

ISTITUTO DI RICERCA "ALBERTO SORTI"

I D R A S

**THE FIRST INTERNATIONAL WORKSHOP ON TFF
What is the Biophysics Behind?**

Turin, Italy
June 15th, 1996

ABSTRACT BOOKLET

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PHARMACOLOGICAL FREQUENCY TRANSFER

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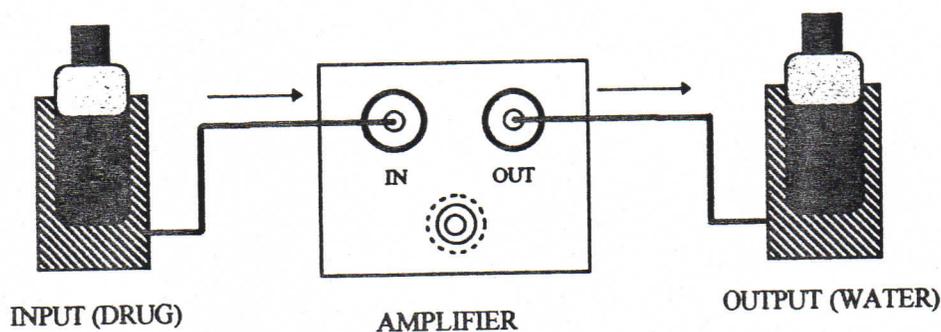
Our research is based on previous experiments concerning biological effects produced by high dilution preparations [1-5] and resonance phenomena in the medical practice of electroacupuncture.

In 1990, for the first time we transferred electronically the therapeutical properties of drugs. Our hypothesis is that each drug emits continuously and spontaneously specific non molecular signals bearing a therapeutical information (MIS: Metamolecular Informed Signals) [3].

These signals can be intercepted, amplified and transmitted directly to a biological system which will receive them, or else, they can be recorded in a liquid vector which will memorize them. The administration of this vector or the direct application of the signals to a biological system will induce the specific effect of the original substance, in this case the drug.

An amplifier (MORA III 200, Med Tronik, Germany) was used. It has a gain from 1 to 40 and a post-amplifier x 12 (total gain from 1 to 480). It has a minimum frequency distortion fed by accumulators. It intercepts both entry background noise and signals coming from the drug, amplifies the resonance frequencies and transfers them with selectable periods. The input is connected to a brass support where the drug to be transferred is placed, and the output is connected either to metallic supports with bottles containing various preparations (e.g. aqueous, ethanolic or physiological solutions), or to brass electrodes placed in contact with the patient. The information is transmitted along insulated coaxial cables. The patients can receive the therapeutic frequencies directly from the exit electrode, or indirectly by sublingual or parenteral administration of activated water.

This method, that we have conceived and patented, is called Pharmacological Frequency Transfer or TFF (Trasferimento Farmacologico Frequenziale). The Figure illustrates the basic principles of this method.



On May 4th 1990 we realized the very first Pharmacological Frequency Transfer (TFF) of tetracycline to a cat dying of *Haemobartonella*. The cat rapidly and totally

recovered from the disease. As a consequence of this success, treatments on humans were started. Since then we have collected more than 150 different cases that were treated and cured by TFF of drugs belonging to different classes. Until now we have obtained our best therapeutic responses with TFF of antibiotics, anti-inflammatories, analgesics, benzodiazepin, bronchodilators, progesterin, oestrogen associations, antihistaminics, antidepressants, hormones and opiates [2].

We started in 1992 various investigations with experimental laboratory models in order to obtain more objective data and to exclude as many *placebo* effects as possible. In all our experiments the TFF of a drug was always tested along with a control, which was a TFF without drug in entry. This excludes the possibility of any interference of electromagnetic signals coming from the apparatus. The water used in both cases is always the same. The only variable is the presence-absence of the drug. The models were animals and vegetals. From 1993 to 1994 we have worked with P.C. Endler (Zoologisches Institut, Universität, Graz, Austria) on an animal model with TFF Thyroxin on *Rana temporaria larvae*. The multicentric research, repeated blindly on 936 animals in late Spring 1993 and 1994 (Torino - Graz), proved that TFF Thyroxin had a significant influence on the tadpoles metamorphosis speed (15%; $p < 0.01$) [4].

The Metamolecular Informed Signals (MIS) can have the following properties:

- 1) The MIS seem to be released by all drugs;
- 2) The MIS seem to have an electromagnetic nature;
- 3) The MIS are presently impossible to measure because of their extreme weakness;
- 4) The MIS can be transmitted by TFF;
- 5) The MIS, after transmission, travel along a non-molecular nature capable to induce the same effects than the drug itself;
- 6) The living cells recognize the MIS sent by TFF as the drug itself;
- 7) The MIS might be assimilated to a sort of general electromagnetic file containing all the information that defines a given substance.

Altogether, the observations tend to prove that living organisms were cured directly or indirectly by information picked up from drugs and transmitted by electronic devices to living systems, either humans, animals or simple vegetals.

