

ELECTRONIC MUSIC AND TWO COMPOSERS FROM TURKEY

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Electronic music is one of the first mainstreams of contemporary art music created in both art music and popular music. But it is not known enough on art music, so the aim of this paper is to describe electronic art music with historical process, basic features, the principal composers and two important composers from Turkey as a descriptive study of historical musicology in the qualitative research method.

Introduction

Actually electronic music is a composition and performance of music with electronic devices. These devices are electronic recorders, sound sources and musical instruments. So acoustic sounds can be modified and converted to electronic sounds, also electronic sounds can be produced directly, and electronic and acoustic sounds can be combined with these devices. These processes are used for both electronic art and popular music composition. However, creation of electronic music was based on art music and its all the processes started to be used in popular music after nearly a century. So all information on process of electronic music was examined historically and given systematically together with the Turkish composers in this paper.

Historical and Technical Process, Compositional Methods and Principal Composers

In fact everything on electronic music and music recording begun with the phonograph invented by Edison in 1877. Recorded natural sounds were modified with the phonograph, so that the first studies of electronic music begun with these experiments. Then electromechanic instruments and electronic signals begun to be invented in the early 1900s. Telharmonium (or Dynamophone) was the first electronic musical instrument invented by Thaddeus Cahill (1867–1934), an inventor, between 1897 and 1902. It was prototype of the synthesizer which produces different pitched hums according to the speed of the Edison dynamos. Also new electronic signals continued to emerge after the Telharmonium. The Triode Vacuum Tube (Oscillator) which was an amplification of electrical signals invented by Lee DeForest (1873–1961), an American inventor, in 1906. Amplification of electrical signals, radio broadcasting and electronic computation, amongst other things were used firstly for electronic music composition, and these still have been used today. While many studies and new sound sources were being made, electronic music begun to be discussed and written during the same years. Firstly, Italian composer Ferruccio Busoni (1866–1924), wrote about electronic music in his book 'Sketch of a New Esthetic of Music' in 1907, and also it was discussed and classified by some Italian futurists like Luigi Russolo (1883–1947), who wrote 'The Art of Noises' for electronic music in his manifesto in 1913. So that they supported electronic music and in fact all the studies called as the mainstream of noise in contemporary music. Other studies also continued in the meantime that the 'Theremin' was the second electronic musical instrument invented by Léon Theremin (1896–1993), a Russian inventor, in 1919–20. Then the first known work, 'First Airphonic Suite for Theremin and Orchestra,' was composed by Joseph Schillinger (1895–1943), a Ukrainian composer, in 1929. So that electronic art music begun to be composed firstly in the world in the first quarter of the twentieth century. Actually before electric bells was used by composer George Antheil (1900–1959), in his 'Ballet Mécanique' (1925) as the first electric instrument. After the 'Ondes-Martenot' was invented by Maurice Martenot (1898–1980), an inventor and a cellist, in 1928 as

