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SOVIET RESEARCH ON ESP AND THOUGHT TRANSMISSION

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FOREWORD

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SOVIET RESEARCH ON ESP AND THOUGHT TRANSMISSION

[Following is a translation of selected articles from a symposium entitled "Peredacha mysli -- vozmozhna li ona?" (Thought Transmission -- Is It Possible?) in Znaniye-sila (Knowledge - Power) No 12, Moscow, 1960, pp 18-23.]

WHAT SOVIET SCIENTISTS THINK ABOUT THIS THOUGHT TRANSMISSION -- IS IT POSSIBLE?

This year we have started a new section in our magazine. We have told about the research of scientists abroad in the field of biometerology and have published the comments of our scientists.

"What Soviet Scientists Think About This" -- so have we entitled the new section. And immediately readers' letters began to pour in, letters with questions, suggestions to comment on other writings in the foreign press. This is what the Head Scientist of the Institute of Power Engineering and Automation of the Academy of Sciences, UzSSR V. I. Us writes to us.

"The French magazine 'Science et vie,' in a 1960 edition, published an article on experiments on thought transmission through space conducted by Americans aboard the submarine 'Nautilus.' Should these reports be considered of scientific significance, and if so, what research do we perform in this field?

It seems to me that these questions may be of interest to a wide group of readers, and we therefore consider it worth while to publish answers to them in your new section "What Soviet Scientists Think About This."

We have approached E. A. Asratyan, Associate Member of the Academy of Sciences, USSR; D. A. Biryukov, and L. L. Vasil'yev, Associate Members of the Academy of Medical Sciences, USSR; P. I. Gulyayev, Doctor of Biological Sciences; Professor M. N. Livanov; and other Soviet scientists.

Our correspondent has visited Leningrad where a group of our scientists is studying this problem. We are publishing below an abbreviated translation of reports in the French press, G. Anfilov's correspondence from Leningrad, and the comments of Soviet scientists.

[Translator's note: the translation from the French magazine is omitted in this English version.]

MEETINGS WITH THE UNKNOWN

by Glen Anfilov

First Meeting

This meeting was held in Leningrad this year in June, in one of the Physiology Chair offices at Leningrad University.

Physiologists and Biophysicists got together on one of their regular seminars, an ordinary one, in no way unusual. A few guests were present. The head of the Chair, Professor Leonid Leonidovich Vasil'yev, Associate Member of the Academy of Medical Sciences, gave the floor to the first speaker, one of the coworkers at the laboratory.

Her unusual account to which in my opinion the audience reacted rather casually with routine businesslike attention, is briefly retold below.

In 1930, Upton Sinclair, an American writer, published a book entitled Mental Radio in which he spoke of experiments in thought transmission through space which were conducted with the assistance of the writer's wife Mary Sinclair. Later, the facts described in the book caught the attention of a psychologist by the name of Prince, who as he says, checked upon the authenticity of Sinclair's writings through documents, reports of witnesses, and participants; and then discussed the results of his investigations in a paper, which now was scientific in character (at least in its external form), entitled "Upton

Sinclair's Experiments on Telepathy."

If we are to believe Prince, we find the following sequence of events.

Soon after her wedding, on an automobile ride, Mary "sensed" the presence in her home of a certain B. who lived far away, had never visited her before, and was actually found there at that time.

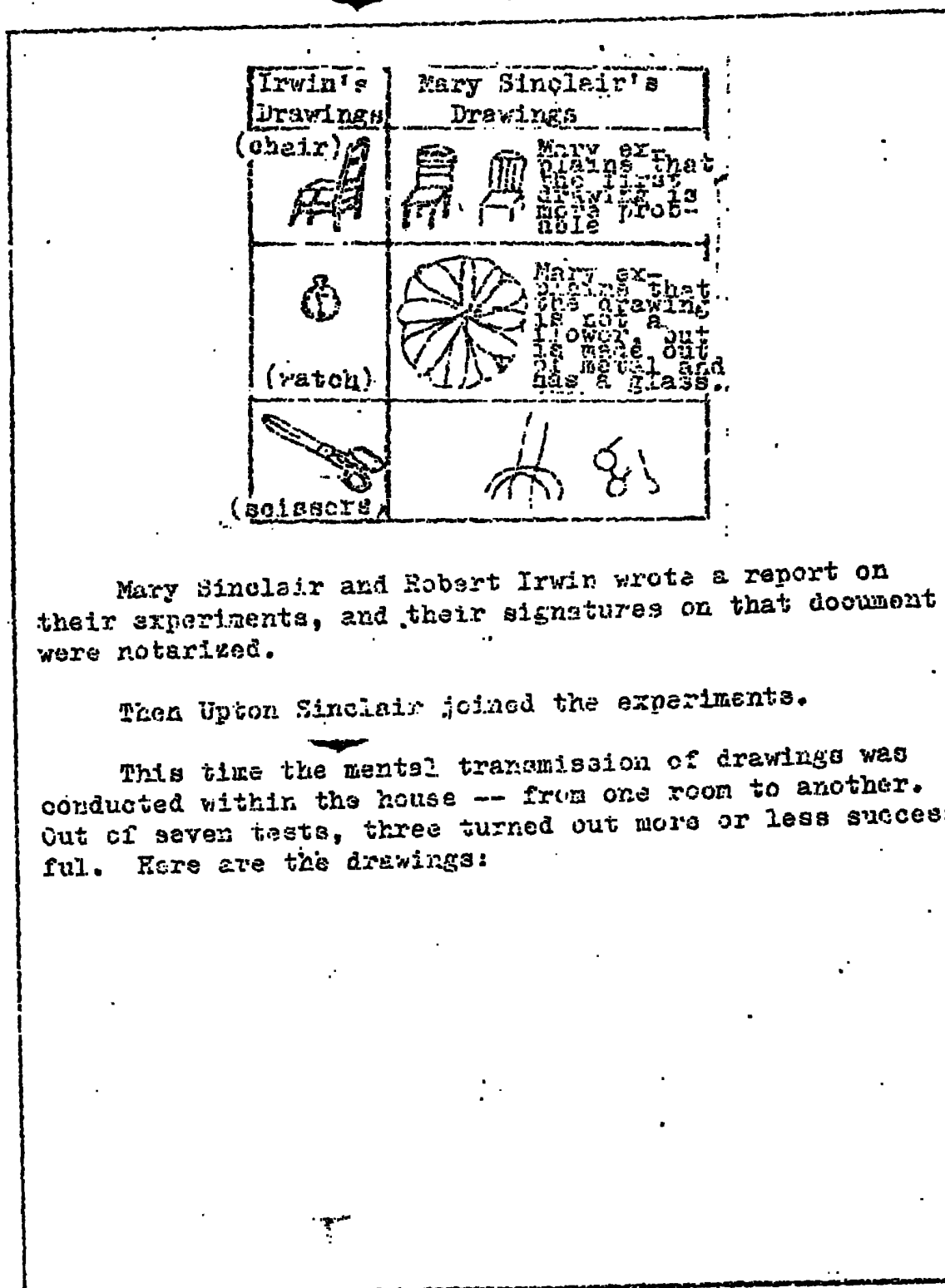
In 1916, Mary was suddenly alarmed about Jack London (who was her husband's friend). Precisely at this time, Jack committed suicide.

