Chapter 19. When caffeine boosts memory

The “post Lausanne” period

After the results of the Swiss experiment of September 1997, one could think that the principle of the experiments with “digitization-transmission” would be profoundly questioned. Because of their merciless logic, the results of Lausanne indeed raised an extraordinary problem, which was scientifically fascinating, but particularly destabilizing for “memory of water” and “digital biology”. However, J. Benveniste and D. Guillonnet interpreted again this failure as an unforeseen technical problem.

Nevertheless, we have *ad nauseam* already noticed in this text that it was not the first time that “coherent discordance” was reported throughout these years. Moreover, concerning the experiment of Lausanne, one could not speak any more about “wild transfers”. As for D. Guillonnet, he did not seem aware or did not want to take into account the numerous experiments performed during the previous years. He seemed to think that J. Benveniste certainly had a brilliant intuition, but that the work which preceded his arrival was hardly reliable because of the rustic nature of the electronic devices which were then used. He did not seem to perceive that despite the notable improvements that he brought to the electronic system of recording and replay, one must admit that the question of the anomalies and other “wild transfers” remained totally unresolved. Was a long head rush into technique then the most suited answer to understand these phenomena?

If J. Benveniste had doubts on the future of his studies, he let nothing appear. Indeed, as a private company, Digibio must find financial partners that could help its development. Maybe he also thought that, over time, he would finally get out of this net where he locked himself. In the meantime, he must convince others of the legitimacy of this research and of its potential applications. As for D. Guillonnet, he was too much occupied by the writing of patents, the “improvement” of techniques, the visits of the laboratory or the supervision of the experiments. Indeed – and it is a major point – the experiments continued to convince the team that it worked not for nothing: hearts reacted to the “digital signals” that were administered to them.

Besides, a notable experimental modification was brought. Until now, only the absolute variations of the coronary flow were taken into account without worrying too much about the direction of this variation (increase or decrease of

the coronary flow). We indeed saw that the coronary flow could have several components – increase and/or decrease of the flow – with some stimuli and according to the experimental conditions. New experiments were then setting up where the experimental system allowed discriminating three different "signals". Thus, besides a signal "water" which had no effect and a signal "ionophore" which increased the coronary flow, the signal "caffeine" which decreased the coronary flow was administered to the heart. Therefore, it was not just a simple binary effect which was expected (it changes, it does not change) but a "language" with three words: it does not change, it decreases, it increases. It was extremely spectacular because the *specificity* of the transmission was thus directly highlighted.

The Sistine Chapel of "digital biology"

These experiments performed in 1997-1998 with "digitized caffeine" were one of the summits reached by J. Benveniste and his team to demonstrate the reality of the "electromagnetic biological activities" with the isolated heart model. The entire experiment could be indeed piloted from the computer: choice of the digital recordings on the hard disk of the computer, direct transmission to the heart (without injection and thus eliminating a possible source of artefact) and specificity of the "signal" directly visible on the changes of the coronary flow (Figure 19.1). Only the last step which consisted in measuring the volume of water infused every minute remained manual. But, even during this step, the experimenter did not "touch" the Langendorff apparatus. The reader could imagine that measurement errors of volumes were nevertheless possible. It is necessary to know that the variations of volumes were such that the effects were directly visible with the naked eye in the tubes which collected the liquid.

As an example, two experiments performed in 1997-1998 are shown in Figure 19.2. For any biologist, these experiments should give shivers. Only a cheating or a simulation, for example by injecting the "true" compounds at classical concentrations and not their "digital" counterparts would allow to obtain these profiles (let us repeat that this injection would then have been secret because these effects were obtained by "direct" transmission of the "signal" to the heart, without any injection).

