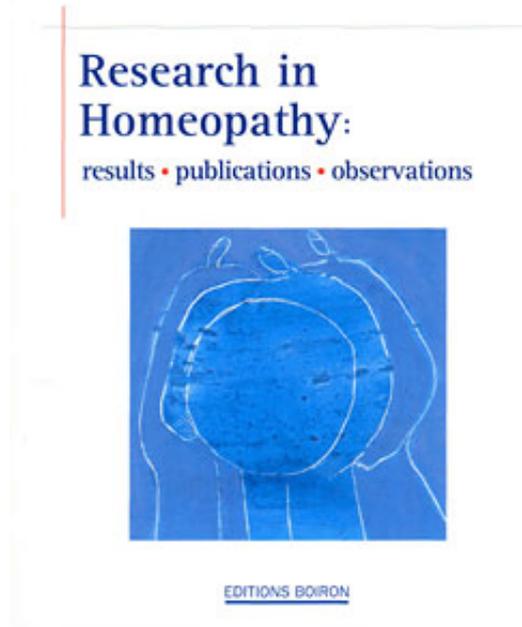


Philippe Belon

Research in Homeopathy

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Homeopathy and physiopathology

Professor Jean-Claude Cazin
Dean of the School of Pharmacy of Lille

Pharmacological study of retention and mobilization of Arsenic under the influence of Hahnemannian dilutions of *Arsenicum album*

Using guinea pigs and Arsenic and Bismuth, Charles Lapp and Lise Wurmser observed the elimination of a toxic element previously bound to an organism, via the action of Hahnemannian dilutions of the same element. These same findings were noted by Andre Cier and Jean Boiron, using pigeons and arsenic and antimony. Likewise, Georges Mouriquand and Jean Boiron were able to tie the induced elimination of exogenous toxins to variations of the vestibular chronaxy, considered to be an objective indicator of arsenious or stibiated impregnation at sub-toxic doses.

In 1962 Andre Cier and Jean Boiron studied the specifics of this effect by searching to see if crossover reactions existed between arsenic and antimony, since they are chemically-close elements, with similar biological properties.

Given the very positive nature of these experiments, Professor J. C. Cazin and J. L. Gaborit decided to use a more modern protocol where arsenic is administered per os to all of the rats, and its elimination kinetics is monitored via radioactive tracing (AS⁷³).

First in vivo experiment

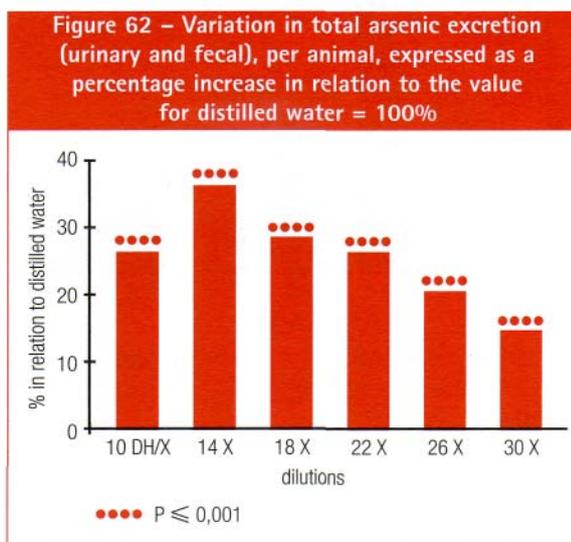
The effects of a single injection of Hahnemannian dilution on 60 rats was tested. The rats had been given the toxic solution of tracer arsenic¹.

Twelve hours after incubation, 30 rats were treated with *Arsenicum album* 7C, administered by intra-peritoneal route. The 30 other rats were treated with *Dynamized water* 7C, under the same conditions.

The counter used for dosage was an "Intertechnics" gamma radiation counter.

Results

Within 8 hours of the injection the 30 rats treated with *Arsenicum album* 7C eliminated 40% more arsenic than the 30 rats treated under the same conditions with *Dynamized water* 7C [see Figure 62].



Comments

This experience shows a significant difference (confidence interval of 99%).

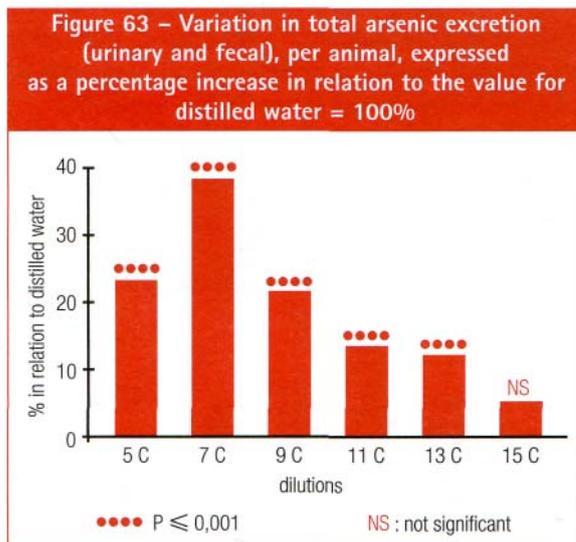
Second in vivo experiment

The effects of three injections of Hahnemannian dilutions on 50 rats were tested. The rats had been given an arsenic solution, marked in the same manner, at the same doses as for the first experiment.

Twelve hours later, 25 randomly-selected rats were given 1ml of a Hahnemannian dilution of *Arsenicum album* 7C, by intraperitoneal route; the other 25 rats were given 1 ml of a Hahnemannian dilution of *Dynamized water* 7C under the same conditions.

