LABORATORIO INTERDISCIPLINARE DI RICERCA
BIOPSICOCIBERNETICA
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THE WORK AT "IL LABORATORIO"

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1. Introducing "Il Laboratorio"

It is a great pleasure and honor for me to attend this very important International Conference and I wish to thank Lisa and Tom Butler for their kind invitation to participate.

I will begin by explaining the targets, methods and research activities carried out at *Il Laboratorio – Interdisciplinary Laboratory for Biopsychocybernetic Research*, the purpose of which to study phenomena that, for a long time, we all wrongly judged as "paranormal".

To begin, I would like to draw your attention to the name of our organization so that you understand the leading criteria of our scientific activities.

The first word, *Il Laboratorio* (The Laboratory), is self-explanatory and refers to a place provided with equipment for scientific research.

The word *Interdisciplinary* indicates that our research is performed using methods belonging to different sciences and/or disciplines linked together in a methodological and conceptual way.

To follow an interdisciplinary approach in the investigations has today become a necessity of contemporary scientific thought, particularly when the

research is designed to understand certain phenomena emerging from the human mind.

The “Il Laboratorio" team intends also to investigate unusual occurrences, usually referred to as events that go beyond *psi-cognitive* and *psychokinetic* phenomena, in areas that traditional parapsychology did not intend to investigate.

Our area of interest includes also study of so-called "borderline phenomena" such as Out-of-Body-Experiences (OBE) and Near Death Experiences (NDE), as well as phenomena that depend upon altered or modified states of consciousness like sensitiveness and mediumship.

Our research is also concerned with investigation of the subjects involved in psychic phenomena from the neuro-psycho-physiological point of view, in order to bring to light possible interconnections between the subject and the final link in the phenomenological chain, like physical psychic effects.

Our area of interest includes also the so-called *bioresonance phenomena* that are concerned with the interactive interface that man has with his immediate and more remote physical surroundings, as well as with his social psychological background.

The word *Research* refers to the studies designed and systematically implemented in order to increase our understanding and knowledge of unusual occurrences through the use of scientific methodology wherever applicable and feasible.

The final word in the name of our organization, *Bio-psycho-cybernetic,* indicates that our investigations are not limited to explaining psi phenomena by criteria and laws based only on physical paradigms, but by considering each occurrence belonging to a complex system whose properties can be understood by studying the whole system from different perspectives.

I wish to stress that the philosophy guiding the researchers of *Il Laboratorio* deals with events as they occur, whether as they appear in the physical world, or as evidence of inner or psychic experience.

This neologism was suggested by the founders of *Il Laboratorio* and adopted with the goal of supporting a gradual revision of the terminology of parapsychological research in order to distance our discipline from the ghetto of the pseudo-sciences.

Our activities are therefore both practical ("in the field") and theoretical. They deal with the reliability of documented reports, the verification of reported occurrences, and the scientific and technological circumstances (including controls) within which findings are gathered.

Within the context of present scientific knowledge, utilizing where possible and feasible the most updated technologies, our researchers conduct their research.

Before introducing to you the Department directly involved in Instrumental Transcommunication, I would like to give you some information about the other Departments that work together collaboratively.

The *Research* and *Theoretics Departments* report directly to the General Director while the *Voice*, *Image* and *Psychophysiological Departments* report to the *Research Department*.

Dr. Enrico Marabini heads *Il Laboratorio* as General Director; he also manages *ad interim* the *Theoretics Department*. This branch of *Il Laboratorio* handles the epistemological issues that arise from our research activities.

This is a very important Department since its task is to confirm the correctness of methodology, and the procedures and interpretations attributed to results arising from the experimental activities of the research teams.

The *Research Department*, managed by Dr. Michele Dinicastro, coordinates all the research activities performed by the Departments.

Dr. Giorgio Gagliardi manages the *Psychophysiological Department*. He is entrusted with the investigations into the personality and physiology of the subjects involved in paranormal phenomena. This is a very complex topic and, at the same time, one that is of great importance in the context of both psychological and physiological interactions between the human personality and the phenomena under investigation.

The topic of Instrumental Transcommunication (ITC) is dealt with by the *Voice Department*, managed by myself, and the *Image Department* managed by engineer Daniele Gullà.

