

Chapter 22. From Sputnik to “digital biology”

“Digital biology” to aid of America?

In order to follow the wanderings of this robot which must reproduce the experiments of J. Benveniste in a foreign laboratory, let us go to Washington, on November 14th, 2001 – that is two months after the events of September 11th, 2001. On this day, in the House of Representatives of the American Congress, hearings took place; they were intended to review the means of fight against bioterrorism and more particularly how non-conventional treatments – among others homeopathy – could be used for this purpose. In the extract below of the transcription which was made for these hearings, Dr. Wayne B. Jonas was questioned by representative Dan L. Burton who chaired the hearings and he gave particularly interesting information for our story (NB. The inaudible parts of the transcription are indicated by “--”).

“Chairman Burton: You talked about digital biology. Can you explain a little bit more about that and its potential applications?

Dr. Jonas: Yeah. Digital biology is a concept that has been really developed by a French researcher by the name of Jacques Benveniste, who claims that he has been able to digitize biological signals, record them on a computer and then deliver them through an electromagnetic frequency off of a WAV file and produce -- reproduce those digital effects.

If this is true, then -- and if it's something that could be developed, then it's a technology that could possibly allow us to both detect agents, as well as possibly deliver medical treatments in a electronic format. So, that's an exciting procedure. The Department of Defense actually is supporting some research in one of my labs to see if we can replicate some of those claims.

Chairman Burton: How about our health agencies? Are they doing anything on this? Have you submitted -- ?

Dr. Jonas: -- The only support of this that I know of is from DARPA, the Defense Advanced Research Products Agency, which -- a projects agency which funds what they consider “out of the box” types of things. This is one of those things that I wouldn't dare submit to an NIH review group. It wouldn't even get the time of day.

Chairman Burton: It sounds like it is an exciting research project. I --

Dr. Jonas: -- It's what's called a high impact/high risk. It may -- that's the terminology that's used. I mean, it's high risk in the sense that if you find nothing, you've wasted your money. But, high impact in that if you find something, it'll revolutionize medicine".¹

There are two major and surprising news in this dialogue: the Department of Defense of the government of the USA was interested in the "digital biology" of J. Benveniste and furthermore it financed a project on this subject! Thus let us resume each of the elements. First of all, who is W. Jonas?

When he testified in front of this commission, W. Jonas had just retired the Army. Doctor and Lieutenant Colonel, he was Director of the Medical Research Fellowship at the Walter Reed Army Institute of Research in Washington. This institute which belongs to the Department of Defense is specialized in biomedical research. The Medical Research Fellowship is a university cycle intended for officers being interested in medicine and in research. Within the institute, W. Jonas did research on bioterrorism and on the possible effects of high dilutions. He studied in particular the neuroprotective effect of high dilutions of glutamate on brain damages. From 1995 to 1999, W. Jonas was director of the Office of Alternative Medicine in the National Institute of Health. This institute (now called the National Center for Complementary and Alternative Medicine) is one of the 27 institutes and centers which compose the National Institute of Health. The Office of Alternative Medicine explored in a scientific context and in a completely official way the therapeutic possibilities that practices such as homeopathy or acupuncture could offer. Finally, at the moment when he testified, W. Jonas managed the Samuelli Institute for Information Biology. This institute is a private foundation which finances research programs having for purpose to study medical practices which are said alternative. So, besides homeopathy, he was interested in the placebo effect, "bioenergy", "bioelectromagnetism", etc. To finish, W. Jonas was a member of the White House Commission on Complementary and Alternative Medicine Policy.

These numerous details of the *curriculum vitae* of W. Jonas are useful to understand that the latter knew very well the domain of high dilutions and homeopathy. He published during his career numerous articles on this subject. It was thus not surprising that he was interested in the work of J. Benveniste who he met in 1989 at a conference in Baltimore.

What is the DARPA?

We can only speculate. But, it seems well that some members in the department of Defense in the government of the United States were intrigued by the results that J. Benveniste claimed to obtain with “digital biology”. An agency of the department of Defense, the Defense Advanced Research Projects Agency (DARPA) then asked to W. Jonas – those days the director of the Institute Samueli and a former military – to study if something interesting could be obtained from the experiments of J. Benveniste.

The DARPA is an agency which was created in 1958 (under the name of ARPA) in answer to the launching of Sputnik, the first artificial satellite which allowed the Soviets to overtake the United States in the space race. The purpose was to create an organization capable of developing new technologies which could be exploited for Defense. The agency is a kind of spearhead which allows, by financing programs, to evaluate emergent technologies. The agency often had a driving role by helping projects which would not have been financed by civil agencies and institutes. As an example, the DARPA (formerly ARPA) was at the origin of the network Arpanet which gave birth to Internet.

