

### **Pendulum Music (1968)**

*for microphones, amplifiers, speakers and performers*

Composer / **Steve Reich** (b. 1936)

"A totally oddball piece" is composer Steve Reich's description of this rarely performed composition in relation to the balance of his work since the mid-1960s. Not only does *Pendulum Music* forsake traditional instruments for a series of feedback pulses between microphones and amplifiers, the piece also features no written notes, relying instead on chance operations, as each microphone moves through space in a pendular arc. Fittingly enough, the composition itself was inspired by an act of chance.

"I was spending the summer in New Mexico," Reich recalls, "living and working out there in '68. I went up to Boulder to collaborate with a friend of mine, William Wiley, who's a painter. We were trying to put together a 'happening' with sculpture, black light. While we were working on that, Bruce Nauman, who was a student of Wiley, stopped by. The three of us were in this room and I had one of these Wollensack tape recorders—they're these funky 1950s models with a cheap electric microphone. It was an old machine by then. I was holding the microphone, which was plugged into the back of the machine so it could record. The speaker was turned up. Being out West, I let it swing back and forth like a lasso. As it passed by the speaker of the machine, it went, 'Whoop!' and then it went away.

"We were all laughing at this and the idea popped into my mind that if you had two or three of these machines, you would have this audible sculpture phase piece.... It's me making my peace with [John] Cage. If it's done right, it's kind of funny."

In his performance instructions for the finished work (revised in 1973), Reich states:

Three, four, or more microphones are suspended from microphone boom stands, or some other three to six-foot-high support, by their cables so that all hang the same distance from the floor and are all free to swing with a pendular motion. Each microphone's cable is plugged into an amplifier which is connected to a loudspeaker. Each microphone hangs a few inches directly above or next to its loudspeaker. Before the performance, each amplifier is turned up just to the point where feedback occurs when a microphone swings directly over or next to its speaker, but no feedback occurs as the mike swings to either side....The performance begins with performers taking each microphone [and] pulling it back like a swing. ... Performers then count off "one, two, three, four, release" and release all the microphones in unison. Thus, a series of feedback pulses are heard which will either be all in unison or not, depending on the gradually changing phase relations of the different microphone pendulums. ... The piece is ended sometime shortly after all microphones have come to rest and are feeding back a continuous tone by a performer pulling out all the power cords of the amplifiers.

Despite its "oddball" qualities, *Pendulum Music* is a natural extension of Reich's more storied explorations of musical lines and rhythms moving in and out of synchronization, or "phase," including *Piano Phase* and *Violin Phase* (both 1967) and *Drumming* (1970). Reich continued to pioneer new approaches to rhythm—and to find innovative raw materials for his music—in later works, such as 1988's celebrated *Different Trains*, commissioned for Kronos by Betty Freeman. In this powerful work, harking back to Reich's early speech pieces *It's Gonna Rain* (1965) and *Come Out* (1966), the Quartet's parts are inspired by the pitches and rhythms of recorded speech. *The New York Times* hailed *Different Trains* as "a work of such astonishing originality that breakthrough seems the only possible description....[It] possesses an absolutely harrowing emotional impact." More recently, Kronos Quartet commissioned Reich's *Triple Quartet* (1999). As the title implies, the piece actually comprises three simultaneous string quartet performances—on disc and in concert, Kronos performs live over two of its own pre-recorded parts.

Program notes by Matthew Campbell

## Pendulum Music

Music has a non-linear quality where the whole is greater than the sum of its parts. What is happening as we listen to the sounds of “Pendulum Music”?

The feedback produced from the amplifiers by the swinging microphones is producing sound. Vibrations in air, interacting waves of moving molecules – which in turn are interacting with our tympanic membranes, amplifying the complex composite vibrations and transmitting them to the cochlear. And then the brain’s processing of these signals, and the mind’s sense-making of the resultant aural experience.

This process is an *emergent* one. If we reduce the experience to its component parts, we have a series of non-organised, formless mechanical events. But what do we experience? Attractors operate during our sense-making as we process what we are hearing. What at first seemed formless takes on a fluid, dynamic, shifting form. A narrative may emerge for us.

This is an illustration of an emergent complex system.