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**ELECTRONIC BRAIN
AND
EXPANSIVE CONSCIOUSNESS**

**FROM CYBERNETIC REVOLUTION
TO EGOENCIA OF BEING**

Excerpt from

*Cerebro Electrónico y Expansión de Conciencia,
de la Revolución Cibernética a la Egoencia del Ser*

Translation by Héctor V. Morel

Integrated Science of Man

Subjects and Models of Future will be the structure of a series of publications whose presentation will raise in general terms the search of a way to integrate man and perspectives of the coming world.

We want to reflect the MESSAGE OF THE FUTURE.
But, what is this Message?

THERE IS MESSAGE AND ANTIMESSAGE. We need a new radar, a new human instrument in order to differentiate those voices announcing the future from voices going to the past.

The message of the future comes from living human beings, not from computers, or from printed books with memories of yesterday, or from stone monuments, or from minds crystallised in the time.

Guidelines of the subject matter of this paper, offered and published here, respond to an Anthropology of Synthesis.

This editorial is a textual copy that, by way of foreword, has been written by “Comité Americanode Investigación sobre Temas del Futuro” for the publication (whose issues are out of print) of the “Conference Ernesto Dowling”, 17th National Neurosurgery Congress, in charge of Dr. Ramón P. Muñoz Soler on May 29th, 1975, in Buenos Aires, Argentina.

“Ernesto Dowling Conference”
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My grateful acknowledgement to Doctor José Bonaim, President of the XVII National Neurosurgery Conference for his invitation to be today in charge of this “Dowling Conference”. By this act, the Argentine Neurosurgery Association pays a particular tribute, during every Conference of this medical speciality, to the former first Dean of the Argentine Neurosurgeons’ College. My first words, then, will be to pay homage to the Argentine Neurosurgery School for its valuable contributions to the progress of science, and for its fruitful work on the welfare field.

During the last decades, the Argentine neurosurgery has made particular breakthroughs, as well on level of practical achievements as on that of its theoretical conceptions; it not only has developed high technology, but also we should underline its tendency to be beyond mere organic and technical viewpoints to comprise investigative fields which are more and more all-inclusive and better integrated, with a psychosomatic, neuropsychological and psychosocial approach. So we see how on more high-ranking services, psychiatrists, neurophysiologists and neurophoniatrists are being included along with neurosurgeons, and all they together are trying to figure out the behaviour of this wonderful box of resonance which is the human brain.

But in spite of great achievements and contributions of these multi-professional teams in the field of medicine for a better knowledge of cerebral physiology and behavioural psychology, the very function that they explore is beyond the medical field and comprises the area of human sciences, social sciences and industrial technology. In addition, nowadays, investigations made about cerebral functions and nervous system are so all-inclusive in science and technique as a whole, and acquire so deep meaning for the future of man, that are even out of the reach of specialists and now are claiming for a new science of synthesis.

It is precisely with a criterion of synthesis that I will approach this lecture, in order to point out not only facts but also meanings, not only information of particular sciences for the investigation on so complex field as that of our present science of the behaviour, but rather the repercussion of changes of the outer world, produced inside man, as well in the intimacy of his tissues as in the depths of his consciousness.

Today we witness the most wonderful imaginable phenomenon: in this apparent chaos of the world and from the depths of the human suffering, we witness the birth of a new state of consciousness. This new consciousness opens social and spiritual perspectives of deep significance to the future, and also open the way to a new science of man, an anthropology of synthesis.

*Our familiar sciences have appeared as a result of the fragmentation of knowledge, but we are entering a new era of integration. For an integration in the scientific field, our usual teams of specialists are not enough, we need new intuitive-technical teams which may properly couple pure intuition with its technological and social applications. Of course, today there is a relationship between pure science and applied science, but this relationship does not always take place in the frame of the truth, love and service to humanity; on the contrary, we witness a frightful spectacle never known in the history of civilisation: a fissure between science and consciousness. We know a brain –divided into functional independent areas– which cannot cross this abyss, and even a “pool” of brains cannot do it; we need a **new brain**; today this is the challenge of an emerging science of synthesis to the old culture of fragmentation.*