During the more recent years, the agency was also interested in biology. One of the purposes was to be inspired by the functioning of living beings to imagine new materials or for example to understand the functioning of organisms that live in extreme conditions. Thus, a project aimed at developing genetically-modified plants as “sentinels” that could warn a terrorist attack with chemical or biologic agents, for example by quickly losing their color.² The DARPA is interested in disciplines on the borders of computer science and biology and some of its projects seem to be inspired by scenarios of science fiction, for example to connect human nervous system to computer chips. We understand that “digital biology” could indeed interest the DARPA. Of course, if the “digitization of biological activities” held its promises, it would then be possible to detect molecules in complex solutions. Thanks to the “digital recording” of a sample, the presence of potentially dangerous molecules could be evidenced with only a laptop. Within the frame of the fight against bioterrorism – and for many other applications – the DARPA quickly understood that it would be an extraordinary breakthrough.

A multidisciplinary team

The general idea which presided over the evaluation of the robot built by J. Benveniste was not to validate the theories of this latter, but to simply verify in a first time that the same results could be obtained by an independent team. The Samueli institute led this expertise with credits of the DARPA. A copy of

the robot was bought to J. Benveniste and the members of his team, including himself, were employed as consultants. Their task consisted in installing the robot in a U.S. laboratory depending on the Institute Samuéli and to explain the functioning.³ Then, after the departure of J. Benveniste and his co-workers, the team of W. Jonas could study the functioning of the system. It was thus a very pragmatic approach where one did not try to confirm or to falsify a theory, but to evaluate a device and by considering the team of J. Benveniste as a partner. Among all attempts of validation of the experiments of J. Benveniste, it was probably the one who was the most adapted and the most relevant. This team, asked to evaluate the experiments performed by the automatic robot, was multidisciplinary. The team constituted by W. Jonas indeed contained, in addition to W. Jonas himself, the following main members:

John Ives was a biologist, Doctor in Sciences, he was also military (colonel) at the Walter Reed Hospital and he was a member of the team of direction of the Samuéli Institute. His role was to supervise the various phases of the evaluation.

Daniel “Chip” Denman had training in biostatistics and epidemiology, he was Director of the Laboratory of Statistics in University of Maryland. Before joining university, he was at the NIH as mathematician statistician during ten years. Contrary to W. Jonas and J. Ives who were clearly “believers” towards homoeopathy and alternative medicines, D. Denman was an official “skeptic”. He was indeed a founder member of an association of “skeptics” in Washington. He was an activist for developing critical thinking and skepticism in education. He gave university courses entitled “Science and pseudosciences”. In the lineage of J. Randi, he had also competence in conjuring. It is moreover a friend of this last one.

Dr Kenneth Hintz was a professor in engineering at George Mason University (Fairfax, Virginia). His role was to verify the functioning of the robot and in particular the recording and the replay of the “digital signal”.

Dr Mc Donald Horne was a haematologist at NIH. His expertise was related to the biological system based on coagulation of blood plasma.

Finally, the team included Dr Mitchell Hammer professor at the American University in Washington, Director of Center for Crisis Response and Management. His expertise in the dynamics of group was wished in case of conflict, disagreement or incomprehension in this multidisciplinary team. His role was to make sure of the good communication between the members of the team!

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The team was thus constituted by members of the Department of Defense, university professors and researchers of the NIH. The conditions of the expertise were completely contrary to those of the “investigation” of *Nature* in 1988 or of the experiments performed in Israel in 1987. Each of the members of the team had a very precise domain of competence and W. Jonas was in charge of coordinating the activities of these experts. Furthermore, the evaluation was performed in the respect of some “ethical” principles towards the scientists whose work was assessed. In other words, the members of the team of J. Benveniste were considered as partners and not as “guinea pigs” exploited to confirm some prejudices as *Nature’s* team did. As a consequence the conclusions of this evaluation would be of greater value.

Notes of end of chapter

¹ United States House of Representatives Government Reform Committee hearing on comprehensive medical care for bioterrorism exposure: are we making evidence-based decisions? Representative Dan Burton (r-in) Chairman; November 14, 2001; Washington, DC.

² S. Foucart. Contre le bioterrorisme, une université américaine veut créer des OGM sentinelles. *Le Monde*, February 15th, 2003.

³ Conference of J. Ives: “The Co-Creation Process in Energy Medicine: A Synergy of the Sciences and the Healing Arts” during the “Twelfth Annual ISSSEEM Conference”; June 14-19, 2002.