

The Seeds of Doom

Story of a controversial theory about the origin of AIDS

A theatrical documentary written by
Christian Biasco

English version by Stephen Smith

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Prologue

SV40.

SV40 is a monkey virus.

“V” for virus, “S” for simian, “of monkeys”, “40” because in 1960 when it was discovered, it was the 40th monkey virus to be identified.

Certain scientists say it is cancerous – that it causes cancer. Laboratory tests have confirmed that it causes cancer in hamsters. But what does that have to do with us? I mean – poor monkeys, poor hamsters. But for us humans what difference does it make if SV40 is cancerous or not? Well it should make a difference considering that the major portion of the millions of polio vaccines produced between 1954 and 1963 were contaminated with it. So in fact it’s important to know whether SV40 is cancerous or not.

But let’s talk about AIDS because that’s what this presentation is about. AIDS is an illness caused by HIV. HIV is also a monkey virus (or at least it started out as one). Could it be that HIV, like SV40, was passed from monkeys to humans through polio vaccines?

But one thing at a time.

Chapter 1: Poliomyelitis

What is poliomyelitis?¹

Well, we just need to take the name apart: “itis” = inflammation, “myelos” = matter, “polio” = grey. Inflammation of the grey matter... in the spinal cord. It’s the illness caused by the poliovirus.

Very briefly, here is how it operates. The poliovirus enters the mouth, travels down, arrives in the intestines, causes fever for two weeks, then goes out and leaves the patient immune for life. Our immune system develops antibodies, so we get taken in only once. This happens in 95 out of 100 cases. In the other 5% however, the virus enters the mouth, travels down, and arrives in the intestines. From there it gets into the blood-stream and starts circulating until it arrives at the spinal cord, where it begins to multiply and cause damage. Then it can paralyze a leg, both legs... When it interrupts the contact between the spinal cord and the diaphragm, the victim dies of suffocation.

¹ Some references to the history of poliomyelitis are: (GOULD, T., "A Summer Plague : Polio and Its Survivors.", 1995); (KLEIN, A. E., "Trial By Fury; the Polio Vaccine Controversy.", 1972); (SMITH, J. S., "Patenting the Sun : Polio and the Salk Vaccine.", 1990); (CHASE, A., "Magic Shots : A Human and Scientific Account of the Long and Continuing Struggle to Eradicate Infectious Diseases By Vaccination.", 1982); (PAUL, J. R., "A History of Poliomyelitis.", 1971); (FISHER, P. J., "The Polio Story.", 1967); (CARTER, R., "Breakthrough; the Saga of Jonas Salk.", 1966); (WILSON, J. R., "Margin of Safety; the Story of Poliomyelitis Vaccine.", 1963); (WILLIAMS, G., "Virus Hunters.", 1960).

Never heard of it? And yet all of us have been vaccinated against the poliovirus. Poliomyelitis was the nightmare of our grandparents. You still don't remember? Wait: you remember Heidi?² Heidi had a friend. What was Heidi's friend's name? Clara! Little Clara. What was her problem? She was paralyzed, in a wheelchair. And why? Because she had... polio! Another example: you've all seen the movie *Forrest Gump*?³ The child, from infancy had metal braces around his legs because he was a victim of... polio! Have you seen the war film *Pearl Harbor*?⁴ At a certain point the president, with great difficulty, gets up on his feet and shouts, "Don't tell me it can't be done!" That president, Franklin Delano Roosevelt, perhaps the greatest president of the United States, the only one to be elected 4 times, was afflicted as a young man by... polio! Now you remember! FDR and the fight against poliomyelitis. It was a priority on his political agenda. And the iron lung, remember? That huge iron tube where they put polio victims? It compressed and decompressed the air to do what the diaphragm was no longer able to do. A life closed in a cylinder. This didn't happen in the middle Ages, this was just 50 years ago!

But the history of the fight against poliomyelitis is an example of the determination of a whole nation, the USA, confronting its problems, focusing and concentrating its resources. A combination of politics and scientific progress. And after years of research and investment the solution to the problem was found at the end of the 50s with the development of the Salk and Sabin vaccines, which have completely eradicated polio in the developed countries and, hopefully, will succeed in doing so on every continent.

This is the one developed by Jonas Salk.⁵ (*He takes a polio vaccine in hand*) What's in here? Poliovirus. Dead... neutralized. How does it work? You take some poliovirus and kill it, or rather, you render it inactive with formaldehyde, then you inject it to stimulate the body to

² The story of Heidi, written by Johanna Spyri, was published for the first time in 1880. There were many TV & film renditions, among them "Heidi" (1937) by Allan Dwan (with Shirley Temple in the role of the small Swiss girl), and the Japanese cartoon of the Seventies.

³ "Forrest Gump" (1994), directed by Robert Zemeckis, with Tom Hanks.

⁴ "Pearl Harbor" (2001) a film by Michael Bay. The president Franklin Delano Roosevelt was played by Jon Voight.

⁵ Jonas Edward Salk (1914-1995)

develop antibodies. Easy! Not really. The difficulty in preparing this vaccine is to get the right balance. In fact, first of all you have to be sure the virus is really inactivated, otherwise something might happen, like in the case of the Cutter accident where 200 children, instead of being immunized, contracted poliomyelitis.⁶ But at the same time you can't inactivate it too much or it becomes twisted and the immune system doesn't recognize it and doesn't produce antibodies. So you end up with a vaccine, which is completely useless. But Salk succeeded in finding just the right balance. In 1954 millions of doses of his vaccine were tested and used, immediately reducing the number of cases of poliomyelitis. Today it's still one of the safest vaccines in the world. But there's one problem. The immunity is limited in time. After a few years it's necessary to re-vaccinate. And I don't like injections, if I can, I do without!

For this reason a second vaccine was developed: the Sabin vaccine. This one. (*He takes another polio vaccine in hand*) What's in here? Poliovirus. Live... attenuated. Deprived of its capacity to cause illness. How? Well here the process is much more complex. The poliovirus is passed through tissue taken from different animal species. Chemical substances are added. To put it simply, you wear it out and try to tame it. The Sabin vaccine is potentially more dangerous than the Salk because we're talking about a live virus, which could possibly be transmitted, to other people. But the advantages of it are numerous. First of all, it is administered orally by means of a few drops on a lump of sugar or on the tongue. But the main thing is, it provides immunity for life. Albert Sabin⁷ succeeded in developing the first attenuated oral vaccine, safe and efficient, which was tested in the Soviet Union at the end of the 50s and is still used today.

But just a moment here. Who am I to be telling this story? I'm not a doctor, not an historian, not a journalist. I'm just an ordinary person. So is what I'm telling you invented? No. Perhaps some of it is simplified, otherwise we'd be here for ages and you'd have to sniff coke to follow. Ok. But who or what gives me the right to speak

⁶ The Cutter accident wasn't the first instance of a problem with a poliovaccine. Other examples are the Brodie/Park and Kolmer vaccines tested in the mid-1930s in the USA and the Cox vaccine tested in Germany in the Fifties.

⁷ Albert Bruce Sabin (1906-1993)

about such a specialized topic? My diplomas? Obviously I've done my homework and I'm trying to understand and explain it logically. But we are so used to believing only the experts and specialists that we no longer think with our own heads. When we go to vote on genetically produced food or nuclear energy or complex questions of economy, why do we always have to trust blindly in the expert who happens to be at hand? Why can't we think on our own? In any case a bibliography is available so you can check for yourselves.

OK. So let's get back to these vaccines. What have they got to do with monkeys? Well, if I have to vaccinate the population of a whole nation, I need millions of doses of vaccine, thousands of liters. I have to find a method for cultivating vaccine on an industrial scale. I have to find a kind of tissue on which the poliovirus can multiply. It thrives in the human spinal cord. Would you be willing to lend me yours? No? Well, since I can't use human tissue, I have to use... monkeys. Because of their genetic similarity to humans. But as it was soon discovered, even better than in the spinal cord, the virus grows well in the kidneys – in the kidneys of monkeys. So how do I proceed? The process is called amplification.⁸ I take a monkey and I open it up. I remove the liver and I go in and take out those two large lima beans that are in there, the kidneys. I cut these into very very fine pieces and I slide the resulting paste into a bottle with a nutritious substance. Then I add a little bit of vaccine from a test tube and wait until the virus reproduces. After a few days, using a filter, I remove the monkey cells and any possible bacteria and... that's it. A kind of multiplication rather like the loaves and the fishes.

But there's a problem with this process. Stowaways. The contamination of the vaccine by hidden monkey viruses. If there is a monkey virus in the kidneys, it won't be held back by the filter, because if the poliovirus passes, it will too. So it's dangerous to use monkeys! Researchers have always been aware of this and have tried

⁸ The description of the process of amplification is partly based on the interview of Joseph, "nurse" of Camp Lindi in Belgian Congo, recorded in the Canadian documentary "The Origins of AIDS. A look at a controversial theory surrounding the origins of AIDS", directed by Peter Chappell & Catherine Peix, produced by Christine Le Goff, Arnie Gelbart, & Christine Pireaux (USA), screenplay (in English/French) by Peter Chappell & Stephane Horel, photography (BW/C) by Peter Krieger & Mark Daniels, edited by Catherine Peix, music by Frederic Lagnau & Phillip Glass, running time 1h 32min.

to take precautions so the clandestine viruses don't contaminate the vaccine. And the danger should not be underestimated because certain monkey viruses are extremely lethal for humans. Sabin, for example, knew this very well. In 1932 it was actually he who identified an unknown virus in the cadaver of one of his colleagues who had been bitten by a monkey. Another was identified after a small epidemic broke out in a laboratory in Germany in 1967. The virus severely attacked 31 people of whom 7 died.⁹ But fortunately for us, these viruses were always discovered in time, thanks to various safety measures. In fact, before a monkey is used it is necessary to make sure it is healthy. How? Well, by examining it. Then, as a further precaution it is put in quarantine to see that it is not harboring some illness. So tests are made to make sure it is not infected with viruses. And then, if it is healthy, it is used.