The *Voice* and *Image* Departments conduct their research activities thanks to the competence and collaboration of colleague Daniele Gullà, a skilled electronics engineer, who is an expert in electro-acoustical analysis of voices, as well as image recognition and processing. His extensive experience in these fields has allowed him to accomplish qualified legal advices for Italian Courts of Justice.

I am pleased to provide detailed information about our research including some practical and significant examples.

There are many ways to study the paranormal or unusual events relating to the survival of consciousness after death. Many operators who try to "receive" messages from the beyond are motivated mainly by emotional issues, such as the loss of a loved one, where the contents are surely more important than anything else. Other researchers, like myself, are conscious of the great importance of the topic and are studying the process by investigating the many different expressions of the phenomena. By doing so, those researchers attempt to characterize all the elements that contribute to increasing the meaning and validity of the results of experimentation.

That is why I consider it mandatory that the phenomena witnessed be thoroughly investigated and that the investigations be carried out using methods and technical tools that are recognized as being suitable for scientific research.

It should be the task of the serious researcher to uncover all events that can be considered *anomalous* because they do not fit the established laws of physics. Only in this way will we awaken the scientific establishment to the importance of this kind of research, and only at that time will a revision of the paradigms, now considered unchangeable by science, take place.

In line with Thomas Kuhn's thought[1], we recognize that this may be a very slow process, but the only one capable of leading human society to the conscious maturity that will result from scientific understanding of new discoveries.

To that purpose, together with my collaborators at *Il Laboratorio*, we dedicate our efforts in this way.

We use the most up-to-date professional software and hardware to document all the peculiarities and anomalies that are found in the electroacoustical structure of authentic paranormal voices obtained under controlled conditions.

In this presentation I am pleased to share with you some examples of the preliminary findings in this matter.

2. Investigating Paranormal Voices Using Computer-Based Analysis

On 17 September 1952, Italian Fathers Agostino Gemelli and Pellegrino Ernetti reported a case of alleged anomalous communication received through a magnetic wire-recorder. The reported phenomenon attracted little attention until 1959 when Friedrich Jürgenson, a Sweden artist and documentary filmmaker, obtained the same kind of phenomenon.

Intrigued by these claims, Latvian psychologist Konstantin Raudive commenced his own experimentation that confirmed Jürgenson's results (1971).

Much research has been conducted in several different countries in order to help us understand the mechanisms governing the phenomenon. In Italy, we have

[1] **Thomas S. Kuhn** - *The Structure of Scientific Revolution* - The University of Chicago, 1970.

an ongoing research programme, named *Sfinge Project*, which is supported by a grant generously donated by the Swedish *Helene Reeder Memorial Fund*.

Before dealing with the preliminary results obtained in the Sfinge project, it is useful to provide some information about the signal acquisition and processing quality required to perform reliable analyses.

To obtain voices of sufficient quality to permit analysis, the original recording signal must provide for a reasonably good Signal/Noise ratio (S/N). If the voice signal is at the same level as the background noise or lower, the chance of successful analysis will be extremely low.

To obtain a good sound quality the original recording signal needs a relatively high signal/noise ratio, like that obtained though a digital recording rather than an analog recording through an audiocassette recorder.

Digital recording is obtained by recording directly onto a computer or digital audio recorder (solid state or digital tape recorder).

The key difference between digital and analog systems consists in their acoustic dynamic ranges: those from digital recording systems are greater than 90 dB while those from audiocassette recorder (analog) are usually not more than 60 dB.

That is why it is important to record Electronic Voice Phenomena with a recording system that ensures that the acoustic loss of information is reduced to a minimum.

Unfortunately, we often have to work with very weak or noisy signals due to imperfect recordings. Too often poor quality microphones or audiocassette tape recorders are used and this results in a high distortion effect and makes analysis and decoding unreliable. It is worth repeating that the accuracy of analyses of the signal depends on the acoustic quality of the recording acquired.

In the Sfinge project, we used a personal computer, acting as a recorder of input signals coming from a high-quality, condenser-type microphone and

processed by a professional microphone preamplifier, with digital output, and a multiband signal processor.

This project provides practical experimentation, under controlled conditions, involving four of the most skilled ITC operators in Italy, each working in independent experimental sessions.