References

- [1] Bellavite, P. and A. Signorini, *Fondamenti teorici e sperimentali della medicina omeopatica*, IPSA, Palermo, 1992.
- [2] Citro, M., "TFF, dal farmaco alla frequenza", *Vivibios* 2(3):66-72, 1992.
- [3] Citro, M., "Meta Molecular Informed Signal theorie und TFF", in *Struktur und Funktion des Wassers im Organismus*, O. Bergsman ed., pp. 72-77, Facultas Universitätsverlag GmbH, Wien, Austria, 1994.
- [4] Citro, M., Endler, P.C., Pongratz, W., Vinattieri, C., "Hormone effects by electronics transmission", *FASEB J.*, abs. 2271, 1995.
- [5] Endler, P.C. and J. Schulte eds, *Ultra-High Dilution. Physiology and Physics*, Kluwer Acad. Publ., Dordrecht, 1994.



ELECTRODYNAMICAL THEORY OF WATER

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In the conventional theoretical framework water is described as an ensemble of molecules tied together by short range static forces, whose global effect is to connect each molecule to a number of neighbours, up to four. Recent experiments (Postorino et al., *Nature* 366, 1993) show the basic inconsistency of such picture. On the other hand, it is possible to prove (G.Preparata, *QED coherence in matter*, 1995, World Scientific) that an ensemble of molecules, having a number of different configurations, beyond a density threshold reaches a new collective minimum energy configuration (ground state) where molecules oscillate all together coherently between two configurations, in tune with a self produced electromagnetic (e.m.) field of well defined frequency. The collective motion involves all the molecules enclosed in a region, the coherence domain (CD), whose size is the wavelength of the e.m. modes coupled with the oscillation. It has been proven (Arani et al.; Del Giudice et al.; *International Journal of Modern Physics B*, 1995) that the thermodynamics and the energetics of water are well accounted for by this approach.

In liquids it is electron configurations that are involved in this collective oscillation. It is possible to prove that, in case of water, the excited configuration involved in the oscillation has an electron "almost free" having an energy only slightly smaller than the ionization threshold.

Since the global oscillation is coherent, such electrons could give rise to a collective hopping transfer among neighbouring molecules, thus producing coherent rotational excited states with a very low frequency. It is possible that these peculiar states could be at the origin of the "memory of water".



BIOLOGICAL CONSEQUENCES OF THE ELECTRODYNAMICAL THEORY OF WATER

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According to recent results of Quantum Electrodynamics (QED) [see talk of Giuliano Preparata in this Conference], liquids in their minimum energy configuration are an array of coherence domains (CD's) enclosing a huge number of molecules oscillating coherently all together between two different electron molecule configurations, in phase with a self produced electromagnetic (e.m.) field. This e.m. field exhibits decreasing intensity tails at the boundaries of CD's, which act upon any other molecules by long range (some hundreds of \AA 's) selective forces. The forces are strongest when the molecular frequencies and the field frequency coincide.

This phenomenon could play an essential role in the origin of the dynamics of living matter. Macromolecules collected on the water CD's boundaries could give rise in turn to coherent systems by themselves, thus producing new schemes of field assisted chemical reactions among coresonating molecules. In this context the energy output of chemical reactions is transferred into e.m. coherent excitations which in turn play a role in biochemistry.

The possibility of rotating water CD's optimizes the time where reacting molecules are kept in contact and, so, increases the rate of their chemical reactions. This e.m. catalysis in water could be a key for understanding the phenomenon of TFF.

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EXPERIENCES IN ZOOIATRIC PRACTISE WITH TFF METHOD

Dr. Francesco Vignoli
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I am interested to transfer the properties of a remedy in a hydroalcoholic or physiological solution having the source in entrance and the solution to administrate in exit from the MORA apparatus.

I decided to verify the effects of such MORA solution on milk-cows. I work in a typical zone of production of Parmigiano Reggiano cheese and I wondered if it was possible to cure, with TFF animals with mastitis in which there were not always an external demonstration of inflammation but a variation of laboratory parameters in milk.

In few farms I transferred to some milk-cows frequencies of antibiotics in phials of 5% glucosate, vials of physiological solution or in tanks of spring water normally used to water cattle. In all these vehicles it has been added a small percentage of ethil alcohol so as mantain during the time characteristics of MORA solution arriving to 20-25% on the whole.

The test was made on about 150 animals to which have been given an oral solution or subcutaneous or intranasal for a week.

The purpose was to verify if the bovines had a reaction or if there was an alteration of parameters of quality of milk making a comparison before and after the therapy leaving unalterate in the stable the order environmental and alimentary condition.

The most important variation was the presence of leucocytes in milk (normal value: <300/ml): the average was of 2005/ml (mastitis) and it lowered to 212/ml after TFF (recovery).

From graphics it came out that when the leucocytes reached elevated values after the TFF treatment we had a lowering of values, while as far as the other parameters, we had a slight adjustment. Furthermore it emerged an uniform clinical datum: in all firms the breeders denounced a lower brightness, a lower production of milk, a freakish apetite of the cows before tests while after the situation normalized with tendencies to increase the production of milk not in excess but durable.

These tests were carried out on horses with problems specially at their hooves. I made a transfer on vials of physiological solution with Baytrill Enrofloxacin, an antibacterial. I treated almost 20 bovines suffering from chronic mastitis already cured unsuccessfully with antibiotic (ossitetracilin), which in frequency gave good results, the animals regained their normal physiological functions.

The rheumatic and artrosic formsin dogs and cats with TFF, I could reduce the use of F.A.N.S.

