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Изменения, связанные с техническим прогрессом, затронули и мистико-эзотерические движения. Влияние, оказываемое техникой, проявляется на многих уровнях и во многих формах этих движений. Эзотеризм в контексте современных технологий в прошлом и настоящем, трансформации мистицизма и эзотеризма в современную эпоху, соотношение науки, культуры и современного эзотеризма – над этими и другими темами размышляют авторы статей, созданных на основе докладов, которые были прочитаны в марте 2016 г. в Русской христианской гуманитарной академии в рамках регулярной (восьмой по счету) конференции АИЭМ «Мистико-эзотерические движения в теории и практике».

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Turner 1968 – *Turner V. The Drums of Affliction: A Study of Religious Processes among the Ndembu of Zambia*. Oxford: Clarendon Press, 1968.

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RECEPTION OF AUDIO-VISUAL ENTRAINMENT IN CONTEMPORARY ESOTERIC DOCTRINES

In contemporary world, technics influence all aspects of our existence from everyday life to politics, business and science. Western esotericism is by no means an exception, but rather it provides us with a typical example of such an influence.

In this study we will concentrate on a particular case – an adaptation of audio-visual entrainment – and will try to understand how new technologies are adopted in contemporary Western esotericism and how esotericism itself is changing through the influence of technics. However, this problem should be considered as a part of a wider topic related to historical transformations of Western esotericism in general. Unlike followers of some esoteric teachings, for whom an answer to this question is not a big deal, because they are sure that esotericism is a perennial tradition that is at least as ancient as the humanity itself, we, as scholars, are well aware that the question is not so easy to answer.

In ancient cultures, like Ancient Egypt, Assyria or Ancient Greece, there was no prominent difference between such domains of culture as religion, science or esotericism. In the late Antiquity, the situation changed significantly, when dogmatic religion, based on faith, had opposed itself to the domain of knowledge, which in fact included two types of knowledge: *gnosis* and *episteme*, or mystical and rational knowledge. These two types were not separated throughout the Middle Ages, but instead coexisted in rather amorphous form of Medieval “philosophy”. Only the eighteenth century provided us with the separation of *gnosis* and *episteme* that resulted in construction of contemporary image of Western esotericism as opposite

to modernity and rationality. At this point, “knowledge” had been divided into science and esotericism, and the last domain was stigmatized as “superstition.” Therefore, at the beginning of the nineteenth century, three domains were constructed as separated fields: religion, science and esotericism.

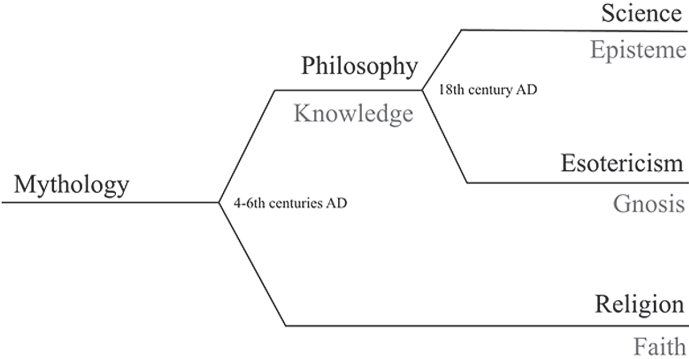


Figure 1. The emergence of contemporary notion of esotericism

However, these three fields were not simply cultural domains, but instead they induced an emergence of three types of worldview: religious, scientific and esoteric one. Each of these three types now exists at several levels from popular beliefs to philosophical conceptions. The important question here is why in some cases esoteric ideas are subtle enough to be called philosophy, while in other cases they descend to the level of popular beliefs. One of the answers for this question in case of contemporary Western esotericism is an influence of consumerism, which results in simplification of esoteric doctrines for purposes of selling them to wider audience that usually prefer easier explanations in conjunction with low prices but high promises. It is exactly what we can see in the case of audio-visual entrainment.

Scientific Research

Audio-visual entrainment is a technology that aims to induce by technological means specific patterns of brain activity and states of consciousness

correlated with them. Technically, audio-visual entrainment usually assumes usage of a headset and special glasses or monitor in combination with neurofeedback to provoke a predictable response in brain activity.