1) CHALLENGE TO THE HUMAN BRAIN

Regardless of any mistake, we can say the investigation of the cerebral functions has acquired today such an importance that comprises a considerable part of efforts made by the scientific world community to find an answer to the tremendous question about the future of man. Sciences that, in one way or another, try to glimpse the future of the human society by studying the behaviour of one’s brain and its interrelationships with our behaviour, day by day are more and more numerous, and their approaches and methodologies are different, from Neurosurgery –which you will consider during this Conference– until Cybernetics, Theory of Information, Social Psychology, Anthropology, Psychopedagogy and Publicity, passing by Neuroanatomy, Neuropsychology, Molecular Biology, Genetic Engineering, Linguistics, Electroneurophysiology, Psychopharmacology and crossing the thresholds of techniques on meditation, Yoga and mystique. Almost all these sciences are established from few decades ago, and we can say indeed they are sciences of the future. And here a question may be proper: do they open a route to developing one’s consciousness, or –perhaps inadvertently– are instruments to manipulate men? If we gathered every specialist on sciences of behaviour and formed a great “brain pool”, and computed the information provided by every one of them, would we get knowledge comprising a whole man and marking a significant course to the human existence? Beyond any doubt, absolutely no! And this in spite of advanced science. Because as E. Matchett (an outstanding researcher in the field of Logotechnology) quite properly says, “*it is easier to shout forward! than to say where?*”.¹

Today particular sciences are incapable of a synthesis. Isidor Isaac Rabi (a Nobel Prize) says, “*Science has suffered a ‘balkanization’ and is more and more far away from that which constitutes its meaning and essence*”.² And when Martin Heidegger criticises the fragmentation in our present-day university specialities, says, “*the root of sciences into their essential foundation is completely lost*”.³

Why particular sciences are incapable of synthesis? Simply because of the fragmented functions of one's brain that has constructed these sciences.

During the last two thousand five hundred years, our brain has been trained to develop a linear, conceptual and objective thought, which divides the reality into separate spaces and successive times. A thought like that –as McLuhan properly says⁴– has formed the line of the printed writing and the assembly line, and also has constructed our present-day sciences, which also are separate pieces from a whole that we cannot grasp, –loose letters of a forgotten word.

What at present we proudly label as “explosion of knowledge” and that even we quantify by saying knowledge doubles today every 10-15 years, this qualitative increase implies a critical qualitative limit: it is incapable of pointing out a way to man. That is to say, when science is fully expansive, we reach a critical edge in the system, –a border limiting a type of brain and a type of man.

A brain that operated by fragmenting the reality is in crisis, and a present-day man is getting a fabulous breakthrough connected with the anthropogenesis, characterised, among other things, by the construction of a *new brain*, a brain to the second power! What is a brain to the second power? Not a *more* powerful brain, or a *more* horse power, or *more* knowledge, but a *new* brain, a brain gifted with a new function of synthesis. It is as if we suddenly awakened with a new sense. Let us try to explain this.

Our brain, which during the last two thousand years has evolved as a rational brain, and apparently was definitely formed, had to be assailed by a powerful current of future which would shock all other forms of the old world. The human brain could not avoid this “collision with the future”, and as a result, territories so far unknown are exposed, and new functions revealed. The sealed book that we had received as evolutionary human heritage was to be opened! Apparently insuperable barriers are knocked down (physiological, psychological and chemical barriers), and a door is open between the inner world and the outer world of man, –two fields disconnected during millennia. This collision produced a tremendous shock, and we can properly speak of a “psychological revolution”, a “chemical revolution” and a “cybernetic revolution”. Such a radical chance led a sociologist of the Federal University of British Columbia, G. W. Allport to say:

*“A man of our generation, a man of the second half of the twenty century, is essentially different. During these last years, a change has taken place, a psychical mutation, to say this in some way, which makes the majority of us think and act in a very different way, and act in a different way from generations which have historically preceded us”.*⁵

Let us see a little closer those changes produced in our brain, by starting from the cybernetic revolution.

2) **CYBERNETIC REVOLUTION** **FROM MECHANICAL BRAIN TO ELECTRICAL BRAIN**

Until few decades ago, the image we had about the brain and nervous system –through our books on anatomy and our observations on post-mortem examinations, on surgical operations, and on laboratories of histopathology– now is of no use to interpret how the brain of a present-day man works. In addition, this image does not exist any more.

