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THE PHENOMENA OF CUTANEOUS ELECTRICITY, (U)

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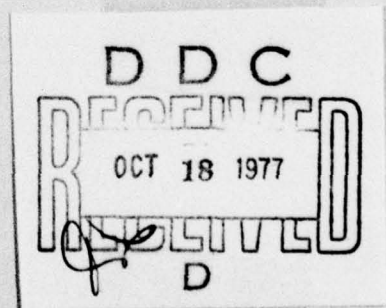
FOREIGN TECHNOLOGY DIVISION



THE PHENOMENA OF CUTANEOUS ELECTRICITY

by

V. Adamenko



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Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>А а</i>	A, a	Р р	<i>Р р</i>	R, r
Б б	<i>Б б</i>	B, b	С с	<i>С с</i>	S, s
В в	<i>В в</i>	V, v	Т т	<i>Т т</i>	T, t
Г г	<i>Г г</i>	G, g	У у	<i>У у</i>	U, u
Д д	<i>Д д</i>	D, d	Ф ф	<i>Ф ф</i>	F, f
Е е	<i>Е е</i>	Ye, ye; E, e*	Х х	<i>Х х</i>	Kh, kh
Ж ж	<i>Ж ж</i>	Zh, zh	Ц ц	<i>Ц ц</i>	Ts, ts
З э	<i>З э</i>	Z, z	Ч ч	<i>Ч ч</i>	Ch, ch
И и	<i>И и</i>	I, i	Ш ш	<i>Ш ш</i>	Sh, sh
Й й	<i>Й й</i>	Y, y	Щ щ	<i>Щ щ</i>	Shch, shch
К к	<i>К к</i>	K, k	Ъ ъ	<i>Ъ ъ</i>	"
Л л	<i>Л л</i>	L, l	Ы ы	<i>Ы ы</i>	Y, y
М м	<i>М м</i>	M, m	Ь ь	<i>Ь ь</i>	'
Н н	<i>Н н</i>	N, n	Э э	<i>Э э</i>	E, e
О о	<i>О о</i>	O, o	Ю ю	<i>Ю ю</i>	Yu, yu
П п	<i>П п</i>	P, p	Я я	<i>Я я</i>	Ya, ya

*ye initially, after vowels, and after ъ, ы; e elsewhere.
 When written as ë in Russian, transliterate as ye or ë.
 The use of diacritical marks is preferred, but such marks may be omitted when expediency dictates.

GREEK ALPHABET

Alpha	A	α	•	Nu	N	ν
Beta	B	β		Xi	Ξ	ξ
Gamma	Г	γ		Omicron	Ο	ο
Delta	Δ	δ		Pi	Π	π
Epsilon	E	ε	•	Rho	Ρ	ρ ϑ
Zeta	Z	ζ		Sigma	Σ	σ ς
Eta	H	η		Tau	Τ	τ
Theta	Θ	θ	•	Upsilon	Υ	υ
Iota	I	ι		Phi	Φ	φ φ
Kappa	K	κ	•	Chi	Χ	χ
Lambda	Λ	λ		Psi	Ψ	ψ
Mu	M	μ		Omega	Ω	ω

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English
sin	sin
cos	cos
tg	tan
ctg	cot
sec	sec
cosec	csc
sh	sinh
ch	cosh
th	tanh
cth	coth
sch	sech
csch	csch
arc sin	sin ⁻¹
arc cos	cos ⁻¹
arc tg	tan ⁻¹
arc ctg	cot ⁻¹
arc sec	sec ⁻¹
arc cosec	csc ⁻¹
arc sh	sinh ⁻¹
arc ch	cosh ⁻¹
arc th	tanh ⁻¹
arc cth	coth ⁻¹
arc sch	sech ⁻¹
arc csch	csch ⁻¹
—	
rot	curl
lg	log

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THE PHENOMENA OF CUTANEOUS ELECTRICITY

(Forum of Bold Hypotheses - A Word to the Young Scientist)

**V. Adamenko, Post-graduate student at the Scientific-Research
Institute of Introscopy**

ABSTRACT The skin is one of the most complexly organized components of the human body. It not only feels heat and touch, but it supplements other functions of the internal organs. The skin rids us of those unnecessary products which are not eliminated by the lungs and kidneys. In the words of doctor A. Zalmanov, the tremendous work of the sweat glands during illness calls to mind the desperate efforts of sailors who are pumping water out of the hold of a sinking ship.

