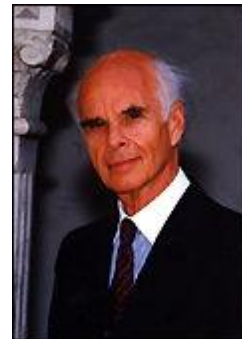
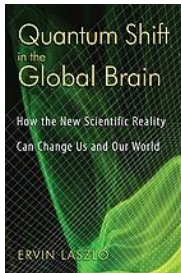


An Unexplored Domain of Nonlocality:  
**Toward a Scientific Explanation of Instrumental  
Transcommunication**

by Ervin Laszlo



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Excerpt from:

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**by Ervin Laszlo**

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Instrumental transcommunication (communication with deceased persons through an instrument such as a radio) is a repeatedly observed phenomenon that has lately been experimentally tested. It is queried here for its authenticity, and an interpretation is explored in the framework of theories of nonlocality, in particular the vacuum field theory advanced, among others, by this writer.

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### **The Instrumental Transcommunication Phenomenon**

A number of books and articles have been published in recent years documenting observations and experiments of instrumental transcommunication (ITC), which is a specific form of the widely discussed electronic voice phenomena. It consists of hearing or recording voices that appear to be those of deceased persons. In ITC, this requires the use of an electronic instrument, hence systematic work in this field, as in electronic voice phenomena in general, dates mainly from the 1960s.

The ITC experimenter whose work first attracted wide attention was Dr Konstantin Raudive. His classic book *Breakthrough* was published in 1971.(1) Raudive recorded some 72,000 voices emitted by unexplained and seemingly paranormal sources, of which 25,000 contained identifiable words. Since then, a wide range of controlled experiments have been carried out. Here merely a brief sampling is offered; more exhaustive reports can be found in Fontana's *Is There An Afterlife?* (2) and in *A l'Ecoute de l'Au-dela* by Brune et al.(3)

Hans Otto König, an electroacoustic engineer in Germany, experimented with various sources of background noise, including running water in addition to radio static. He noticed that all these carried sounds that reach into the ultrasonic range, whereas regular tape recorders do not register sounds above 20,000 hertz. He then designed a source of background sound consisting of four sound generators that produce a complex mixture of frequencies above the audible range of human hearing. With this device, König received numerous anomalous voice communications over a period of several years (cf Fontana). As news of this spread, he was invited to give a live detraction on Radio Luxembourg, a popular radio station heard in much of Europe. Independent electrical engineers tested the equipment and monitored the experiment that was followed on the air by a large audience. The audio equipment, though designed by König, was not operated by him but by independent technicians. When a technician asked that the anomalous communicators make themselves heard, a clear voice answered, "Otto König makes wireless with the dead." The reply to a further question was equally clear: "We hear your voice." At the conclusion of the broadcast, the program's presenter, Rainer Holbe, a well-known master of ceremonies, reported in a shaking voice, "I swear by the life of my children that nothing has been manipulated. There are no tricks. It is a voice and we do not know from where it comes."(4)

Another series of remarkable experiments were carried out by Dr Anabela Cardoso, a senior diplomat from Portugal.(5) She first used foreign language broadcasts for background noise but then switched to white noise, using old-fashioned valve radios. Having received answers to her questions both on tape and directly through the radio, she became convinced of the authenticity of the phenomenon and the need for its further exploration. She created an international periodical, *The ITC Journal*, that publishes research reports in Portuguese, Spanish, and English. Cardoso's own communicators spoke mostly Portuguese, with occasional communications in German, Spanish, and English, all languages in which she was fluent. According to David Fontana, who witnessed several of Cardoso's experiments, the possibility of fraud or interference by other persons can be effectively ruled out.(2)

The various forms of ITC include radios, TVs, telephones, computers, cameras, and other technical devices. Mark Macy(6) used a device called "the luminator" in combination with an off-the-shelf Polaroid 600 camera and stock film and has obtained thousands of pictures of "spirit faces" that appear on the film in his presence, and sometimes also in the presence of the person to whom a given spirit face was known. The luminator was invented by Patrick Richards of Michigan. It has two counter-rotating fans that pull air into vents at the base of the unit and blow it out through the vents at the top. The air passes through a Plexiglas barrel lined with rings in a water-based liquid. The pictures are sometimes almost transparent and other times blurry, but occasionally they are as natural and solid looking as the faces of the living persons who also appear in some of the pictures. Macy has reproduced many of these images in his book *Spirit Faces*.(6)

