Age of AIDS, Part Two.
Scientific Breakthroughs
National Institutes of Health, Bethesda, Maryland.

>>NARRATOR: At the NIH, research scientists were trying to identify the mysterious agent that was causing the epidemic.
>>DR. ANTHONY FAUCI: It was a period of evolving mystery. You couldn't see it, you look in the cells, you couldn't grow it, at least initially, and most everybody thought it was virus.
>>NARRATOR: And many people thought that this man at the NIH, Dr. Robert Gallow, had a head start in the race to identify the virus.
>>GEORGE SHAW, M.D. Ph.D.: I arrived in Bob Gallow's lab in 1983 and it was time of extraordinary excitement.
>>NARRATOR: Four years earlier, Dr. Gallow had achieved a scientific breakthrough when he isolated a special virus, a retrovirus which caused leukemia.
>>They were called HTLV 1 for human T-cell Leukemia Virus Type 1 and HTLV Type 2. Those viruses were actually prime candidates for the cause of AIDS.
>>NARRATOR: Dr. Gallow and his team, convinced the AIDS virus was related to the HTLV, began probing the blood from an AIDS patient, using the same techniques he had used to discover the leukemia virus.
>>DR. GALLOW: We were looking for HTLV-relatedness. We were looking for the AIDS virus to be related to the leukemia virus, a retrovirus, same family, but different.
>>NARRATOR: But when Gallow cultured T-cells blood from the AIDS patients, he could find no markers of the HTLV. For Gallow, the idea that the AIDS virus could be anything except a variation of the HTLV seemed unthinkable.
>>DR. GALLOW: I should have followed exactly what was in front of me. I should have had more imagination, when I think about it. You see, all the trouble of proving that one retrovirus class existed; could you possibly imagine two?
>>NARRATOR: Within a few weeks, all the T-cells in the culture had disappeared, killed by the mysterious virus Dr. Gallow could not find.
In Paris, Dr. Willy Rozenbaum thought Gallow was looking in the wrong place.
>>Dr. Willy Rozenbaum: My hypothesis was that he would have been better looking in the lymph nodes, because they are a more accurate indicator of illness.
>>NARRATOR: So in January 1983, Rozenbaum sent a biopsy to see Luke Montigny's lab at the Pasteur Institute.
Francoise [Last Name - French] did the test.
>>FRANÇOISE: The biopsy was put in a culture, and we checked it regularly, every day, every second day, every third day.
>>NARRATOR: If the French were to find the virus, they needed to keep the culture of T-cells alive, something Gallow's lab had been unable to do.
>>FRANÇOISE: We observed that there was cell death in the culture. The virus itself could be responsible for the cell death. But there wasn't time to reflect. Above all, we had to try to restart this culture and restart production of the virus.
>>NARRATOR: They decided to feed the virus by adding additional white blood cells.
>>Francois Barre-Sinoussi: We saw the solution. All we needed to do was to add cells to the culture.
>>NARRATOR: In barely three weeks, Montigny's team had isolated a new virus. And when they produced an electron micrograph, they knew that the virus they had discovered was distinct from Gallow's HTLV.
>>Francois Barre-Sinoussi: The electron microscopic image showed that the photo of this virus was different from the photo of the HTLV.
>>NARRATOR: This photograph, taken in the summer of 1983, marks the moment the French researchers first saw the virus that causes AIDS: HIV, the Human Immunodeficiency Virus, the virus that would, from its first passage, be passed on, person to person, to more than 70 million people.
The Congo Basin.
>>NARRATOR: From the beginning, scientists would look for the origins of the virus. It would take more than a decade of investigation to find out that it had evolved from a Simian or chimpanzee virus somewhere in Central Africa.

>>DR. JOE McCORMICK: In the central part of Africa, there are people who were descended from hunter/gatherer populations, and many of those populations still do a lot of hunting, particularly in these really remote areas.

I believe that in the process of hunting, the hunters encountered primates, particularly chimpanzees, and perhaps other monkeys that carry Simian viruses.

>>NARRATOR: Hunting and butchering a chimpanzee would almost certainly involve blood-to-blood contact.

>>DR. JOE McCORMICK: They encountered these viruses, particularly when they were preparing the meat. And they periodically would become infected. And this was probably happening in various places in Central Africa. It wasn't high frequency, but periodically, and often it would probably die out. The hunter might die, he might transmit it to one or two people, but there were a few places where it would still continue at this low level that we found in the villages.

>>NARRATOR: At first, the human immune system would fight back the chimpanzee virus, but on each transmission the virus replicated. It adapted and evolved, and eventually one of those adaptations was successful.

>>GEORGE SHAW, M.D. Ph.D.: There's no question that the HIV came from chimpanzees. There are, in fact, now known several examples of cross-species transmission, as we call it, between chimpanzees and humans. It's just that one of those took off like none of the others.

>>NARRATOR: George Shaw is a scientist who has studied the evolutionary origins of HIV.

>>GEORGE SHAW, M.D. Ph.D.: There is a clear family tree of the family of viruses that we call retroviruses. And within that family are viruses that infect humans and monkeys and chimpanzees that are grouped in this subfamily that we call Human or Simian Immunodeficiency Virus.

>>NARRATOR: By genetically comparing the chimpanzee virus and HIV, scientists were also able to determine how recently the Simian virus had crossed the species barrier to humans.

>>GEORGE SHAW, M.D. Ph.D.: Investigators who specialize in that area suspect, plus or minus a decade, that the transmission event leading to HIV happened sometime around the 1930s.

>>NARRATOR: The scientist who discovered the animal source of the AIDS virus was Beatrice Hahn. She traced it back genetically to its origins in a particular species of chimpanzee.

