VII
Bio-energy

The story of bio-energy and bio-field begins in the westbound scientific world of the 1920s with discoveries made by biologist Alexander Gurwitsch (Russia). The concept of bio-energy in westbound science needs to be separated from the concept of energy channels used in China in ancient times, because the Chinese concept does not describe the nature of the energy in the channels.

During his embryology studies, Gurwitsch managed to note UV radiation from living tissue and introduce the concept of morphogenetic (biological) field; he later developed his theory describing the nature of the development of organisms.

Gurwitsch first observed biophotons, or ultra-weak biological electromagnetic waves, in the ultra-violet range of the spectrum in 1923. He named the phenomenon mitogenetic radiation since he believed that this light radiation allowed the morphogenetic field to control embryonic development. He published observations related how cell-proliferation of an onion was accelerated by directing these rays down a tube. The idea was not accepted and was overlooked for decades until it gained some renewed interest later in the 20th century.

For example, embryologists in the Biology Faculty of Moscow State University, L.V. Aleksashin and A.B. Burlakov, conducted experiments (1997) and published results (2010) in “Experimental and theoretical study of distant interaction of biological objects”, which supports Gurwitsch' theory. These experiments showed an informational connection between two petri dishes with embryonated fish (misgurnus) spawn placed one over the other. To check the speculation that embryos communicated in UV range of light, the scientists used two equal sets of petri dishes: one was nontransparent to UV light, while the other set had a UV transparent bottom of the upper dish.

The experiments in the UV nontransparent set confirmed that embryos in both petri dishes were independent according to normal development time. The UV transparent set showed that older embryos suppressed development of younger embryos.

Nobel laureate French virologist Luc Montagnier conducted research on electromagnetic signals from DNA. In 2009, Montagnier published two research studies detecting electromagnetic signals from bacterial DNA (M. pirum and E. coli) in water that had been prepared using agitation and high dilutions, and a similar research on electromagnetic detection of HIV DNA in the blood of AIDS patients treated by antiretroviral therapy. This time the electromagnetic field detected was a low frequency signal.

There are many other speculations and hypotheses using notation of bio-energy as energy generated in the living body, such as the Kirlian effect and others. They suppose some type of energy that has no clear evidence or record, and I limit this chapter with what interests me most. Besides, mental energy produced in the human brain is beyond my comprehension up to now.

How might it happen that cells of the body can emit light and communicate with each other to define the development of neighboring cells?

Biologist Petr Garyaev (Russia) speculated in the 1980s that the idea of "junk" DNA in genetic coding is wrong. He writes: "The Nirenberg-Krick (NK) model of the genetic code is wrong because it does not explain the role of the second half of the codons. The first half of the codons (32 codons) were quickly understood a long time ago: they are codons-synonyms. Hence, biological systems represent the redundancy and accuracy of the coding using isoacceptor tRNA. The second half of the codons is codons-homonyms. They are not equivalent, e.g., the same codons can code different amino acids and stop-positions in protein bio-synthesis."

Jaqueline Barton, a California biochemist, studied conductivity of DNA chains and discovered in 2009 that they conduct electric charges. This observation made me thinking that DNA double-helixes can serve as a waveguide for electromagnetic waves. The shape and length of DNA chains change properties of this waveguide and, hence, represent some coding information. It also means that "noncoding codons" also contain information, which might define morphology of a developing embryo and later the structure of the body.

I speculate that the structure and shape of this waveguide defines the structure of the biological field and thus the morphology of the body. This information can be transmitted to the neighboring body cells using UV light with wavelength probably of 240 nm. that can be generated when free protons form covalent bonding with oxygen in the process of metabolic reactions in the cells. It's just a preliminary speculation, which requires more detailed studies to become proven, but it is based on the logic of facts already known. It also might be longer wave lengths of UVB (275-315 nm.) light, which is used for biosynthesis in the body.

Biologist Garyaev speculated that information contained in the cells can be transmitted to other living cells using holographic imaging. With the help of physicists, he designed a holographic imaging system of living tissue, using polarized coherent red light. His multiple experiments showed amazing results, proving that genetic information was really transmitted through polarized holographic imaging of one living subject on another.

This method can be used for improving damage to body cells in the course of life. It also opens a wide road for experiments in genetics and medicine and deserves very precise attention, to my mind, because of its unprecedented abilities. I would be happy to participate in the experiments

with living tissue holographic imaging in collaboration with biologists interested in this subject.

This does not mean that a new panacea might be developed to remove all responsibilities from people and allow them to live an unhealthy life style with the hope that all damages accumulated in the body can be improved upon later.

All this indicates how little people know about nature. And it's not our fault that we are unable to comprehend all the laws of nature at once. It only shows how complex nature is. It's impossible to separate nature into *subjects* and study everyone separately without paying attention to other phenomena. Everything is interconnected and cannot be separated in real life. In trying to remove one influencing subject, we change behavior of the subject under the study.

This remarkably increases the responsibilities of scientists who experiment with genetic engineering. They interfere with nature without knowing all the laws, which can lead to unpredictable results. I don't mean that all research in this direction should be frozen, but that we must proceed with caution, remembering that all our actions have consequences that may not coincide with our expectations.