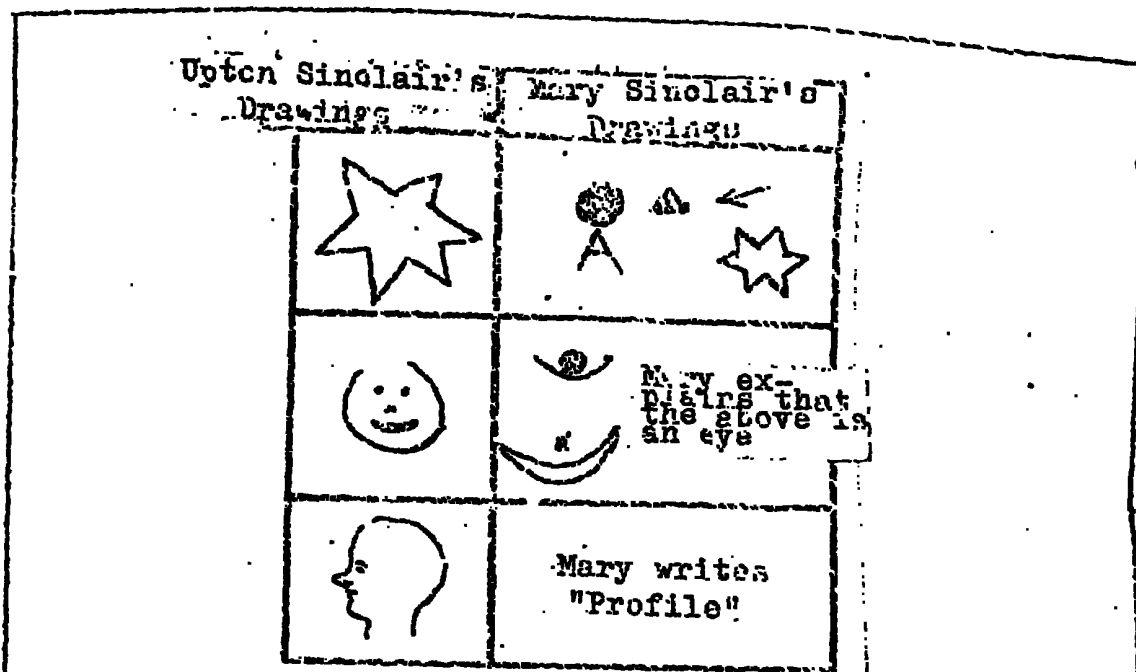
And now the third case. One evening Upton and Mary were sitting in their living room. Upton was reading, Mary was day dreaming and scribbling on a piece of paper. When she looked down, she saw that subconsciously she had drawn some kind of flowers. "What are you reading about?" Mary asked her husband, who answered: "About flowers."

After these events the couple decided to set up experiments on the mental suggestion of drawings.

Mary and her husband conducted the first series of experiments with her sister's husband, Robert Irwin.

Mary was in her room, Irwin in his home thirty miles away. At a given preset time, Irwin would make a simple, completely arbitrary drawing, think about it and Mary would try to catch his order, and reconstitute what had been drawn. In a number of cases "mental transmission" was rather successful. Here are some examples of successful tests.





The next series of experiments was performed by Sinclair's secretary, the one after by the writer himself again, and the next by a Professor William McDougall. There were fewer and fewer successful tests. Gradually Mary's abilities subsided and finally disappeared altogether.

Prince tried to repeat Sinclair's experiments with ten women picked at random. He had no success.

How did Mary behave while receiving silent suggestions? In the book, Mary tells about this. Before the seances she underwent special training, learning to bring herself into a state of, as the doctors call, selfhypnosis. According to her, reception is particularly successful "on the verge of sleep" and is expressed in visual images arising in the consciousness while falling asleep.

...End of report. As is customary in scientific seminars, the audience ask questions, whereupon Professor Vasil'ev thanks the speaker and offers

additional comments on what was said.

It turns out that not a few such "parapsychological" investigations have been carried out. There is nothing new in the "mental Radio" of the Sinclairs. Also typical are both the experimental set up, and the percentage of correct guesses. Professor Vassil'yev notes the importance of a rigid control of the reliability of such experiments, and of their mathematical treatment. It is precisely to this that is devoted the second report by Professor Pavel Viktorovich Trent'yev, an enthusiast of the application of precise science methods to biology.

It is hardly worth while to dwell on the details of his rather complex report. The blackboard becomes covered with a pattern of mathematical symbols. He deals with the laws of the theory of probability, the taking into account of chance coincidences in remote mental suggestion, with the detection of unscrupulousness and collusion among the participants in an experiment, with arguments on this subject...