We started the project with the first operator by experimenting with the typical microphone recording method, using a cassette tape recorder with built-in microphone.

The first experiment was conducted with a female operator, Mrs. Lida Russo from Livorno, Italy. She used her audiocassette recorder, which was really quite modest. Unfortunately, in the experimental sessions performed, she recorded only some voices of poor acoustic quality.

Exactly the opposite happened to our research team using a professional recording system, operated by Daniele Gullà, which served a cross-referential function.

The introduction of professional recording tools to record the whole experiment brought us some unexpected and astonishing results.

Another important check was carried out using a professional phonometer in order to survey the existing background noise during the experiment.

Generally speaking, the main objection currently raised by the critics concerns the ambiguous sonority that mainly characterizes EVP material. In their opinion an ambiguous acoustic event, properly fragmented and cadenced, might be decoded as a linguistic message. They argue that when a high fidelity recording system is used, the alleged paranormal voices reveal themselves to be a simple noise, not voices.

Our experimentation demonstrated exactly the opposite. The digital recording revealed the presence of voices not audible on the audiocassette recorded by the operator.

In my opinion, the primary cause can be found somewhere between the recording devices used, the existing psychological and/or psychical condition of the ITC operator, and the whole "Minds System"[2] constituted by the people attending the experiment. In fact the operator under observation was expecting good voices to be recorded by the experimenters from *Il Laboratorio*.

Consequently, Mrs. Russo's main expectation was the successful recording of voices on the sophisticated recording devices. These were arranged in the room by the researchers. Several times, Mrs. Russo asked Daniele Gullà if voices had been recorded on his devices; she was not worried at all whether voices could be recorded on her own tape recorder.

The great influence exerted on the device by Mrs. Russo (the ITC operator) was experienced again when our psychologist, Dr. Giorgio Gagliardi, and his assistant were ready to perform a psychophysiological examination of her.

This examination requires the use of a polygraph connected to a personal computer, which records the neurovegetative and electrodermic changes occurring during the psychological test.

Before leaving his home Dr. Gagliardi checked that both devices were functioning correctly. No problems were found, everything was working properly.

Once the electrodes were positioned on Mrs. Russo's head and everything was ready for the test, the personal computer gave an error message. Several times the computer was checked and restarted but the error didn't disappear.

The most significant occurrence happened when Dr. Gagliardi returned to his home: inexplicably both the devices were found to be operating correctly, without any error!

Lastly, all of the approximately 50 photos taken with a digital camera, many of which show Mrs. Russo ready for the experiment with the electrodes positioned on her head, were inexplicably and definitively lost.

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[2] For "Minds System" should be intended a group of interacting psychic beings.

It is my opinion that the stressful psychological condition of Mrs. Russo's mind, probably due to her anxiety about the results of test, set off such occurrences.

In the following, the results of the analyses done on two very short tonal sentences are reported.

The tonal sentences are saying: "ami Enzo?" ("do you love Enzo?") and "oh mamma" ("oh mom").

It must be said that Enzo, the unknown speaker, is the name of the deceased son of Mrs. Russo.

The whole sentence \AMI\ENZO\ is uttered with a light temporal dilatation, with an evident pause between the two words. The voice is a loud, clearly audible voice, well cadenced, which was not heard by either the experimenters or the operator during the experiment.

In the first sentence (duration 2.278 sec.) only the first part \AMI\E was analyzed because the word \ENZO\ was partially overlapped by the voices of people attending the experiment.

The analyses revealed several anomalies as follows:

- Modulations of signals changing mainly in amplitude instead of in frequency.
- Formants visibility limited to F1 and F2 only.
- Vibrations of vocal cords detectable in short intervals only.
- Abnormal fluctuations of voice frequency ranges.
- Poor melodic and harmonic contents.
- Vowels expanded in time.
- Abnormal excitation of cochlear liquid (simulated via software).
- The voice reverberation differs from the one existing in the room.
- Aleatory values of vowels in I.P.A. table.

- High content of noise and significant aperiodicity of signals.
- Impossibility for the software to structure a model of Vocal Tract due to the low influence of overglottal organs (resonators).
- Jitter values indicate the presence of possible dysphonias.