I am persuaded that this personal research is a really small thing besides the experiments on large scale. The means at my disposal are narrow, but the daily use of the method has widened the possibility not-harmfull of therapy and I think, like Leonardo said, that true science is the experience.

The MORA-Therapie - a summary

Electromagnetic interactions are the most important forces in living nature or organisms. They are part of the regulation processes in all physical sensations of life. However the orthodox medical science of today have great problems in comprehending the human body from a non-material, electromagnetic point of view. Unfortunately they are not yet inclined to also accept the invisible, electro-magnetic part of the human body. But the electromagnetic human body needs to be looked at as a complementary to the "firm" body. If electromagnetic fields are a reality and can be employed technically, they could as well be usefully transferred to the electromagnetic body of any human being or animal.

The Germans Dr. Franz Morell and engineer Erich Rasche developed a testing-transmitter-receiver (TSE) in 1975. This TSE-system was capable of electronically transferring the electromagnetic information of medicaments which could be measured using electro-acupuncture. It surprisingly worked like radio telegraphy between the medicament and the electro acupuncture measuring instrument which lead to the conclusion that if medicaments contain particular electromagnetic information and if they bring about a therapeutical effect in the human body, we can take into consideration that all life is subject to an electromagnetic organisation system.

Advanced developments of the MORA-Therapy devices have achieved that those oscillating information (frequencies), which are conductive to the health of the organism, were separated from the information that stress the organism. This could indeed be researched by various experiments. The human organism incorporates similar discreet frequencies of molecular oscillations. These frequencies are determined by the power of the inter-molecular forces. Information components, that are positively conductive to the organism are called harmonic components (H) by us. In this respect we think of the complete mineral balancing system, enzymes, etc. These H-components, as they are seen in the therapeutical control loop, are effective as sort of an affirmative, positive feedback. Those information components that are toxic and consequently provide a stressing effect to the organism are degenerative. They can be cancelled by switching the information to an invers mirror image whereupon they are returned to the organism. We call these components being discordant inverted, or, in short, D-bar.

In 1987 a new MORA-Therapy appliance had been developed. This new device not only incorporates the genius ideas of Dr. Morell about cancelling stressful and distorting information by their own mirror image and the combined knowledge of homeopathic laws, but also the classic features of YIN and YANG as part of the Chinese medicine, which is already more than 5000 years old.

MORA-Super bipolar is a genuine two-channel therapy device. It is capable of providing all possibilities for diagnosis and therapy by a software-controlled computer system. So far, the therapeutical successes speak for themselves. By employing two channels simultaneously, both the acute stage of a disease and its chronic situation can be evaluated at the same time. A fully-automatic diagnosis system discloses the YIN-YANG-situation of the patient right at the beginning of a therapy. It also controls the new situation after each therapy step in order to correctly assign the patient's own high- and low-potency chords to the new YIN-YANG-situation, if necessary!

The new generation of MED-TRONIK diagnosis and therapy appliances are generally software-controlled, that means by intelligence. Our present knowledge does no longer require new hardware, but simply an updating of our intelligence. By employing this one can safely say to always being "ahead of the progress".

Erich Rasche
Co-founder of the MORA-therapie
and Director MEDTronik GmbH

TFF-GLYPHOSATE AND -TRIFLURALIN ON LENTILS AND WHEAT

by

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Summary

The effect of TFF was tested on vegetal systems, namely green lentils and wheat, in order to minimize the placebo effect (1). To better understand the TFF (2), a series of tests was performed varying vegetals and herbicides. The seeds (10 for lentil or 12 for wheat) were placed on a double-filter layer along with 5 mL of a preparation in each Petri dish. For the first two days, the Petri dish was closed, and for four more days, the dish was left opened.

The preparations were TFF-glyphosate and TFF-trifluralin. Glyphosate affects the photosynthesis while trifluralin instead blocks germination. The transfer of the information from the herbicide to water was realized with the Mora apparatus.

To perform the TFF transfer, a Mora apparatus was used with its battery pack supplying the DC electric power for amplification and transfer. The amplification of the input signals was fixed at 40X during periods of 7 seconds followed with 3 seconds of pause for a total of 90 periods. The reference preparation was water prepared with the Mora without herbicide at the input (called TFF-water). The daily dose was 5 mL. The room temperature and humidity were maintained at about 22 °C and 70%, respectively. The illumination conditions were natural.

The results obtained with the herbices showed a partial growth inhibition. Instead, with TFF- water, a normal growth was observed. The effect was noticed principally on the apexes length. However, the root lengths were equal in all cases. In conclusion, there is an action at the biochemical level in the plants, but the precise site of action is not well known for the moment. This remains to be elucidated for future investigation.

(1) Vinattieri, C., Picard, G. and Citro, M. *TFF on animal and vegetal models*. In "High Dilution Effects on Cells and Integrated Systems", Cloe Taddei-Ferretti, Ed., World Scientific, London, in press.

(2) Citro, M., Smith, y., Scott-Morley, A., Pongratz, W. and Endler, P.C. *Transfer of information from molecules by means of electronic amplification in Ultra-High Dilution: physiology and physics*, Eds. P.C. Endler and J. Shulte, Kluwer Academic Publishers, 1994.

