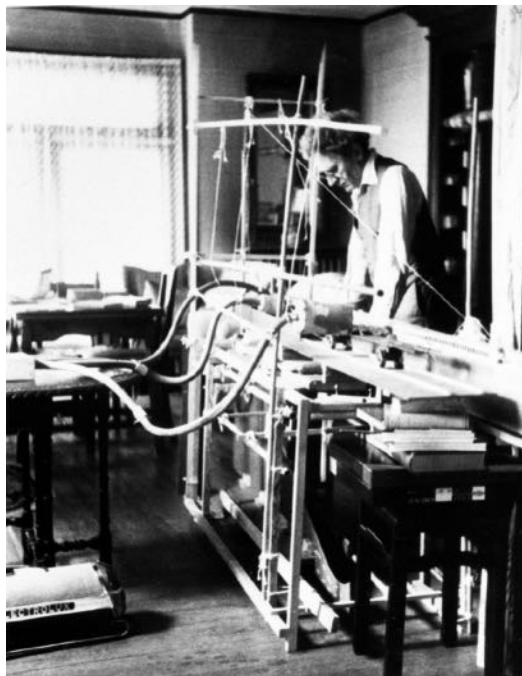


“The reed boxes contained rows of little compartments into which the reeds were set. The reeds supplied the tone in the system, which was pneumatic, with air blowing onto each reed, causing its vibration on a certain pitch” - Ella, March 1965

The reed-box idea originated, I think, with Percy's interest in the mouth organ and the slide flute (sometimes called the penny whistle), of which we had some samples. From about 1952 onward, I can remember the question of reeds arising, and therewith the construction of the reed boxes, made out of balsa wood. It was the first time we had ever used this material. We purchased it from the local hobby shop, which specialized in model airplanes and boats. The first time I had heard balsa wood mentioned was in reading *Kontiki*, by Thor Heyerdahl, who had used this lovely, light-weight material in constructing the vessel for his voyage across the Pacific.

The reed boxes contained rows of little compartments into which the reeds were set. The reeds supplied the tone in this system, which was pneumatic, that is to say, with air blowing onto each reed, causing its vibration on a certain pitch. Percy intended to create a system of gliding tonal scales; hence the so-called 'tuning' of the reeds, because, of course, leaving the reeds as they were would never have occurred to a mind as complicated as that of Percy Grainger. So we busied ourselves with tuning the reeds in thirds of half-tones, two such tones to each half-note (C, C 1/3, C 2/3, C#, C# 1/3). Our work resulted in a scale of ninety-six notes, within a 2½-octave range. The scale could be extended higher or lower, as required, providing there would be sufficient space available to extend the length of the reed box.

The tuning of the reeds was quite an onerous task, needing much attention, patience, and a fine ear. Indeed, to my surprise, I began to detect the vibrations of the note, faster or slower as a note sounded higher or lower. We did this tuning by dropping molten candle grease (stearine) onto the tongue of the reed. A drop too much had to be scraped away, until the reed became the desired pitch. If too small an amount of stearine was used, it had to be augmented very carefully. I do not remember how long we spent at this enterprise. As usual, both Percy and I became engrossed in our task and time flew by. But if one likes doing something, time does not matter. That is how I used to feel if



anyone asked me, 'How long has it taken you to do that drawing?' I was an art student and used to draw, as well as paint. I was astonished at any such question. 'How long' did not seem to me to matter. In fact, the longer the better, because the love of doing something one enjoys, however lengthy, never palls on one, really.

Hence, the tuning of the reeds and various other occupations in the realm of invention -- free music, gliding tones, electronic sound -- all were grist for our mill.

The tone of the reed instrument was produced by the application of air, much the same as when one plays the mouth organ, but in this instance not by mouth, of course, but by means of a vacuum-cleaner hose supplying the air and moving up and down the scale.

The reed boxes were beautiful pieces of work, produced by Percy Grainger and young Burnett Cross, his assistant for a number of years. To be sure, they tried countless other inventions, both being invention-minded and quite clever. As an onlooker, I was frequently baffled by the language they used, and one day, when I heard, as I thought, the marvelous-sounding word, 'thachabah', I asked them if it was an Indian name and what it meant. Their answer was "tracker bar," a term which I understood immediately.

Free Music Timeline

1874

American electrical engineer Elisha Gray demonstrates his Musical Telegraph or Electro-Harmonic Telegraph, which is able to transmit melodies over distances of hundreds of miles.

Elisha Gray's Musical Telegraph keyboard



1883

Percy Grainger is born on July 8 in Melbourne, Australia. He later writes that *I have heard Free Music in my head since I was a boy of 11 or 12 in Auhorn, Melbourne. It is my only important contribution to music. My impression is that this world of tonal freedom was suggested to me by waven movements in the sea that I first observed as a young child at Brighton, Vic., and Albert Park, Melbourne.*

1887

American inventor Edwin S. Votey patents his design for an automated mechanical player piano, made publicly available in 1898 as the Pianola, produced by the Aeolian Company of New York.