The electroacoustic measures reveal the presence of significant structural anomalies deviating from normal human speech parameters even if the sentence is uttered with a loud, clearly audible voice, apparently quite similar to the human voice.

The second sentence \OH\MAMMA\ (duration 1.897 sec.) is uttered twice; the first utterance is made with a loud, clearly audible voice, while the second utterance is an acoustically very low, whispered voice, saying the same words.

A sound, similar to the one produced by pushing a call-bell (such as used on a reception desk of a hotel to call the personnel), precedes the first utterance. Nobody heard such a ring during the experiment.

In the first and in the last vowel \A\ the software functions (L.P.C. and Autocorrelation) clearly reveal the activation of overglottal resonators but the vibrations of vocal cords are not distinctly noticeable.

The analyses performed on the second sentence exhibit the same anomalies as in the first sentence and in addition:

- Abnormal trend of the fundamental frequency F0.
- Impossibility for the software to represent the sound using the cochlear model (software simulation).
- The voice seems to be partially structured both by voiced sounds and whispered sounds with only some structural components pertaining to human speech.
- Formants are fragmented and apparently generated by a thickening of existing background noise.

The electroacoustic measures carried out on the second sentence confirm the presence of important anomalies in the voice structure.

The presence of the fundamental frequency without the consequent vibration of vocal cords is inexplicable. It must be said that, in normal human speech, only the vibration of vocal cords generates the fundamental frequency.

The energy and the high a-periodicity of signals pertinent to vowels are absolutely unusual and detectable only in the zones affected by consonants.

This unusual occurrence found in the paranormal voices is very important since it supports my personal hypothesis about the paranormal process of the generation of formants: it seems to come from an inexplicable process of local thickening of the existing background noise.

In particular, it was noted that such formants, mainly modulated in amplitude, are structured in the typical frequency bands pertaining to the vowel sounds. As a consequence – and this is a very important point – such formants, so structured, maintain unaltered the semantic content of the words in the listening phase.

In addition, it was found that if some slight deviation or partial lack of signal occurs, causing the software to register an incorrect vowel sound classification, the information already existing in the listener's brain (at the conscious or subconscious level) is able, during the listening phase, to make a suitable integration of missing parts in the input signals.

In order to exclude eventual deviations interpreted as anomalies due to the software used (Speech Filing System v. 4.6)®, a second professional software (Praat v. 4.3.37)® was used in accordance with a specific requirement in our Operating Procedure.

The analyses performed using the second software confirmed the anomalies detected by the first software.

Another very interesting case of paranormal telephone voice that we have analyzed is the case involving Edna.

In this regard, *Il Laboratorio* was asked to analyze a telephone voice sample, sent via email by Sonia Rinaldi, a well-known Brazilian operator who is also a presenter in this Conference.

The sample is from an experiment carried out by recording a normal phone call, initiated by Cleusa, on Rinaldi's personal computer.

Cleusa was the adoptive mother of Edna, a young girl who died at the age of 16 when run over by a car.

The phone call lasted 15 minutes during which Edna spoke 78 times.

The experiment was made in a very original manner.

During the conversation between the two ladies, three CDs, containing the utterances of phonemes pertaining to foreign languages (other than Portuguese), were simultaneously played. Using such a tone mixture as background sound-source meant that it was impossible to structure meaningful sentences in the Portuguese language that would be coherent with the topic of dialogue.

The sentence submitted for analysis was found to be: half modulated over the sound-source and the other half perfectly clear of such sounds. The latter was recorded when the CD player was switched off.

From the voice data provided, the second half of the sentence was analyzed, where the voice resulted without any background sound-source.

I must point out that the sample analyzed was sent to *Il Laboratorio* via e-mail and therefore subject to all the limitations of that means of communication.

The analyses performed on Edna's voice revealed the presence of the following structural anomalies:

- Severe fragmentation of fundamental frequency F0 and its too much low fluctuation in frequency (found to be less than 15 Hz, while in normal human speech it ranges from 30 to 60 Hz).

- Severe fragmentation of vocal cord vibrations, detectable in the positions of existing fragments of fundamental frequency.

- Unusual increase in sound intensity in the high frequency bands ranging between 2000 and 3000 Hz. In normal speech, when the frequency range increases, the intensity of sound usually decreases. In our case exactly the opposite was found. It seemed to be a voice uttered affecting the soft palate area (glottal voice), or produced by a vocal apparatus of reduced dimensions.

