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Out of Body and Reincarnation Phenomena from the
Point of View of Physics.

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Wave Equation, Mathematical Model, Soliton.

Abstract

Experimental and theoretical evidence for electromagnetic nature of life in general and consciousness in particular is presented. The existence of chakras and their relation to the displacement of consciousness inside the body is discussed. After a short presentation of some views about OOB and reincarnation these phenomena are roughly described from the standpoint of electromagnetic theory of life. In that context the concept of bardo state is defined and a brief discussion of psychological states related to it is given. The problem of reincarnation is treated in a more strict way as a problem of transfer of information and mathematical model of that process, based on the soliton solutions of wave equations with suitable properties to take them as a carrier of information is outlined. An experimental verification of that theory is possible and is connected with progress in the theory.

1. Introduction

The OOB / Out Of Body / and reincarnation phenomena, although massive evidence has been gathered for their existence, has always been closer to religion and parascience than to science. The reason of that situation is simple - science was not prepared, had no means to investigate this phenomena, and the scientists were not able to place them in scope of the physical framework. However, if they are real phenomena, they should not be the matter of a faith or belief, but of scientific research. So far, many fantastic explanations ^{have been} proposed but, by virtue of the Ockham's razor, they cannot be accepted. We are still far from using up all the possibilities of physical explanations, and only after that we may go outside physics.

It seems, however, that the time has ripened enough now, at least to propose some hypothesis as a basis for further research.

The aim of the present paper is to demonstrate that there is a possibility for theoretical explanation of the OOB and reincarnation phenomena within the framework of physics. The importance of electromagnetic fields in life processes ^{has been} is recognised more and more in the last years. It could be hypothetised that, although consciousness is a

function of the neural network it also depends on fields generated by the neurons. Then, the ancient views about possible location of consciousness in various parts of the body does not seem to be so improbable. A short account of traditional Buddhist and Hindu views on reincarnation ^{will be} is given and results of some modern research are mentioned. I have given here many references to discharge myself from presenting convincing facts and deal rather with their interpretation. Of course not all reports are equally well documented and at the present stage there is no need to consider all of them - it is better to explain less rather than too much.

The concept of bardo state is introduced and the relation of psychological states of consciousness with their physical carrier is discussed from the standpoint of the field theory of life. After this general discussion the problem of reincarnation is examined from more strict point of view, independent from previous considerations, as a problem of information transfer. The idea of homeostatic electromagnetic fields, based on soliton solutions of non-linear equations, which could be a physical carrier of the consciousness in the bardo state, allows us for mathematical modelling of the reincarnation process. This general theo-

retical model can be specified and extended in many ways, and all assumptions and predictions can be experimentally verified.

2. Life and electromagnetic phenomena

To understand the nature of life not only the biochemical level is needed. One must also turn to the submolecular level / Szent-Györgyi, 1960 / and to the level of bioelectronics / Szent-Györgyi, 1968 /. On the submolecular level various forms of radiation can be observed. I do not want to go here too deep into details, but only to stress the meaning of electromagnetic fields in living systems.

As a trivial example we can take infrared radiation, emitted by every substance with the temperature higher than absolute zero. Although this radiation is mainly of thermic origin and does not carry information in itself, thermatography, or measurements of its intensity, has well-known diagnostic application.

More interesting is the mitogenetic radiation / Iniushin, 1973 /, discovered by A. G. Gurvicz as long ago as in 1923 / Gurvicz, 1944 /. It lies in ultraviolet range, is emitted by cellural nuclei, and carries information stimulating cellural divisions, or information about stress agents

acting on the cell. On the other hand even an extremely weak electromagnetic field, or single photons, of specific frequencies can bring the cell to death. The mitogenetic radiation is one of the ways of communication inside the tissue. The eyes are not only the receptors of light but also a source of a weak radiation. All these kinds of radiation are emitted due to existence of variable electromagnetic fields in a living tissue.