American inventor Thaddeus Cahill successfully submits a patent for the Telharmonium, an electronic instrument designed to transmit music around New York via telegraph wires. The M&I Telharmonium, which weighed 200 tons, was moved to Telharmonium Hall in New York in 1906. The Telharmonium gave concerts and broadcasts for the next four years, before closure of the hall in 1910.

1901

In his notebook, 'Methods of Teaching & Other Things', Grainger predicts that music of the future will be performed by machines, not by musicians!

1902-04

Grainger works on speculative designs for a Beardless-Notation Machine and Beardless Music Types; devices designed to capture the performance of non-metrical rhythms and to translate them into graphic notation.

The first stage of Grainger's 1906 design for the Beardless Music Type



1913

Italian artist and musician Luigi Russolo publishes the influential Futurist manifesto, *The Art of Noises*, and constructs his first machines for controlling noises, the *Intonarumori*.

1914

Russian artist and musician Nikolai Kulbin publishes his thesis, *Free Music*, in *Wassily Kandinsky and Franz Marc's Der Blaue Reiter (The Blue Rider)* almanac. Kulbin's description of *Free Music* is remarkably similar to Grainger's as expressed in his 1938 *Free Music Statement*:

The music of nature—light, thunder, the whistling of wind, the rippling of water, the singing of birds—is free in its choice of tones. Free music is based on the same laws of nature as music and the whole art of nature. The artist of free music, like the nightingale, is not limited by tones and half-tones. He also uses quarter tones and eighth tones and music with a free choice of tones.

1915

Grainger begins a long association with the Aeolian Company, recording approximately eighty-two Duo Art piano roll recordings up to 1932. Grainger often edited the paper piano rolls himself, gaining valuable knowledge that would inform his *Free Music* experiments.

1935

Grainger writes *Free Music* no. 1, for string quartet, to demonstrate his *Free Music* ideas as part of his Australian Broadcast Commission radio series *Music: A Commonsense View of All Types*.

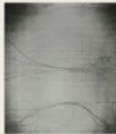
1937

Free Music no. 1 is arranged for four theremins, with *Free Music* no. 2, a new work, composed for six theremins. Grainger also arranges his 1907 work, *Sea Song*, for six theremins, changing the title to *Beardless Music*.

1938

Grainger writes his *Free Music Statement*, displaying it in the newly opened Grainger Museum in Melbourne, Australia.

Part of the score to *Free Music* no. 2



1946

Grainger begins work on his first *Free Music* machines at his home in White Plains, alongside physicist Burnett Cross, and with assistance from his wife, Ella. Instruments include the *Sliding-Pipe Free Music Invention*.

The Sliding-Pipe Free Music Invention of 1946



1948

Cross and Grainger begin experiments with banks of three simple keyboard synthesizers (melanettes), connected to and controlled by a Duo Art player. French composer, engineer and writer, Pierre Schaeffer, presents a concert of *Five Studies of Noises*, the result of experimentation with radiophonic techniques, which lays the foundation for what was to become known as *musique concrète*.

1950-52

Various *Free Music* machines are constructed at 7 Cromwell Place, in a process of continual experimentation and refinement. Titled *Cross-Grainger Experiments*, these are given further evocative names such as the *Gilling Tones on Whistle* machine (1950), the *Hills & Dailes* Air-Blown-Reeds Tone-Tool (1951), the *Oscillator-Playing Tone-Tool* (1951-52), the *Side-Ridge (Clothes-Line & Scotch-Tape-Tin Oscillator-Player* (1952), the *"Butterfly" Piano* (1952), and the *"Kangaroo Pouch" Method of Synchronising & Playing 8 Oscillators* (1952), the largest of all of the machines, now housed in the Grainger Museum, Melbourne. Cross and Grainger recorded their experiments through audio recordings, photographs, illustrations, and through brief notes in Grainger's day books.

1951

British composer Daphne Bram independently begins work on what would become the *Oramics* system, which operates on a similar principle to the *Cross Grainger Electric-Eye Tone Tool*. In 1966 *Oramics* eventually becomes fully operational.

Daphne Bram working on the Oramics system



1964

Work begins on the *Electric-Eye Tone Tool*, the most sophisticated of the *Free Music* machines, using a system of a light-sensitive receiver that respond to shapes hand-drawn on a transparent film.

1966

New York-based husband and wife team Bebe and Louis Barron create a score of electronic tonalities for the 1956 MGM movie *Forbidden Planet*, which Grainger saw twice in this year. Their work is informed by the cybernetic theories of Norbert Wiener.

Bebe and Louis Barron in their New York Studio



1967

Percy Grainger dies on February 20 in White Plains Hospital. While the full realisation of his *Free Music* machine does remain incomplete, his work as a pioneer and visionary in the field of electronic and experimental music would later be widely recognised.

1967

Greek composer, architect and engineer Iannis Xenakis, develops his *LUPIC* system, which allows real-time music composition through the conversion of drawn lines and shapes to complex synthesised sounds.