From the end of the nineteenth century up till now, and on the threshold of the twenty first century, our knowledge is deeper about anatomy, histology, histochemistry and electrophysiology of the nervous system. This advanced knowledge has given us a new image of the cerebral structure and functions. But though this is important, does not define the true nature of the change experienced by our brain by the incidence of the technological revolution. Really significant for the future of man is not to get a better image of our nervous system (a more scientific image), but our *new nervous system*. We have left behind the “old” mechanical brain, which restricted our consciousness to a narrower field, and we enter the future with a *new brain*, with a new nervous system coupled with an electronic planetary web, which a present-day man needs in order to develop a cosmic consciousness.

But do we really have a new brain? Yes, we do! Now our brain is not confined in the cranial box; being conscious of this or not, our brain is coupled with computers that handle information in our present society of masses. What people think on an area of the world, is simultaneously thought *all over* the world. Now our senses are not five, but only one. Now we do not see with the eyes and do not hear with the ears, but we see and hear with our entire body. Our nervous system is entirely and constantly moved by millions of stimuli which were completely unknown before. In addition, our sensorial organs are not restricted to our body, but also we have eyes and ears through artificial satellites rotating around Earth, and however paradoxical this may be, these eyes and ears of ours are seeing and hearing things not registered yet by our consciousness, but that our children and grandchildren may perceive.

This “extension of our senses”, as a techno-anthropological phenomenon of the modern world, was out of any expectations of a man of yore. Of course, humanity always tried to expand its perceptive range, but they used a different method to go beyond the barrier imposed by their physical bodies. A man of yore posed his way of seeking something “beyond senses” through a natural or supernatural medium, while a modern man goes beyond his sensorial limitations through a technological medium. But we still did not understand rightly the message of technique.

The nervous system of a modern man, coupled now with an electronic world web, opens the era of the “bioelectronics”. Now we cannot speak of such marked division between nature and technique, but the human nature, united with technique, is configuring a new hybrid “bio-technical” body which, in fact, implies a “new nature”. Now we live among androids and cyborgs, and scientists are posing questions which were beyond imagination before, as for instance, if now it is time to grant civilian rights to these android creatures that we know as ultra-stable computers, or whose is the right in the event of an electronic score composed by an electronic brain, to which extent these new organisms are responsible, and to which extent we may be advantageously substituted for them.⁶ Of course, when one’s “old” physical body finds difficulties to adapt to the situation —like during space travels— our cybernetic body acts advantageously, and even in those deregulations of our body (epilepsy, heart complaint, gastrointestinal neurovegetative disorder, migraine, et cetera) where our nervous system fails in its regulation attempts, certain biotechnological hybrids set up on biofeedback circuits are teaching man that which from the antiquity was taught by *yogis*, that is to say, to control this area of one’s nervous system that we called “involuntary”. Barbara Brown’s⁷ and Robert E. Ornstein’s⁸ researches, and studies done by plenty of investigators are opening a way of quite attractive perspectives for the future.

Many wonder if all this should be or not, or if it is good or bad. These questions lack sense. A new mate, a new marriage already exists, and now there is one important thing: *to understand in order to live together*. But, as we said, we do not always understand the present-day meaning and the future consequences of this recent coupling between physiology and technique, because the image of a world that is gone still remains in our retina. We think of computers, artificial satellites and radio-TV world-wide web as if they were a quantitative expansion of that mechanical world that we knew during the first industrial revolution. We believe it is simply a *more* advanced new technology; that computers are machines enabling us to make things more quickly (as with quicker calculations, or as a washing machine cleaning more quickly one’s clothes); or we think of electronic media in terms of human comfort. But things are not like that.

The cybernetic revolution is not a simple improvement of the technological revolution started from steam engines, but an essentially different revolution. The mechanical revolution —from the Paleolithic— changed the image of the world, while the electronic revolution is changing the image of man. A washing machine and a polishing machine are technical extensions of our physiological levers (bones, muscles and joints), while computers and TV sets are extensions of our central nervous system: the former introduce modifications into our way of doing things, while the latter produce changes in our way of thinking. Today, when a secondary student handles one of those pocket computers, not only is doing quicker calculations, but also is thinking differently. In short, between the old mechanical technology and the new electric technology we find not only different rapidity, but also different nature. Let us see this.