It is believed that a history of the medical usage of audio-visual entrainment begins in early twentieth century, when a French psychologist Pierre Janet started to use a rotating wheel lit by a lamp positioned behind it for reduction in depression, tension and hysteria of his patients [Collura, Siever 2009: 195]. However, medical theory that aimed to explain an influence of audio-visual stimulation appeared only in 1929, when Hans Berger, the inventor of EEG, first demonstrated a record of brain activity and discovered the alpha rhythms and their association with certain states of consciousness, particularly, with wakeful relaxation with closed eyes. However, Berger's results were considered doubtful [Walter 1966: 88] until they had been confirmed after five years, in 1934, by Adrian and Matthews who used more sensitive instruments [Adrian, Matthews, 1934]. They also discovered that the alpha rhythm of the brain may be enhanced by visual stimulation of the same frequency. In 1959, Chaitran discovered a similar effect for auditory stimulation [Huang, Chariton, 2008].

Further discoveries in the field were related to works of Grey Walter. In 1946, he began to use visual entrainment in order to increase the amount of information extracted from the EEG devices [Walter 1966: 94–95]. At first, he used a rotating wheel similar to Janet's apparatus, but it did not allow to investigate properly the effect of high-frequency stimuli. Therefore, Walter decided to use an electronic strobe instead. It was demonstrated in Walter's experiments that subjects who observed flicker flares with a frequency from 8 to 25 Hz with closed eyes experienced bright illusions of light, colors and movement. These illusions were most intensive at a frequency of 10 Hz (which means 10 flares per second), which resulted in visions of "spirals, vortexes, bursts, luminous wheels" [Walter 1966: 102]. The effect itself was known for centuries and was used for practice of divination at least as early as in the sixteenth century [Hail 2014: 92], but Walter's discoveries connected it with contemporary research in neuroscience. Walter also discovered other types of brainwave activity: the delta brain waves that correlate with a state of deep sleep and theta brain waves that correlate with drowsy or meditative states. These waves then

became a matter of a great interest for neuroscientists, because of their medical importance. In 1959, Kroger and Schneider discovered an analgesic and hypnotic effects of audio-visual entrainment [Kroger, Schneider, 1959]. According to following research, it was demonstrated that audio-visual entrainment can provoke a dissociation similar to meditative state that leads to loss of somatic and cognitive awareness. In 1975, Williams and West published an article about the ability of audio-visual stimulation to deepen meditation [Williams, West, 1975].

Another important landmark was 1973, when Oster published an article about special properties of binaural beats. Binaural beats is a sound illusion that occurs when on right and left ear served pure tone signals, with a frequency difference of no more than 40 Hz. It creates an illusion of beats at a frequency equal to the frequency difference between the two sounds. For example, if on the left ear is served a steady sound with a frequency equal to 440 Hz, and on the right – a frequency of 448 Hz, it is perceived as a rhythmic sound, with a frequency of the sound itself seems equal to 444 Hz with a rhythm of 8 beats per second. The article published by Oster combined with previous works in the field led to increase in research of acoustic stimulation in 1970s.

Effectiveness of audio-visual entrainment is dependent on a bunch of factors, including parameters of a session in general (duration, environment), visual parameters (luminosity, color), and audial parameters (choice of monaural or binaural sound for stimulation, particular pitch of sound). The most important problem related to medical usage of audio-visual entrainment is a correct choice of frequencies that are used, because research has demonstrated that the brain does not always provide a response on a frequency that is identical to a frequency of a stimulus. Therefore, an influence of particular audio-visual stimulus on a particular person can hardly be correctly predicted without a neurofeedback. To personalize sessions of audio-visual entrainment, in medical institutions EEG is usually used together with audial and visual stimulation.

However, organization of a neurofeedback is expensive and, which is even more important, requires a special medical training. Therefore, a neurofeedback is not widely distributed outside of medical institutions. On the other hand, audio-visual entrainment itself requires sufficiently

cheap devices or can be performed by means of a personal computer. Because of this reason, such products have become widespread on esoteric market.

Esoteric Adaptations

Followers of contemporary esoteric doctrines adopted audio-visual entrainment in several manners.

