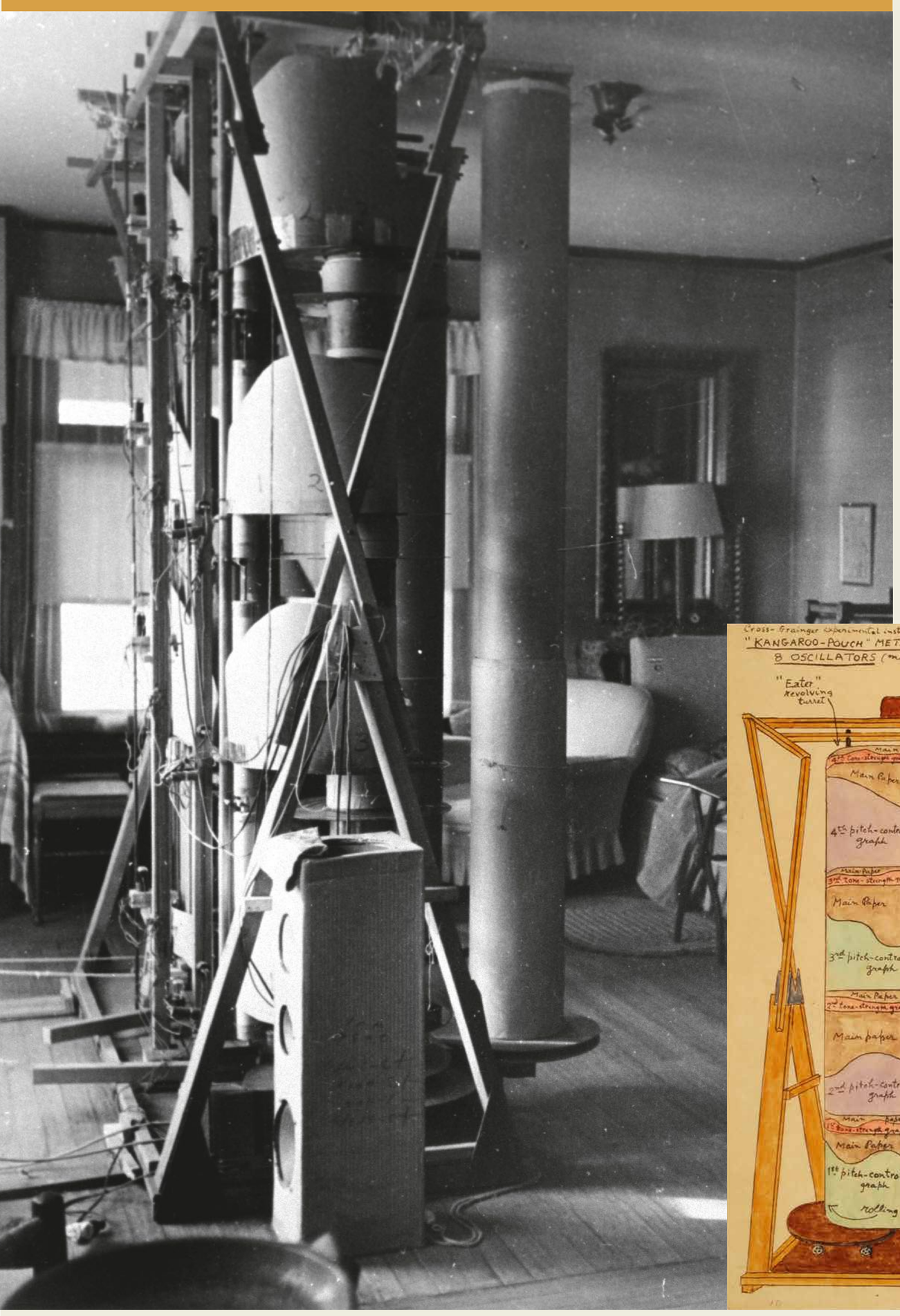
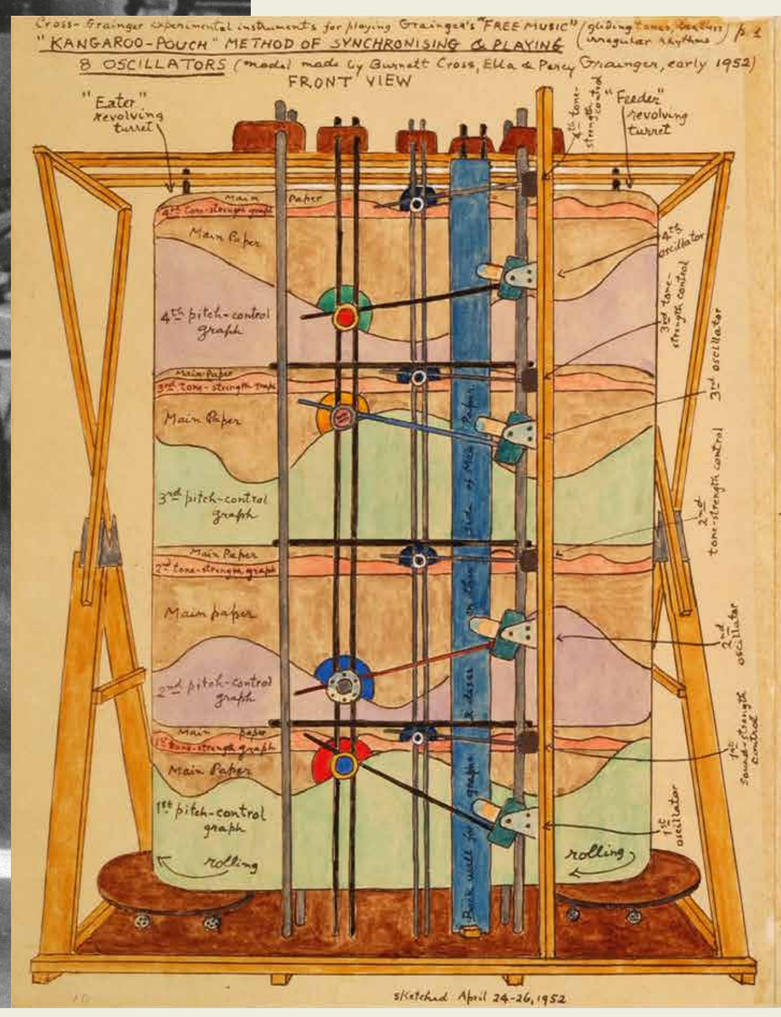
# Percy Grainger and Free Music