Research on ITC is spreading; the number of serious investigators is increasing. Father Francois Brune, who has been surveying the field for many years, estimates that there may be as many as 20,000 ITC researchers in various parts of the world, though they are largely concentrated in the United States and in Germany.(6)

Communication with the dead is not limited to the instrumental form. There is also a noninstrumental, direct form, that is, a telepathic form. An outstanding example is after-death communications (ADCs). Using a simple technique such as a series of rapid eye movements (known as "sensory desensitization and reprocessing"), psychiatrist Allan Botkin of the Center for Grief and Traumatic Loss in Libertyville, Illinois, has induced ADC in nearly 3,000 patients.(7)

After-death communications are obtained in about 98% of the people who try the experiment. Botkin(7) reports that contact usually comes about rapidly, almost always in a single session. It is not limited or altered by the relationship of the experiencing subjects to the deceased. It also makes no difference whether the subjects are deeply religious, agnostic, or convinced atheists. For the most part, ADC experiences are clear, vivid, and convincing. The subjects find that their "reconnection" is real, and they shift almost immediately from a state of deep grief to one of elation.

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### **A First-Hand Experience of ITC - April 7, 2007**

I am sitting in a darkened room in the Italian town of Grosseto, together with a group of 62 people. It is evening, and there is not a sound, other than the static of the short-wave band of an old-fashioned vacuum-tube radio. I am sitting immediately behind Marcello Bacci who for the past forty years has been hearing voices on his radio that seem to belong to recently deceased persons. The people who come to his regular "dialogues with the dead" are convinced that they can contact this way the son or daughter, father, mother or spouse whom they have lost.

Bacci is touching with both hands the wooden box that houses the radio, caressing it on the sides, at the bottom and on the top, and speaking to it. "Friends, come, speak to me, don't hesitate, we are here, waiting for you ..." But for a full hour nothing happens.\* As Bacci plays with the dial, the radio emits either the typical short-wave static, or conveys one or another short-wave broadcast. But then there are sounds like heavy breathing, or like a rubber tube or pillow being pumped with air. Bacci exclaims: "at last!" He continues to move the dial, but there are no longer short-wave transmissions coming through: wherever he turns the dial, the radio transmits only the sound of breathing.

Bacci talks to the radio, encouraging whoever is breathing to talk back to him. Soon voices are coming through on the air. Indistinct, hardly human voices, difficult to understand, but they speak Italian, and Bacci understands. The first voice is that of a man. Bacci talks to him, and it answers. Bacci tells him that next to him sits someone whom the voice would know. "Who is he?" The voice answers, "Père Brune" (as the noted ITC researcher Father Francois Brune is known in his native France). Brune, who sits immediately behind Bacci, asks, "with whom am I speaking?" The voice discloses that it is Fr. Ernetti, a friend and associate of Fr. Brune who died not long ago.\*\*

Through the radio Fr. Brune and Fr. Ernetti talk for a while, and then Bacci (who continues to touch the radio) says, "do you know who else is sitting here just behind me?" A different male voice answers, "Ervin." (He pronounces it as one does in Hungarian or in German, with the "E" as in "extraordinary" and not as in "earth.") Bacci asks, do you know who he is, and the voice answers, "é ungherese" (he is Hungarian). The voice then gives my family name (it is pronounced as Italians sometimes do: Latzlo, and not as Hungarians, with a soft "s" as Laslo).

Bacci places my hand on his, and his wife places her hand on mine. Bacci tells me, "speak to them in Hungarian." I lean forward and do so. I say how happy I am to speak with the person, or persons, "on the other side." I ask, "who are you, and how many are you?" The answer that comes is indistinct but I can make it out: it is in Hungarian (a voice adds: "the Holy Spirit knows all languages"): "we are all here." I ask, thinking of the seemingly strenuous breathing that preceded the conversation, is it difficult for you to talk to me like this? A woman answers, quite clearly and in Hungarian: we have some difficulties (or obstacles), but how is it for you, do you have obstacles too? I say, it was not easy for me to find this way of talking with you, but now that I could do it and I am delighted.