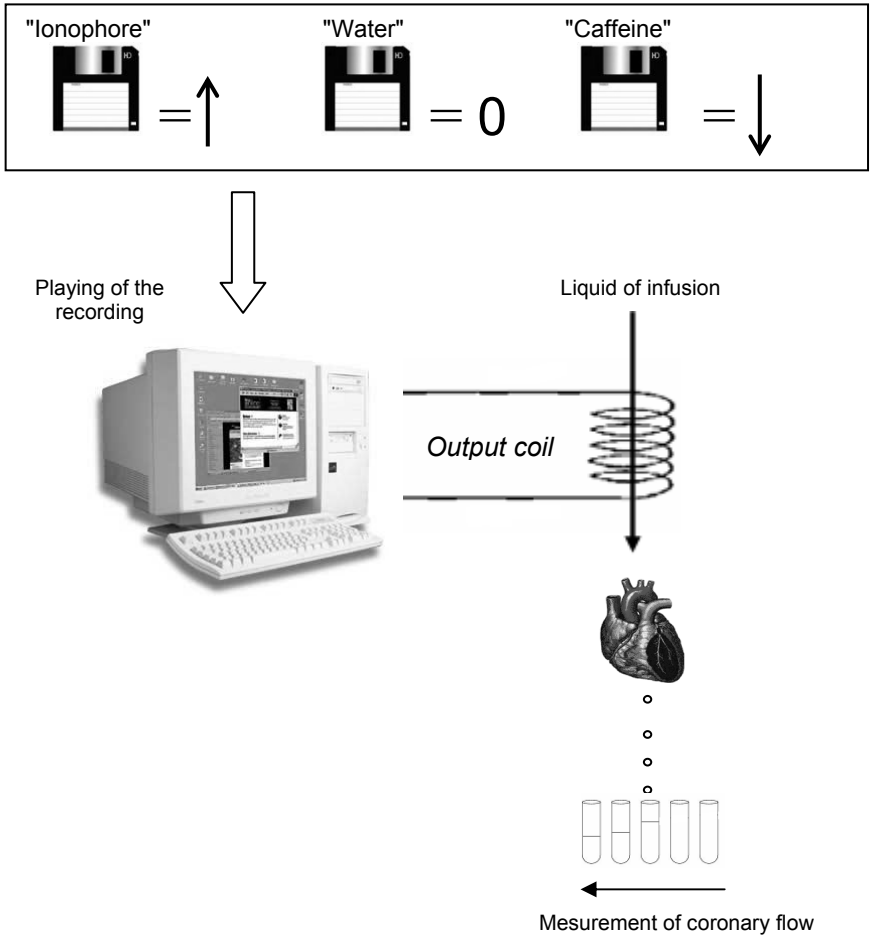

Figure 19.1. This experimental device was one of the summits of "digital biology". Indeed, three types of answers were obtained according to the nature of the recording: increase ("↑") of the coronary flow with the recording "ionophore", no variation ("0") with the recording "water" and decrease ("↓") of the coronary flow with the recording "caffeine". The important point is that the specificity of the recording was directly evidenced according to the direction of the change of coronary flow. Moreover, the fact that the electromagnetic flow was directly applied to the physiological liquid which infused the heart (without the need to inject a sample of "informed" water) avoided possible contamination. The only difference from an experiment to the other one rested on one of the three types of possible recordings that was "played" by the computer. Examples of the three types of results are shown in Figure 19.2 and Figure 19.3.

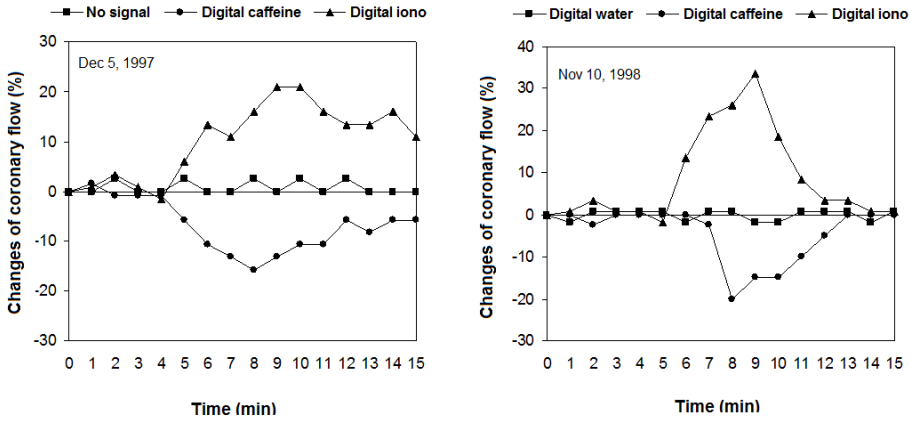

Figure 19.2. These figures represent two results obtained during routine experiments with "digital" caffeine or ionophore. The interest of these experiments was that the specificity was directly evidenced: decrease of the coronary flow for caffeine and increase for ionophore.

The experiment of November 10th, 1998, shown in Figure 19.2 was performed in the presence of visitors who were representatives of agro-food industry and gave rise to a funny scene. J. Benveniste brandished the tubes containing the fractions of liquid at arm's length so that the visitors and the staff of the laboratory could admire the results that were clearly visible with the naked eye. The scene irresistibly evoked the ceremony which the inhabitants of Naples periodically attend where a priest makes the believers notice that San Genaro's blood, as expected, miraculously liquefied.

In any laboratory and in a different domain of biology, these experiments would be included in an article intended for publication without any hesitation. These experiments were indeed particularly "clean" and without ambiguity on the outcome. Such "typical" experiments are always shown with pleasure to colleagues during scientific presentations. It is necessary to be aware that the only difference – if one admits that observed biological effects are different – is *a priori* only at the level of the digital recordings. The latter are in last analysis only a series of 1 and 0 in a computer hard disk; their reading is responsible of the variations of the electromagnetic flux which "imprints" water irrigating the heart. Well, the reader who has attentively read the previous chapters could say, but if the differences between the recordings are really so obvious, what happened if these recordings were "played" in blind experiments?