To every psychical state correspond appropriate neurohormones and neuroenzymes. Their presence causes characteristic electromagnetic changes, which can be recorded by means of the fluorescence technique. Every neurohormon gives his own specific fluorescence spectrum. Hillarp and his group from Karolinska Institute in Stockholm, who pioneered this kind of research, believe that every kind of human behaviour, from biological needs like sleep or eating, to the highest acts of conscious thinking, can be reflected in fluorescence technique / Calder, 1970 /.

Biochemical and bioelectrical approach are united in the theory of bioplasma. The density of free protons, electrons, and other charged particles in a cell is high enough to allow us to speak about cold plasma in biological systems. Bioplasma may be regarded as a common substratum of energetic life processes, and also as a carrier of all information

within the system / Sedlak, 1967, 1970, 1972, 1976 / / Man-
czarski, 1969,⁽¹⁹⁷⁵⁾ / Rzepka, 1976 /. Electromagnetic fields are
the best suited for controlling plasma, therefore in this
theory they are reckoned to be the essence of life / Sed-
lak, 1976 /. Work along this line is carried on in the Soviet
Union since 1965 on the Kazakh University in Alma-Ata and in
other centers. S. D. Kirlian had invented the famous method
of photography in high frequency electrical fields / Kirlian,
1964 /. The energetic states of the organism can be registered,
as described by Sergeev et.al., in form of the so called bio-
plasmograms, the records of low frequency / lower than 30 Hz /
fluctuations in density of electrons and ions leaving the body
/ Sergeev et.al., 1968 /. Two other authors from Alma-Ata wro-
te in their book: " Wave field with specific wave parameters
is 'frozen' in bioplasma, forming something like a hologram
of the whole organism." / Iniushin, Czekurov, 1975 /.

The concept of bioplasma is more firmly rooted in na-
tural sciences than such concepts as biogravitation / Dubrov,
1972 / or quantum theory of consciousness / Musés, 1972 /.
According to Sedlak the concept of bioplasma should give us
an explanation of such phenomena like telepathy and telekine-
sis.

To find further evidence of importance of electromag-

netic fields in life processes one may turn to such general books like Presman, 1970. The development of the field theory of life, which could unite various present-day approaches to biological systems, is still a remote undertaking. The enormous complication of these systems makes an application of detailed physical models extremely difficult, although some encouraging steps have been done.

3. Consciousness and Nervous System

Theoretical calculations on an influence of various fields on a living organism give sensitivity thresholds many orders of magnitude higher than the experimentally observed. For example: a theoretical estimation of a sensitivity of the nervous system to the high frequency electromagnetic field gives 10^4 V/m threshold, while human reactions has been observed at 10^{-4} V/m intensity / Presman, 1970 /. Such a great sensitivity can be explained in context of the bioplasma theory.

Dean / 1975 / reported some changes in the infrared radiation of water caused by laying on of hands by healers. Others / Grad, 1965 /, / Schleicher, 1975 / observed an influence of such water on animals and plants. Presumably healers do not cure illness, but affect with their fields the inner regulation system, like the immune system, thus

mobilizing the organism to defence.

The work of the nervous system is based on electrical processes. Many facts support the hypothesis that not only the neural net is important, but also fields which are generated by it. Even the fields of isolated nerves can be measured / Presman, 1970 / ; the record of their radiation was called by Guliaev the " aurogram ".

Nervous impulse travels through neural net with the speed not exceeding 120 m/sec, while some behavioral reactions can be very fast, for example the time of refraction can be even shorter than 1/3000 sec / Teitelbaum, 1967 /. To explain facts like that spreading of electromagnetic fields along nerves should be taken into account.

The electrical activity of the brain in low frequencies, measured by electroencefalographs, has many diagnostic applications. The bioplasmogram technique allows us to measure the overall activity of the brain from 3 meter distance with 95% correlation with statistical parameters of the EEG spectrum. The existence of high frequency fields generated by the brain was also reported / Presman, 1970 /.

Brain itself is a bioelectrical system. We should remember that all perceptions are transformed into electrical impulses and in this form are recognised and retained

by the brain. In this process not only the nervous cells or neurons take part, but also small glial cells surrounding neurons. The neuroglia has many functions: it control the ionic and metabolic media of the nervous system, nuorishes the neurons, and is commonly belived to be the preserver of the long-term memory / Laborit, 1973 /. The associativity and the distribution of the memory in brain can be best explained by means of the holographic models / Pribram, 1977 /.