GERMINATION TESTS FOR *TRITICUM AESTIVUM* L. (COMMON WHEAT) WITH TFF

Massimo Melelli Roia, M.D.
Perugia, Italy

The tests were done using caryopses of common wheat (*Triticum aestivum* L.). The herbicide used was Treflan-ec (brand name), the active ingredient of which is trifluralin (chemical formula: $C_{13}H_{16}F_3N_3O_4$).

Plastic 14 cm Petry dishes, with 100 caryopses each, were used as germinators. Two disks of filter paper were placed, one on the top of the other, in the bottom. There were three groups for each test, and each test was repeated four times with a constant temperature of 20°C and 15 hours of light per day (artificial fluorescent light).

The groups were:

Group A - control: filter paper wetted with water.

Group B - treatment with Treflan: filter paper wetted with a Treflan-water solution at a strenght of 0.1 g. of active ingredient per m².

Group C - treatment with Treflan TFF.

Two subsequent tests were done in an environment with a temperature of 18-20°C and natural light.

The procedure used in the germination tests was that established by the Ministry of Agriculture and Forestry.

The first test, carried out under artificial light on 8 September 1995, showed no difference between groups A and C, which both had a germination of 93%. There was no germination in group B (treated with Treflan).

The second test, conducted on 10 January 1996, in natural light and at a temperature of 18-20°C, gave the following results:

Group A = 93% germination

Group B = no germination

Group C = 50% germination

In this test the effects of TFF treatment were clear, with a result halfway between that of the control group and of the group treated with the herbicide.

This same test was repeated on 14 May 1996 in the same environment, using the same methods and the same groups. The results were identical to those obtained in the first test in the germination chamber.

The effect of TFF on plants

Water is a basic molecule for living organisms. Plants use water to extract mineral nutrients from the soil, for basic biochemical processes and to dissipate excessive heat from solar radiation. Quasi-crystalline molecular cluster of water are continuously formed in a restricted hierarchy of binding angles between oxygen and hydrogen. In many cases it has been suggested that vibrational excitation of water, namely TFF, is able to transfer to water properties belonging to molecule of higher molecular organisation and quite different physico-chemical properties. All these suggestions prompted a series of experiment in order to check for TFF effects on plants by using starting molecules known to exert drastic responses when used on plants. Our lab facilities allowed to use both *in vivo* and *in vitro* methods. The most dramatic effect on plants is caused by herbicides, which are a class of synthetic molecules with differential targets. Glyphosate was then used and applied on plants both directly and after TFF treatment. No significant effects were detected when TFF glyphosate was used. 2,4-D (2,4-dichlorophenoxyacetic acid) is both a herbicide and a synthetic auxin, it is used for growing plants *in vitro* and when used in excess it causes cell death. Tobacco tissue cultures grown with 2,4-D had a regular growth behaviour, however when cells were cultured in presence of TFF 2,4D the tissues died after a few days, thus indicating no effects of TFF 2,4-D. 3,4-dimethoxybenzoate is a potent seed growth inhibitor, when seeds are grown in the presence of this phenolic compounds germination is strongly inhibited, whereas no inhibitory effects were found by the use of TFF 3,4-dimethoxybenzoate.

Our preliminary results on the effect of TFF indicate no physiological responses of plants when different molecules were used after TFF treatment. In our experiments we used distilled/sterile water and probably the absence of mineral elements could play an important role in the responses previously reported by other researchers. It has to be considered that some mineral elements are present in different states. For example, Cu is known to possess particular physiological properties when present in state III.

Much more work has to be done in order to demonstrate whether TFF is a promising tool for sustainable application in plant biology.

WATER AND LIFE: THE PIONEERS' RESEARCH

by

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Summary

Water is a quite intriguing liquid. Its polarity is very high, thus giving special macroscopical and microscopical properties. For example, water molecules reorient themselves around electrically charged objects and create bounded layers. The surface tension of water is also high and leads to the formation of monolayers and bilayers of lipids. Pure water is an isolator: no current passes through. However, for us human beings, water has another meaning. It is well known that the quality of water is of prime importance for life. The quality of water can be described for the time being only by quantitative physico-chemical data like temperature, pH, viscosity, conductivity, thermal capacity, provided by man-made instrumentation. Moreover, these data change drastically when other products are present. A minute quantity of salt changes its conductivity by several decades. Gases in water are known to be essential for sonoluminescence. Magnetic water has the reputation to favorize growth when given to vegetals. In few words, people characterize water through instruments. However, a human being is not a machine-like system. As a consequence, it is logical to conceive that the intimate relationship between water and people provides to water another character: may we call it a vital character?

One of the most promising avenue is the effect of electromagnetic waves on living systems. From the 70's, an apparatus was constructed using the principle that electrical waves travelling through the body provide therapeutical effects. This is compatible with the fact that these waves exist in our nerves, and signals from outside can well interfere with them. The MORA-Therapy, a commercial available apparatus, has cured thousand of persons up to now. However, to explain TFF, another step forward must be made: water should be able to store information. The storage passing through glass bottles, this implies that EM waves are required. Using a MORA apparatus, a kind of "vitalization" of normal water is performed. The nature of this "vitalization" is not well understood, but implies a very important consequence: water is not only a carrier of solubilized ions but plays an active role.

