

## Chapter 9. Where the existence of a strange phenomenon is confirmed

### *An oxymoron: the coherent discordance*

For J. Benveniste who wished to obtain all-or-nothing biological effects in order to give a spectacular character to his demonstrations, the results of the last experiments were only a half-success. Indeed, even if the results were overall in favor of a "transmission", he could not admit that a sample which was supposed to be "inactive" had nevertheless an effect. The idea that a contamination or a "background noise" could explain this phenomenon was difficult to support because curiously one always obtained the correct number of expected active and inactive samples. Moreover, this wandering activity seemed to be specific: for example, in the case of "transmitted ovalbumin", an effect was observed with hearts from animals immunized with ovalbumin, but not with hearts from naive animals.

But maybe the reader has the feeling that we highlight an anomaly which after all occurred only eight times (four "inversions") among 68 samples tested during these three last demonstrations (July 9<sup>th</sup>, 1992; September 28<sup>th</sup>, 1992; May 13<sup>th</sup>, 1993). At this stage, we could consider that it was bad luck, an unpredictable combination of circumstances or an imperfect technical development. The continuation of the story will show that this explanation is not sufficient, because the phenomenon continued and became even sometimes so obvious that it was not possible then to incriminate an error of manipulation. Furthermore, let us not forget that the idea of a "contamination" of the physiological salt solution was born during a demonstration when J. Benveniste announced with assurance that the content of a tube was "active" while it was only an inactive control. It is even possible that what J. Benveniste considered for months as a "contamination" of physiological salt solutions was only a way to put a name on this unexpected phenomenon. This phenomenon was particularly obvious with the blind samples during public demonstrations.

These activities which appeared to "jump" from one sample to the other one were then nicknamed "wild transfers" by J. Benveniste and his collaborators when it became clear that the explanation of a manipulation error or a "simple" contamination was not satisfactory. We will use the picturesque expression "wild transfer" only with precaution and with quotation marks because this name implies that the activity was localized in the tube or the vial, the content of which was tested. We prefer to talk of *coherent discordance* to underline the discrepancy between the observed effects and the "expected" effects. This name could appear as an oxymoron, but it precisely allows insisting on what causes

the perplexity when one gets the measure of this phenomenon: results are not where one waits for them (*discordance*), nevertheless it is not nonsense because there is still *coherence* between repetitions of the same measurement and with available information. When a coherent discordance is noticed, it is as if the threads that connect the causes and the effects had been tangled.

Finally, it is necessary to insist on the fact that a coherent discordance *is not an absence of effect or a failed experiment* due to poor experimental conditions. In case of discordance, there is nevertheless an effect – it is an essential point – but the cause of this effect seems not to be in its place. To make it clear, we are going to illustrate it by using a metaphor.

### *Some magic tricks*

Let us suppose that a stage magician affirms that he is capable of guessing the color (club, diamond, hearts and spade) of deck of cards the back of which one presents to him. After several hundred trials, one notices that the success rate of the magician is of the order of 25%. We conclude that this magician had neither a gift, nor was it a trick because this result is explained by chance only.

But let us suppose now that another magician presents on stage four empty bird cages (Figure 9.1). He covers each of the cages with a veil and predicts that a parrot will appear in the cage n°2. One removes the veils. There is actually a parrot in a cage, but it is in the cage n°3. It is thus a failure for this first attempt. We do hundred experiments and a parrot appears where predicted by the magician in approximately 25% of the cases.

One can consider that it is a failure, as for the above card trick, because here again the predictions of the magician were not better than chance. Nevertheless, in every attempt, a parrot appeared in a cage, what could be considered as extraordinary. If the magician had been less ambitious, he would have said that he was able to make a parrot appear without specifying the cage. However, if we return to the problem that worries us, the localization of the causes is extremely important in experimental sciences because one must be able to connect them with their effects. The principle of causality is one of the strongest principles that allow us to make a representation of the world. Permanently, scientific processes and reasonings in everyday life call on this principle.

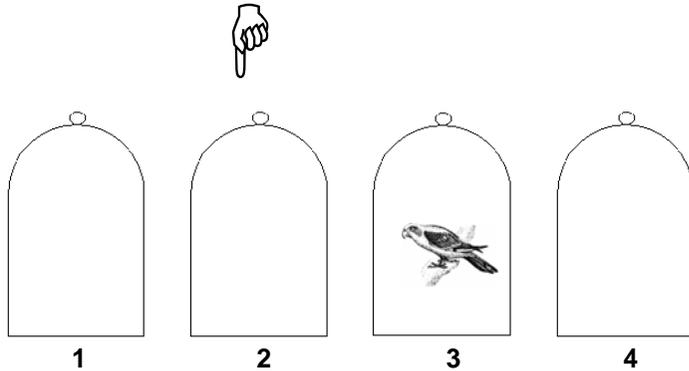


Figure 9.1. A magician claims to make a parrot appear in one of the four cages he previously indicated. First, cages are presented empty to the public; then they are covered with an opaque veil. The magician makes his prediction and when the veils are removed, one notices that a parrot is effectively present in one of the cages. After many experiments, one calculates that predictions were correct in approximately 25% of the cases. His predictions are thus not better than chance. We can consider that the magician failed. But, we can also be amazed by the appearance of a parrot each time.

To explain this disturbing phenomenon, we will see that J. Benveniste always evoked a lack of development of the experimental system or an error of manipulation. Never the basic hypothesis of the experiments was questioned, namely the validity of the underlying concepts concerning the possibility of transmitting biological signals or concerning the reality of the high dilutions. M. Schiff himself, through a statistical and probabilistic approach as we have seen above, strengthened the idea of an error of numbering or a technical problem.

Both J. Benveniste and M. Schiff, however – and one can understand them because of the coherence of the results – considered that there was actually a transmission of a biological activity. But, even though an “expected effect” was present, the supposed “cause” was problematic. We are indeed in a circular reasoning where the cause and the effect define themselves mutually. If there was an effect  $A$  it was because it existed a cause  $a$  and the cause  $a$  defined itself because it was associated with an effect  $A$ . It has never been possible to go out of this circle by using an element outside the system. The lack of research or the insufficiency of technology were then put forward. For example, when the “digital signal” was recorded on a memory of computer, it would have been useful to be able to discriminate each signal by spectrum analysis. Another possibility was to consider that if nothing was found, maybe it was because

there was nothing to find. However, the “cost” of this last hypothesis would have been too high.

As we will see in the next chapters, the experiments of J. Benveniste and his team became more and more uncluttered to eliminate possible artefacts which could be at the origin of the “jumpings of activities”. But the irritating problem persisted and did not contribute to the serenity of the debates and demonstrations. It is what we are going to tell with the experiments performed in the laboratory of G. Charpak.