Printing, railway, telegraph “carried” the future to distant areas, opened geographic spaces, were messengers of progress. But, as McLuhan⁴ properly points out, as well *lines* of printed writing as *lines* of railway and telegraphic *lines* configure a technological structure set up on the model of a linear thought which characterised an entire cycle of our rationalistic culture starting from the Greek, while computers and TV do not imply a linear web –of cables and connections– but a *circular* biofeedback *circuit*. This makes electronic media carry not only a future, but also “bring” us a future. In other words, electronic brains –hardly working at the velocity of light– and the entire communication web which constitutes our present-day bio-technical planetary body, have produced not only an speeder movement, but also curved our thought and changed relationships among corporal senses. So we can speak of a first (cerebral-mechanical) pattern of linear and one-directional type, and of a second (cerebral-electronic) pattern of circular and biofeedback type. But beware!, it not only implies to change the form of the pattern, but also to change the law of the system.

With our “old pattern” of brain –of linear thought– the human action slowly changed the world and, in one generation, did hardly bring something in return; thought action, arts and culture produced late reactions on the individual and society, and their effects were necessarily transferred to coming generations. But today, with a pattern of bioelectronic planetary nervous system working at the velocity of light and with circular biofeedback circuits, the thought action produces the effects of an instantaneous boomerang, and returns to the history’s subject not only his resulting individual actions, but also resulting actions of all men on Earth; so, we can say it returns us a catastrophic future (from the existential point of view) because the flow of returning impressions is quite and shocks the foundations of the individual and society, and places the future as a force of history’s leadership and a transforming germ of man. But, why do we say this implies to change the law? Because in the first system, of a brain projected on a mechanical technology (being the two –brain and technique– set up on the pattern of a linear, fragmentary and sequential thought), the law of this system was that an effect succeeds a cause, and that the magnitude of this cause had to be equal or bigger than the effect, while in the second system (a bioelectronic feedback pattern), an effect not only changes the cause, but also we confront higher foreseeable effects. It is this that Martin Buber detects as a characteristic crisis of contemporary man, and expresses with these simple words, “*Now a man is unable to control the world created by him: this world is more powerful and tends to become independent*”.

Now we may interpret better why we said the future becomes catastrophic to us (from an existential point of view). Because the change of parameter produced on the cause-effect law does not find in a human being a properly prepared consciousness for this change. Let us try to explain this. In the first above-mentioned system (a mechanical, one-directional and slow system) we sense the future as something that “has to arrive”, something that “has to come”, but that generally does not come, because of the slowness of the movement implied by the law of consequences. That is to say, for certain individual or for certain human group, and at certain time, when an action takes place, the consciousness

can easily sleep and quite probably is not awakened by the effect (this effect travelled at the velocity of a cart or of a locomotive) and when this effect reaches the individual, the subject is already dead. But in the second system (a biotechnological organism with effects travelling backwards at the velocity of light) this effect invades our lives with no previous consent, brings changes in our way of thinking and feeling, and does not ask if we are prepared or not to stand this shock. And this is precisely a shock, –a “*shock of future*”, in Alvin Toffler words.⁹

What does this cybernetic revolution mean to the future of man? There are different opinions. From idealistic opinions announcing the beginning of a “happy world”, to catastrophic opinions prophesying an “apocalyptic” end. From those who think that engines eventually will replace man, to those who glimpse engines setting man free of his bondage. But, regardless of this forecasts, we should find the place of this cybernetic revolution in the context of other revolutions –psychological, chemical and social– previously mentioned.

The fall of “cerebral barriers” means the end of the ancient world and the beginning of a new cosmic era, but every one of these breaks is of different meaning. How to characterise them? How to define the oscillation parameters of a new man once an opening has taken place in the “seals” of this “hermetic book”, that is to say, the ancient brain? How to venture and point out a course on the horizon of the time to come from the solemn instant when the “genius” of the human potential, confined for millennia in the phial of our cranial box, has been liberated? This is a vast subject, but we will try to outline it.

While the “psychological revolution”, the “chemical revolution” and the “social revolution” opened new spaces, the “cybernetic revolution” brought a *hollow* in the system.

The break of the “psychological barrier” –starting from Freud– went beyond boundaries imposed by rationalistic psychology, and man could accede a new mind compartment, which so far has been zealously kept. The break of the “chemical barrier” (prophesised by Aldous Huxley) opened the “perceptive doors” and led man to imaginary and psychedelic worlds, which were only accessible to ancient magicians. If we add to this the break of “social barriers”, which up till yesterday emphatically separated classes and castes, we will understand that, in few decades, man has expanded as well his psychological consciousness as his social consciousness; one’s consciousness has conquered territories formerly under the waters of our subconscious. But the “cybernetic revolution” introduces a contrariwise sign, does not open space, but produces a hollow; it is not an explosion, but an implosion. Now it does not enrich one’s consciousness at the costs of subconscious contents, but enriches the subconscious at the costs of our consciousness: an entire mass of fragmentary informational references, formerly floating on the sea of our consciousness, are pushed by computers and filed in our subconscious. What is the consequence of this different sign on the vital and existential economy of the human being?