- Abnormal formant trends with a partial fusion of second formant F2 and third formant F3.

- Abnormal formant bandwidths.

- Abnormal increase of sound intensities in the third formant F3 and in the fourth formant F4.

- The high values of Jitter and Shimmer indicate the presence of dysphonias due to possible phonatory pathologies. In particular the impulsive changes in voice frequency (Jitter) represent an indirect evidence of instability of the vocal system.

- Abnormal speech fluency characterized by lack of voice breaks.
  In normal speech, the voice breaks are caused by the occlusions produced by certain consonants, or due to the aspiration/expiration of air to/from the lungs. In human speech, several voice breaks can occur depending on the length of the words.

- Abnormal fluctuations of voice frequency ranges.

- Poor melodic and harmonic contents.

Following the detection of such anomalies and in order to investigate further, Edna's alleged paranormal voice was compared to her lifetime voice.

The comparative analyses were carried out using a software named "FBI Image Searching"®, currently employed by the Federal Bureau of Investigation in the United States.

This software has real-time image recognition capability. It can be used for any kind of images and produces extremely accurate results. This software is able to process millions of images.

The computer processing involves artificial intelligence to learn directly the content of an image, or several images, and to retrieve all similar images based upon their content.

The "FBI Image Searching" software provides a tool for image matching through "One-to-One" and "One-to-Many" functions. In the investigation of the Edna communication, both functions were used for comparing the acoustic maps (images) of her voice.

The "One-to-One" function provides the identification by matching a single image against another single image.

The "One-to-Many" function provides the identification by matching of a single image against a database of images with no declared identity required.

The single image under investigation is generally the newly obtained sample and the database contains all previously filed images.

Scores are generated for each comparison, and an algorithm is used to determine the matching record. Generally, the highest score exceeding the threshold results in identification.

In our case the images processed were the acoustic maps relevant to Edna's voice while alive and her alleged paranormal voice.

By introducing an accuracy acceptance limit greater than 95%, the "One-to-One" comparative analysis recognized the acoustic map of Edna's voice while alive in the acoustic map of her alleged paranormal voice.

In order to add weight to our research, the voice of the living Edna was added to the 908 voices existing in the database, where 229 voices belong to Portuguese and Brazilian speakers (Edna was Brazilian).

With the same acceptance limit, the "One-to-Many" function provided a comparison between Edna's alleged paranormal voice (its acoustic map) and the 909 acoustic maps of other voices contained in the database.

The matching process took 7 hours to do 48,600 calculations, with the processor (CPU) working at 100% of capacity (Processor type AMD K7 operating at 3 GHz with RAM of 1 GHz).

When the computer processing was completed, the "One-to-Many" function had identified the acoustic map of Edna's alleged paranormal voice in the acoustic map of Edna's voice while she was alive.

This was the only acoustic map that exceeded 99% similarity through the computer matching process against 909 acoustic maps.

3. Investigating Paranormal Images by Using Biometric Techniques

Biometrics is a scientific technique for measuring, in a direct or indirect way, the morphologic and anthropometric features of a person for identification purposes.

Identification is understood to be the procedure whereby it is possible to recognize a person based on a sufficient number of references, such as the shape and sizes of the face features as they compare to the underlying cranial structure.

In legal matters, biometrical tests are often used to recognize an individual who has committed a crime or an absconder who is trying to conceal his or her identity. Biometrical testing is also used in other cases where a need exists to identify an individual.

Consequently, the most frequent users of such methods are police departments, forensic medicine departments, and particularly intelligence services.

It is important to note that identification systems are not yet perfected. Depending upon the quality of the images used as a reference, the existing error rate can still be very high.

For this reason, many of the technologies used today for forensic tests are not always able to offer fully reliable results concerning the identification of an

individual; basically, they only establish compatibility indexes through similarity of statistical ratings.

In the past decade, major progress has occurred in face recognition systems. Many software packages have been designed with the ability to achieve recognition rates of more than 90%.

