(Judge/ARD)
July 16, 1987
6:00 p.m.

PRESIDENTIAL REMARKS: NATIONAL INSTITUTES OF HEALTH
PANEL DISCUSSION ON AIDS
[redacted], JULY ~~22~~ 23, 1987

Thank you. As you know, generally, when I talk to a group like this, I open with a joke or two -- to put all of us at ease, get things rolling. I hope you'll forgive me if I skip that today. I've just come from the ward you have here for children who ~~are dying of~~ have aids AIDS. Let me just make a promise to those children and all others who have contracted this disease. We will -- I will -- do all that God gives us the power to do to find a cure for AIDS. We will not stop, we will not rest, until we have sent AIDS the way of smallpox ~~and polio~~.

Those are words of resolve. Now I'd like to add a few words of hope. One of the amazing stories of modern medicine is the progress that we've already made against AIDS. I know this is old news to you in this room. So many of the breakthroughs were achieved right here in this building. But, for our friends in the press, I thought I should put the speed of progress in perspective. Just think that the day I was sworn in as President, we didn't even know that AIDS existed. It wasn't until some 15 months later that the disease was discovered. But only 3 years after that, in a laboratory ~~three floors below us~~ on this campus at about the same time, as is often the case similar work was done by Dr. Luc Montaigne at the Pasteur Institute in Paris, Dr. Robert Gallo isolated the AIDS virus. Within a year, a blood test was available. And now ~~a treatment drug~~ (and it was identified and launched as a treatment for AIDS), A.Z.T., is also on the market, ~~also developed~~ here in this building, by Dr. Sam Broder, whom I met earlier this afternoon.

June 1981 - first cases reported
May '84 - Gallo & Luc Montaigner isolated virus

Dr. Broder told me, by the way, that more progress is coming. He mentioned work on a number of new and promising drugs for treating AIDS. And I understand that a vaccine will soon go into testing. As these drugs and vaccines come along, I am determined that red tape will not keep them away from those in need. We will make certain that they get the same kind of accelerated review from the Food and Drug Administration that got the A.Z.T. application approved in only 4 months -- record time.

I know that everyone here understands how dazzling the progress against AIDS has been. It took 40 years of study to learn as much about polio. It took 19 years to develop a vaccine against hepatitis B. To keep up the momentum, this year the Federal Government will spend [redacted] million on AIDS research and [redacted] million overall. Next year we'll spend 30 percent more on research and [redacted] billion overall. ~~The only limits on research spending today are the physical limits of research facilities and people trained in the necessary techniques.~~

Today we're taking another big step against AIDS. This morning at the White House we announced the members of the Presidential Commission on the Human Immunodeficiency Virus Epidemic. Dr. Eugene Mayberry, the Chief Executive Officer of the Mayo Clinic, is chairman of the Commission, the members of which are drawn from a wide range of backgrounds and points of view. And I say Dr. Mayberry "is" chairman, not "will be" chairman, because not only did we announce the Commission's membership today, but today is also the Commission's first day of work. They're wasting no time. And, in fact, talk about speed,

Dr. Mayberry will present the Commission's first report to me in 90 days.

Dr. Mayberry and his colleagues will recommend a full-fledged strategy for battling AIDS. We already have a research strategy ~~for finding~~ which we hope will one day a cure. The Commission will be reviewing not only that, but also looking at questions of treatment and prevention. How can we most compassionately care for the victims of those who have AIDS? How can we most justly and effectively protect the public from the spread of AIDS?

What we need right now in the battle against AIDS is a good, strong dose of common sense. It seems to me common sense to recognize that, when it comes to stopping the spread of AIDS, medicine and morality teach the same lessons.

It's also common sense that ignorance about the extent of the spread of AIDS won't help anyone -- those who have it; those who might get it; those who are looking for ways of preventing its spread. This is why I called recently for certain kinds of testing. I hope the Commission will help us all ~~put aside our suspicions and~~ work together with common sense against this common threat.

I wish I could say that the vast amounts of money and effort we're putting into AIDS research will give us a cure in a week, or a year, or by an absolutely certain date. The truth is, none of us knows for certain just when a cure will come. It might not be until the late 1990's. It might not be until later. That's why prevention and treatment are so important now.

* Insert on hope for vaccine in the near future.