The first adaptation that is close enough to its medical origins is called “mind machine,” which is a stand-alone device with a headset, glasses and software for audio-visual entrainment. Generally, it can be described as an attempt to reproduce a medical technology outside of medical institution so that people without special training can use it.

The history of mind machines can be traced back to late 1950s, when a device known as brainwave synchronizer was first tested. This device was nothing more than a lamp that flickered with specified frequency. In early 1960s, this apparatus appeared on market and thus started the history of commercial adaptation of audio-visual entrainment.

Mind-machines in a strict sense of the word emerged in 1970s. In 1979, Denis E. Gorges introduced a “learning-relaxation device”, which significantly resembles contemporary mind machines and was described by its inventor as following: “...a device for relaxing, stimulating and/or driving brain wave form function in a human subject. The device comprises, in combination, an eye mask having independently controlled left and right eyepieces and a peripheral light array in each eyepiece, an audio headset having independently controlled left and right earpieces and a control panel” [Gorges 1982].

The most important difference between a mind machine and its medical prototypes is that a mind machine usually provides user with no neurofeedback. As a result, the device cannot be tuned individually. As it was mentioned above, such simplification was performed because neurofeedback is usually provided by EEG device, which requires a participation of a qualified specialist. Without EEG apparatus the fact of proper influence of audio-visual entrainment cannot be verified, therefore, operators usually rely on subjective experience rather than on accurate data.

Nevertheless, from technical point of view, a mind machine seems to be a fair solution, in spite of simplifications and issues with personalization. However, from a marketing point of view to convince a prospective customer to buy a special device for audio-visual entrainment is not so easy thing, as it is usually rather expensive. Nowadays, when personal computers have become a casual part of our everyday live, it is much cheaper to create a track that can be then used by playing on a standard PC. Usually developers of these tracks use audio entrainment alone to make them compatible with the most common computer sets and audio players. The most popular type of such tracks is “binaural beats meditations.”

One of the first persons who started to promote binaural beats on esoteric market was Robert Monroe, an author famous for his books about out-of-body experience. In 1994 he achieved a patent in which there was described a “method of and apparatus for inducing desired states of consciousness” [Monroe 1994]. The patent develops the idea described in his other patent issued in 1975, in which he described a technology that should induce a sleep by playing audio signals “comprising a familiar pleasing repetitive sound modulated by an EEG sleep pattern” [Monroe 1975]. It is clear from the patent issued in 1994 that Monroe thought about a device that should be very similar to simplified mind machine without glasses, but soon abandoned the idea and concentrated on audio tracks for personal computers instead. The main reason for a change of the course was fast development of personal computers and audio players that made special device for audio stimulation unnecessary.

According to Monroe’s idea, binaural beats help to coordinate activity of the right and the left hemispheres of the brain, thus achieving an expansion of consciousness. The Monroe Institute, created by Robert Monroe, developed a classification of forty-nine altered states of consciousness or “focus levels”. These states include wide spectrum from the state of everyday consciousness (“focus 1”), to states of universal integrity, including those, which correlate with perception of other energetic worlds or knowledge about after death existence. Focus levels, according to Monroe’s system, are associated with particular levels or planes of spiritual reality. At the same time, each of the states of consciousness is characterized by a specific brain rhythm, and through participation in a course of special training offered

by the Monroe Institute these states of mind can be achieved by means of using specially designed binaural beats tracks.

In addition to training programs, the Monroe Institute sells under the Hemi-Sync trademark sets of binaural beats for variety of purposes – from spiritual like meditation and out-of-body experience to entirely mundane like treatment, weight loss and attraction of money. One can even find a set that should help to develop psychokinesis. According to the seller, training “requires as little as an hour a week to create lasting value”. The set will “quickly take you into profound whole-brain meditative states” which will provide you with the following abilities: “illuminate light bulbs with your own energy”, “bend spoons with minimal effort”, “influence computers, dice and slot machines” [SyncCreation]. The rhetoric here is a very typical marketing rhetoric for selling courses with three main accents on easy, quick and prominent results.

Binaural beats should be recorded in stereo format and user should listen them using a headset, because binaural beats illusion requires a playback of different frequencies for each ear. However, often “binaural beats” that you can find at esoteric market are not binaural at all, because they are not in stereo, but in mono format and can be played through loudspeakers. These recordings can be used for meditation classes and they may have a relaxing effect, but this effect has nothing to do with binaural beats, the term that is used in this case for marketing purpose only.