Bacci then directs attention to the others in the room who are waiting to communicate with their loved ones. He is not identifying anyone by name, just recalling that there are people here who would like to communicate. The voice—the same or a different male voice, it is difficult to say—offers a number of names, one after the other. The person named speaks up. "Can I hear Maria (or Giovanni ...)?" Sometimes a younger voice comes on the air, and a person in the room gives a shout of delight and recognition.

And so it continues for about half an hour. There are breaks taken up by the sound of air rushing as in heavy breathing (Bacci explains, "they are re-charging themselves"), but the voices come back. Finally they are gone. Bacci moves the dial on the short-wave band, but only static and some short-wave broadcasts come through. He gets up and the room lights are switched on.

The above experiment has been carefully recorded, both on audio and on film; a professional film crew had been working silently in the dark, but not entirely pitch-dark, room. The record is available, but it does not exclude the possibility that the experience was an elaborate hoax. There may have been devices hidden in the room or at distant locations connected electronically with the radio, and these could have produced the sounds we heard.

This possibility cannot be ruled out, but Bacci's record weighs against it. He has conducted these experiments for nearly 40 years, and during this time they have been witnessed by scientists as well as electronic engineers. The most exhaustive tests were made in 1996 by Professor Mario Festa, a nuclear physicist at the University of Naples.(8) In the presence of researchers from Il Laboratorio, an Italian research center dedicated to the investigation of the authenticity of paranormal voice phenomena, Festa tested the pertinent electric and magnetic fields while the voices were being heard. With the radio off, the electric field measured 0.71 V/m and the magnetic field measured 0 mT. With the radio switched on, the electric field rose to 2.15 V/m and the magnetic field rose to 0.11 mT. However, while the anomalous voices were heard, the electric field oscillated between 0.54 and 0.81 V/m, and the magnetic field remained at 0 mT.

In another experiment Festa, together with electronic engineer Franco Santi, removed both the frequency modulation valve and the intermediate oscillation valve from the radio. This should have silenced radio transmission across all wave bands. Yet the voices continued unaltered, without noticeable loss of signal. In his report published in 2002, Festa concluded that the results confound the known laws of physics.(8)

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### **ITC as Nonlocal Communication: Exploring a Scientific Explanation**

The authenticity of ITC is not entirely beyond doubt, but the evidence for it is sufficiently robust to merit sustained investigation. In this writer's view, ITC may be a hitherto unexplored domain of nonlocality, a form of nonlocal communication.

To find a scientific basis for the ITC phenomenon, it must be connected with theories in physics. Transcommunication cannot be connected with classical physics, given that the latter is based on a paradigm that views phenomena not directly traceable to sensory experience as highly suspect, if not clearly illusory. But at the cutting edge of contemporary physics, many things and processes are acknowledged as elements of reality, even when they are intrinsically unobservable. Most pertinently, theories in particle as well as cosmological physics make reference to a field or dimension that subtends the world of the quantum, hitherto considered the lowest level of physical reality. This field or dimensions, variously termed "physical space-time," "nuether," "hyperspace," or "atemporal space" may be responsible for the phenomena of nonlocality in the microdomain of the quantum, as well as in the mesodomain of life and the macrodomain of the universe.

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### **This is a hypothesis that merits exploration. Two Elements of the New Map of Reality**

#### **Nonlocality**

In the words of quantum physicist Henry Stapp, nonlocality is the most profound discovery in all of science. Its discovery goes back to the "entanglement" between quanta that came to light as a consequence of the equations of quantum theory in the 1920s and 1930s.

Nonlocality was recognized as a bona fide physical process when, in the 1980s, Alain Aspect obtained experimental proof that the effect predicted by the much-discussed "EPR" thought hypothesis (put forward by Einstein, Podolski, and Rosen half a century earlier regarding measurements on spatially separated particles that had at one time occupied the same quantum state) actually takes place. It appears that some form of signal can proceed nearly instantaneously between spatially distant quanta. Subsequent experiments showed that such entanglement remains effective over any hitherto measured distance.