So, everything going smoothly? No, because obviously you can only test the presence of viruses that you know. And so there was at least one that got past all the checks. You know it already: SV40. An Asian monkey virus. In 1960, right in the middle of all the vaccination campaigns around the whole world, it was discovered that the monkeys they were using to produce polio vaccine were healthy carriers of a virus.¹⁰ When it was tested, it was found to cause cancer in hamsters.¹¹ So what happened? Panic! A potentially cancerous monkey virus had been transmitted to millions of people! I'm not telling you a story, the SV40 case is covered in any serious course in medicine. However, destiny would have it that this virus was pronounced harmless in humans.¹² Sheer luck. There are many modern studies re-opening the case because it seems that the virus is at least a secondary actor in the appearance of a certain type of tumor. But that's another story.¹³

⁹ (GARRETT, L., "The Coming Plague : Newly Emerging Diseases in a World Out of Balance.", 1995) see pp. 53-9.

¹⁰ (SWEET, B. H. et al., *Proceedings of the Society for Experimental Biology and Medicine*, 1960).

¹¹ (GIRARDI, A. J. et al., *Proceedings of the Society for Experimental Biology and Medicine*, 1962).

¹² (SHAH, K. et al., *American Journal of Epidemiology*, 1976).

¹³ (CARBONE, M. et al., *Oncogene*, 1994). A bibliography appears in (ELSWOOD, B. F. et al., *Med Hypotheses*, 1994). More details and a rich bibliography on SV40 can be found in (BOOKCHIN, D. et al., "The Virus and the Vaccine : The True Story of a Cancer-

Dr Hilary Koprowski, who at the time of this drama was in competition with Sabin, having also developed an oral polio vaccine, wrote to the World Health Organization urging them to abandon the use of monkey kidney tissue cultures: "...monkey kidneys are too dangerous and could possibly reveal other surprises..."¹⁴ But his advice was not followed and it was simply decided to abandon Asian monkeys, used until then, and to use African green monkeys instead because they were not naturally contaminated by SV40.¹⁵ Incidentally, they aren't green, they're grey. Only their genitals are colored. "Much of the oral polio vaccine used throughout the world is produced in primary kidney cells from this species."¹⁶ What's important about this sentence? It was written in 1985 in *Science*, one of the most prestigious scientific magazines in the world, in an article reporting the discovery in this type of monkey of a virus, which is genetically very similar to HIV, the virus that causes AIDS in humans.

Now it's time to explain what HIV has got to do with monkeys.

Causing Monkey Virus, Contaminated Polio Vaccine, and the Millions of Americans Exposed.", 2004)

¹⁴ (KOPROWSKI, H., *JAMA*, 1961) and (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 213-6. Koprowski decided to switch to Human Diploid Cell Strains (HDCS) developed in his laboratory (HAYFLICK, L. et al., *Am J Hyg*, 1962).

¹⁵ (ELSWOOD, B. F. et al., *Med Hypotheses*, 1994).

¹⁶ (KANKI, P. J. et al., *Science*, 1985). In 1988 the result of this group was invalidated, because it was based on a laboratory contamination. Nevertheless an immunodeficiency virus of African Green Monkeys was correctly identified (FUKASAWA, M. et al., *Nature*, 1988). More details on the episode in (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 108-9.

Chapter 2: AIDS

SIV.

Now let's see if you can work it out: "V" for... virus, "S" for... simian, "I" for... immunodeficiency. Simian immunodeficiency virus. This name distinguishes it from another virus: HIV, human immune deficiency virus.¹⁷

Almost every species of African monkey is a carrier of its own particular SIV: chimpanzees, African green monkeys, baboons and sooty mangabeys.¹⁸ SIV and HIV belong to the same family of viruses and are very similar to each other. But "SIV" is actually not an accurate name for African monkeys, because they don't become ill from it – no immunodeficiency. They have co-existed with SIV for thousands of years. Asian monkeys, on the other hand, are not naturally infected with SIV.¹⁹ On one occasion sooty mangabey SIV was transmitted to some Asian monkeys in a laboratory.²⁰ They became ill and died in a manner very much resembling AIDS in

¹⁷ See (GRMEK, M. D., "Histoire Du Sida : Début Et Origine D'une Pandemie Actuelle.", 1989). About the controversy on the primacy of the discovery between Gallo and Montagnier, see (CREWDSON, J., "Science Fictions : A Scientific Mystery, a Massive Coverup, and the Dark Legacy of Robert Gallo.", 2002).

¹⁸ (HAHN, B. H. et al., *Science*, 2000).

¹⁹ (OHTA, Y. et al., *International Journal of Cancer*, 1988).

²⁰ (HENRICKSON, R. V. et al., *Lancet*, 1983). It wasn't the first time; other epidemics had been recorded in the past in other colonies. (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 664-7.

humans. HIV causes death in humans in practically 100% of cases, which indicates that the human immune system is not accustomed to such a virus. Would it be reasonable to conclude that HIV has been recently acquired from the world of monkeys?²¹

But the matter is even more complicated because in humans there are two different types of HIV – predictably, HIV-1 and HIV-2. The first, HIV-1, is responsible for 99% of AIDS cases in the world. The other, HIV-2, is restricted to West Africa.²² It also causes AIDS but it has a longer latency period and seems to be less transmittable.²³ They are so different from each other that in order to detect them two different tests are necessary. But now here's the interesting part: HIV-2 resembles the sooty mangabey SIV²⁴ – so much so that if you bring one or the other to a laboratory without indicating its origin, they won't be able to tell whether it's simian or human. A similarity to HIV-1 has also been found in chimpanzee SIV, but not as close.²⁵ Sufficiently close, however, to suggest that HIV-1 was transmitted from monkeys to humans.

But how on earth did this virus pass from monkeys to humans if it is practically only transmittable through sexual relations (intercourse) and the use of infected syringes? Come on, what are you thinking about?²⁶ There is a simpler explanation. In different regions of Africa they eat monkeys.²⁷ It's possible that by eating insufficiently cooked meat, or by being bitten by a monkey at the moment of capture, or – even more probable – while butchering the meat, someone could have cut himself and in this way allowed monkey blood to enter into contact with human blood. It's plausible. This is the “bushmeat”

²¹ For example (DOOLITTLE, R. F., *Nature*, 1989).

²² Identification and isolation of this new human retrovirus was again done by the group of Luc Montagnier. (CLAVEL, F. et al., *Science*, 1986); (GUYADER, M. et al., *Nature*, 1987).

²³ (KANKI, P. J. et al., *Lancet*, 1994); (MARLINK, R. et al., *Science*, 1994).

²⁴ (CHAKRABARTI, L. et al., *Nature*, 1987)

²⁵ (GILDEN, R. V. et al., *Lancet*, 1986); (PEETERS, M. et al., *AIDS*, 1989); (HUET, T. et al., *Nature*, 1990); (PEETERS, M. et al., *AIDS*, 1992). For the most recent bibliography on the HIV-1/SIVcpz connection see (SHARP, P. M. et al., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001).

²⁶ The hypothesis of kinky practices was raised many times. Among these, one was based on the description of a sexual rite with monkey blood. See (NOIREAU, F., *Lancet*, 1987); (KARPAS, A., *Nature*, 1990); (OWUSU, S. K., *Nature*, 1991).

²⁷ (PETERSON, D. et al., "Eating Apes.", 2003)

theory, accepted by the majority of the scientific community.²⁸ But it has one weak point: why now? Monkeys have been eaten in Africa since the dawn of creation. Why were there no AIDS epidemics before the 80s? How can we explain the sudden appearance of two different epidemics in the 20th century?

“Bearing in mind that several thousands of doses of the original Salk vaccine produced in the 1950s were contaminated with SV40, a simian agent, one wonders whether monkey kidney tissue might not be the source of the AIDS virus in man...”²⁹ A South African virologist, Gerasmos Lecatsas, wrote this in a South African medical journal in 1989. If the monkeys used to produce the vaccines were infected with SIV, it would not have been noticed because they are asymptomatic – they do not show any sign that could indicate they are infected and a test for isolating this type of virus was not developed until 1985. “...while it would be simplistic to assume and even more difficult to prove that polio vaccine is the source of HIV infection in man, it would be equally naïve to ignore the possibility...” Do you realize what this man is insinuating? It's a frightening hypothesis. He is debating whether the fight against poliomyelitis, one of the greatest conquests of modern medicine, was not the cause of the most tragic medical disaster of the contemporary age. I don't know whether you are aware of the extent of the tragedy. Up to now, AIDS has caused the death of 30 million people.³⁰ If their coffins were lined up end to end, they would form a band of death around the whole world. 3 million people per year die of AIDS. That's one person every 10 seconds. In certain African countries life expectancy has dropped by 40 years. If nothing is done, a baby born there will have a 70% chance of dying of AIDS before the age of 30.³¹ Perhaps the greatest health catastrophe known to humans.³² Now do you think Lecatsas' hypothesis is something to be taken lightly?

²⁸ See for instance (MARX, P. A. et al., *J Virol*, 1991) and (HAHN, B. H. et al., *Science*, 2000).

²⁹ (LECATSAS, G. et al., *S Afr Med J*, 1989). These and other articles, were signed by Lecatsas and another researcher, Jennifer J. Alexander. Their letter was a comment on an article published some time before on the safety of polio vaccine production. (LYONS, S. F. et al., *S Afr Med J*, 1988).

³⁰ Data from the UNAIDS (www.unaids.org)

³¹ Data based on Botswana (UNAIDS)

No. In fact a response to it followed immediately in the same publication. “To suggest that live polio vaccine may carry the potential danger of AIDS because of contamination with simian immunodeficiency viruses (SIV)... is a recklessly wild and unscientific speculation. Studies carried out by ourselves and others have failed to isolate SIV from monkey kidney tissues derived from seropositive monkeys. ... In this context, letters such as that of Lecatsas ... serve only to misinform, confuse and mislead, and do little to help our own and also international efforts to meet the goal of the 41st World Health Assembly, i.e. the global eradication of poliomyelitis...”³² Question: if it was such an unscientific speculation, why did they carry out tests? As early as 1985, the World Health Organization conducted tests – without advertising it too much – to check for the presence of SIV in vaccines produced from 1970 to the present day.³⁴ They were found to be clean. And what about vaccines before 1970? There was another test carried out in Japan.³⁵ OHHTTAA! (*imitating a martial attack*) Joking aside, Ohta was actually the name of a Japanese researcher. In 1989, he took two seropositive monkeys and produced a vaccine using modern production methods. The result was reassuring because SIV was already eliminated in the first passages, thanks in particular to the use of trypsin. So modern polio vaccines are safe. But what about those produced using the earlier techniques? The Japanese article contains a warning: “AGM [*African green monkeys*] naturally infected with SIV should not be used for preparation of vaccines.” Which is as much as to say that, good news, we found no trace of SIV, but, take it

³² “AIDS is arguably the most serious infectious disease to have affected humankind.”