In 1783 a huge meteorite was passing over England. Hundreds of persons heard the sharp whistling sound even before the fire ball could be seen. The meteorite fell 50 miles from the site where the eyewitnesses were located.

A similar case occurred on 1 October 1917 in the USA. At 10:30 in the morning residents in the town of Georgetown (state of Texas) heard whistling, humming, cracking sounds. Several sensed an increase of heat, the smell of sulfur, and unexpected agitation. Soon in the sky a meteorite passed, which finally fell at the border of the state.

The movement of a meteorite is accompanied by electromagnetic emissions. They have quite a wide spectrum, some of them bend around the earth's surface and have an effect on man even before the light, which is beyond the horizon and not visible. One can think that in some manner the body perceives the electromagnetic waves and converts them into a whistling sound.

This hypothesis is confirmed by contemporary observations. A man who is found in the effective range of a pulsed high-frequency

transmitter hears humming, a whistle, or snapping, depending on the conditions of modulation. "Radio sound" is perceptible at frequencies of 425, 1310, and 2982 MHz.

Apparently it is namely the skin which perceives short electromagnetic waves. It also is a rectifier, that is it isolates the low-frequency component. Man himself serves as a receiving antenna. But here is the question: how are the rectified low-frequency electrical vibrations converted into sound? A simple test can prompt an answer to us.

Two men are squeezing tightly with their fingers on wires which are hooked up to a radio receptacle. Then without touching each other they lean toward each other ear to ear. Each of the experimenters should hear the radio transmission. In loudness it suggests the intensity of sound of an adapter, working without an amplifier. Naturally the surrounding noise disturbs such an unusual audience, but all the same it is not difficult to distinguish music from speech and to discriminate individual loud words.

True, the effect cannot be due to the high resistance of the skin. If they join hands, the sound disappears. The "loudspeaker" in this case is the tympanic membrane, vibrating under the action of the low-frequency current which is flowing through it.

It appears that the human radio receiver is a completely real phenomenon.

Doctor of physico-mathematical sciences A. Tyapkin stated that with the tips of his fingers he senses the radioactivity of a sample. Here is how candidate of biological sciences B. Bel'shev describes similar tests: "In the room there is a solemn, somewhat strained silence. About ten men were arranged in a semicircle by a table, on which lay china saucers which were turned upside down. The door opens and an experimenter walks up to the table rapidly. He extends his hand to the saucers and calmly, with short intervals, states: "Copper, gold, bronze, empty, silver, unknown object." The test is finished. The saucers are turned over, and under them there are actually copper, bronze, and silver coins, a gold ring, an eraser (unknown object), and under one saucer - empty."

It is not particularly surprising if reports appear concerning a skin sense of smell. Actually the falling of the Texas meteorite was accompanied by the the smell of sulfur, when the meteorite itself still was not visible. In the initial phase of his scientific activity academy member A. Ioffe expressed the hypothesis of the connection between smell and electromagnetic waves in the infrared

range. It is possible that the process of smelling is conditioned not by the size or form of molecules, but by their vibrational movements. In fact molecules are miniature resonators, and the dimensions and form of the resonator determine the type of vibrations. And if the sense of smell is somehow connected with electromagnetic waves, then it follows to expect that the skin is also sensitive to smell.

The duplication of the sense organs should not cause particular surprise. In the process of evolution living organisms covered a complex path of development. In the lowest stages of evolution the nerve cells - receivers of light, sound, and smell - were scattered over the entire surface of the body. As an example, earthworms perceive light with their skin and do not have any eyes. In the process of development the sensory nerve cells were concentrated in separate sections. Thus the organs of hearing in grasshoppers are on the tibia, and in locusts - on the sides of the abdomen.

It is still unknown exactly which sensory devices react to the effect of electric, magnetic, and electromagnetic fields. But it is evident that the appropriate nerve sensors exist and they are adapted to these fields, as the eyes are sensitive to light, and the ears to sound.

A Kiev scientist A. Podshibyakin detected that prior to

circumterrestrial magnetic storms the electric potential of the skin is raised. People as if sense these invisible vortices ahead of time. And all in their own way. Some in 24 hours and others two to four days prior to the recording of a magnetic storm by physical instruments.

Perhaps one of the most puzzling gifts of evolution are the acupuncture points (they are still called acupuncture points or active points). They differ from the usual skin cover by a very weak, pale-yellow color, practically unnoticeable. Also they conduct sound and electric current better. There are around 700 of them on the body of man, with a diameter from 1 mm to 1 cm.