In 1999, atoms of an extremely heavy isotope of carbon known as "buckminsterfullerene" were shown to be capable of entanglement, and by 2005 even complex organic molecules could be entangled. In the spring of 2004, milestone experiments by two teams of physicists—one led by M.D. Barrett at the National Institute of Standards in Colorado and the other headed by M. Riebe at the University of Innsbruck in Austria—achieved a quasi-instant "teleportation" of ions of beryllium, respectively of calcium.

Initially believed to occur only at the supersmall scale of quanta, the entanglement that lies at the heart of nonlocality was demonstrated in living tissue by Eric Cornell, Wolfgang Ketterle, and Carl Wieman in experiments for which they received the 2001 Nobel Prize in physics. In the growing field of quantum biology, the paramount role of nonlocal entanglement is becoming evident in a vast variety of functions and processes in the domains of life. In the spring of 2007, biophysicists Gregory Engel and collaborators reported that nonlocal quantum coherence is also responsible for the efficient transfer of solar energy to the reaction center of sulfur bacteria. Without nonlocality, life could not even have started on this planet.

As this writer, among others, has shown other instances of nonlocality embrace the human body and brain and come to light inter alia in remote healing, telepathy, and the various manifestations of empathetic "twin pain." (9)

### **The deep dimension**

The concept of an inherently unobservable field or dimension that subtends the manifest world of three-dimensional space and one-dimensional time surfaced in the course of the 20th century. Until the beginning of that century, space was believed to be filled with a luminiferous ether that produces friction when bodies move through it. When in the Michelson-Morley experiments such friction failed to materialize, the ether was removed from the physicists' world picture; the absolute vacuum took its place.

However, the vacuum turned out to be far from empty space. In the "grand unified theories" developed in the second half of the 20th century, the concept of the vacuum transformed from empty space into the medium that carries the zero-point field (ZPF).

Even more interactions have come to light between the ZPF and particles and systems of particles in space and time. In the 1960s, Paul Dirac showed that fluctuations in fermion fields produce a polarization of the ZPF, whereby the vacuum affects the particles' mass, charge, spin, or angular momentum. At around the same time, Andrei Sakharov proposed that relativistic phenomena (the slowing down of clocks and the shrinking of yardsticks near the speed of light) are the result of effects induced in the vacuum due to the shielding of the ZPF by charged particles. The Casimir effect that occurs when some wavelengths of the vacuum's energies are excluded from the space between two closely placed metal plates is a well-recognized phenomenon; it reduces the vacuum's energy density with respect to vacuum energies on the outer side of the plates. This creates a pressure—the "Casimir force"—that pushes the plates inward and together. Likewise established is the Lamb shift, the shift in frequency exhibited by the photons that are emitted when electrons around the atomic nucleus leap from one energy state to another. It is due to the electrons exchanging energy with the ZPF.

In current supergrand unified theories, all forces and fields of the universe are traced to common origins in what has become known as the "unified vacuum." The concept of the unified vacuum, effectively physically real and active space, was anticipated by William Clifford in the 19th century, and by Einstein half a century later.

According to Clifford, small portions of space are analogous to little hills on a surface that is, on average, flat; the ordinary forces of geometry do not hold for them.(10) The property of space to be curved or distorted is continually being passed on from one portion of space to another after the manner of a wave. This variation in the curvature of space is what really happens when matter moves. Thus, in the physical world nothing else takes place but this wavelike variation. Einstein, in his 1930 paper "The Concept of Space," noted, "We have now come to the conclusion that space is the primary thing and matter only secondary; we may say that space, in revenge for its former inferior position, is now eating up matter."(11) A few years following the publication of Einstein's article, Schrödinger restated the basic insight. "What we observe as material bodies and forces are nothing but shapes and variations in the structure of space."(12)

We should note, however, that in the context of quantum field theory the vacuum is a point in the quantum Hilbert space (or its related projective space) and not a physically real field. Although in this specific context the vacuum is a theoretical entity required by the mathematics of the quantum field theory, there is evidence that the phenomenon denoted by the term "vacuum" also has realistic aspects. As a result, there are two different vacuum concepts in contemporary physics: one treats the vacuum as an abstract point in the Hilbert space, and the other views it as a physically real and active field below the level of quanta.