a new electronic musical instrument. It was used firstly by composer Dimitri Levidis (1886–1951), in his ‘Symphonic Poem for Solo Ondes Musicales and Orchestra’ in May 1928. However, it is known composer Olivier Messiaen’s (1908–1992) works such as ‘Fete des belles eaux’ (1937), ‘Trois petites liturgies de la Presence Divine’ (1944) and ‘Turangalila-symphonie’ (1946–48). Also Cemal Reşid Rey (1904-1985), Turkish composer, had composed his ‘Poem for Ondes-Martenot and String Instruments’ in 1934 although it is not known enough. The studies on new musical instruments continued and the ‘Trautonium’ by Friedrich Trautwein (1888–1956) in 1929, and then the ‘Hammond Organ’ was invented by Laurens Hammond (1895–1973) in 1934. The Trautonium was used firstly by Richard Strauss, Paul Hindemith and Edgar Varèse in their works. As for the ‘Hammond Organ,’ in fact it is an electronic organ, has been used in blues, jazz, gospel, and rock musics, but its usage was not seen in art music. While the first musical instruments and amplifiers were being improved in approximately thirty-five years, the ‘Magnetic Tape Recorder’ was invented by engineer Fritz Pfeumer (1881–1945), as the first electronic music recording and composing device in 1928 in Germany, and it was developed in the USA. John Cage (1912–1992), and some composers, begun to use it in their several works. For example, Cage’s works, ‘Imaginary Landscape no. 1 (1939) and no. 2 (1942)’, were the first in the Magnetic Tape Recorder. After the studios begun to be founded for electronic music in 1940s, and so that RTF (Radiodiffusion-Télévision Française) can be considered as the first studio in 1945. Pierre Schaeffer (1910–1995), composed firstly his ‘Etude aux Chemin de Fer’ in RTF in 1948. These works were the beginning of studio realizations and ‘musique concrète’ (real music). ‘Symphonie pour un homme seul’ was composed by Pierre Henry (1927) and Schaeffer in 1950, and it was accepted the first major work of musique concrète. The studio was formally established as the ‘Groupe de Musique Concrète’ in 1951, and other composers such as Olivier Messiaen, Pierre Boulez (1925), and Karlheinz Stockhausen (1928–2007), composed in there. NWDR (Der Nordwestdeutsche Rundfunk) Studio was founded in Cologne in 1945, and Stockhausen was the most important composer in there. His ‘Gesang der Junglinge’ was the first major work in NWDR. So electronic music composition method, realized with many electronic equipment, emerged in several studios between 1930 and 1960s years. Also ‘The Music for Magnetic Tape Project’ was developed as a American Electronic Music in the USA in 1950 after of the Magnetic Tape Recorder. But it did not continue for a long time. [1]

However Columbia-Princeton Electronic Music Center (CMC) was founded by composers and professors Vladimir Ussachevsky (1911–1990), Otto Luening (1900–1996), Milton Babbitt (1916–2011), and Roger Sessions (1896–1985), in 1950s as the first center of electronic and computer music in the USA. They were the founders and from the first generation composers of the CMC. Also many famous composers visited, worked, or studied in there, including Edgard Varèse (1883–1965), Bülent Arel (1919–1990), Halim El-Dabh (1921), Luciano Berio (1925–2003), İlhan Mimaroğlu (1926), and Mario Davidovsky (1934). [2]

There were developed the three composition styles based on essentially the same tools and objectives as a result of studio studies. Firstly, Musique Concrète was composed with manipulation of acoustic sound sources in RTF. Secondly, Elektronische Musik was composed with electronic sound generators and modifiers in NWDR studio. Magnetic Tape music was a recording of sounds such as spoken voice, singing, musical instrument and sound effects, and re-creation of sound waves. Musique Concrète and Elektronische Musik called as the ‘Electrotonic Music’ in the UK. In fact these are all the same electronic music with their composition methods and electronic equipments, but called differently according to the countries. Mimaroğlu said that these different names is unnecessary. Because their basic materials were audio tape and studio. So that all of these should be called as the electronic music. [3]

Some new studios continued to be founded in some countries from 1955 in addition to the above: Milan Studio de Fonologia RAI established with as artistic director Italian composer Luciano Berio. Also Japanese composer Toshirō Mayuzumi (1929–1997), founded NHK Electronic Music Studio in Tokyo. Phillips studio was established at Eindhoven, Holland, and then shifted to University of Utrecht Institute of Sonology in 1960. So that many composers composed their electronic works in the studios. [4]