The introduction of more sophisticated and accurate information technologies and the increased capability of computers have allowed the design of new recognition systems that utilize sophisticated and innovative algorithms in their processing systems, like *Neural Networks*, *Wavelets* and *Computer Graphics.*

One of the well-known methods used at *Il Laboratorio* is the so-called *"Anthropometric Face Recognition"*.

The features taken into account relate basically to the distances between certain points of reference, or landmarks, also known as “Repère points”, situated in the cranio-facial structure. They relate also to the morphological somatic features of the shape of the face or parts of it.

When manual or semiautomatic procedures are used, at least a dozen points are measured. Certain techniques require up to 80 points with calculations in three-dimensions (3D).

The accuracy of the measurements of dimensions on the image considered as reference and the corresponding dimensions on the image under analysis is extremely important. The smaller the variances the more evidential and convincing the resulting analysis will be.

Comparisons made at different times on the same face are unlikely to yield the same result with 100% accuracy. This results from the inevitability of error in measurement, even if extremely slight. Though the measurements will always be similar, it is impossible to obtain an absolute measurement. This error relates mainly to the quality of the images that are compared.

In the investigation of paranormal images, due to their poor quality, it is essential that the software used should reduce the possibility of errors during the measurements.

Today many improvements have been made in the field of face recognition so that the margin of error is significantly reduced.

For the case reported in the following example, the most recent generation of face recognition software was used.

FaceIt is a software package used by forensic detectives in many countries as well as in many airports for the purpose of anti-terrorism prevention.

FaceIt employs a complex method involving mathematic calculations on multidimensional matrixes, as well as making use of algorithms, such as *Neural Networks*, that operate in a similar manner to the natural neural network in the human brain.

A conventional software program may supply a completely wrong response even if only a single "bit" in the input information is wrong.

On the other hand, an application based on neural networks attempts to correct the error by using previously stored information. This is very helpful with paranormal face recognition, since there always is a variable amount of background noise that makes the image unidentifiable.

If the noise doesn’t completely cover the features of the image, a neural network is usually capable of producing a response by using the part of the information that is not polluted or distorted. This allows recognition of noisy or partially concealed face images.

The reduction of the error rate to 0.03% increases significantly the reliability of the identification performed.

It is interesting to note that this software, while exploring a human face, picks up and learns a lot of information necessary for its identification. That computerized process is performed in the same manner that a human being scans a face for recognition.

Without going into detail, the system works in the following way:

1. The extraction algorithm for the biometric data generates an image representing a bas-relief reconstruction of the face's main features.

2. The *Eigenfaces* algorithm, certified by MIT (Massachusetts Institute of Technology), processes the input data and the existing data in the database by generating an image constituted by a dispersion of points that allows a quick search for similar faces. The resulting images are displayed; they appear as though superimposed from various images contained in the database.

3. The comparative analysis between a new sample image and the images contained in the database is carried out by generating an image of contours and automatically performing measurements between approximately 80 contour nodal points. These measurements are then compared to the corresponding measurements taken on the images contained in the database (a total current number of 7,230 faces).

The software is also provided with an option called *Reconstruct Face*, which makes it possible to reconstruct original images in 3D starting from the processed data, by means of the *Eigenfaces* algorithm.

4. The cross-correlation function aims at identifying the images contained in the database that are closest to the sample image. The faces displaying the highest degree of similarity, ranging from 1 to 80, are graphically presented.

The system has both a great strength and a great weakness.

The strength is that recognition accuracy reaches 98%, with an ability to even recognize people in disguise (wearing a false beard, moustache, dark glasses, hats or hoods).

The weakness is that, since the system is based on probabilities, it *always* identifies a match, by displaying the three most likely faces contained in the database.

However, based on research performed in the United States on a database containing 5,000 faces, the false recognition error proved to be lower than 5%, and was therefore considered as acceptable.

4. The Castagnini Case

In 1992, Massimo Castagnini died in a car accident. One year later, on the anniversary of his death, his friends, who used to play with him in a band, decided to honor his memory by organizing a concert party.

On that occasion Massimo's friends dedicated to him a song titled "Beyond the limit" and one of them took about seventy pictures, but several times the camera jammed inexplicably.

When the rolls were processed, among all the pictures there was one that contained inexplicable gaudy colors and luminous streaks that drew his mother's attention.