The latter concept, of the vacuum as a physical field, is not included in Einstein's relativity theory, but it is not incompatible with it. Relativity theory views space-time as relative and dynamic, interacting with matter and energy; it is the "background" against which the events of the manifest world unfold. But the origins of this background are not accounted for in Einstein's theory; space-time is "given," together with matter and energy. This is much the same in string and superstring theories. These theories are not "background independent"; they assume the presence of space-time and do not explain its origins. Even the highly accomplished M-Brane version of superstring theory advanced by Edward Witten in 1995 fails in this regard.

The current impasse points toward the need to recognize a deeper field or dimension subtending the universe. As John Wheeler pointed out, "If we are ever going to find an element in nature that explains space and time, we surely have to find something that is deeper than space or time—something that itself has no location in space or time."(13)

The presence of a deeper level of physical reality may also account for nonlocal connection among the observed phenomena. This was maintained already by David Bohm in his theory of the "holofield," located in the unobservable dimension of the implicate order.(14) A theory based on an analogous concept—the A-field—has been elaborated by the present writer. In his view—stated in a number of books and articles,(9,15) most recently in *Science and the Akashic Field*(9) and *Quantum Shift in the Global Brain*(16)—nonlocal connection among the entities in the observable dimensions of the universe is assessed in terms of a holographic transfer of information among interfering wave fronts in the physical vacuum.

The Italian physicists Davide Fiscaletti and Amrit Sorli offered a mathematically elaborated theory in support of basically the same claim. They suggest that the stage on which natural phenomena take place is an atemporal four-dimensional physical space (ATPS). "Empty" space, as well as the manifest quanta that make up observable reality, are constituted of "quanta of space" within the ATPS; they are the fundamental building blocks of physical reality.(17,18) Both quanta and the fields of nature are special states of ATPS. The universe itself is an atemporal phenomenon and the Planck-length quanta of space are its elementary constituents. Since communication between quanta occurs through the atemporal four-dimensional physical space, quantum nonlocality is not an anomalous phenomenon

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### **The Hypothesis: ITC As an Instance of Nonlocal Communication Mediated by the Physical Vacuum**

The basic concept of the hypothesis explored on these pages can now be spelled out. We begin by noting that all objects in space-time emit waves of specific frequencies. The wave fields radiate from the objects that produce them, and when the wave field emanating from an object

encounters another object, a part of it is reflected from that object, and a part is absorbed by it. The impacted object becomes energized and creates a wave field that moves back toward the object that emitted the initial wave field. The interference of the initial and the response wave fields creates an overall pattern, and this pattern carries information on the objects that created the wave fields. The resulting interference pattern is effectively a hologram.(19)

It is also known that the information carried in a hologram is available at all points where the constitutive wave fields penetrate. It can be transferred from hologram to hologram if they resonate at the same frequency, or at compatible frequencies.

We now add that things in space and time are embedded in the electromagnetic field, and the waves they emit are electromagnetic waves. However, according to the new conceptions, objects in space-time are also embedded in the physical vacuum, and the waves they emit in that deeper dimension are not electromagnetic waves, but waves of a different kind, most likely scalar waves (scalars are longitudinal rather than transverse waves that travel at velocities proportional to the transmitting medium—the same as sound waves, the more dense the medium, the faster they propagate). The interference patterns of scalar waves constitute holograms that superpose and conserve information. This information can be transferred among holograms resonating at compatible frequency domains.

The above concept offers an explanatory framework for the nonlocal exchange of information among objects in space-time at all scales of magnitude.

In regard to the ITC experience reported above, the following explanation can be given. Bacci's brain and nervous system enters a frequency domain compatible with specific holographic patterns in the vacuum. As a result, Bacci's brain and nervous system exchange information with these patterns. Bacci obtains this information not telepathically, as many other mediums, but in physical contact with a radio. As he searches the shortwave broadcast band, he comes across the appropriate frequency, and the radio then transmits information from the physical vacuum, rather than the shortwave band of the electromagnetic field. Bacci's brain and nervous system turns out to be tuned to vacuum-based holograms that carry information that constitutes the consciousness of deceased persons. His brain and nervous system project this information to the radio, where it is converted into sound waves in the audible range.

