Epilogue of the second part

“Here lies one whose name was writ in water”

Epigraph on the gravestone
of the poet John Kates

What must be concluded?

Having ended the reading of this second part – and more particularly the last chapters – the reader can feel his/her intelligence a little bit “scattered”. What view should be taken of these “active” controls? of “black boxes”? of “wild transfers” and other “inversions”? of “facilitators” or “erasers” that appeared to interfere with the functioning of these machines supposed to work automatically? What is solid in this story? Should we not give up such a shaggy-dog story for a more substantial and more rational occupation?

In order for the reader to recover his/her senses, we are going to recapitulate at first the successive biological models and their variants which were set up by J. Benveniste’s team. This recapitulation summarized in the above table enables to become aware how this technical evolution allowed obtaining successive experimental systems that were less and less exposed to criticism.

We notice that every step forward allowed freeing from the inconveniences and criticisms of the various experimental systems. To take only the most important stages, the electromagnetic transmission allowed eliminating the possibility of a residual contamination in high dilutions; the digitization allowed eliminating the possibility of an interference of the electromagnetic background with “informed” tubes during the transport and the storage of samples; the direct transmission to the biological system allowed avoiding the use of an intermediary, a possible source of “wild transfers”. Finally this technological headlong rush peaked with automation of the system of coagulation thanks to the robot analyzer which was supposed be the ultimate in digital biology by avoiding the effects apparently related to the experimenter.

In spite of these improvements, it was almost always a failure when the order of samples or recordings must be determined in blind conditions during large-scale public demonstrations. By contrast, the results with open-label samples or recordings performed in the same conditions were almost systematically successful. It was as if it was forbidden to demonstrate the validity of what was nevertheless daily observed in the closed space of the laboratory. The reader who now knows the whole story can hesitate between several attitudes that will be successively considered.

Evolution of the successive experimental model set up by J. Benveniste and his team

Biological model	Advantages	Inconvenience
High dilutions and basophils *(First part)*	- Sensitivity of the method?	- Difficulty to discard arguments about subjectivity and possible contaminations - Needs trained experimenters
High dilutions and isolated heart *(Chapter 3)*	- Spectacular effect and "in live" - No subjectivity	- Argument of contamination still present - Cumbersome method
Electromagnetic transmission and isolated heart *(Chapter 1)*	- Spectacular effect and "in live" - No subjectivity - Independence from homeopathy but nevertheless related with high dilutions	- Cumbersome method - Interferences of the electromagnetic environment with "informed" water? - "Wild transfers"?
Digitization-transmission and isolated heart *(Chapter 12)*	- Permanency of the "recordings" - Possibility of "signal" analysis	- Cumbersome method - "Wild transfers" and "inversions" in blind conditions
Digitization and direct transmission to isolated heart *(Chapter 17)*	- No contamination (no water samples)	- Cumbersome method - "Wild "transfers" and "inversions" in blind conditions
Digitization and direct transmission to isolated heart with 3 signals (up, down, null) *(Chapter 19)*	- No contamination (no water samples) - Specificity directly evidenced	- Cumbersome method - "Wild transfers" and "inversions" in blind conditions
Digitization and coagulation (1) visual assessment of coagulation (2) measurement of optical density) *(Chapter 20 and 21)*	- Simplicity of the method - Easily "exportable"	- Experimenter effect? - "Inversions" in blind conditions
Digitization and coagulation (automatized method) *(Chapter 21)*	- Experiment completely automatized - Experiments always blind - No possible contamination	- Experimenter effect??

A collective mystification?

The reader may think that, after all, the easiest attitude would be to to conclude this as a collective cheating. It is actually the most peaceful solution for the mind. Nevertheless, the number of experimenters and the successive experimental models lead to the same conclusion: there is something which is not banal and which has a scientific interest. I have certainly an advantage on the reader because if all results were obtained with cheaters, I must be one of them. I shall also add a psychological element. Indeed, it is necessary to have seen the successive collaborators of J. Benveniste working for years, having discussed their results with them in an informal way, having even joked with them about these disturbing results, having observed the hopes, the disappointments to understand that this idea of a collective and massive forgery does not stand up. And all of that during almost twenty years (from 1984 till 2004). Moreover, because of this long period, some of the successive collaborators of J. Benveniste never met.