(RAMBAUT, A. et al., *Nat Rev Genet* , 2004)

³³ (SCHOUB, B. D. et al., *S Afr Med J* , 1990).

³⁴ In 1985 World Health Organisation (WHO) convened two informal meetings of experts to discuss the implications on polio vaccine safety of the discovery of monkey viruses close to HIV. (Anon., *WHO Weekly epidemiological record* , 1985). They conducted different tests, among which they tested vaccine seed stocks, more than 20 batches of vaccine in Europe and North America, and 250 recipients of vaccine, without finding traces of HIV or SIV. Their work and conclusions were reported only in a brief article in the *British Medical Journal*. (ZUCKERMAN, A. J., *Br Med J (Clin Res Ed)* , 1986). See also (HOOPER, E., “The River : A Journey to the Source of Hiv and Aids.”, 2000) see pp. 325-6.

³⁵ (OHTA, Y. et al., *AIDS* , 1989).

from us, it’s better to avoid the risk.³⁶ And recklessly wild speculation? – and this is not in a rock mag! If scientists don’t ask themselves these questions, who is going to? Lecatsas did not accept the criticism of his suggestion and wrote back in the same issue: “To ignore the overwhelming statistical possibility of cross-species infection via millions upon millions of doses of vaccine over a 40-year period would be naïve. We believe in the free expression and exchange of ideas as a necessary ingredient in scientific advancement. We also believe that sooner or later the question we have raised will have to be addressed and, we hope, answered.”³⁷

In any case, we can easily see that Lecatsas’ hypothesis is merely theoretical and has little to do with the polio vaccination campaigns. The earliest trace of HIV in a human was found in a serum taken during a genetics study conducted in 1959 in Kinshasa,³⁸ in Central Africa, and diverse other studies indicate that the origin of HIV is localized in the regions of Congo, Rwanda and Burundi³⁹ not in the US where the Salk vaccine was tested, and not in the USSR where the first Sabin vaccine was tested. So the polio vaccine theory as presented by Lecatsas is simply not true, is it? Unless of course there were other vaccinations in Africa before 1959...

³⁶ Louis Pascal expressed reservations about whether such a test actually could refute the OPV/AIDS theory (PASCAL, L., , 1993). It can be consulted on Prof. Brian Martin’s homepage.

³⁷ (LECATSAS, G. et al., *S Afr Med J* , 1990). This hypothesis on HIV origin might have remained little known after its publication in a national medical journal, but achieved much more visibility when a short letter by Lecatsas entitled “Origin of AIDS” was published in “Nature” (LECATSAS, G., *Nature* , 1991).

³⁸ (MOTULSKY, A. G. et al., *Am J Hum Gen* , 1966); (GIBLETT, E. R. et al., *Am J Hum Gen* , 1966); (NAHMIA, A. J. et al., *Lancet* , 1986); (MOTULSKY, A. G., *U Wash Med* , 1987).

³⁹ Examples are (FLEMING, A. F., *Biomedicine and Pharmacotherapy* , 1988); (MCCLURE, M. O., *New Scientist* , 1990).

Chapter 3: Belgian Congo

About 250,000 people of both sexes and of all ages were vaccinated with a live, attenuated experimental vaccine called CHAT, which was administered orally.⁴⁰ When? Between February 1957 and April 1958. Where? In the Belgian Congo and in Ruanda-Urundi, now called Democratic Republic of Congo, Rwanda and Burundi, exactly in the epicenter of the HIV-1 epidemic.⁴¹ The first mass vaccination with a live polio vaccine carried out on humans. The same vaccine was also tested in Kinshasa between 1958 and 1959 on 46,000 people.⁴² Kinshasa was then called Leopoldville and was part of the Belgian Congo – the exact place where in 1959, one year later, the first HIV-positive blood sample in the world was taken! But who organized this campaign? You already know him. Hilary Koprowski,

⁴⁰ (COURTOIS, G. et al., *British Medical Journal* , 1958)

⁴¹ (BIGGAR, R. J. et al., *Br Med J (Clin Res Ed)* , 1985) Curtis was probably referring to this article, but the researches of the Biggar group were distorted by the elevated sensibility of the ELISA test used. The results were then corrected in the following articles: (BIGGAR, R. J. et al., *Lancet* , 1985) and (BIGGAR, R. J., *New England Journal of Medicine* , 1986). However, as Curtis pointed out later, the conclusions of the first article remained valid. (HRDY, D. B., *Rev Infect Dis* , 1987). The publication of 7 suspected cases of HIV/AIDS originating from Zaire and Burundi between 1962 and 1976 gave more support to the hypothesis of a central African origin of the epidemic (SONNET, J. et al., *Scand J Infect Dis* , 1987).

⁴² (LEBRUN, A. et al., *Bull WHO* , 1960); (PLOTKIN, S. A. et al., *Bull WHO* , 1960); (PLOTKIN, S. A. et al., *Bull WHO* , 1961).

the one who recommended in 1960 that monkey kidneys should no longer be used in the production of polio vaccine.

But who is Hilary Koprowski?⁴³ He was born in Poland in 1916, studied the piano and medicine simultaneously but chose a career in research because, as he put it, “I did not have enough talent to become the best pianist in the world.” After immigrating to the USA, he began work in the field of polio. In March 1951 he surprised everyone by announcing that he was the first researcher to administer a live oral vaccine to human beings. The “volunteers”, whom he described as “retarded”, were 20 children from a mental home in the State of New York. No cause for scandal, it was absolutely normal practice to use the mentally handicapped as guinea pigs. Koprowski’s experiments went on for 6 years and involved newborn infants of female prison inmates in New Jersey. Prisoners were also prime subjects for experimentation! In 1956 he carried out a larger experiment in Belfast, but the check tests done by locally-based doctors indicated that Koprowski’s vaccine was not at all safe and should no longer be used. In 1957 Koprowski became Director of the Wistar Institute of Philadelphia, a modest research centre, which he modernized from top to bottom. But before he took over, he carefully prepared the terrain by entering into an agreement with the Belgian authorities. At that time Koprowski and Sabin were in fierce competition with each other. After the discovery of the disadvantages of the Salk vaccine, attention was focused on live oral vaccines. The first to develop a safe and efficient one would be a hero. It was a fight to the finish with no holds barred. Koprowski and Sabin hated each other, but precisely hate can breed a robust competition, which produces results (*ironic*)! Soon after arriving in the Congo, the first thing Koprowski did was testing his vaccine on the “residents” at a chimpanzee colony. As a “precaution”, he had the vaccine administered to the animal keepers as well, who were of course African. And so it was, that the successful immunization of a few keepers became the justification for the first mass experiments in the history of an oral polio vaccine. Called forth by the sound of beating

⁴³ (HOOPER, E., “The River : A Journey to the Source of Hiv and Aids.”, 2000). See also the biography of Hilary Koprowski and the autobiography of his wife (VAUGHAN, R., “Listen to the Music : The Life of Hilary Koprowski.”, 1999); (KOPROWSKA, I., “A Woman Wanders Through Life and Science.”, 1997).

drums, the Africans traveled from the countryside to the meeting-places of the villages. There they were lined up and the liquid vaccine was squirted into their mouths. By means of a small tube connected to a flask, about 300,000 people were vaccinated between 1957 and 1959.

But meanwhile Sabin had begun his campaign in the Soviet Union with the support of a government which was only too happy to be able to give the US a swift kick where it hurts and demonstrate that one of their compatriots, in spite of having emigrated abroad, was the inventor of the first safe and efficient oral polio vaccine. In 1959, at a conference held in Washington, the situation became clear: Sabin's results were found to be superior to Koprowski's. Moreover, on that occasion, Sabin finished Koprowski off with a revelation like a poisoned dagger: "... tests on the large lot of Koprowski's type 1 "CHAT" vaccine used in the Belgian Congo trials... revealed the presence of an unidentified, non-poliomyelitis cytopathogenic virus..."⁴⁴ So according to Sabin, who was recognized by everyone as being very precise, Koprowski's CHAT vaccine was contaminated by a virus he could not identify. After this, Koprowski's chances for success were reduced to a minimum. The SV40 scandal in 1960 might have been of some help to him, but meanwhile, back in the Congo, the end of the world had come: a revolution had begun which was to bring the country first independence, then civil war and finally the cruel Mobutu dictatorship. The whites were obliged to leave the area in haste. And then, as is always the case with whoever loses the race, Koprowski's vaccinations were completely forgotten.

So now let's summarize the situation: the place and time of the vaccinations correspond with those of the AIDS epidemic. From the point of view of logic there was also a precedent: SV40. In addition, the great authority, Sabin, claimed that Koprowski's vaccine was contaminated. And if we want to be malicious, why did Koprowski recommend in 1960 that monkey kidneys should no longer be used? I'm not saying it happened like this, but it certainly bears questioning. At this point the theory is no longer just a hypothesis. That's the oral polio vaccine theory (OPV/AIDS theory). Now let me ask you a question: if you were journalists and came to these

⁴⁴ (SABIN, A. B., *British Medical Journal*, 1959). Koprowski replied energetically to Sabin's accusation (KOPROWSKI, H., *British Medical Journal*, 1959).

conclusions, would you publicize them? Obviously you would have to consult some specialists or interview the persons directly involved. A journalist named Tom Curtis found himself in this situation and set out to interview the great men of science. This was their response to the theory:

Dr Jonas Salk: "What value is it to anyone to try to imply such a cause and effect relationship?"

Dr Albert Sabin: "You can't hang Koprowski with that."

Dr Hilary Koprowski: "You're beating a dead horse... My opinion is that this is a highly theoretical situation which... does not make sense."

Dr David Heymann, World Health Organization: "The origin of the AIDS virus is of no importance to science today... Any speculation on how it arose is of no importance."

Dr William Haseltine, Harvard University: "It's not relevant ... Who cares what the origin was? Who really cares? If you want to do something good, write about problems people experience."

Do you agree with them? Do you also think it's not important to know the origin of AIDS?⁴⁵ Perhaps their reasoning was, "Now it's here, who cares how it got here, we have to find a solution." But a greater knowledge of the origin might possibly suggest new ideas for a cure, for its prevention. And apart from this, in an adult society, if a tragedy happens, you not only rescue the victims, but you ask yourselves what the cause was in order to prevent similar disasters from happening. But even apart from these practical considerations, don't you think that the death of 30 million people requires an explanation? I grew up with the idea that science can ask questions about anything. We ask whether there's water on Mars, if anti-matter exists, we study the glacial eras, we analyze 14th century poetry... Why is it not considered important to inquire into how a virus managed to attack humans and cause millions of deaths? I know, put like that it becomes a question of priority. Of course, next to research into a cure for AIDS, the subject of its origin comes second. But surely not after quantum physics or other incredibly expensive fields of research.