Where the Sistine Chapel is transformed into a labyrinth

During the summer 1998, attempts of public demonstrations were performed. The experiments were however not performed with all the ceremony of the "Cochin experiments". Discretion and low profile were more appropriate. J. Benveniste carefully avoided swaggering and he did not send his usual numerous mails to the "participants in the transmission experiments". The recordings and blinding were performed in "friendly" laboratories with tubes containing solutions of ionophore, caffeine or water. The recordings were then tested at Clamart on the Langendorff device.

It would be boring to present in detail all these experiments; therefore we show the results for the open-label recordings in Figure 19.3 and the corresponding blind samples are summarized in Table 19.1.

The difference of outcomes between open-label tests and blind tests was present once again with nevertheless an internal coherence. It was thus a splendid example of "coherent discordance". For each experiment, the expected biological responses were present, but their order seemed to result only from chance. In other words, one obtained the outcomes which were already known. One was thus able to find the various specific effects with the correct proportions (1:1:1 or 2:2:2). As usual, what was already known before the experiment was correct (the nature of the recordings and their number) but not what was precisely the object of the experiment (the order of the recordings). However, it could not be question to imagine that the experimenter had a secret pedal inducing at will the desired biological answer. Indeed some of the experiments received interim in-house blinding so that the experimenter tested them again without being influenced by the previous results).

Date	Place of recording and blinding	Sequence of recordings*	Observed sequence**	Concordance of sequences
June 26th, 1998	Lab. J. Testart (Inserm, Clamart)	↓ ↑ 0	↓ ↑ 0	Yes
June 30th	Lab. F. Russo-Marie (Inserm, Cochin institute)	↑ ↓ 0	↑ 0 ↓	No
July 8th	Inserm, Cochin institute	↑ 0 ↓	0 ↑ ↓	No
July 15th	Lab. of solid-state physics (CNRS Meudon-Bellevue)	↓ 0 ↑	↓ 0 ↑	Yes
July 20th	M. Odier (Geneva)	0 ↓ ↑ ↓ 0 ↑	↑ 0 ↓ ↓ 0 ↑	No
July 23rd	Lab. J. Testart (Inserm, Clamart)	0 ↓ 0 ↑ ↑ ↓	↓ ↑ ↓ 0 0 ↑	No
July 28th	Lab. J. Benveniste (blinding by a team member)	↓ 0 ↑ 0 ↓ ↑	↑ 0 0 ↓ ↑ ↓	No
July 29th	Lab. J. Testart (Inserm, Clamart)	0 ↑ ↓ ↓ 0 ↑	↑ 0 ↓ 0 ↑ ↓	No

Table 19.1. Results of the blind experiments. For each experiment, tubes containing water, caffeine or ionophore A23187 at classic concentration were blinded by people not belonging to Benveniste's team (except July 28th) and were then recorded by D. Guillonnet and/or J. Benveniste. The results obtained with the open-label recordings within each experiment to verify that the conditions of the recording were correct are represented in Figure 19.3.
* : ↓= caffeine ; ↑ = ionophore ; 0 = water.
** : ↓= decrease of coronary flow ; ↑ = increase of coronary flow ; 0 = no change.

