

HEALING WITH LIGHT

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Alma-Ata, the capital of the Kazakh SSR, was the scene of an unusual conference in October 1976. Its theme was frontier areas of science. Only three guests from the West were invited. One of them was Esotera staffer Scott Hill (cf. picture). Here is the first part of his report on research results obtained by Soviet specialists, who are experts in the frontier areas of biology, agriculture, medicine and para-research, information on which generally does not reach the West. The first surprise was the very advanced knowledge on the effect of electromagnetic fields on life and a new therapeutic technique with laser light.

/Text/ It has scarcely been noticed here that the maximum permissible field intensities for radio, radar and power plants in the Soviet Union have now been limited to a much lower level than those still valid in other countries. However, this Soviet measure should perhaps have merited greater attention because it appears to indicate that in this country substantially more work seems to have been done in the puzzling area of the effects of strong electrical fields on the live organism than we know about in the West.

The author reached this conclusion while hearing reports on the research by A.S. Pressman during the Congress in Alma-Ata. This investigator studied in detail the effects of alternating electric current on living beings. He was particularly interested in the effects of strong fields. However, at the other end of the scale, in the range of very weak field intensities, Pressman also discovered that electromagnetic fields exert striking effects on live tissue, even when the effective

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force is so slight as not to produce any detectable thermal activity.

His experience in this area prompted the Soviet scientist to assume that many phenomena that are currently classified as extrasensory perceptions (ESP) could be explained by reciprocal effects of very weak electromagnetic field effects that are still unknown.

In the plant kingdom, magnetic fields can affect growth, especially the direction in which the roots move through the soil. There is a possible parallel here between plants and humans, e.g. in the area of detecting water, an ability that all plants and a number of animals, apparently including even elephants, have always had. In humans this is perhaps expressed in their ability to seek water with the aid of a divining rod.

In this connection, let us consider a scientific puzzle that has persisted for a long time, the secret of the "Gurvich onions."

#### Effect of Radiation on Basic Life Processes

In 1923 the Russian histologist (tissue researcher) A.G. Gurvich discovered a peculiar effect: If he turned the tip of an onion root toward another onion, the cells in this second onion divided more rapidly than usual. He attributed this manifestation to a specific radiation which he designated as "mitogenetic radiation."

It was an exciting idea, because his assumption signified nothing other than the fact that a type of radiation, perhaps ultraviolet light, was involved in the basic process of all life, i.e. cell division.

By the middle of the thirties, more than 500 reports had been published, primarily in Russia and Germany. However, attempts to repeat the Gurvich onion effect failed. The entire matter fell into disrepute. A few researchers continued to be interested in the matter and tried to make the weak radiation measurable with sensitive light amplifiers and other aids, but without results.

The story of Gurvich radiation would have come to an end had not a second Gurvich suddenly appeared in 1966 to defend the family honor with the statement that there actually was such a thing as mitogenetic radiation. The reason that all attempts at measurement had failed in the past was very simple: The

apparatus used for measurement had absorbed radiation.

This was actually the case if the apparatus had windows or lenses made of glass, since glass absorbs UV light, rather than of quartz or silicone, which do not have this property.

In her doctoral thesis in 1973, A.A. Gurvich stated that the radiation emitted by cell division could be measured if the proper equipment were used. Today, this research direction has been completely rehabilitated, in the Soviet Union and in the rest of the world.

In 1974 the Australian biochemist Terence Quickened created a stir with the statement that he had also ascertained weak luminescence in a yeast culture. This had been achieved with the use of a photon counter that was infinitely more sensitive than anything available to the elder Gurvich at the time. He felt that he had thus provided "limited substantiation" of Gurvich's original statement which had been made half a century earlier.