I have called it "Free Music" because it is music liberated from the conventional limitations of scales, harmony & rhythm ... As I regard all simplified interpretations of life as dangerously misleading to humanity I have tried, in my Free Music, to tally as far as possible the complexity & apparent confusion of nature. It seems to me that one of the main duties is to prepare mankind for the unforeseeable irregularities of the universe as we see it.

What does Free Music sound like? Take a listen

Grainger Museum - Experiments in Freedom - Electric Eye Tone Tool Exhibit, 2017.

<https://vimeo.com/237492602>.

Grainger Museum - Experiments in Freedom - Kangaroo Pouch Tone Tool Exhibit, 2017.

<https://vimeo.com/237490377>.

Grainger Museum - Experiments in Freedom - Reed Box Tone Tool Exhibit, 2017.

<https://vimeo.com/237492559>.

Videos created by the Grainger Museum at the University of Melbourne, narrated by Jon Drews.

Slide 1

1 - Reproduction of sketch *Oscillator-Playing Tone-Tool, 1st Experiment*, November 23, 1951

Slide 2

2 - Reproduction of sketch *Hills-&-Dales Air-Blown-Reeds Tone-Tool No.1*, November 29, 1951

3 - Reproduction of sketch *Oscillator -Playing Tone-Tool, 3rd Experiment*, November 24, 1951

4 - Reproduction of sketch *Kangaroo-Pouch Method of Synchronising & Playing 8 Oscillators*, April 24-26, 1952

5 - Reproduction of sketch *Side-Ridge Clothes-Line-&-Scotch-Tape-Tin Oscillator-Player* January 27, 1952

6 - Reproduction of sketch *Cross-Grainger Free Music Estey-Reed Experimental Instrument*, July 3-August 4, 1950

Slide 3

7 - Photo of Burnett, Ella, and Percy aboard ship, 1952

Slide 4

8 - Photo of Burnett and Percy working on the front porch, 1951

9 - Photo of Percy and Burnett, working in the dining room, 1959-60

10 - Photo of Ella and Percy working on the “Kangaroo Pouch” machine, 1952

11 - Photo of Ella and Percy with the Cross-Grainger Experiment, 1951

12 - Photo of Burnett working in the dining room, 1959-60

Slide 5

13 - Photo of Ella and Burnett working on “Kangaroo Pouch” machine, 1952

14 - Photo of Percy working on the “Kangaroo Pouch” Free Music machine, 1952

15 - Photo of Ella, seated, and the “Kangaroo Pouch” Free Music machine, 1952

16 - Photo of Percy Grainger working on the kitchen floor at 7 Cromwell Place, 1950s

Slide 6

17- 19 Images from the exhibition: work table and Free Music components, PGS Collection

Slide 7

20 - Photo of *Up & Down Shaft Method* Free Music machine (detail), 1951

21 - Photo of Percy and Ella testing the *Up & Down Shaft Method* Free Music machine, 1951

22 - Reproduction of sketch *Hills and Dales, Air-Blown Reeds Tone Tool No 1*, 1951

23 - Wheel shaft for the *Up & Down Shaft Method* Free Music machine, July 28, 1951, PGS Collection

Slide 8

24- Templates, *Oscillator C*, August 3, 1952 & May 21, 1953, PGS Collection

25- First Knitting Needle Guillotine Model, December 18, 1951, PGS Collection

Slide 9

26 - Photo of Percy with Estey Reed Tone-tool - 1951

27 - Illustrations in letter to Dr. Earle L. Kent, November 12, 1951

28 - Reproduction of sketch *Cross-Grainger Free Music Estey-Reed Experimental Instrument*, July 3-August 4, 1950

29- Reproduction of sketch *Oscillator-Playing Tone-Tool, 1st Experiment*, November 23, 1951

30 - Assembled parts of *Oscillator-Playing Tone-Tool*, exhibition, PGS Collection

Slide 10

31 - Solovox 1.2.3 & Free Music object, PGS Collection

32 - Photo of Melanettes, 1948

33 - Photo of Melanettes 1950

34 - Free Music object *Ella's Hold*, PGS Collection

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35 - Solovox promotional poster, PGS Collection

36 - Image of Solovox machine, 120 Years of Electronic Music, 120years.net

Slide 12

37 - Free-Music Machine: *Gliding Notes on Recorder Tone*, February 1951, PGS Collection

Slide 13

38 - Percy Grainger's notes on Free Music, typed letter, 1957

39 - Photo of Percy Grainger working on Kangaroo Pouch

Slide 14

40 - Ella Grainger's notes on Reed Box, typed letter, March 1965

41 - Photo of Percy Grainger in living room working on Free-Music machine

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The mission of the Percy Grainger Society is to promote the work and legacy of Percy Grainger with a membership community that preserves his historic house, encourages appreciation and performance of his music, and promotes a deeper understanding of the cultural, social, and economic context of his life and work. The Percy Grainger Society is a 501(3)c organization.

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As a member of Percy Grainger Society, you not only help honor the legacy of this remarkable and multi talented artist, but you also contribute to the preservation of his historic 1893 home, archives and collections. For more information please visit our website.