At acupuncture points there is increased electrical conductivity, and the structure of the skin nearby is apparently the same.

A compact device designed by the author - a "light pencil" - determines the active points easily, based precisely on their electrical properties. But it must be taken into account that these properties are not stable, and change depending on emotional reactions, and also on the amount of oxygen inhaled. For dry skin conductivity changes only between acupuncture points, and between areas where there are none it remains constant even in the case of

strong emotions.

With a change in mental state the diameter of the active points may increase. There is the possibility of cases when they overlap each other and form sections of increased conductivity.

In hypnosis emotional reactions are controllable. Therefore the thought occurs: measure the conductivity of acupuncture points depending on the phase of hypnotic suggestion. The results are shown in the chart.

The degree of immersion of the subject into the hypnotic state is plotted along the horizontal axis. In the fourth phase it was suggested to the subjects that they smelled flowers, in the fifth they were rematerialized into artists or musicians, for example, Beethoven or Rachmaninov. Along the vertical axis is plotted the change in the conductivity of the active points for three groups of subjects: with good suggestibility (top), with weak (in the middle), and not yielding to hypnosis (bottom).

In the last group the conductivity is unchanged, which speaks for the absence of emotional reactions to the words of the hypnotist. And in the first [group] the dependence between the suggested state and the electrical characteristics of the skin is clearly evident.

But here is what is especially interesting. It is possible to control the change in the conductivity of acupuncture points without hypnosis, by self-suggestion of some image. From two points it is possible to get a voltage of around 50 mV, from several - 150 mV, and with the help of self-suggestion - whole half volts. It emanates, the "human generator" in principle can light up a small lamp with only emotional-volitional effort. Or through a radio transmitter control the movement of a toy car. Dry skin, on which there are no active points, does not generate electricity.

The discovery of these phenomena shows that the skin has still been studied very poorly. And the most surprising may remain to be found.

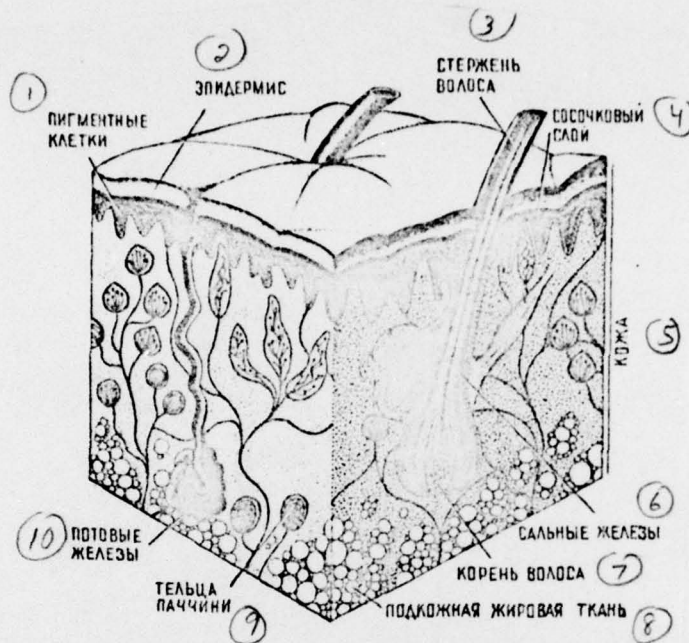


Figure (page 27).

Key: (1) pigment cells; (2) epidermis; (3) shaft of hair; (4) papillary layer; (5) skin; (6) sebaceous glands; (7) root of hair; (8) subcutaneous fatty tissue; (9) Pacinian corpuscles; (10) sweat glands.

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Figure caption (page 28, upper left). An electronic device - a "light pencil." When its tip falls on an acupuncture point, at the base of the "pencil" a small bulb flashes.