First of all, a mass displacement of ancient forms of thinking and feeling to the large subconscious reservoir has impoverished the psychological consciousness and blurred the image of the world by making sense existential void and loss of meanings, which constitutes the prevailing sign of anguish in modern man. That is to say, all this process of broken cerebral barriers, which culminates on the cybernetic revolution, eventually has launched man to a “void space” that is technically effective and operational, but existentially with no meaning. As Octavio Paz¹⁰ points out, the modern technology has reached a critical break boundary, in the image of the world, by loss of the meaningful link uniting human consciousness with cosmic archetypes. This “void” is the other face of the technological message.

In other words, while computers are arranging our mental world, a drainage of meaning takes place on the critical energetic implosion boundary, and this void cannot be filled up by any of those contents that up till yesterday were giving a meaning to our existence. On this boundary, the technological message calls on the message of the consciousness to speak.

3) FROM CYBERNETIC REVOLUTION TO AWAKENING OF CONSCIOUSNESS

It is Marshal McLuhan who has understood better the cybernetic revolution in terms of a “medium”. He realised that, regardless of the content of the communication media –regardless of telephone conversations and regardless of eventually good or bad TV shows– the only fact of closing electric circuits with our human body alters our psychological, physiological and social behaviour: hence his famous sentence: “medium is message”. But McLuhan was too much fascinated by his own discoveries; we could even say he was attracted by the power of those media, and did not notice that where the technological message ends up, there the message of our consciousness begins.

The revelation of a new consciousness in man and in the world was announced from the beginning of the century by certain wise men prophetically endowed. One of them, Teilhard de Chardin wrote from Beijing on December 1945 –few months after the first atomic bomb blast–: “*In the bosom of the ‘thinking’ magma has recently appeared a new substance, a new element, but of supreme importance*”.¹¹ This anthropologist, who had devoted a considerable part of his lifetime to investigate the fossil man, now is seeing a future man outlined on the horizon of a time to come.

As the consciousness of this new humanity manifested currents of thought and action, prophetic antennae were not only detecting on the summits the phenomenon of the future, but also posing it on both scientific and philosophic terms.

Jean Gebser (a former honorary Professor of comparative studies at Salzburg University) points out the cosmic and planetary character of a new consciousness on different places of Earth, and says,

*“The dawn of this new consciousness, with its new conception of the reality, is today visible on very different areas, as well on the West as on the East”.*¹²

By 1970, a Professor of Law at Yale University, Charles Reich publishes in the United States his book *“Greening of America”*. He realises that in the very system of large corporations (“corporate states”), which characterises the technological society of the modern world, a new individual consciousness is being born in the American youths, which he qualifies as “Consciousness III” (consciousness I is that of the forerunner, and consciousness II, that of the collective consciousness of large organisations). And this new consciousness III does not appear as a product of the old culture – which also has been observed by Gebser– but as certain spontaneous phenomenon –without precedents– of sudden “conversion”. Reich says as follows,

*“A transformation during one year at the College, or even earlier at the secondary school, does not take place as a result of readings, political knowledge, acquaintance with doctrines of the new left, or by any intellectual process. All this can occur, if eventually it does, only after the conversion”.*¹³

An outstanding anthropologist, Margaret Mead, after living with primitive peoples of the furthest areas of Earth, when she wonders about the nature of the modern world-wide change, realises that the important thing is the fissure produced between the old generation and the new one –so deep gap between two cultures and two ways of perception, namely, the “post-figurative” (learning by the past) and the “pre-figurative” (open to the conception of the future). Margaret Mead says, *“When the first atomic bomb is detonated in the end of the Second World War, just some few individuals understood that humanity had entered a new era”.*¹⁴

All these approaches so far considered –and others to comment on later– are extraordinarily valuable because, first of all, had enabled us to detect, as signs of the future, aspects and qualities of a new expansive consciousness. A new chapter on explored dimensions of one’s consciousness starts; so we may notice a psychological facet, a social facet, a generation facet... but these traits as a whole cannot still configure the *essence* of this consciousness. Here we reach a boundary again, which is the boundary of any reduced consciousness.