The discussion is very serious, profound, truly scientific.

Meanwhile I am listening in disbelief. I cannot believe! This is too improbable.

Indeed, the very word "telepathy" has long ago become synonymous with charlatanism and black magic. How can a new term, "parapsychology," rescue it!? The piling up of chance coincidences, hallucinatory delirium here are apparently the true sources of this "science." I do not conceal my doubts, and express them to Professor Vasil'yev after the seminar. The Professor smiles.

"There was a time when hypnosis was considered impossible and contrary to nature. Now hypnosis is used as a treatment.

This is not yet an answer. As if few phenomena had been

proven in debates! Hypnosis has been explained, understood, while parapsychology...

"Yes, agrees Vasil'yev, parapsychological phenomena have not yet been explained. But does it follow from here that they are unexplainable? They must be deciphered, that's all. Some time in past, sight was a mystery, later it was explained. In my memory, some not unintelligent people "did not believe" in radio... The brain's activity is material processes. And there is nothing supernatural in the fact that these processes may be accompanied by some material radiations, let them be weak, usually imperceptible, but under certain conditions capable of affecting another brain. What is impossible in this? A strict materialistic, truly scientific approach will here also solve the mystery underlying these processes...

"To be sure, this work is not easy, adds Vasil'yev. Everything that is associated with this problem has been overgrown with the dense bristle of idealism and mysticism. Here dwelled and still dwell a great many outright crooks and falsifiers who chatter about "the incomprehensible soul" and other nonsense. In addition to premeditated fact-fudging, there occurs unconscious deceit and self-deceit. I perfectly understand the position of serious scientists who come out against spiritism, a pseudoscientific swindle. And it is logical that parapsychology has difficult access to the great, "official" science.

However, an experiment is an experiment. Biological remote communication yields to experimental detection. The most convincing experiments of this type have probably been performed in our country in the period from 1932 to 1937.

In order to get acquainted with these investigations, Leonid Leonidovich invites me to his lecture at the Leningrad House of Scientists. I follow his advice, and ...receive still another portion of the surprising.

Second Meeting

June 15, 1960. The auditorium of the Leningrad House of Scientists is full. Biologists, physicians, physiologists, radio engineers, and specialists in the field of automation, cybernetics, and communication are attending a lecture with the appealing theme "Concerning the Problem of Cerebral Electromagnetic Radiation."

The lecturer begins by mentioning the sensational American attempt of telepathic communication with a submarine. Even if the articles concerned with this are nothing but imagination, in his opinion the facts described are in no contradiction with previous experiments. In particular, mental transmission through a water layer and the metallic walls of a submarine is in excellent accord with experiments conducted by Soviet scientists in the past.

"As a very young man, says "Vasil'yev, I came to the laboratory of Vladimir Mikhaylovich Bekhterev, and met Academician Petr Petrovich Lazarev. They were both very much interested in experiments in the field of mental suggestion and had communicated this passion to their students. Even in the early thirties, after Bekhterev's death, I had recruited a staff of coworkers with whom I began an extensive series of experiments on remote mental suggestion at the Bekhterev Institute of the Brain.

Vasil'yev mentions the names of participants in this research, and speaks of the purpose and program of the investigations.

First of all, different modes of mental suggestion were verified. One of the women tested, just as Mary Sinclair, reproduced "suggested" drawings. For example, she perceived the symbol " δ " drawn by Vasil'yev as " α "; " γ " as " ψ ", which are very much alike. In other experiments, the subjects reproduced gestures which

were suggested to them without words nor gestures. The most interesting and valuable experiments, however, turned out to be experiments in the mental putting to sleep and awakening of the subjects.

In 1932, women extremely sensitive to suggestion were found, two of them mentally ill, and a third one healthy. Very readily they could be put into ordinary hypnotic sleep. It was decided to verify whether hypnotic sleep could be induced remotely, without the media of hearing and sight.

The experiments began. The subject was placed in a room specially provided for her, sometimes together with the observer who entertained her with conversation. In the neighboring isolated room sat the recorder watching over the instruments, and in the following room (behind two more walls) sat the hypnologist. The observer did not know the programming of the experiments. Only the hypnologist knew it, but even he did not follow a predetermined plan, but rather one which was being improvised or selected at random (by means of a roulette) on the spot.

At some moment the hypnologist would attempt mental sleep induction. The subject would fall asleep. Not seeing or hearing the hypnologist she would obey his silent order sent through three walls!

The fact of sleep induction was recorded by instruments, from changes in electrical potential between the upper and the lower side of the hand (this quantity is different when a person is awake and asleep). A simpler method was also used; the subject would continuously squeeze and un-squeeze a rubber bulb connected to a pneumatic automatic recorder which was charging a seesaw line on a paper roll. As soon as the woman fell asleep, her hand stopped, ceasing to press the bulb, and the seesaw line became straight. Sometimes the subject would "resist" a perceived suggestion, fighting sleep. But this would immediately affect the character of the graph.

Now the subject is asleep. Let some time interval elapse, and the hypnologist attempts mental awakening. The subject wakes up, or at least "tries" to wake up. This is charted on the automatic recorder roll. Even if the first awakening attempt fails, a few seesaws appear on the roll. Hence, even in this case the hypnologist's suggestion is perceived!

The pattern of mental "remote" suggestion was most vividly apparent in the first experiments when the subjects did not yet know what was going on. After a few series of experiments, the phenomenon of selfhypnosis went into effect; the subjects developed a conditioned reflex, and they fell into hypnotic sleep without suggestion under the sole influence of the "soporific" atmosphere. But here also the experimentors found a way of verifying the phenomenon open to question; by means of remote suggestion sleep induction under selfhypnosis could be speeded up two- or even three-fold.

