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HOW TECHNOLOGICAL PROGRESS CHANGED MUSIC

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The aim of this research is to understand how the evolution of music was connected to and influenced by technological progress and to find out how exactly music has changed for the last few centuries. Special attention will be given to the late XIX and to the XX century, when music radically changed its form forever.

The tasks are to analyze some of the most important moments in the evolution of music starting from medieval times and to our modern days, and to show how those changes we can see there were caused and made possible by technological progress. We will be especially observant talking about musical instruments and their progress from a classical harpsichord to modern synthesizers, for example.

The object of research is a connection between music, musical instruments and a very vision of how music should sound and the technological progress itself. Thus, the object of this research is the influence that technological progress had on music and how music was changed by it.

Results and discussion. The research itself starts with the representation of a brief introduction to the history of music. We propose the following stages.

- 1) Medieval musical instruments and genres and their evolution ending with the Renaissance.
- 2) Musical instruments and genres of the Renaissance and their evolution to the times of the XIX century. Spanish and Italian music boom, German classical music.
- 3) Musical instruments and genres of the XIX century and their evolution to the XX century. Musical instruments and music itself were influenced by the Industrial Revolution and increasing usage of electrical engines. New Vienna Musical School of 1903. Invention of the teleharmonium – the first electromechanical instrument that used electricity to generate particular sounds. It is often considered as one of the first (if not the first one) prototype of the electric organ and the first electric instrument ever. Even though music played on teleharmonium was well received, the demise for this instrument came very fast for numerous reasons including its weight and size.
- 4) Invention of the lamp amplifier and brave new opportunities it gave to the world. First experiments with the electric sound.
- 5) Theory of electronic music in the beginning of the XX century. A new vision of music in Italy and France. A new musical Avant garde. Futurism influenced music and the first ever attempt to create noise-music – music that wouldn't use any "classical" instruments but only noises caused by engines, animals, humans etc.
- 6) Introduction of the first ever fully electronic instrument – a theremin. Description of it and basic description of how it worked. Reception and reaction to the theremin in the world.
- 7) Inventions of the 1920-1930s. Inspired by the increasing popularity of futurism, cubism, art deco and a lot of new discoveries in physics, electromagnetism, cars spread etc., first music for electric instruments only was written; works of Joseph Schillinger and George Antheil. Invention of Martelo Waves and Hammond organ. Sound-Art.
- 8) Invention of the magnetic tape and revolution in sound recording.
- 9) Description and history behind the creation of electric guitars. Invention of distortion and overdrive effect started a huge Rock-n-Roll boom. More musicians started their own experiments with sound, giving birth to such effects as flanger, phaser etc.
- 10) Musique Concrete and Elektronische Music. German Avant Garde. Creation of first ever radio station with electronic music – WDR. Electronic music started to spread over Germany, especially over its western parts, giving birth to Krautrock and German 60s avant garde music.
- 11) 1960-1970s. Rock music boom, creation of psychedelic music and space rock. Influenced by recent victories of the USSR and the USA in the Space Race and increased



development of the nuclear weapons, music became more technologically oriented, heavy and filled with protest. Pink Floyd, The Velvet Underground, The Beatles and No Wave Avant Garde. How Andy Warhol influenced music and played huge role in how it sounds today. Summer of love. German electronic music. Kraut-rock, Tangerine Dream, Kraftwerk, Neu and Can. Inventions of the first ever synthesizers: Moog, Roland etc.

12) Japanese electronic music.

13) Musical instruments, experiments and electronic music in USSR. Czech Jolana guitars and VIAs.

14) 1980s. The end of the Cold War, even more victories in space programs and a wide usage of a nuclear energy, made music more futuristic and digital. Electronic Music Boom. Invention of drum-machines, synth-pop and sampling. Society influenced creation of breakbeat. First ever DJs. Increasing popularity for Disco, and creation of Techno, House and Ambient as we hear them today (say "as we hear them today" because those genres technically were created in the late 70s and ambient one was created and used in digital form by Tangerine Dream in the late 60s-early 70s, while, once again, technically, there was the first instrument to play ambient music). On the other hand, a huge jump in industrialization and invention of brave new weaponry led to the creation and boom of industrial and metal music. Hair-rock. Raeggae.

15) 1990s. Grunge, Alternative and neurogenres. Nine Inch Nails. The birth of a rave music in Britain. Due to the fact that computers had become a common thing by the mid 90s, music became more and more digital. Genres like hard rock, heavy metal etc. started to fade, while new genres like rap, hip-hop (in its modern understanding), R'n'B etc. appeared. Older musical genres either became more digital and experimental (psychedelic music, for example) or started to fade.

16) History of popular music and its evolution since late 1990s to the modern days. Fully digital music and why, in my opinion, music started to degrade more than it progressed. A comeback to the sound of 80s and 90s but with the most modern technologies.

Conclusion. We tried to analyze how music has been changing with the years and to our modern days, and tried to show if it was somehow connected to the technological progress. Moreover, during our research we have learned some of the very basics of sound mutilations in musical engineering and a bit of musical theory, both classical and more radical avant gardic. Besides, we had a great opportunity to study the history of music since medieval times to the modern days, learned some of most important moments of it and some of the most important inventions that led music to its modern state. Also we had a look at the state of music of different time periods, different countries, like the USA, Russia, USSR, Germany, Japan, Italy and France and understood how different aspects of music (including musical instruments, musical theory, musical vision etc.) were changing during the years in past.

Keywords: Music, Electronic Music, Evolution of Music, Musical Instruments, Technological Progress.

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