To take just one example, let us reassess the experiments of July, 1997 which were caricatural (see Chapter 19). Performed in "friendly" laboratories, without publicity, with a limited number of participants, an incredible masochism would have been necessary to perform experiments whose results were almost systematically "in disorder", while there were various tricks to guess the "good code" unbeknownst to the coder. Cheating, certainly, but with convincing results! Is it necessary to add the charge of stupidity to that of fraud?

Of course, there were different versions of this charge which tried to separate the responsibilities, without being afraid of contradictions. It was – according to the rumor - J. Benveniste "who put pressure on his researchers" or on the contrary it was "somebody who cheated behind Benveniste's back" or "crooks who surrounded Benveniste" (in its most unpleasant version, the rumor sometimes compared the team to a "sect").

A collective incompetence?

The idea of a collective incompetence is the counterpart of the idea developed in the previous paragraph: "they are honest but they "crashed"" or in a more "psychiatric" version specifically targeting J. Benveniste: "he is honest but crazy" or more frequently: "he was competent, but he lost his mind".

Nevertheless we saw in the second part that the experimental systems were questioned at no time. Thus, the isolated heart device has not been criticized by the diverse specialists of cardiac physiology and a standard procedure had even been elaborated in common with the National laboratory of health. Likewise,

the robot for the study of coagulation had not been criticized in its functioning and in its principle by the U.S. multidisciplinary team. Let us specify also that during these years, identical or similar biological models were used in the same premises – sometimes at the same moment – to perform "classic" research (basophil degranulation, isolated heart device, platelet aggregation). The methods were not critized, but the results or their possible consequences. Thanks to these diverse models, "classic" publications in high-level journals have been published during the same years by J. Benveniste and his collaborators. Some of his collaborators had even (successively or in parallel), a "classic" activity – published in high-level journals – while participating in these clearly more mind-blowing experiments. Except a collective case of mental dissociation, how can one explain that an experimenter could obtain wise results in the morning – accepted after inspection by the "peers" – and that the same individual with the same biological model would be committed in the afternoon in practices close to magic and hazardous for his/her professional future?

Perhaps the explanation is rather that results are differently treated by the "scientific community" according to their presumed (and often fantasized) consequences. One could see here a perfect illustration of the remark already quoted from the philosopher of the sciences, Feyerabend: "Facts, logic, and methodology alone decide – this is what the fairy-tale tells us".

An effect truly related to "memory of water"?

It is the heart of the subject. Indeed, it is under this form that the results of J. Benveniste were popularized. If one gives up the "memory of water" as a key for reading of these results, the price to be paid is important, as we have already said. Indeed, if we abandon this hypothesis, what are the other interpretations that can be suggested to explain the results? Another explanation has all the chances to need more hypotheses. Indeed, "memory of water", that is the idea that water is structured, is in fact the most immediate and the most "mechanistic" explanation.

However, one must recognize that in front of massive and repeated failures, it is increasingly difficult for the initial hypothesis to resist. We saw that the experimental "improvements" intended to rule out possible artifacts or interferences always faced in front of the same barrier: the supervision of these effects by independent observers. More exactly it seemed that the demonstrations became flimsy when the different components of the entity "experimenter-experimental device" were separated. It was the case when the samples of an experiment were coded by an external supervisor or when a "talented" experimenter was not present.

Concerning possible "eraser" effects which would be a cause of failure during demonstrations or attempts of reproduction of the experiments, it is very difficult to conclude. Indeed, this "inhibitory effect" would act on another hypothetical "effect" that appears to depend on the "presence" of a given operator! It then becomes very difficult to know who does what!

If the cause of the observed effects is indeed due to "informed" water, in other words if the answer is well present in the tube, then doing the experiment in blind conditions should not be a problem.

An effect related to the experimenter?

So, is this an effect related with the experimenter as suggested in the article of the U.S. team of DARPA? But are we talking about a "classic" influence, involving chemical mechanisms, for example diffusion of molecules on the model of pheromones that transmit specific information? Or about physical mechanisms such as broadcasting of electromagnetic waves? And in this case, how can one achieve such a degree of specificity?