Also electronic sound sources and other technical equipment continued to develop in addition to the studios in the same years. Raymond Scott (1908–1994), a composer and an engineer, designed the first 'sequencer' which converted the elements of music in electronic media from 1950s and after Clavivox synthesizer was invented by Robert Moog (1934–2005), as a portable sound source of several musical instruments in 1956. Then the 'RCA Mark II synthesizer' was developed as the first major voltage-controlled synthesizer in the CMC in 1959, and used by the composers such as Luening, Ussachevsky, Babbitt, Jacob Druckman (1928–1996), Davidovsky, Charles Wuorinen (1938), and Pril Smiley (1943). It has also been used widely in several genres of popular music. There are most well-known 'Switched-on Bach' album made with the synthesizer by Wendy (Walter) Carlos (1939), an American composer and musician. Synthesizers were the beginning of live electronic music performance that 'the Synket,' a live performance instrument was used extensively by composer John Eaton (1935), in his works such as 'Concert Piece for Synket and Orchestra' (1967). In fact the first live performance begun with Theremin, because it had been used with acoustic musical instruments in Schillinger's work. However, synthesizer has produced completely several electronic sounds. So it is used as a stand-alone orchestral. In addition to these, composers Lejaren Hiller (1924–1994) and Leonard Isaacson composed 'Iliac Suite' for string quartet, and it was the first computer-assisted composition (also algorithmic composition) in 1956. So that computer music begun as a method of electronic music. Max Mathews (1926–2011), a composer and an engineer, designed MUSIC at the Bell Labs in the USA as a direct digital synthesis language in 1957. He also continued as a leader in digital audio research, synthesis, and human-computer interaction as it pertains to music performance. He designed many computer programs, and so that computer performance of music begun with an IBM 704 in 1957 in NYC played a 17 second composition on the 'MUSIC I' program. While the studies of computer music were continuing, there were new studies on synthesizers in 1960s. American composer Morton Subotnik (1933), established San Francisco Tape Music Center with Ramon Sender (1934), a Spain composer, in 1961. Donald Buchla (1937), was a new pioneer of the sound synthesizer in there. Charles Dodge (1942) composed 'Speech Songs' (1972) based on early speech synthesis research. Jon Appleton (1939) and his friends invented 'the Dartmouth Digital Synthesizer' later to become 'the New England Digital Corporation's Synclavier' (1976–1993). IRCAM (Institute for Research and Coordination in Acoustics and Music) became by French composer Pierre Boulez a major center for computer music research and realization in 1977 in Paris, and developed 4X computer system, featuring then revolutionary real-time digital signal processing. It was used to transform and route soloists to loudspeaker system firstly for Boulez's 'Repons' (1981) by 24 musicians and 6 soloists. Combined of electro and acoustical art music are IRCAM's importance. [5]

MIDI (Musical Instrument Digital Interface) was designed by Dave Smith's studies as a new tool of electronic computer music from 1981. It is an industry-standard protocol that enables electronic musical instruments (synthesizers, drum machines), computers and other electronic equipment (MIDI controllers, sound cards, samplers) to communicate and synchronize with each other. While it is going on as a popular tool, also interactive computer-assisted performance became popular from 1990s. Tod Machover (1953) composed 'Begin Again Again' for 'hypercello' in an interactive system of sensors measuring physical movements of cellist. It was played firstly by cellist Yo-Yo Ma (1955). [6]

So far, the process of electronic music summarized briefly in a century with the several features. However, it has continued as a mainstream and method of contemporary art music today.

As a result of this information, electronic music can be defined a creation or changing of music by electronic equipment. That is, recorded sounds on the magnetic tape which are passed from oscillator and their combination as a composition. So that there are three compositional methods: The first method is a combination of acoustic and electronic sounds and instruments like Theremin. Second method is usage of electronic musical instruments and other instruments in the studio. In the third method is electronic sounds produced with acoustic instruments. The first and the third methods require musicians to play the compositions. But the second method was composed and recorded only by one composer himself. That is, it does not require any musician, but composer may need a sound engineer for equipment of studio if composer does not know to use enough them. Also composers use altered and transformed sounds with electronic equipment. Sounds are changed specially by them for their works. So that the first section of this study was completed. The following second section is two composers of electronic art music from Turkey.

Two Composers from Turkey: Bülent Arel and İlhan Mimaroglu

While electronic art music is being composed in the World, it is composed in Turkey, too. So that there are even two important composer from Turkey, and they composed their works in the USA. Firstly, Bülent Arel was born in 1919 in İstanbul, trained as a classical composer in Ankara State Conservatory from 1939 to 1947. Then he worked as a pianist, sound engineer and teacher in the conservatory and the Ankara Radio from 1950, and founded the Helicon Society in Ankara and held on the concerts from Baroque to contemporary music until 1959 in there. He composed his first electronic music work, called 'Music for String Quartet and Audio Tape', in 1957. It is also the first electronic music work of Turkey. The Rockefeller Foundation invited him to work at the Columbia-Princeton Electronic Music Center in 1959. He studied, worked, composed and taught at the CMC from 1959 to 1962. Also he had more advantages than the other composers about the practice of studio equipment. So that he worked firstly with Edgard Varèse on the electronic sections of Varèse's 'Déserts' at the CMC in 1962. Then he came back to Turkey for electronic music studies and aimed to establish studio in Middle East Technical University in 1962. But he did not realize his aims, so he went back to the USA, and also founded the electronic music laboratory at Yale University, where he taught from 1963 to 1970. Also he established the electronic music program at the State University of New York at Stony Brook, where he taught from 1971 until his retirement in 1989. He died in New York. He is one of the CMC's first and Turkey's second-generation composers. Also he is directly the first composer of electronic music in Turkey. Besides electronic works, he composed chamber music, vocal works, and symphonic pieces. Briefly, he has been accepted one of the pioneers of electronic music in the USA and in Turkey. Daria Semegen, Conrad Cummings, and Jing Jing Luo are from his notable students. [7]