✓ Here is another curious fact. When the subjects became acquainted more closely with the hypnologists, and vice versa, an amazing propensity for selective remote suggestion became evident. Of the three subjects being together, a given hypnologist would be capable of putting to sleep some particular one. Say subject F. would be put into hypnotic sleep while subjects I. and S. would remain awake. Moreover, the subject which had been in a state of hypnotic sleep knew precisely which of the three hypnologists participating in the experiments had put her asleep.; she would always answer the observer's inquiry precisely right by naming the hypnologist.

Professor Vasil'yev describes the sequence of the experiments, demonstrates the laboratory plan, tables of results, and the results of the mathematical treatment. Finally, he begins his account of the most exciting period of experiments, namely of the attempt to determine the physical nature of the mysterious "something" which is transmitted from the hypnologist to the subject through

stone walls. What is the nature of this something.

"All we thought of was radio waves, says Vasil'yev. We could not conceive of anything but radio waves. This hypothesis appeared to be the only plausible one. Electric currents pulsate in the brain, and any alternating current generates an electromagnetic field, i.e., radio waves.

Well then, it is very simple to baricade oneself against radio waves by placing a metallic envelope - a screen - between the hypnologist and the subject. Radio waves would not pass through metal, and mental suggestion would cease.

A screen was built. First from tin foil, then a more massive one from thick lead plates. It was a cabin into which the hypnologist was to shut himself. The lid of the cabin was so constructed that it was to be lowered upon a mercury-filled groove. No radio emission could pass through this structure; the physicists participating in the experiments had carefully checked the reliability of the screening. A spacious metallic chamber was set up for the subjects as well.

The screens are ready. The experiments are resumed. What effect has the screen?

None! It is as if there were no screen! All is as before.

Just as before, the subjects fall asleep, selfhypnosis is speeded up, and selective sleep induction takes place.

This means that no radio waves go from the hypnologist to the subject? What then?

"We were astonished, says Vasil'yev. We ourselves were hypnotized by the unexpected result.

The results of the investigation appeared so strange

that the authors refrained from their publication. Only now, almost a quarter of a century later, was it decided to divulge them and present them to science's judgment. And at the same time, to start a series of experiments on a new, more modern basis...

The audience reacted to Vasil'yev's lecture in different ways. Some were astonished, some delighted, and some surprised. There were also sceptics. After the lecture the hall and lobby were buzzing like a beehive. I saw no indifferent ones...

THE SEARCH FOR CEREBRAL RADIO

In Leningrad a book by P. I. Gulyayev, Doctor of Biological Sciences, "Electrical Processes in the Human Cerebral Meninges" was published recently. In this book there is a chapter entitled "Cerebral Electromagnetic Radiation" which describes how investigations were conducted of the remote transmission of mental suggestions. Here are several curious facts which are given in this chapter.

The problem of the electromagnetic field of the brain is frequently associated with the problem of the transmission of mental suggestion and of the effect of one brain upon another independently of the sense organs. This connection is thrust upon us by the habit of thinking with the use of known technical models. In technology, the electromagnetic field is widely used in information transfer. If such a field exists in the brain, then naturally there arises the concept that it is precisely the electromagnetic field that transmits mental suggestion.

In 1922, Academician P. P. Lazarev suggested the existence of a cerebral electromagnetic field with a wavelength of the order of 30 thousand kilometers, and he associated this field with the transference of mental suggestion.

From 1925 to 1941, the Italian neurologist Caccamalli, in cooperation with physicists of the Marconi laboratory, conducted an experimental investigation to prove the existence of a cerebral electromagnetic field. Caccamalli concluded that the brain emits wavelengths in the meter, decimeter, and centimeter ranges.

In the same years, Zauerbuch and Schuman [spelling not

verified. Trans. note 7 reported that they had discovered an electromagnetic field in the vicinity of contracting human and animal muscles. The field was detected by means of a metallic disc connected by way of a three-tube amplifier with a string galvanometer. The frequency of the recorded rhythms was of the order of 50 hertz, that is to say was equal to the frequency of the muscle currents. Subsequently, neither the experiments of Zauerbuch and Schuman, nor Caccamalli's experiments were confirmed.

B. B. Kazhinskiy (1922) thought that mental suggestion is carried out by the electromagnetic field of the human brain. S. Ya. Turlygin (1942) after experimenting with the mental suggestion of sleep arrived at the conclusion that the brain sets up millimeter wavelengths which are precisely those that carry mental suggestion. In 1948, B. V. Krayukhin raised the question of the possibility of electrical induction in the tissues of a live organism. On the basis of his experiments he successfully solved this problem.

But the experiments of Turlygin and Kazhinskiy are not convincing and were experimentally disproved.

First of all, the physicist V. Arkad'yev showed mathematically in 1942 that the intensity of the magnetic field of a brain is too small to be able to remotely excite another brain. It is well-known that in the self-excitation of a brain by its own currents, which is observed in epileptic attacks, for instance, the voltage of these exciting currents is about 1 volt. On the other hand, the field intensity of the emission is of the order of 10^{-10} volt according to Arkad'yev's calculations. Accordingly, this intensity is so low that there can not possibly be any remote excitation of another brain. Thus, Arkad'yev's calculation indicates that a cerebral electromagnetic field exists but that its intensity is so small as to be insufficient to affect another brain.

Second of all, L. L. Vasil'yev's experiments conducted as early as 1932, while they confirm the fact of mental suggestion, disprove the electromagnetic field's participation in the carrying of this suggestion.



P. I. Gulyayev

Electrical Processes
in the Human
Cortex

NEW EXPERIMENTS ARE NECESSARY

By E. A. Astratyan,
Associate Member of the Academy of Sciences, USSR.

The problem of thought transmission through space has lately been attracting more and more notice not only from numerous scientists abroad but from our Soviet scientists as well.