Out of the pioneers' work, a puzzle made of several hypothesis' and observations appears. In order to make a coherent picture, an inventory of hypothesis' and observations, made on living systems as well as on theoretical considerations, is given. Among them, it was suggested that water can take special configurations, either a few nanometers - water clusters - or several micron wide - coherent domains. It was also suggested, by homeopathic specialists, that water keeps a fingerprint of the solubilized molecule. It seems that an electronic signature remained in water, understandable by living systems. All attempts to detect it by man-made machines failed up to recently, as a very promising observation by a highly sensitive electronic device coupled with FFT analysis showed some differences at VLF(see the poster of Macri and Banderali in this Workshop).

METHODOLOGY FOR ANALYSIS OF SIGNALS IN AQUEOUS SOLUTION

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TFF (Trasferimento Farmacologico Frequenziale) consists of transmitting pharmacological information from a substance or solution to water via an electronic amplifier (MORA III 200, Med Tronik, Germany).

The purpose of our research is the detection of the signal emitted by aqueous solutions. To do this we used a current/voltage amplifier (Biologic R.K.300) replacing the MORA apparatus.

Two homoeopathic products (Oscillococtinum and Ignatia Amara 15CH) diluted in water were placed into an electrode at the amplifier input. Output signal was recorded on magnetic tape and analysed by spectrum analysis. Preliminary results of spectral analysis revealed that both dilution of homeopathic products and dynamization could modify the power spectra in the low frequency range.

THE TFF IN EQUINES

Dr. Sergio Orsatti, Doctor veterinary

The commercial name of medicine used in TFF:

- | | | |
|------------|--------------------|-------------|
| 1 Toradol | 3 Finadine | 5 Combiotic |
| 2 Voltaren | 4 Betaendorfina TM | |

These medicines have been used in different pathologies:

PostSurgery, Addominal acute colic, Osteoarthritis.

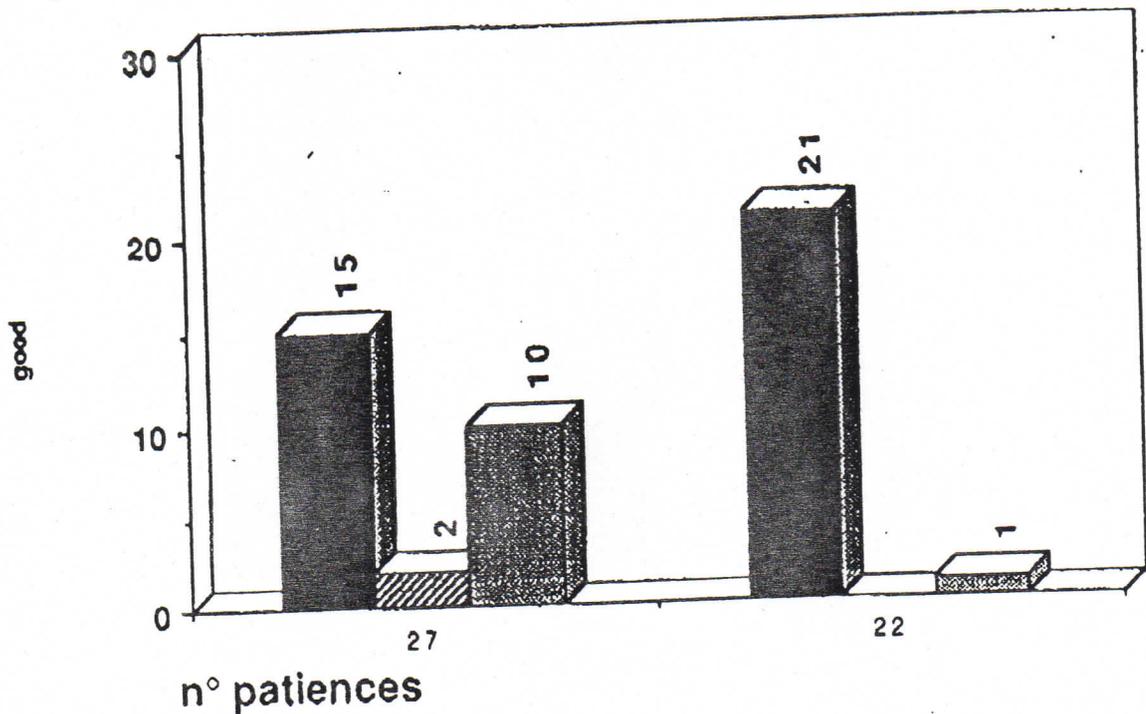
The results have only an indicative value (because of the limited number of cases) but are interesting for new deeper studies.