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### Questions for Research

As an explanatory framework, the above hypothesis applies to nonlocal phenomena in general. In regard to ITC in particular, its specific application calls for considering the following basic questions:

1. How can a hologram in the physical vacuum access information from a living individual?

A vacuum-hologram does not have sensory organs. How, then, does such a hologram access information from a flesh-and-blood individual? We should note that the evidence for transcommunication does not suggest that the vacuum-based hologram has sensory types of perceptions, such as seeing sights in three dimension and hearing ordinary sounds. It does indicate, on the other hand, that such an entity can perceive questions and comments from living persons. How this may be possible calls for reference to the theory of holographic information transfer outlined above. The hologram that represents the consciousness of the deceased accesses the utterances of the living interlocutor through interaction with the hologram created in the vacuum by the living individual's brain. The latter does not carry the living individual's voice, only the information that his or her voice would articulate. Transcommunication is an exchange of information between the two vacuum-based holograms. This is a realistic possibility. Transcommunication can be assumed to take place when the hologram created by the brain of the living interlocutor and the hologram that carries the consciousness of the deceased resonate at the same frequency. Then the hologram that carries the consciousness of the deceased person accesses the information carried by the hologram of the living person.



2. How can the transfer of information from a vacuum-based hologram to the brain of a living individual produce audible sounds in a radio?

The concept of information exchange among holograms resonating at the same frequency offers a plausible if hypothetical answer also to the next question: how can a hologram in the physical vacuum produce audible sounds in a radio? The answer to this question follows from the considerations outlined above. It is not the radio that receives the signals that are transformed into the anomalous voices; this would presuppose that information carried by interfering wave fronts in the vacuum can directly affect the electromagnetic field. There is no independent evidence that this would be the case. In regard to the experiment recounted here, the assumption that it is the radio that receives the signals is counter-indicated by three confirmed observations: 1) the radio fails to produce the voices in Bacci's absence, 2) the production of the voices—unlike the normal operation of the radio—does not involve an increase in the electrical and magnetic fields, and 3) the voices continue without alteration, even when the frequency modulation and the intermediate oscillation valves are removed from the radio.

The fact that Bacci's radio produces the anomalous voices only in the presence of the medium matches observations in the majority of ITC experiments. In the cases cited above—the transcommunication produced by Konstantin Raudive,(1) Otto König,(4) and Anabela Cardoso(5) (as well as in various other cases, inter alia the experiments of Friedrich Jürgenson, Raymond Bayless, and Attila von Szalay), results were obtained only in the physical presence of a psychically gifted experimenter. In some well-documented cases—for example, that of Peter Härting of the Darmstadt group, who had a long-lasting and thoroughly documented contact with the discarnate consciousness known as ABX JUNO, as well as that of William O'Neil of the Metascience Foundation, who had enduring communication with the deceased George Jeffries Mueller—regular transcommunication ceased abruptly when the medium died. Father Brune reported that Adolf Homes, in his communication with Mueller, received a message saying that "the dialogue ceases with the death of the researcher because the vibration required for this is no longer given."(6)

These facts and observations suggest that contact between the living dialogue partner and the hologram that carries the consciousness of the deceased requires a highly specific "tuning" of the brain and nervous system of the experimenter to the hologram that carries the lifetime experiences of the deceased. Even when an experimenter can pick up voices from a variety of individuals, he or she appears to have privileged contact with one specific deceased individual. For example, Styhe was the standard communicator for S. W. Estep, Hyppolite Baraduc for Vladimir Delavre, ABX-JUNO for Peter Härting, and the "Technician" for Swejen Salter. For Bacci, the privileged communicator has been a female voice identified as Cordula, although in the experiment reported here she did not manifest herself. When this fine-tuned relationship ceases, the deceased person can sometimes access another living individual; in the case of George Jeffries Mueller as well as in that of Konstantin Raudive (who had earlier communicated mainly with Jules and Maggy Harsch-Fischbach of the Luxembourg group), the substitute living partner turned out to be Adolf Homes of Rivenich, Germany.