In itself, the problem of thought transmission through space is very complicated and full of contradictions. The scientists working on the solution of this problem are not yet in a position to present to science such facts as would unequivocally confirm the existence of this phenomenon. Among the few exceptions to this belongs the case of the submarine "Nautilus" described in the foreign literature, which was retold above. By the way, the possibility is not excluded that not all that was reported about this fact is indeed true. In order to be fully certain about the reality of this phenomenon, many more experiments and theoretical proofs will be required.

On the other hand, certain data are known which prevent us from categorically denying the existence of the very problem and of the necessity of its further study.

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THOUGHT TRANSMISSION IS IMPOSSIBLE

by D. A. Biryukov,
Associate Member of the Academy of Medical Sciences

We are witnessing how telepathy (i.e. the belief in the possibility of thought transmission through space) which had been banished from scientific consideration as early as the last century is again acquiring advocates now under a new name -- parapsychology or bioelectronics.

Attempts "to prove" the reality of "telepathic communication" are often based on the rhythmic oscillations of cerebral biocurrents. It is precisely in these currents that a number of advocates of parapsychology see the possibility of a cerebral, mental radiation, and hence of thought transmission.

But if this is true, if thought transmission exists, then our thinking should be first of all reflected in biocurrents set up in the brain. There are no scientific data favoring this hypothesis.

First of all, we should remind the reader that biocurrents are not the specific product of cerebral activity exclusively. Biocurrents are set up everywhere where there is vital activity, in muscles, glands, even in green leaves. In addition, biocurrents do not differ in principle from thermal oscillations, from the numerous biochemical changes which accompany any vital activity, including cerebral activity. This is precisely why variations in cerebral potentials never cease. Even when a person sleeps, at which time, as is known, conscious activity dwindles to nothing, biocurrents change in form only.

Further. Thinking is closely associated with language, there is no wordless thinking. On the other hand the speech of people of different nationalities is completely different. However, we know of no "national" symptoms, in the cerebral biocurrent pattern, and there can be none. Hence, neither is this approach to the determination of how thought is expressed in cerebral biocurrents scientific.

At present, physiologists cannot yet determine without error from a curve of cerebral biocurrents, which of these biocurrents correspond to excitation, and which to inhibition. If such is the state of affairs for elementary processes of the cerebral activity, how can we seriously expect biocurrents to express thought? It is not by chance, evidently, that most thought transmission "experiments" are not based on the actual suggestion of thoughts, but on the suggestion of graphic images.

[✓] This is what Karl Bruk [Spelling not verified. Translator's note] was doing in 1925 when he forced a person very far from him to reproduce shaded drawings. This also applies to the experiments conducted aboard an American submarine which have recently stirred up so much sensation. In these experiments images of so-called Zener [Spelling not verified. Translator's note] cards were transmitted (circles, crosses, rectangles, etc).

The perception of such images by man, or by the higher animals is not different in principle. The higher forms of thinking are accessible only to man who possesses language. Therefore, experiments with the guessing of Zener cards cannot be accepted as a proof of thought transmission over space, either. As far as the old observations of V. M. Bekhterev and A. L. Durov of "mental" suggestions to animals are concerned, they are not scientifically reliable.

It is no wonder that the advocates of the experiments aboard the submarine stress the necessity of a number of conditions that are absolutely necessary for the realization of thought transmission. Among such conditions belongs, for

example, the specific selection of a couple of participants in the experiment. The experiment will be successful in one direction only, the switching of positions by the participants of the experiment precludes the possibility of "transmission."

I do not have the opportunity to prove the nonscientific nature of these conditions and I am mentioning them merely as an example of the fact that we are dealing here more with chance, coincidence, than with an actual phenomenon. All such and similar "experimental" conditions are necessary to explain failures.

I have far from considered fully the objections to parapsychology. The physical side of the problem gives rise to just as many questions. Do cerebral biocurrents, say, possess sufficient strength to be a source of influence of one brain upon another?

Calculations show that the electromagnetic waves which are produced by cerebral biocurrents in essence and character, for all practical purposes, do not emit beyond the skull. Their emission would require that a transmitting antenna several tens of thousands kilometers long be inside the skull. It is in this sense, by the way, that the founder of cybernetics, N. Viner [Spelling not verified. Translator's note] answered a question on telepathy at a lecture which he was giving during his stay in our country.

Thus, we conclude on the one hand that biocurrents in no way express the meaning of mental activity; and on the other hand that in magnitude and character biocurrents are incapable of remote effect.

The tendency to "substantiate" telepathy without reference to cerebral biocurrents is likewise devoid of scientific foundation. Advocates of parapsychology are forced to resort to the aid of some unknown modes of communication, to invent what has never and nowhere been found. We have dwelled upon certain factual data, in the main

because the remarks that have recently appeared in the French popular press on the remote suggestion of the above-mentioned images of Zener cards were very favorable received by very many a reader.

At the same time, I am deeply convinced that the problem of parapsychology has no right to a scientific formulation if this problem is evaluated in the plane of methodology. I shall allow myself to mention but one basic principle of the Marxist-Leninist philosophy on the unity and continuity of the psychic and the physiological. Thought is a property of the brain matter and is inseparable from it. From this point of view the formulation of the problem of the separability of thought from the brain, and thought transmission are eliminated. To contradict this would mean to return to the positions of the vulgar materialists of the last century who thought that, similarly to the secretion of bile by the liver, thought is secreted by the brain.

As may be seen from this very short account, parapsychology is devoid of scientific foundations. There remains only faith in it.

THE "PSI PHENOMENON" IS A REALITY

by P. I. Gulyayev, Doctor of Biological Sciences

Nonsensical are the assertions that we find in the foreign press concerning the fact that the American investigators "started from zero." Individual cases of direct thought transmission from one person to another have already been known for thousands of years. But it is only very recently that one succeeded in proving this fact with scientific reliability and conclusiveness, after having eliminated from among the experimental conditions any possibility of error, of conscious or subconscious deceit or selfdeceit. This function of the brain was given the conventional designation of the "psi phenomenon."