In the picture she and a few friends were greatly surprised to find, in the middle, a blurred and semitransparent image bearing human features in which was immediately recognized Massimo's likeness holding in his hand something that seemed to be a microphone.

In 1999 Daniele Gullà carried out spectro-chromatographic and densitometric measurements on the picture, which ruled out any accidental or intentional counterfeiting of any nature. Then an anthropometric investigation was also performed by analyzing the face displayed in that picture and comparing it to Massimo's image while alive.

The measurements taken, based on the distance rates for the two faces compared on 12 anthropometric points, together with circumstantial evidence suggested that the paranormal face might belong to Massimo.

Two years later Daniele Gullà had acquired much more advanced technology, which is also used by the police in the United States, and obtained confirmation that the two images belong to the same person.

For the Castagnini case, Daniele Gullà employed the *Face Recognition* and *FaceIt* software packages.

The alleged paranormal image was compared with an image dataset made up by 2,048 faces, including the one of Massimo Castagnini, which had been added to the database.

The choice made by the *Eigenfaces* function identified the file named "casta01A", which is a picture of the living Massimo's face, as the most similar to the paranormal image, with a degree of similarity of about 97.5 %.

The result is remarkable in that the alleged anomalous image is lower in quality than an ordinary image; therefore the number of required biometrical features is lower than the number one would hope for.

In summer 2004, after the acquisition of new software, it was possible for Daniele Gullà to repeat the identification test on Massimo's paranormal face using the *FBI Image Searching*® software. That software, already used in Edna's case, has a capability of reaching an accuracy rate above 99% based upon a database of 40,000 images.

The recognition of Massimo Castagnini's face was successfully accomplished with an identification rate of 99% after more then 1,900,000 cross-tests performed using the *One-to-Many* function.

Today, thanks to new software, we are able to reconstruct faces starting from the elements contained in the paranormal images and/or make comparisons by laying a reconstructed face on its alleged paranormal image.

5. How to conclude and explain the results?

The results of the analyses performed to date must be considered as an explorative sample of almost recurrent anomalies detectable in the electroacoustical structure of paranormal voices and of the possibilities of investigating paranormal images.

Since the anomalies discovered seem to be of a similar type, it could be

stated in a provisional way, that the paranormal voices are characterized by some substantial differences when compared to human voices.

From my point of view such differences mainly refer to the process by which they are structured.

The subjective auditory and instrumental tests prove that the acoustic quality of the paranormal voices is the main variable in this phenomenon.

In more than three decades covered by my personal survey, the variability was mainly found in the microphone voices where the range of audibility goes from whispered voices to extremely comprehensible voiced sounds.

In the telephone voices, like Edna's voice, the quality changes as well.

In many cases, those voices seem to have originated in the same manner as microphone voices, that is, by modulating the background noise or other sound material available at the moment.

In other cases, such as those reported by D. Scott Rogo, the quality of the telephone voices seems to be almost the same as a normal telephone voice.

This variability in the microphone and telephone voices was found in the Direct Radio Voices as well. For example, the Direct Radio Voices obtained by Friedrich Jürgenson and many other operators differ substantially, from the acoustical point of view, from those received by Marcello Bacci. Why?

In addition, sometimes the EVP operator's own voice was recorded on the tape. Both Carlo Trajna, an engineer and well-known Italian researcher, and myself experienced this occurrence.

In other instances, direct voices (not radio voices) were heard over the external speaker of the tape recorder while listening to a tape that contained pre-recorded normal acoustic material. A subsequent check revealed that such voices were not recorded on the tape.

In my opinion, the process by which paranormal voices are received may depend upon the degree of sensitiveness or mediumship existing in the operator.

Basically, the presence in the operator of a deeply internalized conceptual

model, together with expectations consistent with such a model, may be able to activate or create a hidden psychic channel for receiving voices in such a way. This occurrence happens, for example, when an EVP operator believes that the voices may be received through a radio in the same way as normal radio transmissions.

But how can the above mentioned *psychic sensitivity* or *mediumship* be rationally conceptualized?

To begin, I believe that it is an attribute that everybody possesses to greater or lesser extent; also, it seems that the attribute of mediumship can be developed when a motivated operator devotes himself to experimenting on a regular basis.

Secondly, this attribute seems to be supported by the deep inner conviction about the possibility of real communication with other planes of consciousness.