Where the message of the psychological consciousness, of the chemical consciousness, of the social consciousness and of the cybernetic consciousness ends up, there rushes in the message of the spiritual consciousness. Where the message of the historic consciousness ends up, there the message of the cosmic consciousness appears.

We have explained certain aspects of the spiritual development of man in “*Germes of Future in Man*”, first printing of this book by Arayu, Argentina, by 1966.¹⁵

4) ON THE THRESHOLD OF THE TRANSCENDENT. SPIRITUAL DIMENSION OF MAN

Today different currents of modern thought strive for rescuing the spiritual dimension of man, deadly menaced by a rational-technical civilisation centred on material values. The beginning of this tendency is a criticism of a fragmented culture and of a fragmented man; because not only sciences and arts are divided, but also man himself is divided into functions that are individually independent.

Through techniques of biofeedback training (BFT), certain neurophysiologists –we have quoted Ornstein’s and Barbara Brown’s papers– have discovered differential functions of every one of the cerebral hemispheres. So, they speak of a left brain (rational, verbal, of linear thought) and of a right brain (inclined to intuitions, art, craft and religion). Generally we function with just a half of our brain, and according to the prevailing side, we divide men into philosophers and artists, intellectuals and artisans, scientists and religious. Humanity itself is divided into hemispheres, and we have a Western culture (rational, pragmatic –that of the left brain– and an Eastern culture (intuitive, hermetic and transcendent – that of the right brain).

Today an entire current of neo-humanism tends to build a bridge to integrate these two hemispheres –as well geographic as cerebral– and this is done through an articulated language between art, science and technology. The scientific method and electronic circuits achieve all those things that Esperanto did not. Everywhere, scientists speak the same language (not by scientific ideology, but by scientific method), the American and Russian astronauts form a community by similar experiences, and children who are watching TV in Latin America, Asia or Africa, physically share the same technological message.

But this united scientific and technologic message is only one step forward in the process of integrating man –but, let us not be mistaken, a very important step forward. The message of technique is operational, but not significant; as Octavio Paz says, “*it is not an image of the world, but an operation on the reality*”.¹⁶

In short, these activated functions in both cerebral hemispheres is sufficient to unite our culture, but insufficient to restore the unity of man. Even with two brains at work, man can continue to crawl on earth, and to be unaware of his own destiny! We need a third element so that the operation of one’s mind may have a meaning. It is the spiritual message that incorporates this third element.

At present there is in the world a spiritual message transcending both the scientific-technologic message and the social message, not to ignore currents of history and culture, but to give them a meaning.

But just as we do not properly understand the technologic message because we mistake content of the media for operations of these media, and we do not rightly understand the message of science because we mistake scientific ideology for scientific method, so we cannot understand either the spiritual message of the future because we tend to identify it with certain beliefs, doctrines and ascetic exercises.

You cannot explain the spiritual message through the philosophy of our culture, through revolutionary doctrines, or through the theory of change; you should explain it by the mystery of the revelation. And this incidence of the revelation on the history's continent is what we are perceiving in the innermost consciousness of new man as spiritual message of the future.

But our objective mind continues to ask: Which is the content of this message? More than a content, it is a "trait" of identity in new man. It is an inspirational force which *prints* the human matter by giving it spiritual identity: "*egoencia* of being."¹⁷

This trait of identity makes the recognition possible by similarity among human beings. Just as there is *–operational–* unity in the technologic message, so also there is *–significant–* unity in the spiritual message.

The spiritual message of the future is not a question of beliefs or ideologies, but of expansion of consciousness, and the union among men is possible in this area.

The present-day spiritual message marks the point of meeting between technologic message and social message, the point of meeting between scientific thought and prophetic thought, and the point of meeting between science and mystique; and, as a dramatic counter figure, the "point of disconnection" between a human being and thinking machines.

The presence of this "specific" trait of identity in a human being –as a point of revelation– in our times acquires the meaning of a "new element" of planetary humanisation, a subtle but quite valuable element, and the future of man depends upon the presence or absence of this element. Where is placed this ultra-chemical and ultra-psychological element?, in whom is it placed?