⁴⁵ Paragraph inspired by (MARTIN, B., *J Med Ethics*, 2003).

Or is there another explanation...? Perhaps people, the masses, you and me are considered too stupid to understand such a complex topic. We don't have the knowledge and we might draw hurried and erroneous conclusions, that vaccines are bad, that science is an abomination. Why can we not be considered mature people capable of understanding, reflecting and deciding freely? I believe if things are explained calmly and clearly, you can understand them. Maybe it costs more to explain them well, but all of society profits. Who knows, perhaps this is what Tom Curtis thought when in March 1992 he published his article on the oral polio vaccine theory: "The Origin of AIDS. A startling new theory attempts to answer the question, 'Was it an act of God or an act of man?' " And where did Tom Curtis publish it? In Rolling Stone!⁴⁶

⁴⁶ (CURTIS, T., *Rolling Stone*, 1992). Curtis's article, accompanied with interesting photos shot at the end of the Fifties in the Congo during the mass vaccination, ended with the wise sentence: "If the Congo vaccine turns out not to be the way AIDS got started in people, it will be because medicine was lucky, not because it was infallible." *Sex, Lies, and Videotape* director Steven Soderbergh had optioned the movie rights to the Rolling Stone story, and Universal Studios retained Curtis for a year to write the screenplay, but like most optioned properties, the project died on the vine, and the screenplay was never made into a film. (TYER, B., *Houston Press*, 2000).

Chapter 4: Suppression of Dissent

In 1987 an independent researcher named Louis Pascal happened to formulate the same theory on the origin of AIDS: polio vaccines, SV40, experiments in the Congo and all the rest. He wrote an article and sent it to 13 biologists and researchers in the field of AIDS. No reaction. Then he sent the manuscript to 3 scientific journals. One refused it with no explanation, another refused it because it considered the theory implausible, and the third did not answer. Pascal had a different article accepted by an African magazine, but unfortunately it went out of business before it appeared. Pascal also wrote a big new article for a medical ethics journal, but they refused to publish it because it was too long. This long article was finally published in December 1991⁴⁷ by an Australian university after more than 4 years, and then only because a professor named Brian Martin thought that Pascal had been the victim of what he termed "suppression of dissent" – the censure or blocking of an uncomfortable idea by a power group, in this case the scientific community.

⁴⁷ (PASCAL, L., *Science and Technology Analysis Research Programme, University of Wollongong (AUS)*, 1991).

Why were Pascal's ideas not accepted?⁴⁸ Was it because they are threatening for the image of medicine and medical research? Or was it because Pascal was not a professional researcher, not affiliated with any institution? Because if you don't have a piece of paper saying who you are you don't count? No, it was because Pascal's articles are not written in the dry concise style required by scientific journals. He is too passionate. It's his fault; he should have stuck to the rules.

But in the end it was published. ...500 copies? Nobody even noticed it. But a few months later when Curtis' article appeared in Rolling Stone it was a different story.⁴⁹ Rolling Stone has a circulation of hundreds of thousands of copies. So what was the reaction of the scientific world to the theory? One scientific journal in particular took the trouble to follow the case. Not just any journal, one of the most prestigious in the world – you know it already – Science: "Debate on AIDS origin: Rolling Stone weighs in"⁵⁰. Curtis' theory was just another of a long line of "wild speculations". Now, in a scientific debate whom do you believe? Rolling Stone, a rock mag, or Science, one of the most famous scientific journals in the world? No! Try to think with your own head and read the article! Science did not furnish any proof to refute the theory; it merely stated that the "experts" considered it implausible. Curtis disagreed with them and wrote to Science contesting the criticism and restating his position. His letter was published by Science in May 1992⁵¹ and only then did

⁴⁸ My suggested reasons are taken from those listed by Martin (MARTIN, B., *BioScience*, 1993). Martin's article had been rejected by the "British Medical Journal" (MARTIN, B., *Social Studies of Science*, 1996).

⁴⁹ The Rolling Stone article, followed by a series of Curtis articles in the "Houston Post", prompted coverage in the rest of the lay press, and was presented on TV. For a bibliography see Prof. Brian Martin webpage at the following page:

<http://www.uow.edu.au/arts/sts/bmartin/dissent/documents/AIDS/refs.html>

See also (KYLE, W. S., *Lancet*, 1992); (Anon., *Science*, 1995); (SCHULZ, T. F., *Lancet*, 1992); (STRICKER, R. B. et al., *Lancet*, 1992); (RATNER, H., *Lancet*, 1992); (LECATSAS, G. et al., *Lancet*, 1992); (GOLDBERG, B., *Lancet*, 1992)

⁵⁰ "The rock-and-roll magazine's hypothesis" was considered either "speculative" or "irresponsible" (COHEN, J., *Science*, 1992a). But not every researcher was prepared to discard the theory so easily (FOX, C. H., *Science*, 1992). In two internal statements, both WHO and FDA affirmed that the theory had no scientific basis. (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 324-5.

⁵¹ (CURTIS, T., *Science*, 1992). Curtis replied to Cohen that the author of the theory wasn't Curtis himself, but an AIDS activist called Blaine Elswood, and that a scientific paper would soon be published. In fact the scientific version prepared by Elswood with

Hilary Koprowski respond: "As a scientist, I did not intend to debate Tom Curtis when he presented his hypothesis about the origin of AIDS in Rolling Stone. The publication of his letter in Science... however, transferred the debate from the lay press to a highly respected scientific journal...."⁵² Got it? According to Koprowski's reasoning, a theory can only be discussed if it is presented in a scientific journal. So, my ideas, your ideas, unless they appear in a scientific journal, don't count. Of course scientific journals can't just publish anything. All submissions are subject to quality control. And that's the curious thing, precisely because Koprowski's letter is full of errors and inaccuracies – even the notes are out of sync – and none of the facts he presents actually refute the theory.⁵³ Curtis once again disagreed and wrote to Science pointing out the errors in Koprowski's letter. And how did they react? They didn't publish his

the medical researcher Raphael Stricker, was at first rejected by the "BMJ" and then accepted by "Research in Virology", published by the Pasteur Institute in Paris, which however took more than a year to publish it, and then only in abbreviated form. (ELSWOOD, B. F. et al., *Research in Virology*, 1993). In an unusual procedure, the shortened article was followed by a rebuttal from the journal's editorial board. They stated that although it was legitimate to raise questions about the origin of the AIDS epidemic and the possibility that it might have been caused by medical actions, there were two reasons to refute the OPV/AIDS theory: the Manchester sailor and the genetic distance between HIV-1 and SIV. (Anon., *Research in Virology*, 1993). See also (KOPROWSKI, H., *Research in Virology*, 1995). (ELSWOOD, B. F. et al., *Med Hypotheses*, 1994); (ELSWOOD, B. F. et al., *Med Hypotheses*, 1995); (STRICKER, R. B. et al., *Med Hypotheses*, 1997); (GOLDBERG, B. et al., *J Theor Biol*, 2000); (HAYFLICK, L. et al., *J Theor Biol*, 2000).

⁵² (KOPROWSKI, H., *Science*, 1992). Cohen, the author of the first Science article replied to Curtis that "there is a real problem with undetected virus contaminating primary cell cultures that are used to make vaccines", but "there also is a real problem linking that issue to the origin of AIDS" (COHEN, J., *Science*, 1992b).

⁵³ Although Koprowski's arguments seems to be final, in reality they could easily be rebutted. For instance he stated that the same pool of vaccine used in Africa was also used to vaccinate more than 7 million Polish children, but actually these articles reveal that the pool of vaccine used in Africa was used on just 3,000 persons in Poland, who were vaccinated by a different method. (Furthermore as Hooper later highlighted different batches of that vaccine pool were used in Africa and Europe (HOOPER, E., *Atti dei Convegni Lincei*, 2003) see pp. 59-73). For criticisms of Koprowski's articles: (CRIBB, J., "The White Death.", 1996) see pp. 190-197, 258-62; (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 247-50; (PASCAL, L., 1994) unpublished. Martin asked to Pascal to modify certain parts of the text to avoid legal problems, but Pascal refused and so Martin didn't put the text on his home page. B. MARTIN, personal communication, July 2001.

letter!⁵⁴ We can accept that, in order to have merit, a theory must appear in a scientific journal. But if they don't publish all our arguments, how can it be discussed?⁵⁵

But that wasn't all. Immediately following publication of the article in Rolling Stone, the Wistar Institute, with whose support Koprowski had organized the vaccinations in the Congo, called together a panel of experts to evaluate the relevance of the theory.⁵⁶ After 6 months the findings of the group were presented at a press conference:⁵⁷ "...we consider the probability of the AIDS epidemic having been started by the inadvertent inoculation of an unknown HIV precursor into African children during the 1957 poliovirus vaccine trials to be extremely low."⁵⁸ They didn't say "impossible", just "improbable".

Why? The report cited the OHTA's [*he jokes again with a martial attack*] test, where it was noticed that the virus had already disappeared during the first steps of vaccine production. But that study said nothing about the old method of vaccine production. Then the oral route is not an efficient way of infecting with SIV or HIV. It is possible, however, that some of the vaccinated individuals had sores, wounds or blisters in their oral cavity, thus increasing the chances of infection. In addition, there is evidence that the virus can be transmitted from mother to newborn via breast-milk, or through oral sex. How many of the vaccinees were teething infants or kids, who bit their tongues in fear or anxiety? It's known that infants under 30 days were given 15 times the normal dose, to be sure that they were effectively immunized. The Wistar expert panel's report ended with the following warning: **"In closing, we feel compelled to mention that the current controversy highlights the problems and difficulties associated with using monkey tissue for production of vaccines administered to humans. To this day, live-**

⁵⁴ T. CURTIS, [letter to the editor], September 30th, 1992. Published in (CRIBB, J., "The White Death.", 1996) see pp. 258-62.

⁵⁵ Martin questioned if the normal processes of peer review and publication within the scientific community are the most appropriate to benefit society as a whole (MARTIN, B., *BioScience*, 1993) and (HORROBIN, D. F., *JAMA*, 1990).

⁵⁶ (BROWN, P., *New Scientist*, 1992a).