Secondly, İlhan Mimaroglu was born in 1926 in İstanbul. He graduated from Galatasaray High School and Faculty of Law, Ankara University between 1945 and 1949. He worked as a critic, journalist and radio programmer, and learned clarinet under Hayrettin Duygu until 1955 in Ankara. Then he went to New York to study on music with the support of the Rockefeller Scholarship for two-year, where studied musicology at Columbia University under Paul Henry Lang (1901–1991) and composition under Douglas Moore (1893–1969). He was completely settled in New York from 1959 and worked at the Record Hunter as a specialist of repertoire and an art critic at the 'Voice of America Radio'. At the same time he continued his program, called the 'Composers of Our Age', at the Ankara and the İstanbul Radios in New

York. In 1963 he began to study on electronic music in the CMC under Vladimir Ussachevsky and on occasions worked with Edgard Varèse and Stefan Wolpe (1902–1972). He taught at Columbia University on electronic music, then he was invited by French Radio and continued his works at Studio of Music Research Center in 1968. Besides being a composer, Mimaroglu, has also worked as a producer for Atlantic Records, and collaborated with trumpeter Freddie Hubbard on a moving anti-war statement, 'Sing Me a Song of Songmy' in the same year. So that he was awarded the Guggenheim Fellowship in music composition in 1971. He is one of the second generation composers of the CMC and Turkey. He wrote articles and 12 books on music in addition to his compositions from 1960s, currently continues his works in New York. [8]

Arel's and Mimaroglu's compositions classified in three methods: Firstly, music for acoustic sound and instruments according to certain forms of music. Secondly, music with combination of acoustic and electronic sounds and instruments, and thirdly, completely electronic music. In fact the three methods are valid for majority of the composers of electronic art music.

Conclusion

We can see that electronic art music is one of the first mainstreams and methods of contemporary art music since 1920s. Although it has several methods in several countries, called completely electronic music in the World. This study includes many composers, the works and development on electronic music. However there is need to evaluate some of the information. These can be distinguished such as popular music and art music, sound source and musical instrument, and composer and sound engineer in electronic music. Firstly, electronic music begun primarily in art music, after it has been used in some genres of popular music. While electronic equipment provide a musical background and timbre for popular music, composition's direct tools for art music. Because composer tries to create particularly different sounds in art music. Although some devices, such as the synthesizer and the studio equipment, are common in both music, their aims and creation techniques are different from each other. Secondly, sound source and musical instrument are different, because the Hammond Organ is an electronic musical instrument, but the synthesizer is mostly an electronic sound source. However, these can also be seen as an evolution of the electronic organ from the Telharmonium to the synthesizer. Thirdly, composer and sound engineer are considered differently in electronic music. In fact a composer should used directly the electronic equipment for his works. But a composer cannot use them, a sound engineer applies a composer's musical wishes. So that composer is a creator, as for sound engineer is a practitioner. Some composers worked both as a composer and sound engineer such as Arel and Mathews. So that they had more advantages than the other composers. In this context, many composers of electronic music composed directly their works with the equipment. The other evaluation is about listeners of electronic music that Stockhausen evaluated "In 1967, just following the world premiere of 'Hymnen,' [...] Many listeners have projected that strange new music which they experienced into extraterrestrial space. Even though they are not familiar with it through human experience, they identify it with the fantastic dream world. Several have commented that my electronic music sounds 'like on a different star' or 'like in outer space.'" [9] In second section, although Arel and Mimaroglu are the pioneers of electronic art music from Turkey, there is no other composer of electronic art music in their period. Because the other composers of Turkey were not interested enough. But some young composers studied on electronic music from Turkey.

References and Notes:

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