We can compare functions of the neuroglia to that of computer power supply and external memory in which data and programs are retained, while the nervous system circuit functions correspond to that of the central unit, i.e. the calculator and fast memory, in which short-term data and executed programs are stored.

Due to numerous dyes containing ferrum atoms glial tissues are paramagnetic and in consequence are succceptible to electromagnetic fields. Some authors had hypothesised that the stable matrix, outside the metabolic processes, which is needed to explain the nature of the memory may be found in electromagnetic fields generated by the brain. Adamenko and Czudakov / 1975 / had even placed the whole consciousness in that field. In the higher forms of behaviour the state of consciousness must change very quickly. To activate and coor-

dinate millions of cells in fractions of seconds slow electrochemical impulses may be insufficient. The brain deals with thousands of things at one time - such apparently simple acts like perceiving or calling from memory an image require transformation of enormous amounts of information. Some people are able to make calculations with the speed greater than computers. All these facts lean toward accepting the central, coordinating role of electromagnetic fields in the brain activity.

Fields can affect human cognition directly / Vogel, 1973 /. Wave interactions should also have important meaning for animal life / Presman, 1970 / and could happen in certain circumstances between people / telepathy /.

From the neurophysiological point of view the consciousness is a function of the nervous system and of the brain. It is not a material object - it is a function, and thus has a completely different status. Although we still know very little about this function it appears from all what was said above that the supposition that not only the neuron network is important for this function, but also the fields generated by that network, is not without grounds.

4. Chakras

According to various ancient traditions a human being has a kind of subtle body, which can be " seen " only extrasensorily. This subtle body has several centers, called " chakras ", which accept prana or the vital force from the universe. Prana is then converted into energy needed for the organism / Rama et.al., 1976 /.

What is that subtle body ? So far conclusive explanations has not been given. If it is not only an illusion two possibilities arise: subtle body is a gaseous coat, or " aura ", made visible by Kirlian photography, or subtle body is made of fields, which can be measured directly by suitable instruments. This latter hypothesis allows us to identify the prana with negative ions in the air, assimilated through the nose / one of the chakras, the Ajna chakra, is located near the root of the nose / and supplying organism with free electrons. When the air is deprived of negative ions men and animals exhaust their powers very quickly and are not able to act, therefore in the spaceships ionisers are used as anti-fatigue devices. Chakra would then be the place connected with the nervous plexus in which a conversion of electromagnetic energy to other kinds of energy takes place.

The famous " aura " around human body is composed of fields and is quite different from the " aura " appearing on Kirlian photographs. Kilner / 1911 / who was the pioneer in the study of the human aura, describes how it can be seen in a darkend room with the aid of goggles enclosing an elixir of dicyanin B. The aura consists of the inner and of the outer part: the inner aura seems to be electromagnetic and in some cases responds to magnetic fields, the outer aura is also electromagnetic and is composed of weak intensity ultraviolet radiation / Bagnall, 1970 /.

A common practice among yogis is the concentration on chakras, sometimes connected with the visualisation of lotus flowers with stated numbers of petals - this should not be taken as reality, but only as a symbols used for meditation. Through hard concentration on a chakra the center of consciousness could be placed there / Lama Govinda, 1959 /. Zen students are told to " be " in hara, the chakra coresponding to the ventral plexus. Does the displacement of consciousness realy take place ?

The chakras and their relation to meridians of acupuncture were investigated by Motoyama / 1972, 1975 /. Measuring electric fields near the chakras he has found that during concentration on " energy ejection " from the chakra yogis

could produce over 20 times stronger fields than other people. Changes in frequency were also noted, and in one experiment bioluminescence of Anahata chakra / laying near heart / was observed. It should be interesting to make also records of chakra's activity with the technique of bioplasmograms. Numerous researches conducted by Motoyama and his group are of great value, but their conclusion concerning non-physical nature of energy in chakras seems to be premature.