As early as 1985, I defined this particular psychological condition as "Inner Attentive Disposition."

Consciousness contemplates no more profound or perplexing question than this: what is the role of consciousness in the establishment of reality?

In the paradigm of our western culture, the human mind is limited to being a passive processor of sensorial experiences. Conversely, based upon the mystical traditions of oriental cultures, all experience in the physical world is presumed to be created by consciousness such that all tangible reality stems from illusion.

The empirical evidence of paranormal voices and images teaches us that the physical and psychological relationships between consciousness and the physical world entail subtle effects and processes that often appear to violate the most fundamental and consolidated scientific paradigms of space, time and causality.

To this purpose I mention the conclusion of the great Danish physicist Niels Bohr about the enigma of modern quantum physics that I consider from many perspectives to be quite relevant to our research: "We are both onlookers and actors in the great drama of existence"[3].

The recent experimental data acquired using state-of-the-art recording and

[3] **Niels Bohr –** *Atomic Theory and the Description of Nature* – The University Press, Cambridge, 1961

data processing equipment, together with appropriate research protocols and updated interpretation techniques, led us toward a bio-psycho-cybernetical interpretation of the phenomenon.

In other words, the final effects entail complex interactions within what I like to define as a *Minds System*, the definition of which provides for the possible existence of and the effective participation between one or more interfaced minds (incarnate and discarnate) that are able to communicate with each other thanks to the effective and functional psychic model acting in the operators' minds.

These psychic models are able to produce effects on the physical plane through a kind of action, defined in the parapsychological literature as *Psychokinetic effect* or *PK effect*.

In this regard I agree completely with the great English parapsychologist John Beloff [4] when he said that psychokinesis couldn't be a force, or energy, or a physical process. He believed that PK was an unexpected action resulting from a direct interconnection between our mind and the Universe with all that it contains.

John Beloff argued that the unexpected action could not result from a super-energy located in the human mind or body, but that it could be something that happens under certain circumstances. In other words, it could be an idea or a mental intention that is able to automatically force a physical system to express that idea or that intention.

The occurrence should in itself be a conclusive event and self-explanatory without the need for any other process acting as the bridge to make the final results understandable.

It is evident that different operators obtain paranormal voices that have different acoustic characteristics even if they are experimenting using the same method and device. From my point of view, this could be the result of a different psychic model operating in the mind of each operator, at the conscious or unconscious level.

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[4] **John Beloff -** Presidential presentation at Society for Psychical Research, London, 1975.

It is probable that different psychic situations produce different physical effects depending upon the psychic model and how it is conceived and internalized by the operator.

I would like to conclude this presentation with a purely speculative reflection based upon from my personal experiences in searching for the dynamics that govern the psychic processes and what I imagine might exist behind what we observe and measure in our investigations.

I believe that in the immediate post-mortem state the surviving nucleus of consciousness does not suddenly become, as many people incorrectly assume, omniscient (i.e., knowing everything about the past, present and future).

I believe that after death human consciousnesses continues to act, for a certain period of time, based upon the individual's knowledge of the psychic models acquired while living.

The new state of existence could imply a more effective level of consciousness, like a more enlarged perception of reality. This situation may differ from individual to individual, depending upon the individual's adaptation to his or her new state of consciousness.

The dynamics for creating new psychic models involves both the consciousness of the living and discarnate.

In ITC, there is often mention of technical means or problems and other references typical of humans living on Earth. This situation suggests the persistence, in the surviving consciousness, of psychic models that were acquired while living in the physical world.

This is, I believe, the reason that the vast majority of authentic transcommunications come from personalities who have passed over fairly recently.

In such cases of surviving consciousness located "nearby" in the more immediate post-mortem plane, the discarnate being is still influenced by

experiences on the physical plane and has therefore the same, or a quite similar, psychic model.

To structure a new psychic model it is necessary to have a strong willingness to supersede all previous existing schemes with new ones, even if at first sight, they appear impossible. In other words, to reach the desired goal, it is necessary to have an attitude of faith strong enough to set aside any rational interference.

Jesus Christ preached the same concept when He spoke of "the faith that moves mountains".

Thank you very much for your kind attention.

Atlanta, Georgia, United States, June 9th 2006