Let us immediately make the reservation that the "mind reading" which is sometimes demonstrated on stage has no relationship to this phenomenon. These experiments are based on ideomotor acts by virtue of which a deaf-and-blind, for example, may determine a person's state of mind -- alarm, worry, or depression -- from his or her hand.

Characteristic of the new phenomenon is exceptional weakness, near elusiveness. Here, so far, physical instruments have not been applicable, and the only indicator of the existence of this phenomenon has been man's brain. This "instrument," however, is capricious and not entirely reliable.

There is nothing astonishing in the fact itself that the "psi phenomenon" is relatively rarely observed. Everyone knows that there exists a pressure of light. But try to prove this experimentally under laboratory conditions. You will see that such an experiment requires great skill.

Despite the fact that light pressure really exists, it is almost never taken into account in any physical experiments on the usual scale. Only on the cosmic scale where there arise conditions for its manifestation, does light pressure create the magnificent spectacle of "shooting stars" or comets.

If there were no connection between the "transmitter" and the "receiver," then in telepathy, cards would be matched by chance only. The mean number of such chance matches may be calculated from the theory of probability. For five cards selected at random, the mean number of coincidences is 20 percent of the number of experiments. The chance matching of 70 percent of the choices for five cards is, according to the theory of probability, for all practical purposes, an impossibility; the chance occurrence of such a phenomenon is possible only once in a billion or more experiments. ✓

In the experiments described, however, 70 cards out of a hundred are successfully guessed. Hence, it may be concluded that between the transmitter and the receiver there is in fact established some form of communication. The remaining possibility is that the theory of probability itself, from the formulas of which the number of chance coincidence is calculated, is incorrect. Inasmuch as there is no reason to doubt the latter theory we must admit that the first hypothesis is valid. ✓

How is thought transmission realized?

I shall stress that when the expression "thought transmission" is used we do not mean that thought is transmitted directly from one brain to another. We have in mind the transmission of certain information on the thought, not of the thought itself. Indeed, when we converse we also transmit information about our thought to one another. In this case a specific air vibration serves as the thought carrier.

So far we do not know what is the carrier of thought information when thought is transmitted through space.

At any rate it appears to me that it is not at all necessary to bring in the electromagnetic field as the cause. Indeed, we far from know all the properties of brain neurons. Just as the atom is inexhaustible, so is the neuron inexhaustible in its properties. Possibly, there exists some physical field, new to science, that is related to neuron activity. This new, perfectly valid, and of course materialistic viewpoint may help us in the future to explain the phenomenon of thought transmission.

AN OPEN QUESTION

by M. N. Livanov, Professor.

The possibility of the remote transmission of certain states from one person to another still remains an open question at present. Despite individual reports favoring such a possibility, science is not yet in possession of sufficiently reliable facts -- regularly reproducible facts that would give a scientific basis to this problem. The only point of agreement of the majority of the scientists is apparently that one should not regard the possibility of transmission as being below one's dignity, but should gather and scientifically work up all related facts.

Most frequently, cases are offered as proof of the existence of "thought transmission" through space, in which some person felt something at the same time as an event affecting that person in fact took place. We shall not doubt the existence of such coincidences. However, it should be taken into account that similar sensations might have been felt by the person in question many times without coinciding with real events. In these cases, these sensations were forgotten, but should there have occurred but one such coincidence, it was remembered for life to be retold to the surrounding people. Phenomena thus become selected in a one-sided manner, and such a selection may easily lead to the wrong conclusions. This is why a strictly scientific approach is necessary for the evaluation of such facts.

Even the simplest sensation is based on a most complex mosaic of excited and inhibited nerve cells located in various regions of the brain, and first of all in the

cerebral meninges. In order that the brain of a second person receive at least somewhat similar sensations, it is necessary that all this tremendously complex mosaic of states be transmitted to a great number of corresponding brain cells in a second person. Such a selective transmission is very slightly probable.

Conditions have arisen under which not only we have no scientific approach to the analysis of "transmission" mechanisms, but so far do not even know of any material phenomena which could be applied to the explanation of this phenomenon in the future.

BIOELECTRONICS DOES NOT EXIST

by L. P. Krayzmer, Candidate of Technical Sciences.

The basic and indisputable principle of the materialistic philosophy is the fact that thinking, consciousness, sensations, emotions, and other phenomena of the human psychism are the highest product of matter organized in a particular way. The whole psychic activity is the result of cerebral physiological activity that is accompanied by various physical and chemical processes. These processes are very complicated and their fundamentals are still far from clear to investigators.

However, the impetuous development of science in general; and, in particular, the application of accurate and precise experimental methods of physiological investigations, and of thorough mathematical treatment to experimental results, give reason to hope that in the future we shall know exactly precisely what physico-chemical changes underlie cerebral psychic activity; we shall then learn to recognize the codes in which are ciphered ideas, concepts, images, in short all the information processed by the brain.

To argue the contrary would mean to defend the viewpoint of the incomprehensibility of the physiological foundations of the higher nervous activity; this is obviously contrary to the spirit of Marxist-Leninist philosophy. Hence, with time, there will arise the possibility by means of special instruments to "retrieve information" as it is processed in the brain.

However, the practical realization of such investigations and of instrumental mind reading is associated with

such difficulties as will not be overcome not only in the next decades, but within the bounds of the foreseeable future development of science. The analysis of encephalograms, of thermal, electromagnetic, or any other external radiations of the brain can only give an idea of the activity of the entire mass or considerable sections of the brain; such an analysis does not make it possible to determine what is going on in each of the 10 to 15 billion of individual nerve cells. The introduction of any kind of electrodes into these billions of neurons without upsetting their normal activity appears phantastic to say the least, from the technical standpoint.

Therefore even the use of the most accurate instruments for mind reading by direct contact with a person is not likely to be possible even in the future. It is all the more difficult to assume the possibility of the realization of thought or sensation transmission from one person to another across considerable distances, although in principle this is not contrary to the doctrine of the material basis of psychic phenomena. However, we do not know such material information carriers (fields, waves, particles, etc.) which would make it possible for persons to act directly the role of "transmitter" and "receiver" at the terminals of some sort of "parapsychic communication channel."