#### The Puzzling Interplay of Light and Life

At this point the following question arose: If ultraviolet light is actually produced during cell division (mitosis), conversely can it -- or light of another frequency -- cause cells to divide? A.G. Gurvich had said that this could occur. Although a few other scientists supported his statement, others found that the effect could not be reproduced and the matter was laid to rest. Interest in the matter was prompted again in the Soviet Union when Dr L.L. Vassiliev of the Leningrad Brain Research Institute, who is better known for his pioneer work in telepathy, discovered that dissection of nerves could bring about mitogenesis if they were electrically stimulated.

In 1973 Dr Kachanejev from the same Institute almost precipitated a storm with the announcement that two isolated cellular cultures could communicate with each other by way of UV light.

This effect was recorded in the literature as "dark chemiluminescence" in ultraviolet, which sounds very simple. In fact, science has no more than lifted the lid of the Pandora's box in which many other possibilities for modification of living systems by light defy discovery.

Before we can understand how laser light acts on biological tissue, we must have an overview of the broader connection between light and life. Light is only a part of the electromagnetic spectrum. Expressed in the language of music, it

actually encompasses only one octave of the entire tone scale, whereas the whole range of the electromagnetic spectrum extends from "infinitely long waves" (direct current) to wave lengths that are shorter than the diameter of a single atom.

Visible light enables us to see where we are going. Other light, which is not visible -- UV and infrared -- can be perceived in other ways. Infrared or heat waves are light waves that are slightly longer than red. They are perceived as warmth by our bodies. Our bodies actually also emit infrared radiation. This fact was utilized in the manufacture of "thermovision" apparatus which has been in progress for a short time. These devices can be used to measure the infrared "aura" around humans and all warm-blooded animals. With "thermovision" equipment of this kind, ambushed guerrillas can be found in the densest jungle in the middle of the night and breast cancer can be detected from a distance of more than one meter; poorly isolated areas of houses, which permit heat to escape, can also be detected.

Above the frequency of violet light is the so-called ultraviolet which tans us at the beach. It can be fatal in large doses. It is therefore used in hospitals for killing bacteria. The sun radiates large quantities of UV light, but luckily we are protected against an excess of these rays by the atmosphere.

Even the air that we breathe is related to light via the phenomenon of photosynthesis: Sunlight is converted into chemical energy which makes possible the growth of plants; plants in turn convert carbon dioxide ( $CO_2$ ) which is toxic to humans and animals, into oxygen that can be breathed.

Let us recall the mitogenetic radiation, the ultra-weak light manifestation occurring in cellular division, which was mentioned at the outset. It is also given off by dying cells and it appears that an animal or a plant can imprint its "intrinsic radiation" on UV film, in "its own light," so to speak. This can be added to the long list of chemiluminescences and bioluminescences which to date have been discovered in connection with energetic processes in cells, cultures and chemical solutions. Fireflies radiate a "cold light," which judging from its nature is biological and strong enough to be seen with the naked eye, by contrast with most bioluminescent radiations which are much weaker and can be visualized only with special equipment.

To summarize the effects of external energies on biosystems, we present a quote from the Polish investigator Czerski:

"A living organism is a self-regulating system, equipped with many interlocking and inter-dependent mechanisms. Absorption of radiant energy creates a disturbance within the system which results in the activation of these mechanisms. In view of this, the biological effects that occur when the biological system is exposed to radiant energy should be regarded as a chain of events that are precipitated from the first interaction between radiation and living substance. "

Picture captions:

- p 14: Prof. Dr. Injuschin, director of the Alma-Ata Congress, demonstrates treatment with laser beams on the left hand of biophysicist Scott Hill. He is directing the red light which is bundled by a special optical device on a certain acupuncture point. Generally, laser acupuncture is performed in an almost totally dark (80%) room, in order to increase effectiveness.
- p 15: Chart showing the current position of "mitogenetic" research in the Soviet Union; In the middle, a portrait of the pioneer, Prof. A.G.Gurvich; above it, there is a schematic representation of cellular division (mitosis) stimulated with UV light. The four picture are "mitogenic photos" of onion roots taken by the new aura photography technique.

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