

Production Reproduction: Potentialities of the Phonograph

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Hungarian-born artist and theorist Laszlo Moholy-Nagy (1895-1946) was a key figure in European modernism. A photographer, sculptor, filmmaker, painter, typographer, stage designer, and industrial designer, Moholy-Nagy was closely associated with several of the seminal avant-garde art movements of the early 20th century: Dada, Constructivism, De Stijl, and Bauhaus. It was with the Bauhaus that Moholy-Nagy made his reputation and his lasting contributions as an artist, writer, and teacher. With Bauhaus director Walter Gropius, he shared the view that, in association with technology and industry, art could lead the way to a utopian world of beautiful and useful objects and structures.

The following piece is a composite of two texts, "Production Reproduction" (1922) and "New Form in Music: Potentialities of the Phonograph" (1923), that exemplify Moholy-Nagy's experimental approach to modern technology. Having earlier advocated the use of photography to produce abstract light compositions, Moholy-Nagy suggests here that a similar approach be taken to the phonograph. Instead of using the phonograph simply as a tool of reproduction a device by which to play recordings he advocates that it be deployed as a means of musical production. This proposal predates, by several decades, John Cage's experiments with phonographs and phonograph cartridges and, by more than a half century, the turntable experiments of Grandmaster Flash and Christian Marclay.

(...) Since it is primarily production, (productive creation) that serves human construction, we must strive to turn the apparatuses (instruments) used so far only for reproductive purposes into ones that can be used for productive purposes as well.

This calls for profound examination of the following questions:

- What is this apparatus (instrument) good for?
- What is the essence of its function?
- Are we able, and if so to what end, to extend the apparatus's use so that it can serve production as well?

Let us apply these questions to [an] example [...]: the phonograph [...]

So far it has been the job of the phonograph to reproduce already existing acoustic phenomena. The tonal oscillations to be reproduced were incised on a wax plate by means of a needle and then retranslated into sound by means of a microphone (correctly: diaphragm, moving cone).

An extension of this apparatus for productive purposes could be achieved as follows: the grooves are incised by human agency into the wax plate, without any

external mechanical means, which then produce sound effects which would signify without new instruments and without an orchestra a fundamental innovation in sound production (of new, hitherto unknown sounds and tonal relations) both in composition and in musical performance.

The primary condition for such work is laboratory experiments: precise examination of the kinds of grooves (as regards length, width, depth etc.) brought about by the different sounds; examination of the man-made grooves; and finally mechanical-technical experiments for perfecting the groove-manuscript score. (Or perhaps the mechanical reduction of large groove-script records.) [...]

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. However, this alone does not exhaust the potentialities that might be expected as regards the transformation of music [...]

I have already suggested that the phonograph be transformed from an instrument of reproduction into one of production; this will cause the sound phenomenon itself to be created on the record, which carried no prior acoustic message, by the incision of groove-script lines as required.

Since my description of this process served elsewhere as an example to illustrate another idea, I was very brief in specifying the potentialities, without presenting detailed arguments, for the transformation of our musical conceptions along these lines. In speculative terms, the following is clear:

1. By establishing a groove-script alphabet an overall instrument is created which supersedes all instruments used so far.

2. Graphic symbols will permit the establishing of a new graphic and mechanical scale, that is, the creation of a new mechanical harmony, whereby the individual graphic symbols will be examined and their relations formulated within a rule. (We may allude here to an idea that sounds rather utopian as yet; namely, the transposing of graphic designs into music on the basis of strict regularities of relationships.)

3. The composer would be able to create his composition for immediate reproduction on the disc itself, thus he will not be dependent on the absolute knowledge of the interpretative artist. So far, the latter was in most cases able to smuggle his own spiritual experience into the composition written in note form. The new potentialities afforded by the phonograph will re-establish the amateurish musical education of our day on a more wholesome basis. Instead of the numerous "reproductive talents," who have actually nothing to do with real sound-creation (in either an active or a passive sense), the people will be educated to the real reception or creation of music.

4. The introduction of this system in musical performances will also facilitate to a significant degree independence from large orchestral enterprises and the large-scale distribution of original creations by means of a simple instrument.

(The efficiency of the phonograph has been substantially improved lately by certain technical innovations. Among others, there are two important inventions in this field. One is electrical operation, the other a newly invented diaphragm that ensures almost completely friction-free reproduction of recorded compositions. I think that if we regard these as a necessary condition, then we shall have technically perfect apparatuses within the shortest time.)

I consider that the following practical experiments with the phonograph in the realm of musical composition should be initiated:

1. Since the grooves on the mechanically produced record are microscopic in size, we shall first have to devise a method for reducing by technological means down to the normal size of a present-day record any large-scale groove-script record that can conveniently be worked on by hand. It would be desirable to make a photograph of a present-day (reproductive) record and to make a photo-cliché or photoengraving of the photograph by a zincographical or galvanoplastical process. Should such a record prove to be just more or less playable, the basis for subsequent work along these lines will be established.

2. Study of the graphic symbols of the most different (simultaneous and isolated) acoustical phenomena. Use of projectors. Film. (Specialist works on physics already include detailed descriptions thereof.)

3. Examination of mechanical, metallic and mineral sounds. From these, attempts to devise - for the time being, in a graphic way - a special language. Special attention to be paid to symbols created by different tonalities.

4. Graphic production of the largest contrasting relations. (Before beginning experiments on the wax plate, it is suggested that one trace with a needle the graphic wave lines of music on a [reproductive] phonograph disc; these lines will become well known to the experimenter who will acquire there - from a sense for graphic representation.)

5. Finally, there are improvisations on the wax plate to be considered, the phonetic results of which are theoretically unforeseeable, but which may permit us to expect significant incentives since the instrument is rather unknown to us.