The following page includes the graphical description of my work.

	n°patients	SURGERY			
		treatment	good	very good	not good
1	27	5/2	15	2	10
2	22	5/3	21	0	1

- good
- ▨ very good
- not good

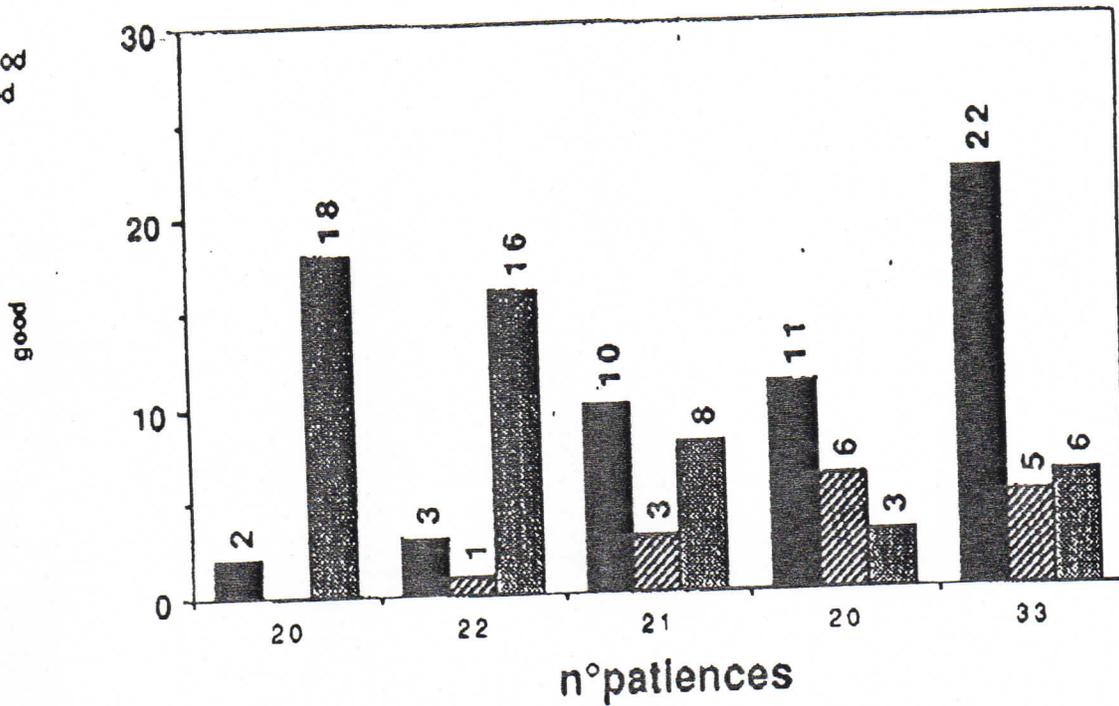
Data from "surgery "



ADDOMINAL ACUTE COLIC

	n°patients	treatment	good	very good	not good
1	20	1	2	0	18
2	22	2	3	1	16
3	21	3	10	3	8
4	20	4	11	6	3
5	33	3/4	22	5	6

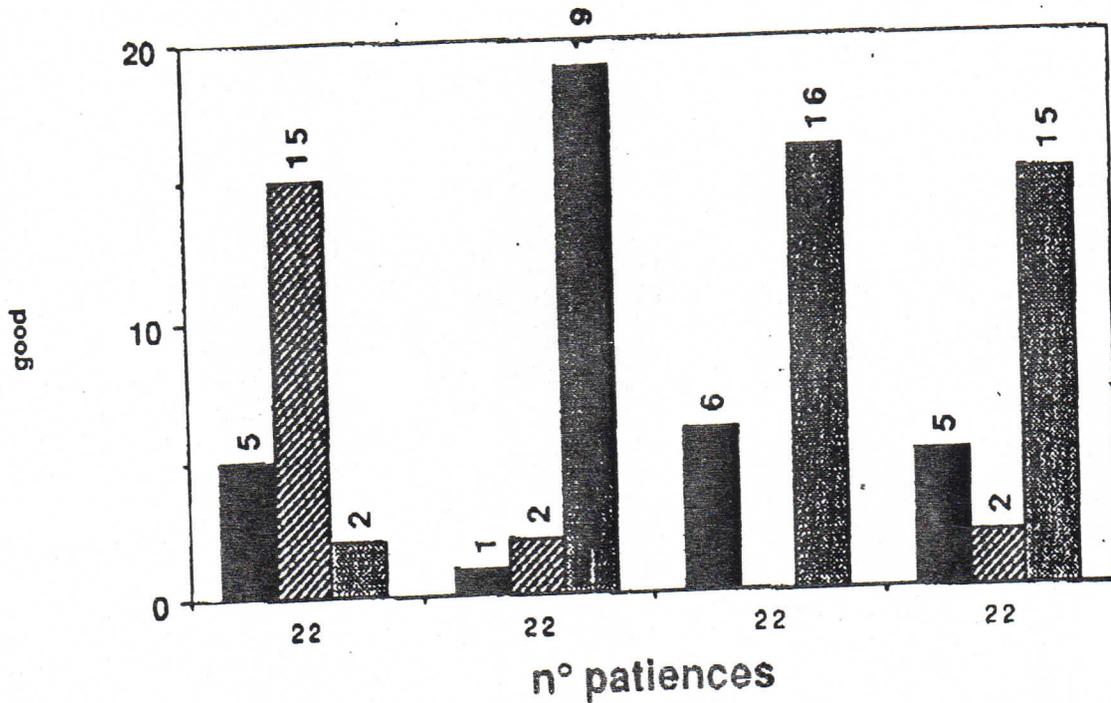
■ good
 ▨ very good
 ■ not good



OSTEOARTHRITIS

	n°patients	treatment	good	very good	not good
1	22	1	5	15	2
2	22	2	1	2	19
3	22	3	6	0	16
4	22	4	5	2	15

■ good
 ▨ very good
 ■ not good



HYDRA AS A MODEL FOR EXPERIMENTAL INVESTIGATION IN THE FIELD OF BIOPHYSICS

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Hydra is one of the simpler Metazoa, characterized by asexual and sexual reproduction, the possibility of regeneration, symbiotic relationships in some species, few cells types, a simple nervous system, a continuous renewal of all cell types including neurons, an extra-ocular photoreception, a periodic behaviour, bioelectric activities linked to the behaviour, the modulation of the behaviour by means of various factors.