We cannot place the consciousness " somewhere " because it is not a thing, but a function. If it is a function of the brain and of the fields generated by it we can probably center these fields at a nervous plexus, i.e. in a chakra, by concentration on it. However, the appearance of stronger fields near chakras during concentration may be due to other factors than such " inside body movements ".

5. Out Of Body

An extensive literature about OOB experiences can be gathered / for references see Gowan, 1975 /, but unfortunately most of it lacks rigorous approach. The OOB experience may occur during sleep or in a conscious mode - then it is often called " astral projection ", and the projected consciousness is called the " etheric body " or the " astral body ". During projection that " body " is connec-

ted to the physical body by an infinitely extensible "silver cord". In a great majority of cases the consciousness of the person having that experience is travelling outside the body and sees distant events. In some cases that "etheric" body can appear in front of other people.

The laboratory investigations of that phenomena has been undertaken by Monroe / 1971 / and by Green / 1975 /, who claim to achieve successes in training people for OOB travelling. The "near-death" experiences reported by Moody / 1975 / also involve an exit out of body.

Can we throw away all these reports assigning them to some curious mass hysteria? Purely psychological explanations cannot clear up all doubts - some reports seem to point out that the "subtle" or "etheric" body can really depart from the physical body and hold up at least a part of the conscious functions outside of it.

We may distinguish three types of the OOB phenomena. The first and the most probable is a withdrawal of the consciousness from the body, the second is a "seeing" of the real events in a nearby or in distant places by that departed consciousness and the third, the most unlikely and the most rare, is the "materialization" of it in front of other people.

Measuring thermodynamical parameters in the air surrounding the head of a dying person Sergeev has noticed short increase of energy emission in the moment preceeding the clinical death. It can be attributed to the last mobilization of one's powers, but it may also indicate that something really departs from the body.

To explain the first type of phenomena we should agree that in certain circumstances the brain's field, identified with the " etheric " body, can exist outside the brain, connected with it by an electromagnetic tie, identified with the " silver cord ". The state in which the carrier of consciousness is only weakly coupled with the brain shall be named " the bardo state ". The appearance of the " astral projection " could be explained on a basis of the bioplasma theory. An existence of " bioholograms " of the whole organism seems to be justified by the traces of the cut-out parts of an animal or a plant organisms on the Kirlian photographs. " Seeing " in the bardo state demands a special kind of senses or of a connection with senses of the other people. I shall not discuss these last two phenomena further - we still know very little about them, their very existence is not certain, so every explanation must be highly speculative.

Bardo is a Tibetan word meaning the gap; it is a

suspension in the living situation, the gap in a contact with the real world produced by turning to the inner world, and in a more specific sense produced by leaving of the body by the mind.

When the consciousness is withdrawn from the brain, i.e. when it has purely electromagnetic nature and doesn't receive any information from the senses, it is not distracted nor limited by the slowness of the biochemical reactions, then the accelerated mental processes can occur / Houston, 1973 /. Many people who had near-death experiences reported / Moody, 1975 / that the entire lifetime flashed as images before their eyes, with all the events seeming to happen with the usual speed. Hundreds of such experiences were recorded by the Swiss Alpine Club - they were outlived by mountain climbers during a few seconds of downfall. In this and the other experiences related to the bardo state imagination plays a predominant role.

6. Reincarnation

In the moment of death two possibilities arise: the energy connected with the conscious functions can dissipate, changing itself into heat and losing all information, or it can be preserved by some physical carrier and the information transmitted to a new life. The second possi-

bility is supported by investigation of reincarnation. The belief in reincarnation is very widespread: from native Australian through most of Asian and a part of European people to Indians from Brasil, Canada and Alaska. In Eastern religions it was always an important facet, but also some Christian and Muslim sects has accepted it.

