Some observations on changes in state and functions of water and its role in biology

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A line of research on the special features of the water in liquid state has been going on up today, starting from the pioneering works of Giorgio Piccardi, at the end of Thirties, aimed to avoid the limestone formation in boilers and pipes. Piccardi besides had observed, in successive experiments, that very weak signals from the cosmos were able to induce a change of state in solutions of Bismuth trichloride, as well as in a Fitzroy's Barometer [see 1].
Several Physicists (among them, Preparata, Del Giudice, Trukhan, Zhadin, Widom, Srivastava) have elaborated theories about the peculiar structures of water, which are supposed to be capable of retaining in a stable manner information on its conformation [see 2]. This is the theoretical context of the discovery of Jacques Benveniste, the so called "memory of water" (1988), that aroused a scientific debate which lasts to this day. Among the confirmations of this phenomenon it is worth to note Carmen Capel Boute [3] and the echo that has sounded in the "Cosmos and Biosphere Crimean Conferences", when the Benveniste's discovery was linked with similar discoveries realized in the former Soviet Union [4].
The different detected effects on water, such as removing limescale, improvement of the quality properties and the inibition of bacterial growth, have in common the role played by very low concentrations, up to the absence, needed for activating water; and this activation can be also traced back, in some cases, to the influence of very weak magnetic fields (see the "Zhadin effect") or, in other circumstances, to a storage of information in water, that can be hypothesized as caused by the neuronal electromagnetic transmissions from a nervous system, like from a transceiver antenna.
Starting in the late Sixties [5] and continuing until his death in 1991, the famous physicist Herbert Fröhlich developed a theory of biological coherence based on quantum interactions between dipolar constituents of biomolecules, such as those of enzymes, membranes, organelles and same cells; a relevant feature of this theory was just the special structure supposed for the biologic water (microtrabecular structure). As a result of the hypotized nonlinear interactions, Fröhlich predicted the generation of coherent modes of excitation, represented as quantum dipole oscillations, in the microwave frequency range [6].
Another possible explanation of the recalled phenomena, not colliding with the previous one, could come from a new interpretation of the role of the potential vector as proposed by Hal Putof, Edward Trukan, and, particulary, by Emilio del Giudice and Giuliano Preparata; the latter two wrote about this issue something of very acute and deep: *"The Potential Vector extends to a nearby large area,* ***without transporting energy but just information,*** *exerting a "fine influence", we could say "informatica", that alters the phase of the present coherent systems."*
Both the mentioned theoretical hypotheses and the detected phenomena deserve experimental verifications. In the last twenty years much attention has been devoted to the behavior of aqueous solutions of enzymes or more simple organic compounds, when are solicited by a very weak magnetic field. Our idea is to test those solutions, but at a much lower level of concentration, measuring their electric properties like conductivity and impedance, initially without an external magnetic field. The experimental apparatus, designed in the Bio-electromagnetism section of CIRPS, is equipped with a very high power of resolution, able to record the smallest variations of the values of the measured parameters and, then, of the investigated properties.

References

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