Hydra is a suitable animal model for various types of investigations in the biophysics field.

First, it can be studied from the point of the view of growth and regeneration, taking into account the various substances that intervene in such processes or that inhibit them.

Second, the role of the various cell types in shaping the behaviour can be further analyzed, as well as the modulating effects on behaviour and bioelectric activities exerted by several factors, such as chemical, mechanic, photic, thermic and electric stimulation.

Third, the fine characterization of the morphofunctional substructures of the cells, mainly of their membrane ion channels, can be afforded.

The First International Workshop on TFF: What is the Biophysics Behind?

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INFORMATION AND LIVING SYSTEMS

by Madeleine Bastide

Professor of Immunology

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The living self is the never-ending process whereby levels of information are synthesized, in the face of the informing environment. Living beings communicate with their world in a non verbal way, whether on a somatic or psychological level: we can therefore present the paradigm of signifiers. This paradigm takes place within the framework of the logic of analogy. The signifier is the semantic object which materially designates information to be transmitted and dealt with: for example, the homeopathic remedy is the mimetic representation of the disease. *It can be transmitted by an electromagnetic carrier* as demonstrated by Endler and Smith.

Basic research on high dilution effects started with homeopathic therapy. Firstly, succussed dilutions must be separated from unsuccessful very low doses from a physical point of view. This leads us to discuss the validity of the controls in high dilution research. Various experimental models help us to analyze the possibility of information processes. These processes are designated as semantic objects: a semantic object (for example a highly diluted remedy chosen according to the similia law) is able to transmit the specific information in a physical way like an electromagnetic carrier. However, the semantic object exists only by the reaction of the receiver, whatever the physical transmission. Various examples can be chosen in high dilution experimentation: in each one, the framework of information has to be defined. For example, hormetic models and application of the Arndt-Schultz law are based on the identity principle. By using succussed non-molecular dilutions, the hormetic model supports a learning process which must be related to informative concepts. Starting from this primary level of informative process, we can elaborate a progressive information organisation of the high dilution effects. Endogenous molecules have a specific regulatory function while highly diluted exogenous molecules will only be informative in the framework of the similia principle. Such structures meet each other in the communication between the patient and the physician-remedy system. In homeopathy, the medical device has to re-inform the patient and makes his symptoms move on towards a higher level of integration. The dilution of the remedy permits to read it as information about disease. Symptoms can be recognized as an erroneous adaptation and the organism is engaged in a process of paradoxical negation. The action of the remedies consists of a dynamic analogy between pieces of information. The paradigm of signifiers gives therefore a new possibility in the exploration of informative therapeutics.

Moreover, in other experiments, we have observed that video display units were able to modify strongly the immunological and hormonal response of chickens continuously exposed in front or at the side of VDU. One hypothesis could be an interference modifying the electromagnetic carrier of internal informations.

Taken together, all these results led us to think that electromagnetic fields (low intensity, low frequency) may be the carriers of exchanges of information in living systems.

EFFECTS OF ELECTROMAGNETIC FIELDS ON PHARMACOLOGICAL DRUGS ACTION

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ABSTRACT : Electromagnetic fields can interact with the pharmacological effects of drugs *in vivo*. For example : morphine - induced analgesia is inhibited in mice exposed to a magnetic field (KAVALIERS et coll., 1986) . Fentanyl - induced analgesia is attenuate when mice are exposed to a time varying magnetic field (TESKEY et coll., 1988). A static (DC) magnetic field can alter electrical properties of solutions and their physiological effects at the cellular level (AYRAPETYAN et coll., 1994).

Pharmacological effects of dilute histamine on coronary flow of guinea-pig isolated heart is inhibited by a magnetic field (HADJI, 1991). Some researchs show that specific signals are emitted from drugs : those signals can be transmitted, by electronic circuitry, to a patient or stored in a liquid vector (CITRO, 1992).

Results from our laboratory show that a pulsed magnetic field can potentiate the atropine inhibiting effect on intestinal transit in mice. This effect, which appears to be dependant of the magnetic field frequency (SANTINI, 1992, 1993) is also observed when atropine is exposed to magnetic field before its injection to animals (SANTINI, 1996).

In view of radioprotection against non ionizing radiation and possible interactions between electromagnetic fields and drugs, it is fair to said that people who are treated with mediations and physicians, have to take the electromagnetic environment into account.