At this point, we see that technology, that was at the first place related to scientific theory, separates from it and starts to live its own life. The process here is in some regards similar to those described previously by Kateřina Zorya in a case of historical theories [Zorya 2010]. When it comes to collective meditations with so-called “binaural meditation tracks,” participants really are not aware of a scientific meaning of such terms as “binaural beats” or with a body of research literature on this topic. The truth is, they are not even interested in it. Instead, they use scientific terminology to legitimize their practice and make it more competitive on esoteric market.

It is especially obvious in a case of the most recent esoteric adaptations of audio-visual entrainment such as solfeggio frequencies. The term “solfeggio frequencies” appears for the first time in books of Leonard Horowitz the most important of which is “The book of 528” (2011).

The author develops the concept, according to which conventional music frequencies are not correct and should be replaced with “ancient” frequencies, which were rediscovered by the author. These “ancient solfeggio” notes have assuming healing and other miraculous properties. For instance, Do, which is 396 Hz instead of usual 261.63 Hz, should help one to release guilt and fear, while Mi, which is 528 Hz instead of 329.63 Hz, can heal DNA. Furthermore, Horowitz states that the real number of notes is nine instead of seven. Together these nine notes form “The Perfect Circle of Sound”, which is a registered trademark [Horowitz 2011: 72].

Horowitz grounded his speculations about “solfeeggio frequencies” on numerological correspondences and likewise sources. The most important of described frequencies is 528 Hz, importance of which Horowitz states in the following manner: “...a major part of our mission on this holy land, this sacred earth, is to create a venue for the science of creationism featuring 528 Hz as central to the musical-mathematical matrix of creation” [Ibid.: xxix]. The frequency is then described as “Creator’s miracle note” that “infuses Water with nature’s most celebrated energy” and is associated with “LOVE” [Ibid.: xxxii]. Herewith, the idea was not grounded on a scientific understanding of the audio-visual entrainment, although it refers to a variety of scientific concepts and terminology like DNA, atoms and frequencies. In one passage, for instance, the author explains the importance of the water in the following manner: “H₂O is a polarized molecule, meaning two adjacent H₂O’s must form a hexagonal array of atoms <...>. The atoms vibrate in holy spiritual resonance using this sacred geometry – the triangulated elements in H₂O – hydrogen and oxygen” [Ibid.: 20]. Moreover, an emergence of “solfeeggio frequencies”, along with the existence of meditation with binaural beats, has led to the emergence of binaural beats with “solfeeggio frequencies” as the carrier frequency, and at this point “solfeeggio frequencies” were combined with contemporary esoteric adaptations of audio-visual entrainment.

Therefore, in a case of “solfeeggio frequencies” we can see how a medical technology finally transforms after a series of reinterpretations in a context of esoteric discourse. “Solfeeggio frequencies”, as well as some of other above described adaptations, are dubious from the medical point of view. Nevertheless, they prominently influenced transformation of contemporary

esoteric currents and were included in a discourse of “technomagic”, where they coexist with wider range of phenomena, including clothes and stickers for EMR protection, lucid dream machines, and software with assumed magical powers.

Conclusion

Arthur Clarke has once said that “any sufficiently advanced technology is indistinguishable from magic” [Clarke 1977: 39], and an example of audio-visual entrainment demonstrates a complex interconnection between contemporary technology and esoteric ideas.

On the one hand, audio-visual entrainment that, in fact, had come in science from divinatory practices of Western esotericism, just like hypnosis, was then used for scientific studies of esoteric psychotechnics and even for reproduction of some of their effects in experimental setting. Legitimization of the technology by academic research has drawn an attention of esoteric community, and some contemporary groups have tried to build the technology into their esoteric practice in a proper manner on basis of scientific research.

However, it is rather an exception than a common rule. In a context of an “esoteric market” and “popular esotericism”, the technology was adapted for mass consumption in accordance with logic of the market that lead it to simplification, promises of quick and prominent results and a loss of scientific meaning, while it still appeals to scientific research as an instrument of legitimization.

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