The advocates of the idea of the possibility of such communication consider to be inconsistent the arguments concerning the absence of the proper information carriers. They call for research in new types of fields of radiation and for work toward the development of a theory which would explain the parapsychic transmission phenomena that are sporadically described in the literature. To be sure, the purpose of science is the search for an explanation for every observation, phenomenon, or experiment. However, all reports concerning observations in this domain are so contradictory, subjective, and nonreproducible that, first of all, there arises valid doubt on the existence of the phenomena themselves. Indeed, the reliability of any observation

may only be confirmed by the fact that by reproducing the original conditions we repeatedly observe the same phenomenon. In the present case, no such reliability criterion is found.

It is known that often an impure, "incorrect" experimental set up in biology or physics lead to half-baked and invalid conclusions. Therefore, as long as the reliability of the phenomenon itself is not proven (and with a rigid and objective approach, the existence of thought transmission is not likely to be proven) there is no sense in spending the time and energy of scientists in a search of physical explanations for this phenomenon.

One is tempted to say to the parapsychologists, "Prove, first of all, that the phenomenon that you describe does take place, and then only start looking for its explanation. Meanwhile, your speculations and theories are difficult to differentiate from idealistic mysticism."

BIOLOGICAL RADIO IS AN ECHO FROM THE PAST

**by L. L. Vasil'yev,
Associate Member of the Academy of Medical Sciences**

The finding of a factual basis for the reality of mental (silent) suggestion, and especially the determination of the psychological, physiological, and physical nature of this relatively rarely encountered phenomenon are among the most complex and methodically difficult problems of psychoneurology. Attempts scientifically to establish this phenomenon, and as much as possible experimentally to master it were begun as early as the eighteen eighties by the most eminent scientists of those times. Subsequently, the number of articles in print devoted to that problem was growing abroad year after year, and at present has reached several thousand articles.

This does not mean, however, that mental suggestion has gained general acceptance among scientists. Not at all. Arguments for and against continue today.

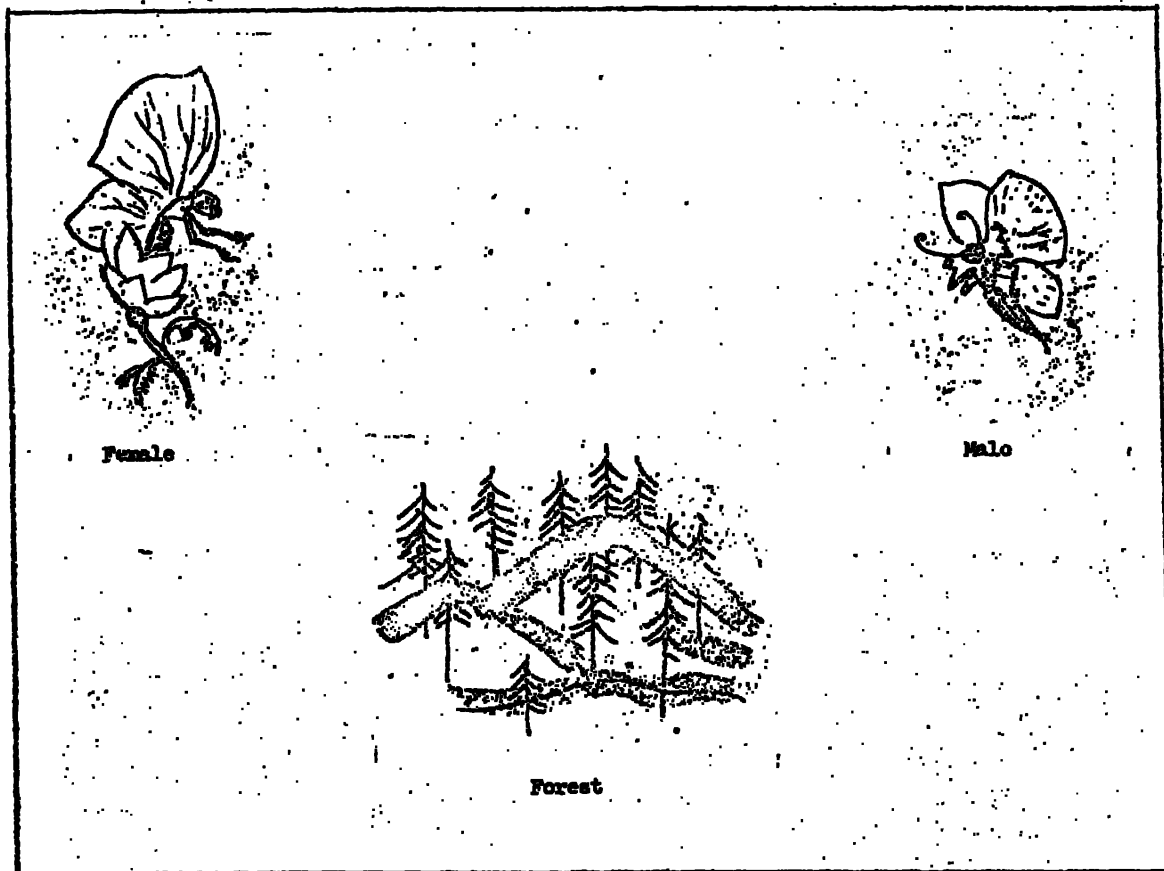
We shall try and approach this problem from a different standpoint. Evolution has provided animals and man with three remote (capable of perceiving through space) sense organs. We communicate through space by means of sight and hearing, and animals by means of smell as well. What could telepathic communication add to this if it existed? What biological significance could it have? What biological significance could it have? For animals telepathy would have about the same significance as radio has for modern man, which far excels the natural means of communication by way of remote sense organs and verbal speech. Biologically this would be fully justified.