It appears that a psychically gifted individual needs to be physically present for communication to take place, but he or she need not be consciously aware that it is taking place. This was shown by a famous case, described by the Brazilian investigator Oscar d'Argonnel.(20) d'Argonnel had been receiving voice messages on his telephone and went to great pains to establish that they were of paranormal origin. In January 1919, he was visiting Abelardo, a psychic, who was having lunch. d'Argonnel wanted to call his friend Figner and did so in the room next to where Abelardo was having his meal. While he was talking to Figner, strange noises began to come through on the phone, and the voice of Father Manoel, who died some years before, came on the line. d'Argonnel and Figner had a long and clear three-way conversation, during which d'Argonnel looked periodically at the medium Abelardo to see whether he is following it, but the latter was engrossed in his meal. d'Argonnel asked the voice of Father Manoel if he should call the medium, but the latter replied, "No, for I cannot stay." Manoel stayed on the line for a while longer before formally taking his leave: "Adieu, d'Argonnel, Adieu, Figner." After finishing the conversation with Figner, d'Argonnel went to Abelardo to tell him what had transpired; the medium did not know anything about it.



Observations such as the above prompted some theoreticians to suggest that it is the experimenter's subconscious mind that produces the voices. But this assumption does not explain how the messages can contain information to which the experimenters had no access—for example, descriptions of distant objects and places, and languages previously unknown to them. It is more plausible that the experimenters do not produce the content of the messages articulated by the voices; they merely transmit it. The content originates in the vacuum, and the brain and nervous system of the experimenter transmits it to the instrument in a form the latter can convert into sound.

The production of signals by humans that an electronic instrument can transform into sound (or image) is not unprecedented. In an impressive number of cases, psychic individuals have been known to “project” some form of information from their conscious or subconscious mind, such as voices to tape recorders or images to TV screens. Even if the physics underlying this process is not known, the process itself appears to be authentic.

It is, however, the physical explanation of this process that interests us. A useful pointer for tackling this question is the consideration that a radio tuned to empty regions of the shortwave band (or operating without the frequency modulator valve), the same as a TV set tuned to empty regions of the broadcast band, is a system in a state of chaos. It produces random static. In this condition it is ultrasensitive, and it is conceivable that impulses arriving from the human brain and nervous system (in Bacci's case, transmitted by hands-on contact with the radio) are physically of a kind that can be transformed by the instrument into a sense-perceivable form.

3. How does a bundle of information persist actively in the vacuum in the absence of association with a living brain?

The hypothesis explored here is that the holographic traces of the consciousness associated with the brain of a living person persist in the physical vacuum. However, if transcommunication is an authentic phenomenon, the evidence goes beyond this; it suggests that the vacuum contains not merely a passive record of a person's consciousness, created during that person's lifetime and then persisting unchanged, but harbors a dynamic bundle of information based on the experiences accumulated in that lifetime. Under suitable conditions, this bundle of information appears to be available for transcommunication after the demise of the brain and body that has generated it. How is it physically possible for a bundle of information to persist actively in the vacuum in the absence of association with a living brain?

In esoteric traditions, various hypotheses have been advanced in regard to this mystery. Among the most widely discussed, the concept of multiple “shells”—physical, mental, and spiritual—merits mention. Several shells are said to compose a human being, one embedded in the other like the skins of an onion. When an individual dies, it is not only his mental shell (his consciousness) that leaves his physical shell (his body); his spiritual shells separate as well. These shells separate gradually, in stages. In the initial stages, some of the persisting shells, or shell fragments, still carry the thoughts, feelings, desires, and memories of the deceased. Even when separated, they remain active and have a degree of autonomy. It is thus conceivable that they can produce responses on their own.

A nonesoteric hypothesis links the phenomenon of transcommunication with modern physics. It views the voices attributed to discarnate entities as waves that are imperceptible by sensory organs but are nonetheless real. Supporters of this hypothesis point out that many waves propagate in space that we cannot perceive directly but must deduce through complex chains of reasoning (eg, quantum waves, gravity waves). There are also waves that are in themselves not accessible to the senses (such as radio waves) but can be transformed into sense-perceivable form by electronic devices. There is no reason to assume that some waves would not have remained undiscovered due to lack of necessary instruments. Some of these waves could be accessed by specially gifted “psychic” individuals, and when accessed they would produce the phenomena of telepathic (direct) or instrumental (indirect) transcommunication.(21)