>>BEATRICE HAHN: It is not known what has to occur for a newly transmitted chimpanzee virus to then become an epidemically spreading pathogen. There are a number of speculations that people have been putting forward, which are quite reasonable, and have to do with the basic biology of this virus as we understand it today. And those speculations are increased partner change, if this person who has the chimpanzee virus gets introduced into a population with sexual promiscuity.

>>DON FRANCIS, M.D.: What happened in Africa is the urbanization of Africa. So, where instead of living in the bush, that one now, especially males, migrated to the urban centers for work. Now, the infected chimpanzee butcherer comes into a larger city in Africa, now has sex with a woman who has sex with a lot of other people. And now the woman gets infected and thousands of other people get infected and then it goes on and on and on. And this virus searches out, and when there is an amplification system, it takes off.

(Helicopter lands.)

>>BEATRICE HAHN: During the time period when we think that the transmission might have occurred, there were medical campaigns in West Central Africa, a pox virus vaccination that would go from arm to arm.

>>NARRATOR: Using the same needle was an unwitting but very efficient system of transmitting the virus widely.

>>BEATRICE HAHN: It would have to be something that explains a sudden spread. And the more the virus replicates, the more changes can occur, the more it adapts to whatever new environment it's confronted with.
NARRATOR: A sample of frozen plasma showed that the first confirmed death from AIDS occurred in 1959 in the Congo. By the 1960s, people in Central African towns were dying of a mysterious disease.

It has become incontrovertible that the epidemic that we understand to be the most important pandemic effecting humankind of this past century arose as a consequence of a single transmission event, from a single chimpanzee in West Central Africa to one human.


NARRATOR: In April 1984, Margaret Heckler called a momentous press conference.

MARGARET HECKLER: The probable cause of AIDS has been found. The credit for these discoveries belong to many. In particular, credit must go to our imminent Dr. Robert Gallow, who directed the research that produced this discovery. Dr. Gallow.

NARRATOR: Gallow's team, using samples of the French virus, as well as their own, had succeeded in growing enough in a continuous cell line to describe it in detail, and develop a blood test. It had been over a year since the French discovered the virus.

MARGARET HECKLER: I was not well briefed on the French claims, and I had confidence in Gallow. He was a brilliant investigator, so I really did feel that he had been the actual identifier of the virus.

INTERVIEWER: Do you think he misled you?

MARGARET HECKLER: No, not at all, no.

DR. ROBERT GALLOW: There have never been any fights or controversies between us and a group in France. I came back from a meeting, astonished to see this kind of discussion.

THE BAILIFF (in French): It was necessary that another team confirm the discovery. What's a shame is that they presented it as an original discovery. But there we go.

NARRATOR: The dispute between Gallow and the French would fester for nearly a decade, until an out-of-court settlement gave each team credit for its work. But in May of 1984, there was a great sense of hope.

MARGARET HECKLER: Finally, we also believe that the new process will enable us to develop a vaccine to prevent AIDS in the future. We hope to have such a vaccine ready for testing in approximately two years.

THE WITNESS: There was a lot of optimism that once we identified the agent, we will figure out ways to conquer it, and that science would come up with the tools to make drugs, and certainly would come up with a vaccine.

NARRATOR: But at the NIH, scientists were worried. Gallow's important contribution, a new blood test for the virus, revealed deep problems.

DR. ANTHONY FAUCI: The serological tests indicated that the problem was much more extensive than you would have thought.

THE WITNESS: It became clear that HIV could infect but doesn't cause a problem until some years later; and there is a period where one is symptom-free, but HIV-positive, and potentially infectious to others.

DR. ANTHONY FAUCI: So we had a skewed appreciation of what this disease was all about. Because we thought that you get HIV-infected, and you were deathly ill, and that was it, not fully realizing the vast numbers of people who are incubating this illness for years and years. As we described back in the '80s, it was like an iceberg, and what we were seeing was the tip of the iceberg.

DOCTOR: See how the lymph nodes are doing today.

DOCTOR: It invades a person, so that by the time the first cases of AIDS in the United States were diagnosed, 250,000 Americans were infected. By the time the first cases were diagnosed in persons with hemophilia, half of the population of hemophiliacs in the U.S. were infected. Until there are people dying on the streets, people don't want to believe it.

NARRATOR: By the mid 1980s, the number of deaths was doubling every year. Doctors could offer little hope.

DR. FISCHEL: After I got to about 15,000 patients that died, I stopped counting
numbers. One of my patients that I had followed for a long period of time just asked me, should I just stop? I said, I can just give you the same medicines, but you’re not going to get much better than that.

So he said, no, then I want to stop. You know. And then he said, well, I guess this is, then, goodbye.

And I will never forget the expression on his face. I mean, just the total loss of life, you know, that his young life was over. I mean, that expression is something I will take with me forever.

>> DR. JOSEPH BOVE: When I think back, it seems like it was just an avalanche. It was like one week we’d never heard of it, and then the next week, everybody started to die. People began to vanish.

I was having coffee in a cafe, the Cafe Flor, and I looked up and saw what I thought was an old man leaning against a telephone pole. And I thought, oh, look at that old man, he needs help. And he fell down. And we went over, and he was dead. And he wasn't an old man. He was my age.

By 1985 almost everyone I knew was dying or was already dead. It was also the people I saw every day, but whose names were not known to me -- the bus driver, the mail delivery person, the baker, the guy I would see walking his collie every day in the park on my way to work. You know? One by one, all these familiar faces disappeared.

[Music swells.]

(End.)

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