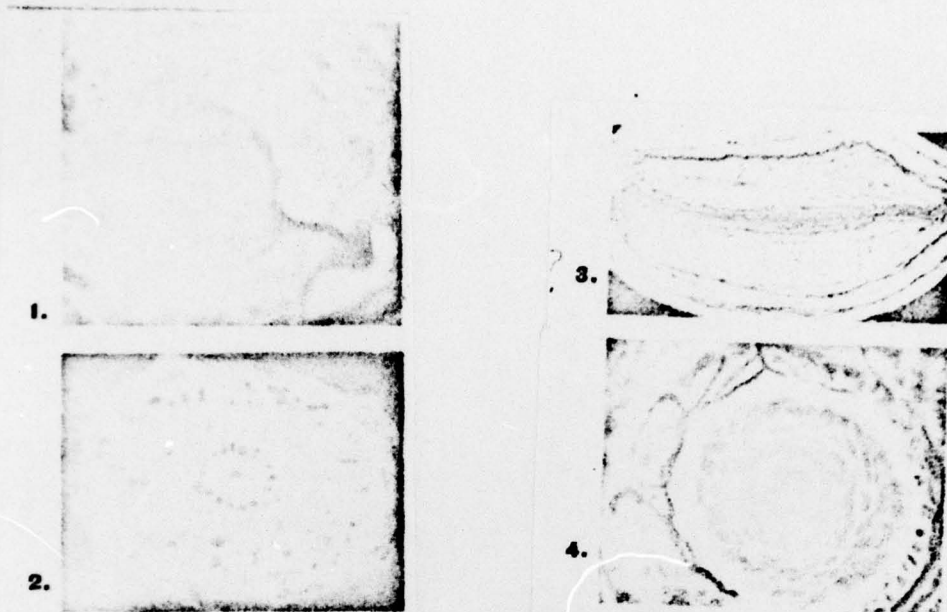


Figure caption (page 28, right). Microphotographs of structures, hidden in the skin and perceiving mechanical stimulation:

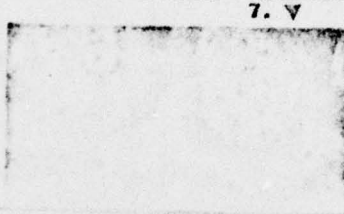
1. Grandry's corpuscles, found on the beak of ducks and the tongue of woodpeckers (magnified 1600 times).

2. Tactile Eimer corpuscles, there are many of them on the mouth of a mole (magnified 1,000 times).

3. Pacinian corpuscles, sensitive to vibrations and supplementing the work of the ear. In man they are concentrated on the finger tips (magnified 100 times).

4. Cross section of the root of a hair from a mole. Vibrations of the hair are transmitted to the surrounding nerve fibers (magnified 600 times).

Page 12



5. Herbst corpuscles, analogous to Pacinian corpuscles, found in water fowl (magnified 65 times).

6. Merkel's corpuscles. It is not excluded that they serve as receivers for the mechanolocators in the mole and analyze information concerning the nature of the soil (magnified 1,600 times).

7. Eiser corpuscles (magnified 400 times).

Page 13



Figure caption (page 29, top). Is remote movement possible? Thought controls the movement of the toy (top). The original method of hearing a radio transmission without a loudspeaker (bottom).

Key: (1) transmitter, (2) amplifier, (3) electrodes, (4) plug.

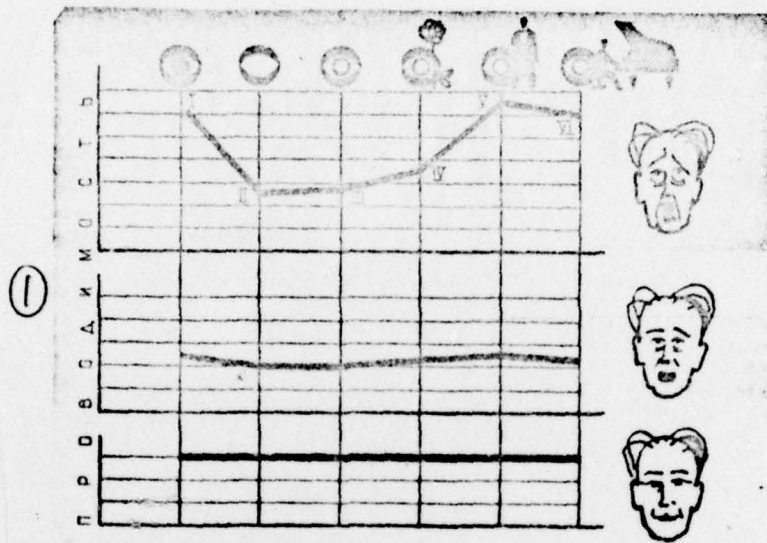


Figure caption (page 29, bottom). Dependence of the conductivity of acupuncture points on the extent of hypnosis: I - normal state, II - sleep with eyes closed, III - sleep with eyes open, IV suggestion of smelling flowers, V - repersonification into Beethoven or Rachmaninov, VI - activity in the repersonified state. Upper curve, characteristic for persons who are hypnotized easily, middle - slightly, lower - not susceptible at all.

Key: (1) Conductivity.

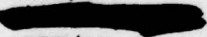

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