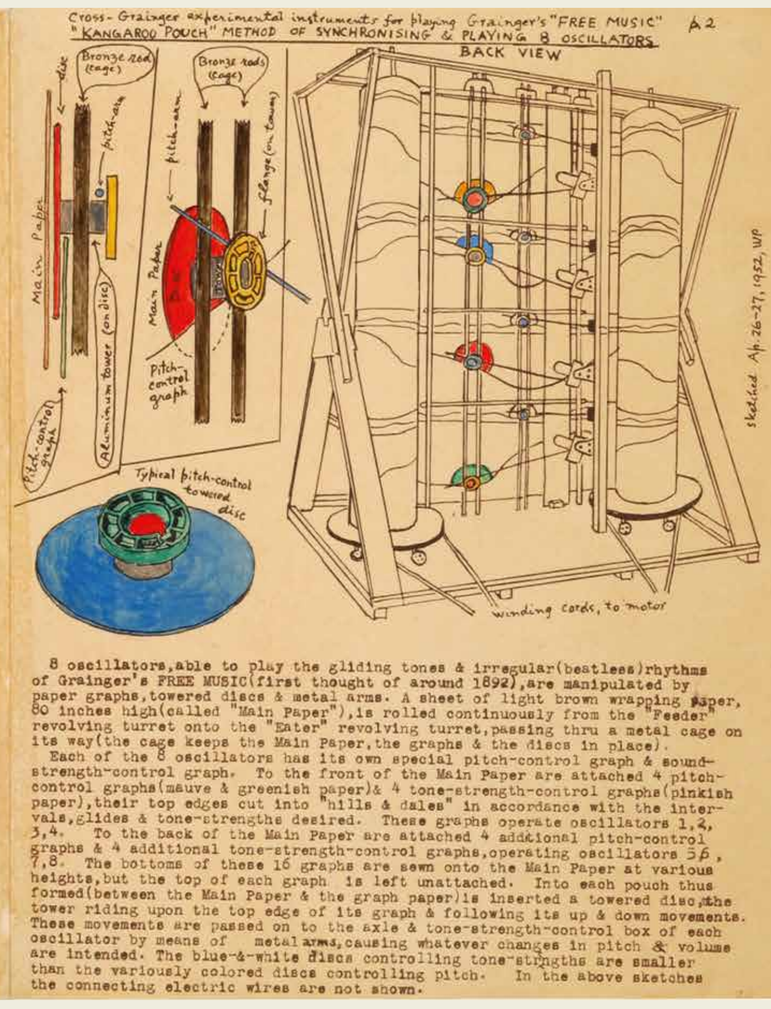


For Percy Grainger, Free Music drew its inspiration from the sounds of nature and was music free from the constraints of conventional rhythm and individual pitch. From an early age, he imagined music that would glide continuously across the pitch spectrum, without the need for metrical rhythms and, ultimately, 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 Beatless 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.'***




8 oscillators, able to play the gliding tones & irregular (beatless) rhythms of Grainger's FREE MUSIC (first thought of around 1892), are manipulated by paper graphs, towered discs & metal arms. A sheet of light brown wrapping paper, 80 inches high (called "Main Paper"), is rolled continuously from the "Feeder" revolving turret onto the "Eater" revolving turret, passing thru a metal cage on its way (the cage keeps the Main Paper, the graphs & the discs in place).

Each of the 8 oscillators has its own special pitch-control graph & sound-strength-control graph. To the front of the Main Paper are attached 4 pitch-control graphs (mauve & greenish paper) & 4 tone-strength-control graphs (pinkish paper), their top edges cut into "hills & dales" in accordance with the intervals, glides & tone-strengths desired. These graphs operate oscillators 1, 2, 3, 4. To the back of the Main Paper are attached 4 additional pitch-control graphs & 4 additional tone-strength-control graphs, operating oscillators 5, 6, 7, 8. The bottoms of these 16 graphs are sewn onto the Main Paper at various heights, but the top of each graph is left unattached. Into each pouch thus formed (between the Main Paper & the graph paper) is inserted a towered disc, the tower riding upon the top edge of its graph & following its up & down movements. These movements are passed on to the axle & tone-strength-control box of each oscillator by means of metal arms, causing whatever changes in pitch & volume are intended. The blue-&-white discs controlling tone-strengths are smaller than the variously colored discs controlling pitch. In the above sketches the connecting electric wires are not shown.

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.