⁵⁷ The conference was held in New York, October 22nd, 1992. (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 252-4.

⁵⁸ (BROWN, P., *New Scientist*, 1992b). The report, dated September 18th, 1992, was never published, but it can be found on Martin's homepage.

attenuated poliovirus vaccine is produced in the United States and in most other countries using primary African green monkey kidney cells. [...] There may well be other monkey viruses that have not yet been discovered that could possibly contaminate vaccine lots." Them, too? It's already the fourth time that somebody warns against the use of monkey kidney tissue cultures in the vaccine production: Koprowski in 1960, Lecatsas, Ohta, and now the Wistar Institute panel. And still today the majority of polio vaccines are produced using monkey kidneys, when there are nowadays alternative methods of production, which are safer. Questions of interests? Don't change the subject...⁵⁹

Basically, the panel of experts gave just one piece of evidence, which challenged the theory. The Manchester sailor. In 1959, a young man of 26 from Manchester, who had been in the navy, died the victim of diverse organisms, which literally devoured his body.⁶⁰ It was a horrible death and I would rather spare you the details. Everything pointed to a collapse of the immune system. The doctors in charge of the man were so shocked and perplexed that they decided to take samples of his organs to carry out tests, perhaps at some later date, in the light of new scientific knowledge. When the AIDS discussion began in the 80s, the case was reviewed⁶¹ but the samples were not submitted to a double-blinded test until 1990.⁶² The result was unequivocal. All the check samples were seronegative, while in 4 out of 6 of the sailor's samples the presence of HIV was detected. The young man was seropositive and died of AIDS.

But why should the Manchester sailor case have been such a crushing proof against the theory? Because he was in the navy and had apparently traveled in Africa between 1955 and 1957. But he had returned to England before the beginning of the Koprowski vaccinations in the Belgian Congo. So if the young man had become

⁵⁹ Tom Curtis was informed that an "aerosol" effect could have increased the probability of an oral transmission, but some other scientists were sceptical about this. (GOLDBERG, B., *Lancet*, 1992).

⁶⁰ (WILLIAMS, G. et al., *Lancet*, 1960) and also (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 21-5, 115-6, 121-3.

⁶¹ (WILLIAMS, G. et al., *Lancet*, 1983). The case was first proposed in 1982 (NICHOLS, P. W., *New England Journal of Medicine*, 1982).

⁶² (CORBITT, G. et al., *Lancet*, 1990) and also (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 117-21.

infected before 1957, that meant that HIV was already present in a human before the beginning of the vaccinations and therefore they had nothing to do with the AIDS epidemic.

Immediately after the press conference, *Science* published a very short editorial reporting that the panel of experts had demolished the OPV/AIDS hypothesis.⁶³ No reservations. No doubts. Period. Curtis was again in disagreement and wrote to *Science* protesting that the group of experts had disproved absolutely nothing. The Manchester sailor could very well have been infected by a companion after his return to England because the symptoms of disease had not appeared until the end of 1958 when several thousand people had already been vaccinated. It was also possible that the young man had taken part in another of Koprowski's vaccinations, for example the one in Ireland in 1956. Moreover, a theory could not be refuted on the basis of one proof only.⁶⁴ The letter arrived at *Science* at the end of 1992. And what was their response?... No, wrong! They published it.⁶⁵ And once more Koprowski replied, this time not in a letter but with a lawsuit against Curtis and *Rolling Stone* for "...the destruction of (his) professional and personal reputation, for mental and emotional suffering, and for ...humiliation and embarrassment..."⁶⁶ But just a moment. Where are scientific theories supposed to be discussed - in specialist journals or in the courtroom?⁶⁷ As someone later remarked, "Being burned alive as a heretic is admittedly worse than facing

⁶³ (Anon., *Science*, 1992). For the article, the Manchester Sailor is the "putative *coup de grâce*".

⁶⁴ Martin wrote: "It is now the conventional wisdom in the history and sociology of science that a single piece of evidence is not sufficient to reject a theory. Within any general picture, such as a scientific paradigm, there are always some anomalies. These anomalies are either explained away or ignored so long as there are compensating advantages or insights to be gained from the wider picture. This is not to say that anomalies should be dismissed as trivial. Quite the contrary: they are important nodes of contention. But they are not alone sufficient basis to reject a theory. The importance placed on the Manchester seaman example by opponents of the polio vaccine-AIDS theory, and their lack of examination of alternative explanations, suggests the eagerness with which they have sought ways to dismiss the theory." (MARTIN, B., *Townsend Letter for Doctors*, 1994).

⁶⁵ (CURTIS, T., *Science*, 1993).

⁶⁶ (HOLDEN, C., *Science*, 1993a).

⁶⁷ During the lawsuit, Brian Martin intervened in "Nature" in favor of Curtis, criticizing the use of legal action against writers and publishers discussing scientific issues (MARTIN, B., *Nature*, 1993).

financial ruin, but except for the threat being different, we have seen this mode before."⁶⁸

The lawsuit occupied Curtis full time for about a year but he was never brought to court.⁶⁹ At the end of 1993 the lawyers of the two parties reached an agreement whereby *Rolling Stone* had to pay a symbolic amount of one dollar in compensation to Koprowski and print a "clarification"⁷⁰ stating that the oral polio vaccine theory (OPV/AIDS hypothesis) was only "...one of several disputed and unproven theories..." on the origin of AIDS. The clarification praised the figure of Koprowski as a scientist and regretted "...any damage to (his) reputation that may have been caused by the article...". However, it did not actually retract Curtis' article, nor did it mention having been published as part of a legal agreement. The costs of the case amounted to \$300,000 for Koprowski and \$500,000 for *Rolling Stone*. But why was Koprowski satisfied with a mere clarification instead of the retraction of the article, and why did he not insist on a trial? Was it perhaps because, according to American law, the onus would have been on Koprowski to prove that his vaccine had not been responsible for the AIDS epidemic?⁷¹ The lawsuit achieved one objective, however: it discouraged the lay press from publishing anything more on the theory.⁷² And Curtis' career as a journalist? Seriously impaired.⁷³ *Science* reported that *Rolling Stone*'s clarification had closed the case and that Koprowski felt relieved.⁷⁴

At this point the theory seemed disproved for all time. But was it really? As we have seen, the only real evidence to refute the theory was the case of the Manchester sailor. And in 1995 a stupendous revelation made its appearance, presented by David Ho. Who is David Ho? What do you mean who is David Ho? David Ho is a

⁶⁸ This sentence was written by Bill Hamilton. See (CRIBB, J., "The White Death.", 1996) see pp. 254-7.

⁶⁹ The lawsuit engaged Tom Curtis' brother, Michael K. Curtis, a lawyer, who wrote an article on the suppression of dissent with relation to Koprowski's defamation suit (CURTIS, M. K., *William & Mary Bill of Rights Journal*, 1995).

⁷⁰ (Anon., *Rolling Stone*, 1993).

⁷¹ (CRIBB, J., "The White Death.", 1996) see pp. 186-90.

⁷² Bill Hamilton. See (CRIBB, J., "The White Death.", 1996) see pp. 254-7.

⁷³ (TYER, B., *Houston Press*, 2000).

⁷⁴ (HOLDEN, C., *Science*, 1993b).

brilliant researcher in the field of AIDS.⁷⁵ And, he was also a member of the panel of experts at Wistar Institute. Well, after their report was drafted, Ho, who is a bit pedantic, wanted to know more about the virus of the Manchester sailor. As it appeared to have been the first case in the world, he thought it might provide important insight into the beginning of the AIDS epidemic. He obtained the same samples, which had been double-blind tested in 1990. In his tests he also detected the presence of the virus, but although on one hand his results concurred with those of 1990, on the other, something did not convince him. So he had samples sent directly from the doctor who had been in charge of the sailor and carried out the tests again. His conclusions, published in 1995, were rather surprising to say the least.⁷⁶ The original samples were found to be seronegative, while those sent by the English laboratory had been seropositive. But the strain of the virus found in the latter belonged to a person who had probably died at the end of the 80s, and the samples themselves were discovered to be a mixture of tissue from at least 3 different people!⁷⁷ "...Either tissue samples were mixed up in a laboratory... or the samples were deliberately switched." But who would have mixed up the samples? Well... it could have been an error. But then what was the real cause of death of the Manchester sailor?⁷⁸ Maybe he was one of those rare cases in which the collapse of the immune system is the same as those infected with AIDS, but which are seronegative. Extremely rare cases. And so, discussion of the theory went on. But who was left? Lecatsas hadn't shown any further interest in it, Curtis had been eliminated by his lawsuit and Pascal... that was another mystery. No one had ever seen him. Of course Louis Pascal is a

⁷⁵ "Time", December 30, 1996 Vol. 148 No. 29. Ho was chosen as "Man of the year 1996" for Time, because of the role he played in the development of triple therapy.

⁷⁶ (ZHU, T. et al., *Nature*, 1995) and also (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 362, 489-97, 601-3.

⁷⁷ The English group later retracted the 1990 article. (CORBITT, G. et al., *Lancet*, 1995); (MASOOD, E., *Nature*, 1995). Moreover, an investigation was started by the Central Manchester Healthcare NHS Trust. (CONNOR, S., *Bmj*, 1995).

⁷⁸ This raised two dilemmas up to today unresolved: the real cause of death of the Manchester sailor and how, when and where the samples were contaminated or deliberately switched. Some possible solutions are proposed by Hooper and Hamilton (HOOPER, E. et al., *Lancet*, 1996) and by Stricker and Goldberg (STRICKER, R. B. et al., *Lancet*, 1997). See also (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 516-8.

pseudonym. Louis Pasteur and Blaise Pascal: the great medical researcher and the great philosopher. Curtis, Martin and others had only communicated with him by letter but no one had ever met him in person. And in 1996... he disappeared completely.⁷⁹ What a story!⁸⁰

⁷⁹ BRIAN MARTIN, personal communication, July 2001; (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 365-74.

⁸⁰ The first book on OPV/AIDS theory appeared in 1996 written by the Australian scientific journalist Julian Cribb entitled "The White Death" (CRIBB, J., "The White Death.", 1996). Another review of the theory was published in Medical Hypotheses in 1997 (REINHARDT, V. et al., *Med Hypotheses*, 1997), but no relevant new element was published up to 1999.

Chapter 5: The River

Slim.