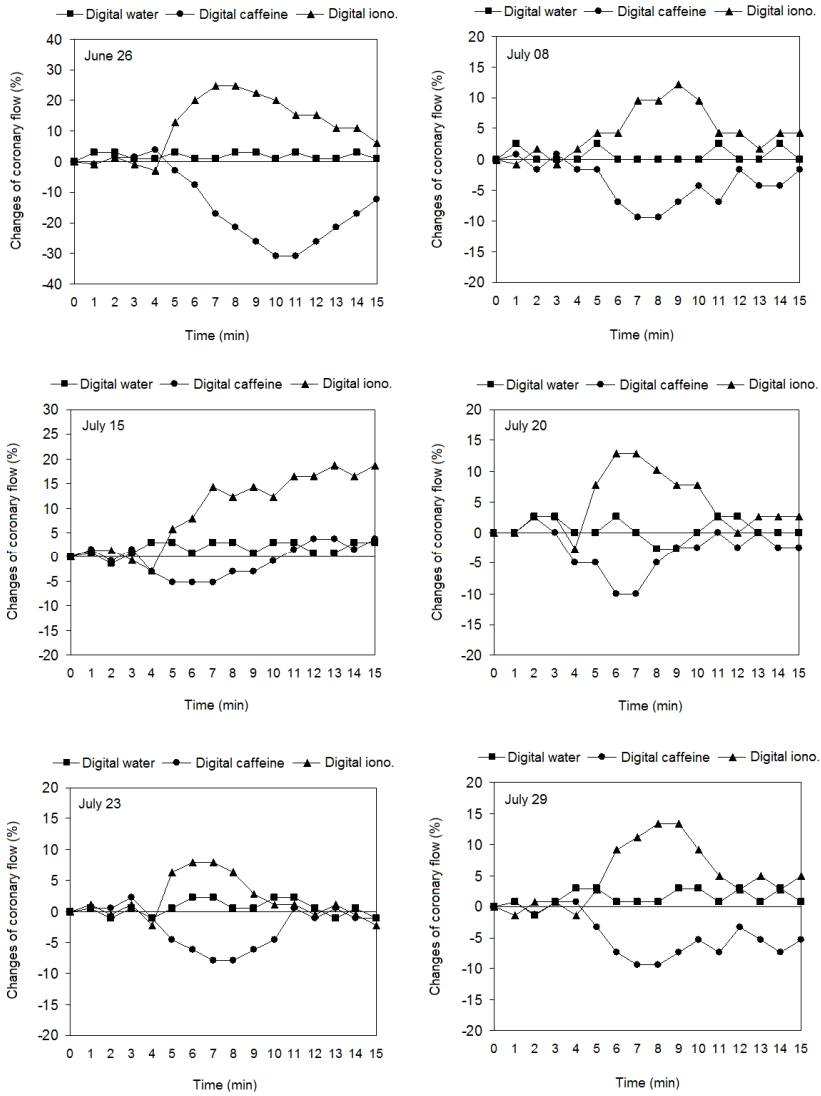

Figure 19.3. These 6 graphs correspond to open-label recordings performed during the experiments of June-July, 1998. The "signal" was directly broadcasted to the physiological liquid which irrigated the heart during 2 minutes (recordings of 1 second in loop). One notices that the results were homogeneous with a change of coronary flow which occurred generally from the 4th minute after the beginning of the broadcasting of the "signal". We also notice that it is easy to discriminate the 3 recordings, "water", "ionophore" and "caffeine", according to their effect on the coronary flow. The "specificity" of the different recordings is thus directly visible.

Headlong rush or salvation

As usual during this story, when the situation seemed blocked, an unanticipated new development occurred, generally as a new experiment or an experimental variant rich in promises. In this case, there was a new experimental system. Indeed, other biological systems were explored by J. Benveniste during these years. Some results had been announced a little bit quickly. Thus, the experiment of the mouse which was injected with water "imprinted" by "Valium signal" did not contribute to strengthen the credibility of "digital biology". Barely announced by J. Benveniste – with his well-known assurance – the experiment could not be reproduced however by the collaborators of J. Benveniste themselves. But it was too late, J. Benveniste had already informed many scientists, including G. Charpak:

> "Useless to speak to the laureate of the Nobel Prize in Physics about the new experiments of Doctor Benveniste with mice or Internet. After having "played" to a tube of "naive" water the frequency of Valium, the researcher catches a mouse and pricks it in the peritoneum. After a few minutes, the mouse stands still. Another, pricked with aqua simplex, continues to scamper on the lab bench. "We know how to record molecular activities on an IT medium, he wrote in October 1995 to Georges Charpak. I can go wherever I want along with a laptop computer and mice, and I can immediately demonstrate the presence of a powerful activity of water causing death of the animal."
>
> Today, Jacques Benveniste is however less categorical and admits that this experiment does not work any more with regularity. The Nobel prize laureate sees only a fraud here. "Ask to prick the mouse yourself, he advised us. He can very well touch the liver and administer a lethal dose with only water. Get the syringes analyzed. Nothing prevents him from introducing a product." [1]

An element seemed then inescapable to J. Benveniste. If he finally wanted "to break through", he had to find a biological system less "heavy" than the Langendorff device, which appeared difficult to be transposable in other laboratories, in spite of the spectacular effects it allowed. He also needed a model simpler to manipulate than a "whole" animal such as the "Valium model" in mouse. What J. Benveniste needed to convince was a simple experiment that most laboratories could reproduce. Moreover, a totally automatic system would be useful because it would allow in principle avoiding a possible influence of the experimenter and would be less questionable.

Among the various biological systems which were then assessed in the laboratory of Clamart, one of them emerged: it was easy to perform in any laboratory and it could be potentially implemented in an automatic device. As basophils had been replaced by the isolated heart, the latter was going in turn to be replaced by plasma coagulation.

Notes of end of chapter

[1] E. Fottorino. La mémoire de l'eau. Le temps des passions. *Le Monde*, January 22nd, 1997.