The above two hypotheses—that of shells or shell fragments that leave the body in stages, and that of imperceptible but real waves—can also be combined. The shells—for example, our “etheric body”—could enter a larger wave field and integrate with other shells in that field. Alice Bailey suggested something along these lines. She wrote, “This word “ether” is a generic term covering the ocean of energies which are all interrelated and which constitute that one synthetic energy body of our planet ... the etheric or energy body, therefore, of every human being is an integral part of the etheric body of the planet itself.”(22)

Gustav Fechner, the pragmatic founder of experimental methods in psychology, advanced an analogous hypothesis. “When one of us dies,” he wrote after recovering from a serious illness, “it is as if an eye of the world were closed, for all perceptive contributions from that particular quarter cease. But the memories and conceptual relations that have spun themselves round the perceptions of that person remain in the larger Earth life as distinct as ever, and form new relations and grow and develop throughout all the future, in the same way in which our own distinct objects of thought, once stored in memory, form new relations and develop throughout our whole finite life.”(23)

The combination of the two hypotheses converges progressively on the nonlocality hypothesis explored here. According to this hypothesis, the information manifested by the anomalous voices originates in the physical vacuum. Transcommunication occurs when a living person's brain and nervous system become specifically tuned to the frequency of a vacuum-based hologram that carries the experiences of a deceased individual; information is then exchanged between them. This exchange does not require the use of sensory channels.

This answer is simpler, more economical, and at the same time more general than that of the esoteric tradition. There is no need to assume a special spiritual shell in regard to human beings; all things in space and time, from quanta to galaxies, leave their traces in the physical vacuum. These traces constitute scalar wave fronts that interfere and create natural holograms. In the vacuum, the holograms created by the wave fronts are not subject to attenuation or cancellation. As new waves are generated, the existing interference patterns superpose, and the information they contain is integrated with the preexisting patterns in the manner of multiplex holograms.

The truly fundamental question is how a hologram in the physical vacuum can possess the kind of autonomy that is shown by a dialog with a living individual. This is a hard but not an unresearchable question. Given the theoretical tools, the mathematics, and the electronic simulation methods at our disposal, it should not be impossible to ascertain whether sets of coherent elements within an information-rich complex field can operate with a distinct level of autonomy of their own.

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## Conclusions

Of the three questions posed above, two have cogent—if as yet hypothetical—answers based on the recognition of the presence of the physical vacuum as an underlying information, conserving and transmitting, and thus nonlocal connection-producing, field. On the other hand, the third question poses a major challenge for scientific research.

Exploring and possibly confirming the here-suggested answer to the two easier questions would lend credence to the phenomenon of ITC. Finding an acceptable answer to the “hard” question would be entirely fundamental. It would support a perennial belief held in nearly all religions and traditions of spirituality: belief in the survival of a form of consciousness beyond the portals of death. In the context of science, it would mark a milestone in our understanding of the phenomenon of human consciousness and its occasional, even if perhaps temporary, persistence beyond the demise of the body.

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\* There is a curious coincidence regarding the time delay in this experiment. It started, as was Bacci's practice, precisely at 7:30 pm. But the voices came online only one hour later, when our watches showed 8:30 pm. However, not long beforehand, Europe shifted from winter to summertime. Hence, 8:30 pm was previously 7:30 pm, the exact time the voices manifested themselves. It appears that the voices were on time; it was Bacci who this time attempted to communicate too soon.

\*\* I later discovered that Father Ernetti, a Roman Catholic priest attached to the Abbey of San Giorgio Maggiore in Venice, began having ITC experiences in 1952, when together with Father Gemelli, an eminent medical doctor at the Catholic University of Milan, they were investigating ways of filtering the audio tapes of Gregorian chants to enhance the purity of their sound. They were frustrated by the fact that the wire used by the old-fashioned recorders broke frequently

and required constant and delicate repair. Finally Father Gemelli, as was his habit when exasperated, called on his deceased father for help. When they restarted their own recorder, the two fathers heard the voice of Gemelli Senior, rather than the Gregorian chant on which they were working. It said, "Of course I'll help you! I am always with you." The two priests reported the incident to Pope Pious XII, who gave them a highly positive response: hearing the voice, he said, could initiate "a new scientific study for confirming faith in the afterlife." Father Brune was privy to these facts and became a long-lasting friend and coresearcher of Father Ernetti.

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