What does the word 'slim' mean to you? The ideal physique? Marketing hype? The latest fashion trends? "Slim" is what they called AIDS in Uganda in the middle of the 80s. "Slim", because before it kills you, it renders your figure truly slender and light as air. "Slim" is also the title of Englishman Ed Hooper's first book⁸¹, which tells about the beginning of the AIDS epidemic in Uganda. "Now why", he asks himself, "do the Ugandans use an English word for this illness? It's obviously new for them, too! But in that case, what is its origin?"

Hooper analyzed all the theories on the origin of AIDS from the most far-fetched to the most plausible.⁸² One of them, for example, said that HIV had fallen from the tail of a passing comet.⁸³ For a while another one circulated that suggested HIV was an organism, which had escaped from a laboratory for bacteriological weapons. Come on,

⁸¹ (HOOPER, E., "Slim: One Man's Journey Through the Aids Zone of East Africa.", 1990).

⁸² (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 151-69. Some of the theories, but not the OPV/AIDS hypothesis, has been reviewed by the important historian of medicine Mirko Grmek (GRMEK, M. D., *J Hist Med Allied Sci*, 1995); (GRMEK, M. D., *Periodicum Biologorum*, 1998).

⁸³ The paternity of the theory is assigned to an astronomer, Sir Fred Hoyle (NEWMARK, P., *Nature*, 1986); (MCCLURE, M. O., *New Scientist*, 1990).

when you first heard it you kind of believed it too, didn't you? According to the most popular version of this theory, HIV was created at the end of the 70s in a US military laboratory. The aim? To reduce the number of blacks, homosexuals and sinners.⁸⁴ But there's another variation. According to this theory, the Nazis invented HIV during World War II. They called it Virus Q so as not to confuse it with "H I V", "Heil Führer!" It was allegedly created in a German laboratory to exterminate the American army, which, as we know, is full of homosexuals. "Zo ze Erkräft was lodit zu go und bomp ze YOU ESS. But wenn ze Plän arreffs über Afrika – obviously the most direct route to the States – Pech, bäd luck, eet kräschis und infekts Afrika". And the laboratory in Germany? "Ze day after, Pech, bäd luck, ze Roysl Erfoss bomp ze Labor in ze Vaterland und so ze Epidemik begins in Afrika only, ausschliesslich!"⁸⁵

Other theories are more believable – and alarming. One, for example, concentrates on experimentation with monkey blood. In an attempt to cure syphilis, chimpanzee blood was injected directly into the patients: an ideal method for transmitting a virus such as HIV!⁸⁶ Another study records the grafting of particles of monkey testicles to the abdominal rectus muscle or the scrotum to induce sexual rejuvenation. It seems this practice was rather common at the beginning of the last century, but little documented.⁸⁷ I wonder if it worked...

Then Hooper turned his attention to the "bushmeat" hypothesis. But he, too, asked himself exactly the same question: why now? In 1992 he read Curtis' article and, as a result, became involved in research on the oral polio vaccine theory.⁸⁸ And what did he discover? Well,

⁸⁴ Different versions of this theory have been proposed since the mid-Eighties with the goal of discrediting American or Soviet researchers (MEDVEDEV, Z. A., *J R Soc Med*, 1986); (SEALE, J. R. et al., *J R Soc Med*, 1987); (SEALE, J., *J R Soc Med*, 1989). For more details (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 153-8.

⁸⁵ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 152-3.

⁸⁶ (GILKS, C., *Nature*, 1991); (GILKS, C., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001).

⁸⁷ (GOSDEN, R. G., *Nature*, 1992).

⁸⁸ (HOOPER, E., *Bmj*, 1997). His first studies on early AIDS cases helped to reveal the HIV-negativity of the Manchester sailor and he catalysed the effort to sequence the

above all it was Hooper who found out that the Manchester sailor had not even been to Africa. The furthest point he had reached was Gibraltar.⁸⁹ In addition, he managed to discover that the vaccination campaigns involved a much greater number of people. Not 300,000 as Curtis thought, but over a million people were vaccinated between 1957 and 1960 in 28 separate campaigns in the Congo, Rwanda and Burundi.⁹⁰ Hooper did research in several archives around the world. However, in the archive of the Ministry of Foreign Affairs in Brussels, which contains documentation pertaining to the colonial administration in the Belgian Congo, precisely the files from October 1956 to July 1958.... missing!⁹¹ In the successive documents, part of the correspondence between Belgium and health authorities in the Congo concerned, strangely enough, the safety of Koprowski's vaccine, because several small epidemics of polio had developed after the vaccinations.⁹² Some of these discrediting events were even reported in scientific journals at the time.⁹³ And what about the World Health Organization, who made it clear on several occasions that they had given no official consent for the Congo experiments and were plainly distancing themselves from the project.⁹⁴ Moreover, in a document in 1958, they stated that the vaccinations being carried out in the Congo were a glaring example of how such experiments should not be undertaken. Apart from this, the vaccinations were practically useless, the majority of the African population being naturally immunized at birth. What do you think? Did the Belgian authorities

HIV in the blood sample collected in Leopoldville in 1959 (ZHU, T. et al., *Nature*, 1998).

⁸⁹ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 123-8, 193, 225-6, 335-6, 512-6.

⁹⁰ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000), see pp. 742-743. Koprowski's polio vaccines were also tested on about 360,000 people in Switzerland and about 5,000 people in Sweden (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 328-337.

⁹¹ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000), see p. 530.

⁹² (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000), see pp. 530-534.

⁹³ (AGERHOLM, M., *British Medical Journal*, 1958); (AGERHOLM, M., *British Medical Journal*, 1960); (FOTHERGILL, W. C., *British Medical Journal*, 1960); (GARD, S., *Bull WHO*, 1960).

⁹⁴ (PAYNE, A. M. M., *British Medical Journal*, 1958).

in the Congo go to each African and say, "look, this is an experimental vaccine, we're not really sure that it works and we're not even sure if it's safe, the fact is you probably don't even need it, but will you agree to take part in the experiment anyway for the benefit of the Western countries?"

OK, I know I shouldn't make such a case out of it. In Koprowski's time ethics in scientific experimentation were just at the beginning. Now these things no longer happen. But then, how is it possible that Koprowski tested an experimental genetically-engineered rabies vaccine on some cattle in Argentina in 1985 without proper authorization and without notifying the farmers or the local population, who continued to drink the milk from those cows?⁹⁵

But if we go into this any further we'll be here all night and I won't be able to tell you the whole story. On top of that there's a real problem with the theory. Up until the SV40 case, Asian monkeys were used, right? Then they started to use African green monkeys. In certain rare cases baboons were used. But the ancestors of HIV-1 and HIV-2 are found in chimpanzees and sooty mangabeys, which were never used in the production of vaccines. Therefore the theory is invalid. Period.⁹⁶ But are we sure that chimpanzees and sooty mangabeys were never used?⁹⁷ Sabin for instance was always very explicit in his articles and always referred to the species of Asian monkey used.⁹⁸ Whereas Koprowski... In his articles at the time, Koprowski was never specific about the type of monkey used. (!) Is it possible that nobody asked Koprowski what kind of monkeys he used? Koprowski has three alternative versions: Indian monkeys,

⁹⁵ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see p. 449.

⁹⁶ In fact, Curtis was wrong pointing to the African Green Monkeys. He did notice that "Koprowski's uncertainty on this issue only emphasized that almost any species of kidney could have been used", but Hooper replied that chimpanzees were "a much likelier bet" (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see p. 227.

⁹⁷ The Wistar Institute Panel Report noted that "around the time of the vaccine trials, however, the Indian government put an embargo on monkey exports and thus monkeys of African origin may have been used".

⁹⁸ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 246-7.

African green monkeys and Philippine monkeys.⁹⁹ “The laboratory records were lost in a move.” – his exact words.¹⁰⁰ But is it at all possible chimpanzees were used in the production of Koprowski’s vaccine? Here we have another dramatic surprise: both Curtis and Pascal indicated the existence of a large colony of chimpanzees in the Belgian Congo in 1958.¹⁰¹ Hooper discovered from various sources that more than 400 were kept there, the largest chimpanzee colony in the world at the entire disposal of Doctor Koprowski! To produce polio vaccine perhaps? Officially to test his vaccine which was a completely useless measure. But let’s not get into animal rights, at the time there wasn’t even any respect for the rights of the Africans, so you can imagine those of the animals. However, their numbers are clearly disproportionate. One document mentions that chimpanzee kidneys were sent to the US to produce tissue cultures, but for a different research project on hepatitis.¹⁰² So chimpanzee kidney cultures were in fact used. What would have been the motive not to use them for the production of polio vaccine? If you ask any virologist who was active at the time, he will tell you: the price. Obtaining kidneys from chimpanzees was more expensive than using those of lesser species. But if you had 400 at your disposal? Pascal even speculated that the name of the vaccine, CHAT, could have stood for CH impanzee AT tenuated ...¹⁰³

OK, so let’s say the oral polio vaccine theory is true. That would explain the HIV-1 epidemic. But how do you explain the HIV-2 epidemic? Well, Koprowski wasn’t the only one to test his vaccines in Africa. In a test carried out in Morocco in 1953, about 6,000 babies were vaccinated with a so-called polio vaccine, which two years later turned out to contain a parasitic rabbit virus, fortunately harmless for

⁹⁹ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 245 citing (CURTIS, T., *Washington Post* , 1992).

¹⁰⁰ See for instance (HOOPER, E., *Science as Culture* , 2000); (TYER, B, *Houston Press* , 2000); (BURTON, T. X. X., *POZ Magazine* , 2000).

¹⁰¹ (COURTOIS, G. et al., *British Medical Journal* , 1958).

¹⁰² (DEINHARDT, F. et al., *Am J Hyg* , 1962)

¹⁰³ (PASCAL, L., *Science and Technology Analysis Research Programme, University of Wollongong (AUS)* , 1991). For other hypotheses on the meaning of CHAT (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 411-9.

humans.¹⁰⁴ Then there was Pierre Lépine of the Pasteur Institute who also did experiments.¹⁰⁵ One was recorded in Mitzic in 1957. Where’s Mitzic? In Serbia? No, it’s in Gabon! 2,000 people were vaccinated within a few days and the only reference to the test in scientific literature was in the last two lines of an article about something else.¹⁰⁶ But lo and behold in 1994 in the region of Gabon another AIDS epidemic was discovered which had nothing to do with HIV-1 or HIV-2.¹⁰⁷ HIV-3? No, because after an in-depth analysis it was revealed that this new virus belonged to the chimpanzee SIV family after all, so it’s a bit similar to normal HIV-1, which is found everywhere in the world.¹⁰⁸ However, one thing is clear: this is a further example of a separate and independent passage of a virus from chimpanzee to man. The first trace of this particular variation of HIV-1 goes back to 1962, to the case of the Norwegian sailor. But wasn’t the sailor from Manchester? Not that sailor, another one. This one was in Cameroon between 1961 and 1962, contracted HIV, transmitted it to his wife and children and the whole family died in 1976.¹⁰⁹ Blood samples were preserved, and in 1997 it was discovered that the virus of the Norwegian sailor was precisely this other HIV-1.¹¹⁰ And as the first cases of HIV-2 were recorded among some Portuguese veterans around the middle of the 60s, is it not possible that the Portuguese were also developing their own version of a vaccine in East Africa using, for example, sooty mangabeys?¹¹¹

¹⁰⁴ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 299-300.