The " reincarnation " is considered to be a concept of Hinduism, in which the immortal soul, called Atman, continues to exist changing the bodies. Buddhism uses the word " rebirth " in a sense of certain continuity between the old and the new life, just like the flame of one candle before extinguishing itself can light a new candle. The distinction between these two concepts is only apparent. Buddhism gives attention to the psychological side of the process while Hinduism takes also care about the carrier of the information. The ultimate carrier of every field is the physical void, and every particle may be regarded as the excitation of the void, therefore the void can be called the dynamical field of all creation. The fundamental teaching of Hinduism is that the Atman, or the individual soul, is one with the Brahman, the ultimate reality, which, as the Upanishad says, is the Void, understood in a very simillar way like the void in modern physics / compare Capra, 1975 /.

The reports about the cases of reincarnation were

known since a long time. The greatest effort into scientific verification of them has been made by Stevenson, a professor of psychiatry, who spent over 50 years gathering about 1600 cases of rebirth all over the world. The main method used was the investigation of spontaneous cases, i.e. the children who in an early age started to tell the stories from their previous life. Many cases were verified with so great precision that swindle or other explanations except reincarnation are quite improbable. Further information may be found in: / Stevenson, 1965, 1976 /, / Story, 1975 /.

The Buddhist theory of rebirth is usually as straightforward as it can be. It teaches that when the body dies the mental states preceeding the death initiate a whole series of states of consciousness, connected with the "subtle organism", attracted by the force called "upadana" to a new womb / Radhakrishnan, 1958 /. The form of the new birth is determined by "karma", i.e. it is caused by the effect of previous deeds. The psychology of the bardo, the intermediate state between the death and the new life, was elaborated by Tibetans / Fremantle, Trungpa, 1975 /. According to their views in the bardo, when the mind is deprived of sensory perceptions it begins to project its own contents. Old memories are coming back as hallucinations and all kinds of pleasant and traumatic experiences can occur before entering the new

womb. Consciousness deals in the bardo with images and emotions rather than with logical reasoning, which is probably non-transferable function of the cerebral cortex. The bardo consciousness is like that in vivid dreams, and the volitional activity seems to be suppressed by karma, or conditioning created in the past.

The hallucinations in the bardo state resemble the results of psychedelic drugs. Tart / 1972 / writes that the drugs have no specific psychological effects but act as a sort of psychological amplifier, facilitating the appearance of subconscious material. The drugs usually rise up the energy level of various brain structures, among them neuroglia. All information contained in the bardo state is probably comprised in the fields generated by neuroglia. It may be that the mechanism of bardo hallucinations and drug hallucinations are similar. The major role in the bardo experiences belongs probably to sensory deprivation / Gowan, 1975 /.

The psychology of the bardo after death can be elaborated basing on the views of Tibetans - one should not be discouraged by complex symbolism which they use. The question: to what extent one is conscious in the bardo requires a deeper analysis. It demands to rise such questions like: what is the nature of consciousness, or at least what do we understand by that word. Instead of going astray reflecting

upon these questions let's forget now about bardo and ask in a critical way: what is needed to explain the cases of reincarnation ? It is enough to find the means of information transfer between the old and the new personality. I shall present now more strict approach to that problem seen from the standpoint of physics.

7. The Carrier

Let us assume, in accordance with the behavioral psychology, that the consciousness is entirely a function of the brain. Suppose that the whole content of the memories of two individuals has been exchanged. Then, it seems that the personalities would also be interchanged. When one person dies and whole information from his memory is transformed to the " blank " brain we have the case of reincarnation. The new personality is the old " I " but at the same time it is not the old " I ", because all the functions of the old brain, and so the consciousness too, had stopped. One may say that this situation happens in the everyday life, not only during the rebirth - we are not conscious of many moments when awake and have even longer breaks during deep sleep - but in the everyday life our past memories are relatively easy accessible, while the newborn child due to various traumatic experiences usually forgets everything be-

fore developing its abilities to speak. The abilities of that kind depend too much on the individual neural network, while in the case of reincarnation only the information stored in neuroglia, i.e. character traits and memories, are transmitted.

The carrier of the information transmitted during reincarnation should have a wave character to move quickly to distant places. It should have an inner structure to contain the information, and it should be stable, homeostatic, to preserve its structure for the time long enough for transmission and not to undergo a dissipation. This kind of fields should be generated in a natural way by a dying organism.