More recent discoveries of fossil remains have made paleontologists think that, likely during millions of years, the species "*Homo*" lived together with other hominid creatures, similar to man, but of far lower cerebral development. Boyce Rensberger says,

*“Apparently, the primitive man co-existed at least with two or perhaps three species of “quasi men”, whose physical aspect could be considerably human, but whose brain remained similar to that of the apes”.*¹⁸.

Today, when Humanity has already crossed the frontier of the future, when there are new human types on Earth, a generation fissure has taken place between “specifically” human beings and their collateral “android” and “humanoid” branches. The generation gap open in the past between animals and men, takes place today between men and thinking machines.

Not many years ago, the difference between man and machine was apparently significant (and also the difference between man and ape), but on the cybernetic era one cannot take for granted the human condition, but we should find it again (and perhaps upon new bases).

Scientists who study the behaviour of ultra-stable computers wonder to what extent these creatures are not true living organisms and, on the other side, philosophers wonder to what extent man, as a simple thinking machine, can continue to name himself man. In this time, when we hear the roar of the human beast, and forces of the shadows are unleashed, we have the right to wonder if many of the creatures who behind a human form inhabit the planet are really human. In short, the generation challenge of our times is not between man and machine (a problem technically solved at present), but between man with consciousness of being and those organisms that, behind certain human aspect, belong to the world of thinking machines (however they may be or androids produced by technique, or sons of men).

How to differentiate human beings from those who are not such? “Who are you?”: it is the modern question. The answer to this question is not of technical, philosophical or biological type, but of spiritual nature. To detect the specifically characteristic trait of man as a human being is not a question of mere speculative concern, but a practical need, because is connected with the survival of individual beings: of what use could be for man to conquer Earth if at the end he loses his condition of human being!

BY WAY OF EPILOGUE

During this lecture we have witnessed a parade of different images of human brain. We have seen the image of a “mechanical brain”, of a “psychological brain”, of a “chemical brain”, and of a “cybernetic brain”. And the cybernetic brain, connecting our nervous system with a planetary electronic web of thinking machines, has expanded our perceptive field and increased our decision-manipulation power. But during this rapid evolutionary process, also a sinister counter figure has been outlined (which we should not ignore): the image of a “damned brain”.

This damned brain is a self-sufficient power. It is the force of one's intelligence detached from our consciousness. It is the human thought transformed into an independent and absolute entity. It is an "entity" apart from one's individual being. At present, it is one of the forces of the anti-message and, perhaps, the greatest danger that humanity must confront during its hard passage to the future.

In other times, the greatest danger was to come back, to return to one's animal condition, to the shadows. At present, the greatest danger is to go ahead at any costs! Now we do not confront a world of shadows; we confront the prince of the light. Today, our generation does not fight against ancient powers of the shadows, but against new powers of an enlightened mind that uses the force of the intelligence to manipulate man. Today this force is frightfully powerful, and only can be controlled by the power of a spiritual consciousness. Without this "element" of spiritual consciousness, man can lose his condition of man, and his brain, electronically "extended", may become a "damned brain".

If technological message and spiritual message are not united, if science and consciousness are not united, and if knowledge and mystique are not united, eventually a "cybernetic brain" (without consciousness) would control the world –and is controlling it right now– by putting our entire humanity in the service of a demonic and destructive power.

Before the alternative of ceasing to be men or of entering the future with a new consciousness, we cannot delegate our responsibility to anyone. We should not think that experts, or the United Nations, or certain governments or political parties can eventually solve all things. No, in one's confrontation with our transcendent destiny as human beings, our responsibility is intimate and untransferable. We are responsible not only before history, but also before God.

The spiritual consciousness of a man of the future –"*egoencia* of being– is not a new belief or a new ideology, but a new instrument of liberation. After releasing the atom energy, we have to release human energy.

Today humanity has sufficient material resources and sufficient scientific and technical knowledge to assure the development of all peoples on Earth, but does not have sufficient human energy. Human beings have blocked their energy by personal selfishness, petty emotions in conflict, consumerist sexuality, and fragmentary knowledge.

When we have transferred to cybernetic machines the power of thought, it is hour to recover by ourselves the creative power. But to recover this power we need a radically different attitude with the world, with life and, above all, with ourselves. Necessarily we have to see from the world of things to the intimacy of our being, and from a creed of possession to a sense of renunciation. This reversibility of values opens the way to a post-cybernetic era: to an era of "*egoencia* of being", of inner freedom, and of reestablishment of the spiritual bridge which makes the reunion among men possible.

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