There are in fact signs that certain animals possess natural "biological radio." One example of such radio communication may be, for example, the following mysterious phenomenon. The Soviet entomologist I. A. Fabri studied this phenomenon for six years in one species of night butterflies. With the coming of summer evenings, an unfertilized female was placed into a wire cage on the balcony of a country house in the woods located within five kilometers of two big villages. Thirty minutes had not elapsed as males began to fly to her. In three evenings, 64 males of this butterfly species, which is rare in our country, had been caught. Some of these males were labeled with paint, carried 6 to 8 kilometers away from the house, and freed there. The males were coming back. Given the relatively slow hovering flight peculiar to these butterflies, the insects covered this distance in 40 to 45 minutes. For them to do so, they had to select the shortest straight path toward the female, and to work their muscles strenuously. It follows that the female can call the male in some unknown way.

The males felt the appeal in the forest area traversed, in completely calm weather, and even with a slight breeze headwind to the scent given off by the female. It turned out that the organs which perceive the "call agent" in the male were the antennae. Males whose antennae had been cut would not perceive the female's call and fly to her.

What is this "call agent"? Of the two possibilities, scent or electromagnetic signals, preference should be given to the one which is capable of acting against headwind, i.e., to electromagnetic waves. However, a number of experiments forces one to doubt even the latter hypothesis. This problem has not been solved so far and will require special investigations.

Other examples of "biological communication" in the animal kingdom may be given, which are hardly attributable to the effect of remote sense organs.



If such phenomena in animals are in fact a type of primitive radio, we shall have to admit that certain insects are endowed with this ability more than human beings are. In the butterfly, the call of the male by the female is an important vital act which contributes toward the preservation of the species. In humans, spontaneous "biological radio communication" has sometimes the character of an appeal for help, but most often that of information concerning the important experiences of a close relative, or friend. This, too, may have a certain vital significance, although for modern humans such communication plays no biological role. Such is the regular evolution process.

The impression is formed that the parapsychic "talent" is not a progressing phenomenon in the evolution process, but rather a rudimentary capacity which has survived in man from his zoological ancestors and which is reactivated in certain persons with nervous or psychic deficiencies as a peculiar form of atavism. We find our best subjects for experiments in mental suggestion among psychoneurotics. This is well-known.

One of the French magazines published an article that confirms what was just said. The author of the article describes in detail displays of such susceptibility in his mentally deficient brother. At the age of 47, he has the mental development of an 18-month child, is not capable of coherent speech, and will sluggishly pronounce separate words only. This does not prevent him from being susceptible to complex mental suggestions. The article gives 24 examples of cases when, with surprising speed and accuracy (with no distortions whatsoever), he pronounced words and scientific terms unknown to him at the very moment when they were conceived in the mind of the persons present. The absence in this case of the distortions that are usually so frequent, is explained by the author of the article by the fact that the slightly developed intellect was not capable to control and change the perceptions received. This sounds like the truth.

The study of the biological role and nature of para-psychic phenomena must become a full-fledged branch of science. With this purpose in mind, we shall multiply experiments with the profound conviction that thousands, tens of thousands of experiments worked up by mathematical methods will sooner or later prove to one and all the reality of mental suggestion, or will refute it just as indubitably.

At any rate, the study of this interesting phenomenon widens our conception of living nature, and this alone makes it indispensable.

EXPERIMENTS MUST BE ACCURATE

by I. Klyatskin, Doctor of Technical Sciences.

Many successful thought transmission experiments may be explained by conditioned reflexes. For example, two people who have long lived together often guess one another's thoughts from a hardly noticeable change in facial expression or gesture and cannot even explain how this happens.

In addition we have no objective indicators for the recording of that form of matter motion which could be the basis of telepathy. People play the part of transmitters and receivers. Private relationships between them, their striving for the success of the experiment often lead to subjective errors even if these people are quite conscientious. It is indeed so easy to take one's wishes for granted!

It is no wonder that experimental results are often mutually contradictory. Some people, for instance, maintain that telepathy is possible only within the limits of the visible, other consider that space is no limiting factor. Some people maintain that a metallic screen fully excludes the possibility of mental communication, others argue that screening plays no part.

In order to solve the problem of whether or not the thought transmission phenomenon exists, and on what physical phenomenon it is based, strictly scientific experimental setup is necessary with the participation of scientists of various specialties, and fastidious criticism of the results obtained is required. Any do-it-yourself efforts will result only in confusion, and will not solve this interesting problem.

FROM THE EDITOR

As you have seen, scientists are still arguing not only about the nature of this interesting, in many respects puzzling phenomenon, but about whether it exists at all. To be sure, there hardly is evidence for the complete denial of this phenomenon. Possibly, the amazing phenomenon exists, but if so it was not discovered recently, not in the experiments aboard the "Nautilus." The American investigators have not at all "started from zero," as the Western press reported. Individual cases of transmission by means of "biological radio" have long been described. We have had the opportunity of acquainting ourselves with these descriptions.

The sensation abroad about this "extraordinary discovery" which has such an equally "extraordinary potential is not justified. All our scientists agree that the gift of "thought transmission" is extremely rarely found, if at all, and that it is found mostly in people with a disturbed nervous system, sometimes, in people that are simply sick.

In this sense, the suggestion of Professor L. L. Vasil'yev is of much interest. He thinks that the so rarely observed capacity of the brain to perceive information from another brain through space is not progressing, but rather is degenerating; this he regards as being fully justified from the standpoint of biology.

The question may arise: is it indeed worth while to carry on investigations, to argue, to disprove old explanations, and to search for new ones? Yes, it is! But this should definitely be done on a strictly scientific basis, starting from materialistic positions, and sweeping aside

all that is false and sensational. By deciphering still not understood physiological and psychic phenomena that occur in our organism, we derive a more profound knowledge of the living nature, and of its greatest and most complex creation -- man.

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