The hardships of science to accept the existence of the reincarnation lies largely in the difficulty of the construction of such carrier. No sooner than in last decade progress in mathematics and theoretical physics has allowed for serious treatment of that problem. The mathematical object with special properties suitable to take it as a model of a carrier of information is called " soliton ". The high complexity of the theory, still in " status nascendi " rather than complete, does not allow me to present it in a mathematical form here, but general ideas may be given in a descriptive language by similes.

When we hit the tight rubber line the deformation

in the form of a solitary impulse, will move along the line. Such a localized moving impulse is called the solitary wave. When two solitary waves meet together one could expect that they shall interfere producing other kinds of waves. Investigating the equations describing collisions of the impulses in atomic chains Seeger et.al. / 1953 / have shown analytically that some solitary waves preserve their speed and shape after the collision. In the early sixties several authors have made digital modelling of such processes with the help of computers, discovering other solitary waves stable at collisions among themselves. Zabuski and Kruskal named these waves " solitons ". The first general method for finding the soliton solutions of non-linear equations was given by Gardner et.al. / 1967 /. From that time hundreds of papers has been published on soliton theory - it forms now a separate branch in theoretical physics, founding its applications from elementary particle theory to theoretical biology / Scott et.al., 1973 /, / Davydov, 1976 /. It is interesting to note that the soliton wave was observed in a water channel in 1844, long before the theory begun to develop / Scott-Russel, 1844 /.

Soliton can exist in a three types of physical systems: those described by linear equations without dispersion, those described by non-linear equations with dispersion, and

in generating energy, active systems. The flame of a candle slowly burning down is the simplest example of soliton in an active system. In that case the flame moves down very slowly. Usually solitons move with greater speed, but standing solitons are also possible / Yajima, Onti, 1971 /.

A soliton can save its form not only during interactions with other solitons but, as was shown by Hasegawa and Tappert / 1973 / in the case of the optical soliton pulses, also under actions of absorption, noise, and even large perturbations. These results are rather difficult to obtain in a general form and the main method presently used for their studying is a digital modelling of the equations on computers.

An interaction of two solitons being solutions of the Kortweg-de Vries equation is shown on Fig. 1. At first the solitons are well separated and doesn't interact. Due to their movement with various speeds they come closer and closer and finally they begin to interact, changing their shapes, and even becoming for a moment a single soliton-shaped impulse; after then they separate from each other interacting weaker and weaker. At the end they move in opposite directions with the same speed and in the same shape like before the collision. Fig. 2 shows the density of energy of a two-dimensional soliton. One can imagine a three-di-

mensional soliton as a ball with diffused edges, with the radial energy distribution like that of the one-dimensional soliton. The three-dimensional problems are too complicated to deal with, therefore only one-, and rather exceptionally two-dimensional models are investigated.

A very important property of solitons is their ability to preserve information. Many authors have shown, that the infinite number of independent laws of conservation, and therefore the infinite number of integrals of motion, are in operation even for simple one-dimensional solitons. Every integral of motion may be treated as a piece of information depending upon the boundary conditions in the moment of soliton's creation.

All these properties designate the soliton as a carrier of information in the cases of reincarnation. One can create the physical model of such situation which, although very complicated from the mathematical point of view, is a great simplification and must not be confused with the reality. It is very probable that in the reality the information is transferred by some kind of electromagnetic soliton with inner structure, which may even support certain functions of consciousness, but this situation is too complicated to describe it mathematically. The physical model may

be simple, but it shows us the mechanism of the phenomena and allows for some conclusions.

The whole organism, and especially the nervous system and the brain are generating electromagnetic fields. The organism should be described as a three-dimensional, active, non-linear, dispersive medium with complicated boundary conditions. One may propose various integral - partial differential nonlinear equations with the boundary conditions simulating this situation and look for their solutions, although it is an extremely complicated task. The soliton may exist all the time, but it is enough to require a creation of it in the moment of "turning out" the nervous system, when the organism makes the last effort to stop the death and when the generated fields are very instable. One can compare that process to blowing off a soapbubble. Which one of the two possibilities is more probable has not yet been determined.