- KAVALIERS M., OSSENKOPP K.P. Magnetic fields differentially inhibit Mu, Delta, Kappa and Sigma opiate induced analgesia in mice. *Peptides*. 1986, 7: 449-453.
- TESKEY G.S. et coll. Exposure to time varying magnetic fields associated with magnetic resonance imaging reduces fentanyl induced analgesia in mice. *Bioelectromagnetics*. 1988, 9: 167-174.
- AYRAPETYAN S.N. et coll. Magnetic fields alter electrical properties of solutions and their physiological effects. *Bioelectromagnetics*. 1994, 15: 133-142.
- HADJI L. et coll. Effect of dilute histamine on coronary flow of Guinea-pig isolated heart. Inhibition by a magnetic field. *FASEB. 75 th Annual Meeting*. 1991, 7040.
- CITRO M. TFF. Un'Alchimia elettronica. Basi teoriche E dati preliminari. *Empedocle*. 1992. 2-3: 39-44.
- SANTINI R., SEIGNE M. Potentiation of atropine induced retardation of small intestine transit in mice by a pulsed magnetic field. *Drug Dev. Res*. 1992, 27: 73-76.
- SANTINI R. Incidence of 10 and 500 Hertz ELF magnetic fields on digestive transit in mice. *BEMS. 15 th Annual Meeting*. 1993, 166.
- SANTINI R. A pulsed ELF magnetic field can alter pharmacological effect of atropine in solution. *E.B.E.A. Third International Congress Nancy (France)*. 1996.

THE ROLE OF WATER IN BIOLOGICAL SYSTEMS, PART II

by
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Summary

Almost twenty years ago the author and F. Di Pascale formulated the first idea that the water involved in biological systems could play the role of information storage. This paper reconsiders the meaning and the mechanism of action of biological information. A thorough reflection on Severi-Pannaria physical approach, specifically on the matter-antimatter interaction through the Exchange Principle among the four combined elements of combined matter and the four uncombined elements of pure matter confirms that biological water is an "information storage continuous medium", but at the same time it suggests a new mechanism about the biological information meaning and production. Biological data are primarily physical modifications of the background energy of water; these modifications only subsequently reflect themselves on the structural organization of polymerised water, i.e. on the water quasi-crystal tridimensional lattice. To show what we mean for the background energy of water consider for instance the case of an aqueous electrolytic solution. The energy the solvent spends to break the molecules of the chemical species introduced in it and that after breaking become the solute does not appear in the usual entropy calculation. This happens because the entropy is a value of the action that follows the breaking of the solute chemical species. In other words, if we suppose that it was possible to remove from the water all the solute, the water thermodynamic properties would revert to the same ones it had before the solution. Instead the water has done anyway a certain amount of work on those molecules, but it does not appear in our ordinary calculations. This work is a result of the background energy of water and is overlooked because the mechanic laws of chemistry are limit laws that are exactly true and comparable for any highly diluted substance. An accurate investigation of the water background physical properties could thus lead to the answers to many unsolved questions such as the action of the homeopathic remedies and the TFF mechanism.

TFF-GLYPHOSATE ANF -TRIFLURALIN ON LENTILS AND WHEAT

by

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Summary

The effect of TFF was tested on two vegetal systems, namely green lentil and wheat, in order to minimize the placebo effect (1). The growth conditions for lentils were realized in a Faraday cage made of a fine meshed metallic net (0.2 mm). This cage proved to shield radio (kHz-MHz), TV (MHZ) and cellular phone (GHz) frequencies below the detection threshold of these electronic devices. The lentils were seeded in a garden soil placed in conical flasks to smooth the air condition variations through days and nights. The room temperature and humidity were maintained at about 22 °C and 70%, respectively. Wheat were placed on a double-filter layer along with 5 mL of a preparation in each Petri dish. For the first two days, the Petri dish was closed, and for four more days, the dish was left opened out of the Faraday cage.

For lentils, the illumination conditions were provided with a 14 40-Watt spotlight filament lamp array beaming through filtered water-filled Petri dishes an IR-depleted mid-latitude sun-like light intensity at the soil level 30 cm below. To perform the TFF transfer, a Mora apparatus was used with its battery pack supplying the DC electric power for amplification and transfer. The amplification of the input signals was fixed at 40X during periods of 7 seconds separated by 3 second pauses for a total of 90 periods. Tap water was filtered by a Purolux apparatus. The herbicides put on the input electrodes were either glyphosate or trifluralin. Glyphosate affects photosynthesis and trifluralin blocks germination. In one experiment, different herbicides were put together on the input electrode. These herbicide were, namely, glyphosate, trifluralin, DCMU, paraquat and truffle essence. The hormone used was the 2,4 D ($C_8H_6Cl_2O_3$). The amplification were either 40 or 480X. The illumination were with or without IR filters.

The best results with lentils were obtained with different chemicals when contemporary tested. In this case, the total length of the lentils treated with TFF-hormone slightly exceeded the water-treated ones, while the TFF-herbicide treated lentils showed the slowest growth rate. This simultaneity may reveal that extrinsic parameters to the experimental conditions above mentioned might had played an important role on the lentils growth. This emphasis the need of large-scale experimentation, in time and geographical sites. The results obtained with wheat showed a growth inhibition. Instead, with TFF- water, a normal growth was observed. The effect was noticed principally on the apexes length. However, the root lengths were equal in all cases. In conclusion, there is an action at the biochemical level in the plants, but the precise site of action is not well known for the moment. This remains to be elucidated for future investigation.

(1) Vinattieri, C., Picard, G. and Citro, M. *TFF on animal and vegetal models*. In "High Dilution Effects on Cells and Integrated Systems", Cloe Taddei-Ferretti, Ed., World Scientific, London, in press.