Thus, some people speak about a "Jamal effect" to underscore that the experiments worked correctly only in the presence of J. Aïssa. It was the case for J. Ives about whom we spoke as for the DARPA expertise. Without going so far, J. Benveniste explained that J. Aïssa was a "facilitator" of the experiments – as E. Davenas was with basophils – whereas others on the contrary negatively interfered with the experimental system. Some commentators, including the inevitable J. Randi and other skeptics, mocked this idea because it was clearly distance oneself from science. Indeed, the experimental method is based on a strict separation between the observer and the object of study. Any "collusion" between the "observer" and the "observed" prevents an "objective" description of the world. Indeed, the answers obtained from "nature" are at risk of reflecting only the preconceptions and expectations of the experimenter.

What is a scientific research without adventure?

Maybe others will tell the period which extends from 2001 after the "U.S. expertise" until the death of J. Benveniste in 2004 and perhaps beyond if this work is pursued. As for me, I will be stopping the narration of "memory of water" here. The experiments with the robot intended to perform the whole experiment automatically and the expertise by the U.S. team appointed by the DARPA are indeed a "summit" – in my opinion the highest – which has been achieved during the story of the "memory of water". As suggested by W. Jonas

in conclusion of the investigation which he managed, to continue with the same conceptual framework has the risk of being an endless pursuit.

I shall nevertheless add this extract of a text of J. Benveniste published by the economics newspaper *Les Echos* a few weeks before his death. It was an answer to the newspaper which had made a "summer series" reporting several scientific controversies. The case of the "memory of water" was obviously mentioned. Faithful with his habits, J. Benveniste was anxious to correct a number of errors and approximations. Especially, he brought the following precision:

> "The non exclusive rights for seven patents held by the company DigiBio, including one validated by the US Office of Patents [1], concerning Hertzian digital biology […] have actually been bought by a North American company for a million euros.
>
> This cession was possible, not because this company was "intrigued" or charmed by my "music", but after a series of blind experiments. An anticoagulant drug was digitized at San Diego by our processes. The file/signal received at Clamart by e-mail was broadcasted to water, which has inhibited the coagulation as the molecule of origin would do. […] North Americans are not known to be poets who invest in anything when hearing the first music tune.
>
> The purchase of these rights is the sign of the emergence of the necessary change of paradigm in biology. The failure of structural biology is visible by all; let us make room now for information biology, for the molecular signal as rapid as light and digitizable. We hope for a myriad of applications, for example detectors of toxic or microbial pollutions, either accidental or criminal, or electromagnetic antiviruses… It will certainly be an adventure. But what is a scientific research without adventure?" [2]

Beyond the debate and the scientific aspect (not to mention the commercial and industrial dimension evoked here) concerning the "reality" of the phenomena observed by the team of Clamart, I wish to end on this last sentence. It indeed enlightens the motivation of the action of J. Benveniste: research as last ground of adventure. It is on this ultimate apostrophe sent to all the researchers and especially to the future researchers, to all the "believers" and "unbelievers" of this iconoclastic work, that we shall close this narrative.

And now?

The story of the memory of water is still a fascinating puzzle and the perplexity associated with this affair can only continue to excite curiosity and stimulate explanations which are different from those that have been repeated over and over again. The remark of the newspaper *Le Monde* of August 1988 considering the affair of the "memory of water" as "one of the most fascinating scientific affairs of these last years" is thus still valid.[3] Today, looking back, in spite of the considerable experimental effort, we cannot help but continue to support this statement. Our wish is that the set of experiments and events that we reported during this narrative could be considered from a fresh perspective and be the Rosetta stone of the "phenomena of Clamart".

In a third part – which will be the subject of a new work – we will try to make a synthesis of this outstanding story. We will try to discern gray areas and anchor points. In particular, we will insist on a "hard core" of results which, presented under a previously unseen angle, will give a singular perspective on this adventure. And if homeopathic high dilutions, "memory of water", "digital biology" had been trees which camouflaged the forest? And if the focus on water and fascination had managed to divert the attention from another phenomenon which was even more fascinating and unexpected?

Notes of end of chapter

[1] This is an allusion to the patent #6,541,978 of the US Office of Patents "Method, system and device for producing signals from a substance biological and/or chemical activity" (April 1st, 2003).

[2] J. Benveniste. Mémoire de l'eau : le débat reste ouvert. *Les Echos*, August 28th, 2004.

[3] Jean-Yves Nau. *Le Monde*, August 9th, 1988.