Much simpler situation is in the air, when the soliton is free homeostatic electromagnetic field, a "waver". In a very good approximation linear, non-dissipative wave equation of classical electrodynamics may be used. As a boundary conditions we may demand from the waver to disappear in the infinity, $\varphi(t \rightarrow \infty) = 0$. Then any function $\varphi = \varphi(x-ct)$ is a good solution of the wave equation. The waver may be ima-

gined like a globular lightning, a fireball, but of a very small energy. When the power of electromagnetic wave is smaller than 10^{-14} Watt it can pass even through thick metal walls, because it does not induce eddy currents in metals. The waver carrying information could have the energy of such order. After a short period of travelling with a speed near that of the light it stops in a new organism, transmitting the information. The stopping is probably caused by a lower energy of the soliton connected with the nervous system than the energy of the waver. In the theoretical model the organism may be considered as a system with one very stable energy level which can either be occupied by the soliton or not - something like one-level atom capturing an electron. In more subtle model also the process of information transmission should be taken into account.

Very little is known about interactions of the solitons with other objects, therefore it is not possible in the present moment to say, can the wavers be created and captured only by human organisms, is the soliton ever present or created only in the moment of the death and destroyed after information transmission. An average interval between the death and the birth in Indian cases was about 5 years. It is hard to imagine such a long time stability of wavers. More probably the information was preserved in

a human being who died in an early age. The memories from the previous life must not be necessarily from the last one, especially if the last one was short. May be that some psychological mechanisms make the recalling easier in such cases. The information about the previous memories may, because of traumatic experiences in the early childhood, never be recalled, but the information about the character, operating on subconscious level, has always an influence on a new being, creating tendencies which together with the genetic conditions and the upbringing determine a new personality. Sometimes these tendencies may be strong and the child will not resemble the parents at all, but the child may also be "blank", because more children are procreated than people deacease - in that case the child should be very simillar to the parents.

The possibilities of a development of the theoretical models are very wide here. The situation is so complicated that one should not count on easy succeses. The most important question is the interaction of the wavers with other objects which could allow for their detection. The construction of measuring instruments must be founded on theoretical predictions. Some conclusions may be drawn from measurements of the electromagnetic field near living organisms with the classical techniques, like that of Moto-

yama / 1972, 1975 /, precise measurements of the magnetic fields / Cohen, 1972 / or from the bioplasmograms technique / Sergieev et.al., 1968 /. Especially important is an information about changes of fields during the death and about the biochemical changes in the memory in the process of dying.

8. Conclusions

I don't want to make an impression that I have explained anything. In that paper I wanted only to show, that from the scientific point of view a possibility of reincarnation and of similar phenomena cannot be rejected, not only because there is a remarkable evidence in support of these phenomena, but also because they can find reasonable explanation from the point of view of physics. This is only a possibility and further research will show how close or how far it is from the reality. The experimental research seem to depend strongly on the theory and the theory is still in its embrional stage.

Buddhism has recognized the fact, that consciousness is a function, not a thing, and its theory of rebirth is as close to scientific views as it can be. I have not discussed many of the classical concepts concerning reincarnation, like the law of karma for example. Such things could be added to a physical model, but the experimental data are

lacking, so there is no need to worry that any error

attempt will have any effect on the results. The common

assumption that every thing being done is the same as a

thing being done the beginning of time is seriously wrong.

The first two curves are the same as the others, but

with a different shape, while the third curve is

the same as the first two, but with a different

shape, and the fourth curve is the same as the

others, but with a different shape, and the fifth

curve is the same as the others, but with a

different shape, and the sixth curve is the same

as the others, but with a different shape, and the

seventh curve is the same as the others, but with

a different shape, and the eighth curve is the same

as the others, but with a different shape, and the

ninth curve is the same as the others, but with

a different shape, and the tenth curve is the same

as the others, but with a different shape, and the

eleventh curve is the same as the others, but with

a different shape, and the twelfth curve is the same

as the others, but with a different shape, and the

thirteenth curve is the same as the others, but with

a different shape, and the fourteenth curve is the same

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