A second injection was given on Time 0 + 24 hours and the last one was given on TO + 36 hrs.

At TO + 7 days, blood samples were taken from each animal. Arsenic elimination was measured over the course of these 7 days [see Figure 63].



Results

Seven days after administration of the toxic solution of tracer arsenic, a significant difference in blood arsenic concentrations was observed.

The blood concentrations of the *Arsenicum album* 7C-treated group were lower than those of the group treated by *Dynamized water* 7C. Elimination was distinctly superior in the first batch, when compared to the second one.

Comments

The findings show that the first two injections were responsible for most of the observed effect.

Recent developments

For over ten years, studies on the curative, preventive or protective effect of dilutions of oxides or salts, of arsenic and other metals have been continued and developed by several authors²⁷.



Physical studies

1. Studies on high dilutions by thermoluminescence

*Professor Louis REY, Doctor of Science
University Professor, Scientific Adviser*

Founded by Samuel Hahnemann, homeopathy is based on the principle of diluting medicinally active substances. Whether the substance in question is directly soluble or whether it has to be initially micronized by trituration, it is subjected to successive cycles of dilution (usually 100-fold each time) in some neutral solvent (usually water) with vigorous physical mixing at each step. In this process, "dynamization" is the indispensable corollary of dilution. With each step involving a 100-fold dilution, the concentration of the active substance rapidly drops until, around the level of 14C, a threshold determined by Avogadro's Number is reached beyond which there are no longer any molecules of the starting substance in the preparation. Logically speaking, by this stage there is nothing to distinguish between the highly diluted solution and the solvent itself although, as we know full well, this is not the case and such extremely dilute solutions can have genuine therapeutic efficacy, as has been shown in many double-blind, multicentric clinical trials. The obvious questions are thus, "Where does the therapeutic efficacy come from?", and "How does it get 'imprinted' into the solvent used?"

These are the questions that we wanted to address, not in a dogmatic spirit but rather in order to discover exact physical mechanisms, which could be used to "mark" such solutions in an unambiguous and reproducible manner.

Water can exist in different "states"

Despite its apparently simple molecular formula, we know that water is a substance with remarkable properties quite distinct from those of related compounds or compounds with a similar configuration. At the root of these properties are "hydrogen bonds", hundreds of billions of which form an intricate network to give the liquid structure. This network is a highly dynamic entity with bonds breaking and reforming over a picosecond time-scale. This corresponds to a massive, three-dimensional lattice in which interacting water molecules are partly free and partly fixed, i.e. a sort of perfectly mobile gel which can be deformed in an infinite number of ways but with entirely defined mean statistical properties. Certain experts, Mishima and Stanley⁴, have even hypothesized that, in this universe of perpetually turning over intermolecular bonds, several different "categories" of water might exist, each with distinct properties. This was enough to inspire Jose Teixeira to ask the question, "Is water schizophrenic?"⁷

What happens when the "structure" of water becomes modified?

How could it be imagined that introducing exogenous chemical substances into water would not interfere with these equilibria? Moreover, how could it be imagined that combining the introduction of such species with vigorous physical mixing (which generates strong turbulence in this rigid—although mobile—medium) would not promote the propaga-

tion of new structures superimposed on the average statistical mean which pertains "in the mass"? Finally, how could it be imagined that, after so many successive cycles of dilution, there remains anything other than this perturbation, resonating throughout the liquid and transmitted from step to step?

In a highly diluted solution, the only entity remaining would be that which in Kantian terms could be referred to as an "a priori form" of the starting substance. In the same way as long-term memory outlives fleeting thought, so does the structure of water in the moment-to-moment tumult of its perpetually dynamic changes keep a record of its previous states.

It is this "signature" that we wished to investigate in extremely dilute solutions.

How can a constantly changing fluid be studied?

To investigate such a highly dynamic system, it is necessary to overcome the noise due to thermal motion by immobilizing the constantly changing networks, rendering them immobile so that their specific features can be examined. By freezing the water, we hoped to preserve the specific imprint of the liquid phase in a form more amenable to observation. In this new solid, we believed that structural modifications originally induced by the presence of the exogenous active substance would be preserved in the form of inclusions. After many unsuccessful efforts to localize (and, if possible, characterize) such inclusions using electrical measurements and estimates of propagation speeds in ice (among other techniques), in the end we found the most informative technique to be that of thermoluminescence.

Thermoluminescence

Experiments involve three different steps:

1. Conversion of the solution into crystalline ice by programmed freezing to very low temperature (-196°C or 77K, the temperature of liquid nitrogen).
2. "Activation" of the solid ice by irradiation (with X-rays, gamma-radiation or electron beams).
3. Progressive deactivation of the solid by warming, during which the irradiated ice emits light: the intensity and spectrum of the light are dependent on the initial state of the water.

Thermoluminescence is a technique based on thermal stimulation which is used by solid-state physicists for differential thermal analysis, thermally simulated electron emission, thermogravimetry, thermally stimulated electrical conductivity, etc.

Our working hypothesis was that luminescent foci would be set up around "lattice imperfections" initially introduced into the fluid as a result of the presence of exogenous molecules, and maintained by physical transmission through successive cycles of dilution.

Experimental results

Our last ten years of research have focused on heavy water (deuterium oxide) and highly diluted solutions prepared by Boiron Laboratories in heavy water. We — like the majority of physicists who study water — chose to work with D₂O since resonant oscillations in this medium give stronger signals because of the relative rigidity of the deuterium-oxygen bond. In the rest of this article, when the word "water" is used, it refers to heavy water.

Research in Homeopathy:

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