¹⁰⁵ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 296-305, 618-9. One can suspect that other French vaccination campaigns were also conducted in their African colonies, but the Pasteur archives didn’t furnish elements of proof. (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 852-8.

¹⁰⁶ (ANDRÉ, L. J. et al., *Med Trop (Mars)* , 1958)

¹⁰⁷ (CHARNEAU, P. et al., *Virology* , 1994).

¹⁰⁸ HIV-1 Group O, at first meaning “Outer”, to distinguish from HIV-1 Group M, for “Main” (mainly localized in Cameroon, Equatorial Guinea, Gabon and Nigeria). A new strain, Group N (for non-M, non-O), rare and localized in Cameroon, was later identified in 1998 (SIMON, F. et al., *Nature Medicine* , 1998).

¹⁰⁹ (FROLAND, S. S. et al., *Lancet* , 1988).

¹¹⁰ (JONASSEN, T. O. et al., *Virology* , 1997).

¹¹¹ For this hypothesis Hooper couldn’t find documents to sustain his thesis. (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 640-3.

Edward Hooper, "The River: a journey back to the source of HIV and AIDS", 1999.¹¹² Ten years of research. Thousands of documents consulted in dozens of archives, American, European, African. Hundreds of hours of interviews. All of it printed by one of the biggest publishing houses in the world. It could not be ignored as Pascal was, nor could it be silenced by a lawsuit as Curtis was. (The cover's different because this is the pocket edition.) More than a thousand pages. A tough read!¹¹³

¹¹² (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 1999) The first edition was published in 1999, the second (an extended paperback version) in 2000.

¹¹³ The comment is intended to be ironic. Although "The River" is a 1,100 page book with 270 pages of notes, it has been found highly readable by most of its readers.

Chapter 6: The Royal Society

After the appearance of Hooper's book, the media became more interested in the theory.¹¹⁴ The scientific community could not remain silent.¹¹⁵ Hooper was alone but he had an ally worthy of the highest respect: Bill Hamilton. Who is Bill Hamilton? Probably the greatest evolutionary biologist of the 20th century. First there is Darwin then

¹¹⁴ Hooper's book raised the level of interest on the origin of AIDS and the coverage in the lay press was remarkable. See the bibliography on Brian Martin's and Ed Hooper's (<http://www.aidsorigins.com/>) home pages.

¹¹⁵ Examples of responses in the scientific press are: (WAIN-HOBSON, S., *Nature Medicine*, 1999); (WEISS, R. A., *Science*, 1999); (GILKS, C., *New Scientist*, 1999); (SHARP, D., *Lancet*, 1999); (MONTO, A. S., *American Journal of Epidemiology*, 2001); (WINKELSTEIN, W., *American Journal of Epidemiology*, 2001); (MOORE, J. P., *Nature*, 1999); (WONG, K. W., *Nature*, 2000). Hooper's reply to "Nature" was rejected for publication. Brian Martin's review, which called for a fairer evaluation of the OPV theory, appeared in "Science As Culture" (MARTIN, B., *Science as Culture*, 2000) a few pages after a summary by Hooper of the principal theses of his book, the latest updates of the debate and his replies to the critics to the OPV/AIDS theory (HOOPER, E., *Science as Culture*, 2000).

A brief letter by Koprowski and Plotkin (Koprowski's colleague in the period of the Congo campaigns) appeared in "Science" which promised the future publication of proofs that would show that chimpanzees were never used in polio vaccine production. (PLOTKIN, S. A. et al., *Science*, 1999). (Such proofs were in fact never published.) Hooper replied in a letter that he wasn't accusing a precise researcher or laboratory of using chimpanzees in production of vaccines, or in allowing the vaccines to become contaminated with SIV, but that such an event could have occurred either in USA, Belgium or Africa. (HOOPER, E., *Science*, 2000b).

there is Hamilton. After the outcome of the lawsuit against Curtis, Bill Hamilton had intervened defending the plausibility of the theory and pointing out the danger for science of such legal action.¹¹⁶ From the height of his prestigious position he had written to *Science* twice, but they had refused to publish his letters. Then he had written to *Nature*, another respected journal, which ... also refused to publish. So when Hooper's book came out,¹¹⁷ Hamilton decided to assume a more active role: he decided to organize a conference at the Royal Society in London, the most celebrated scientific academy in the world, of which he was, naturally, an honorary member. He invited the chief exponents of research in the fields of epidemiology, virology and primatology, as well as experts in genetics, in order to discuss the two principal theories of the origin of AIDS: the "bushmeat" hypothesis and the polio vaccine theory.¹¹⁸ But Hamilton also wanted new research to be carried out. When he became tired of responses such as "Yes, that's very interesting but our research funding comes from... So I'm afraid I must refrain from getting involved with this", he decided to undertake the task of gathering new scientific data himself. For this purpose he organized a series of expeditions to the Congo. He went on his first mission in 1999 and on a second at the beginning of 2000. But our story, which will appear to have been written by a wicked TV series scriptwriter, suddenly took a different turn. Hamilton contracted malaria in the Congo, returned to England, and a few days later lapsed into a coma. On 7th March 2000, at the age of 64, Bill Hamilton, the greatest evolutionary biologist of the 20th century, died.¹¹⁹

I don't imagine there was anyone so cynical as to be happy about Hamilton's death, but soon voices were heard saying that the OPV/AIDS theory was being taken too seriously, that the meeting as planned by Hamilton was unbalanced and, if not corrected, many of the guest speakers would not come. As a result the meeting was put

¹¹⁶ Hamilton had heard about the theory from L. Pascal (CRIBB, J., "The White Death.", 1996) see pp. 182-4, 254-7. Part of the correspondence between Hamilton and the two reviews can be consulted on Martin's and Hooper's home pages.

¹¹⁷ Hamilton wrote the foreword to "The River".

¹¹⁸ (BUTLER, D., *Nature*, 2000).

¹¹⁹ (HOOPER, E., "The River: A Journey to the Source of Hiv and Aids.", 2000) see pp. 872-4; (SIMINI, B., *Lancet*, 2000); (TRIVERS, R., *Nature*, 2000); (MORAN, N. et al., *Nature Medicine*, 2000).

back from May to September and re-organized.¹²⁰ The new date is one which is not likely to be forgotten: 9/11... 2000¹²¹, exactly a year before another unforgettable day.

It's the 11th of September. In the auditorium of the Royal Society all the warriors are present. Hooper and Koprowski ignore each other. The chairmen open the conference in honor of Bill Hamilton, a great man of science, an example for all by virtue of his brilliance, integrity and open-mindedness. Applause... and the battle begins!

- First refutation: the methodology you used to demonstrate a correlation between the locations of the vaccinations and the appearance of the first cases of AIDS is not correct!¹²²

- Without going into detail, it seems to me difficult to maintain that there is no relationship between them.

- Second proof: we have established the origin of the AIDS epidemic at 1931!¹²³

- That is known to be a hypothetical estimate.¹²⁴

- Third proof: chimpanzees were never used; Koprowski and many other researchers at the time confirm this.¹²⁵

- There are actually no existing documents and besides I have witnesses who confirm that, on the contrary, chimpanzees were used.

- Are we to believe African workers and doubt the word of Western researchers?

¹²⁰ (BIRMINGHAM, K. et al., *Nature Medicine*, 2000); (COHEN, J., *Science*, 2000a). There was no reference by Desmyter to the Royal Society meeting in his article "From polio to AIDS, 1950-2005" (DESMYTER, J., *Acta Clin Belg*, 2000).

¹²¹ The discussion meeting, entitled "Origins of HIV and the AIDS epidemic", was organized by Robin Weiss and Simon Wain-Hobson and was held Monday 11th and Tuesday 12th September 2000 at the Royal Society in London.

¹²² (DE COCK, K. M., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001).

¹²³ (YUSIM, K. et al., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001). The article of Korber and colleagues, which estimated "the date of the last common ancestor of the main group of HIV-1 to be 1931 (1915-41)", was published in June in "Science" (KORBER, B. et al., *Science*, 2000b); see also (STEPHENSON, J., *JAMA*, 2000). A very interesting article by Dr. Hillis commented on the implications of the timing. (HILLIS, D. M., *Science*, 2000a). Other comments of Robert F. Garry (June 9, 2000), David M. Hillis (June 19, 2000), Horia Georgescu (Nov 5, 2000) are available on Science online.

¹²⁴ (HOOPER, E., *Science*, 2000a); see also (KORBER, B. et al., *Science*, 2000a) and (HILLIS, D. M., *Science*, 2000b).

¹²⁵ (PLOTKIN, S. A. et al., *Science*, 2000).

- Such discrimination is unacceptable!
 - Trypsin eliminates HIV in the primary phases of production.¹²⁶
 - We know practically nothing about how and where vaccine was originally amplified and if trypsin was used.
 - The vaccine was also tested on 6 million Poles!
 - But it is possible that only the vaccines used in the Congo were amplified using chimpanzee kidneys.
- Up to now Hooper has warded off the blows very well, but this last attack is fatal:
- Koprowski's old vaccines have at last been tested!¹²⁷
 - And?
 - No trace of SIV was found, nor of HIV, nor of chimpanzee DNA. Only that of Asian monkeys.
- "Some beautiful facts have destroyed an ugly theory."
 "Disputed AIDS theory dies its final death."¹²⁸

¹²⁶ (OHTA, Y. et al., *AIDS*, 1989). See also (GARRETT, A. J. et al., *Lancet*, 1993); (STRICKER, R. B. et al., *Lancet*, 1994); (GARRETT, A. J., *Lancet*, 1994); (ARYA, S. C., *Lancet*, 1994); (HAYFLICK, L., *Lancet*, 1994) and also (BEALE, J. et al., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001); (LENA, P. et al., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001). See also (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 657-662.

¹²⁷ <http://www.uow.edu.au/arts/sts/bmartin/dissent/documents/AIDS/rs/Wistar.html>

¹²⁸ (DICKSON, D., *Nature*, 2000); (COHEN, J., *Science*, 2000b); (HORTON, R., *Lancet*, 2000); (BIRMINGHAM, K., *Nature Medicine*, 2000). See also (BEALE, J., *Lancet*, 2001); (STRICKER, R. B. et al., *Lancet*, 2001); (BLISS, M., *Lancet*, 2001) and (HILLIS, D. M., *Science*, 2000b); (Anon., *Nature*, 2000); (PLOTKIN, S. A. et al., *Nature*, 2000); (LECATSAS, G., *Nature*, 2000). For the articles from which the quotes are taken: (WEISS, R. A., *Nature*, 2001) and (COHEN, J., *Science*, 2001). See also (CLARKE, T., *Nature*, 2001). The result of the tests were published only in April 2001 in "Science" and "Nature": (POINAR, H. et al., *Science*, 2001); (BLANCOU, P. et al., *Nature*, 2001); (BERRY, N. et al., *Nature*, 2001). See also (RAMBAUT, A. et al., *Nature*, 2001); (RIZZO, P. et al., *Virology*, 2001); (KHAN, A. S. et al., *Journal of Infectious Diseases*, 1996); (STRICKER, R. B. et al., *Journal of Infectious Diseases*, 1997); (KAHN, A. S. et al., *Journal of Infectious Diseases*, 1997); (BERRY, N. et al., *Vaccine*, 2005). Other tests on CHAT samples had been conducted in Sweden in 1995, suggested by Hamilton and Hooper (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 334-5, 505-510, 599-601, 799-800. The papers of the meeting were published in June 2001 (AAVV, *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001). See also (PLOTKIN, S. A., *Clin Infect Dis*, 2001a); (PLOTKIN, S. A., *Clin Infect Dis*, 2001b)

OK. So let's say the OPV/AIDS theory is not true. Why have the various weak points of the "bushmeat" hypothesis not been challenged? Who has decided that the transfer theory is to be simply accepted as valid?¹²⁹ Above all, it does not clarify why there are no historical or social incidents of AIDS before the 20th century...

- You know, not everything in Africa is reported. There were probably epidemics, but they have been forgotten or confused with other illnesses.¹³⁰

- But millions of Africans have been transported all over the world as slaves, and there was never any evidence of AIDS outside Africa until the 1970s.¹³¹

- Perhaps the virus was confined to one isolated tribe...¹³²

- No. Because there would have had to be at least 7 isolated tribes to account for at least 7 different simultaneous epidemics!¹³³

- During the 20th century in Africa there was colonization, a liberation of sexual customs, urbanization. It is known that life in the cities has become much more liberal. And then deforestation, which has brought humans much more into contact with monkeys...¹³⁴

- And how do you explain the genetic disparity?

- Genetic what?

- There are cases in which the human virus and the monkey virus are almost identical. But it would seem that these viruses in humans are not pathogenic and not transmittable to others. So, in order for a monkey virus to actually cause disease, it must be genetically dissimilar in some way, and then become modified, adapted to the human body. What could have caused viruses such as these to adapt themselves to humans?

- Syringes!

¹²⁹ (MARTIN, B., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001).

¹³⁰ For instance (DE COCK, K. M., *Br Med J (Clin Res Ed)*, 1984).

¹³¹ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 677-8.

¹³² (DESMYTER, J. et al., *Br Med J (Clin Res Ed)*, 1986); (BRUN-VEZINET, F. et al., *Lancet*, 1986).

¹³³ (BURR, T. et al., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001)

¹³⁴ See for instance (CHITNIS, A. et al., *AIDS Research and Human Retroviruses*, 2000);

(GIUNTA, S. et al., *Nature*, 1987). See also

<http://weber.ucsd.edu/~jmoore/publications/HIVorigin.html>

- Syringes?
- Syringes. Since the end of the Second World War, increasingly more disposable syringes, throw-aways, have been manufactured and used. But Africa is often short of medical supplies, so disposable syringes, which are impossible to sterilize, have been refilled dozens of times. And in passing the needle quickly from arm to arm...
- So this is the new theory: the virus was transmitted several times, naturally, from monkey to human. But it never caused AIDS, nor did it ever spread. Then, with the repeated use of disposable needles, the virus was able to adapt itself to humans and cause AIDS!¹³⁵
- Once again medicine stands accused. How is it possible that this time the theory is accepted so readily?
- Well, it's not the fault of medicine exactly, more the shortage of medical supplies in developing countries. A much more politically correct theory, don't you think?
- Of course. It's so easy to blame poverty.

¹³⁵ For this theory see (MARX, P. A. et al., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001); (DRUCKER, E. et al., *Lancet*, 2001). Hooper presented and discussed Marx' hypothesis in his book (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 667-675 e 681-685. See also (GISSELQUIST, D. et al., *Bmj*, 2002) and (GISSELQUIST, D. et al., *International Journal of STD and AIDS*, 2002) and the reply by Hooper on his home page (HOOPER, E., *London Review of Books*, 2003).

Chapter 7: Finale

The final refutation of the OPV/AIDS theory was based on the analysis of Koprowski's old vaccines. But where did they come from? The tests were finally made on the eve of the Royal Society conference, 8 years after the Wistar panel had declined to carry out the testing because it would have been "laborious, expensive and ... inconclusive"¹³⁶. But did their results really in fact represent an "exoneration of the polio vaccines"? It is evident that of those samples, whose existence was discovered by Curtis in 1992¹³⁷, only one in eight might have been related to those used in the Congo – perhaps none of them, because they were probably from original batches and in that case produced prior to amplification in

¹³⁶ Koprowski had written in his letter to "Science" that "there is no vaccine stored at the Wistar Institute, but there are a few vials of tissue culture supernatants available that may represent seed lots used for production of vaccines in the years 1957 to 1959." (KOPROWSKI, H., *Science*, 1992). In the same period, the Wistar Institute panel report concluded that "[o]f the samples presently existing at the Wistar Institute, only one has been identified as being possibly directly relevant to the Congo trials. Several other samples were prepared around those times, but may never have been used in the 1957 vaccine trials. In sum, the total number of samples (also considering the amount of material available) worth testing is quite limited". And then again "testing of a master seed or related vaccines will not be sufficient, as the contamination with SIV (if any) would be likely to have occurred during the preparation of the actual vaccine lots used".

¹³⁷ (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see pp. 251-2, which summarises Curtis' articles in the "Houston Post".

chimpanzee kidneys. And anyway the theory did not predict that all of the vaccines were contagious, nor even that all of the batches were contaminated. And after 40 years it was highly probable that no traces of HIV would be found. Both Martin and Hooper wrote to Nature to contest the results. And, guess what? Neither of the two letters was accepted.¹³⁸ Hooper now declares he is certain that the origin of AIDS lies in the polio vaccines used in Africa and accuses the world of science of deliberately covering up the truth.¹³⁹ The scientific community insists that the OPV/AIDS theory has no foundation and poses a threat to vaccination campaigns.¹⁴⁰

“...one lesson to be learned from considering the OPV as a source of HIV is how plausibly it might have happened and how cautious we need to be over introducing medical treatments derived from animal tissues, such as live, attenuated vaccines or xeno-transplantation.”¹⁴¹

On this note the meeting in 2000 of the Royal Society ended.

Modern vaccines are still produced using monkey kidneys.¹⁴² Does that mean they are dangerous? No. Even if it would be better not to use monkeys any longer to produce them¹⁴³, I believe that the experience acquired in 50 years of production has rendered vaccines very safe. Under no circumstances do I want this story to be interpreted as saying that vaccinations are bad. It is thanks to vaccines that poliomyelitis for us no longer exists. But there are other situations in which prudence is required.

¹³⁸ Both letters can be consulted on Hooper's and Martin's websites.

¹³⁹ Hooper didn't give up, and another meeting was organized at the prestigious Accademia Nazionale dei Lincei in Rome, which was almost ignored by the global scientific community. The papers of the meeting were published in 2003. (AAVV, *Atti dei Convegni Lincei*, 2003). A very successful documentary was shot and finished in 2003, which concentrated on the post-River period (CHAPPELL, P. et al., 2003). A lot of related material can be found on Hooper's homepage.

¹⁴⁰ (WOROBEY, M. et al., *Nature*, 2004). The controversy between the bushmeat and OPV theories continues to this day. For the most recent article for the bushmeat school, see (KEELE, B. F. et al., *Science*, 2006) and for Hooper's response, see (HOOPER, E., *Hooper's website*, 2006).

¹⁴¹ (WEISS, R. A., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001).

¹⁴² In 1993, 22 of the 24 major polio vaccine laboratories were still using monkey kidney tissue cultures. (HOOPER, E., "The River : A Journey to the Source of Hiv and Aids.", 2000) see p. 326.

¹⁴³ See for instance (LECATSAS, G., *Nature*, 2000) and the interview with Cecil Fox in the film documentary (CHAPPELL, P. et al., 2003).

Genetically engineering, cloning, transgenic food, new technologies, new drugs, xenotransplants: implants of animal organs into humans... Who decides when these risks are tolerable? And how? I believe a decision of this kind should be taken by all of society and that it should not be left up to the scruples of a team of researchers.

And so we come to the end of our story. If the theory did turn out to be true, would it be necessary to blame Koprowski?¹⁴⁴ What difference would it make? I think it would be more important to ask ourselves about the behavior of modern medical researchers, and Koprowski is only one of many. Where will a society based on competition and individualism lead us, in which only the strongest, the richest and the fastest win, and in which there are, inevitably, others who lose? Increasing numbers of people, even entire companies, are pushed into taking ever greater risks, even if these are likely to lead to disasters of vast proportions.

Someone asked me if I was certain I wanted to take sides against science...

The fact is I believe, on the contrary, that this story teaches us how important it is to develop the most fundamental element of science – our own critical sense. And anyway, science is not the equivalent of truth, of certainty. It involves, above all, recognizing the limits of our knowledge.

But what do you think? Is the OPV/AIDS theory true or not? Personally, I can only answer that question in a strictly scientific manner: nobody knows.

THE END

¹⁴⁴ (MARTIN, B., *J Med Ethics*, 2003) and (CRIBB, J., *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 2001)

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