But in the spirit of hope, let's not forget, a cure might possibly arrive much sooner. A few weeks ago I was reading about another field of astonishingly rapid scientific progress -- not in medicine, but in physics. Despite all the advances of the last year, in what has become known as the phenomenon of superconductivity, one problem was said to be years from solving, that of finding a material that could handle what I, as a layman, would call large volumes of electricity. One week later, another report appeared announcing that the problem had been solved. Years of progress in one week. I don't know if the day will come when such progress will be in the cards for AIDS research.

But that is my hope. And after the visit to the ward today and after the death by AIDS of friends and former associates -- Rock Hudson for one -- that is my prayer.

And now let me turn the meeting over to Secretary Bowen.

[CLOSING]

Thank Dr. Bowen, Dr. ____, and Dr. ____. By the way, I thought you would all like to know that, near as I can determine, Dr. Bowen is only the seventh physician to serve in the Cabinet from George Washington's time to the present.

As I was listening to the panel and going on the tour today, I couldn't help remembering something W.H. Auden said -- that the true men of action in our times are not politicians or statesmen but scientists. The Commission will be working with you and many others to chart the Nation's course against this disease. I believe that, when the medical history of our times is written,

you and they will go down as among our greatest men and women of action.

Thank you and God bless you.

Carol

(JUDGE) JULY 23, 1987

NATIONAL INSTITUTES OF HEALTH
PANEL DISCUSSION ON AIDS

THANK YOU. AS YOU KNOW, GENERALLY, WHEN I TALK TO A GROUP LIKE THIS, I OPEN WITH A JOKE OR TWO -- TO PUT ALL OF US AT EASE, GET THINGS ROLLING. I HOPE YOU'LL FORGIVE ME IF I SKIP THAT TODAY. I'VE JUST COME FROM THE WARD YOU HAVE HERE FOR CHILDREN WHO HAVE AIDS. LET ME JUST MAKE A PROMISE TO THOSE CHILDREN AND ALL OTHERS WHO HAVE CONTRACTED THIS DISEASE. WE WILL -- I WILL -- DO ALL THAT GOD GIVES US THE POWER TO DO TO FIND A CURE FOR AIDS. WE WILL NOT STOP, WE WILL NOT REST, UNTIL WE HAVE SENT AIDS THE WAY OF SMALLPOX AND POLIO.

THOSE ARE WORDS OF RESOLVE. NOW I'D LIKE TO ADD A FEW WORDS OF HOPE. ONE OF THE AMAZING STORIES OF MODERN MEDICINE IS THE PROGRESS THAT WE'VE ALREADY MADE AGAINST AIDS.

I KNOW THIS IS OLD NEWS TO YOU IN THIS ROOM. SO MANY OF THE BREAKTHROUGHS WERE ACHIEVED RIGHT HERE IN THIS BUILDING. BUT, FOR OUR FRIENDS IN THE PRESS, I THOUGHT I SHOULD PUT THE SPEED OF PROGRESS IN PERSPECTIVE. JUST THINK THAT THE DAY I WAS SWORN IN AS PRESIDENT, WE DIDN'T EVEN KNOW THAT AIDS EXISTED. IT WASN'T UNTIL 5 MONTHS LATER THAT THE DISEASE WAS DISCOVERED. BUT ONLY 3 YEARS AFTER THAT, IN A LABORATORY ON THIS CAMPUS, DR. ROBERT GALLO ISOLATED THE AIDS VIRUS. THIS WAS, OF COURSE, AT ABOUT THE SAME TIME, AS IS OFTEN THE CASE, SIMILAR WORK WAS BEING DONE BY DR. LUKE (MON-TAHN-YAY) AT THE PASTEUR INSTITUTE IN PARIS. WITHIN A YEAR, A BLOOD TEST WAS AVAILABLE. AND NOW A TREATMENT DRUG, A.Z.T., IS ALSO ON THE MARKET, ALSO DEVELOPED HERE IN THIS BUILDING, BY DR. SAM BRODER, WHOM I MET EARLIER THIS AFTERNOON.

DR. BRODER TOLD ME, BY THE WAY, THAT MORE PROGRESS IS COMING. HE MENTIONED WORK ON A NUMBER OF NEW AND PROMISING DRUGS FOR TREATING AIDS. AND I UNDERSTAND THAT A VACCINE WILL SOON GO INTO TESTING. AS THESE DRUGS AND VACCINES COME ALONG, I AM DETERMINED THAT RED TAPE WILL NOT KEEP THEM AWAY FROM THOSE IN NEED. WE WILL MAKE CERTAIN THAT THEY GET THE SAME KIND OF ACCELERATED REVIEW FROM THE FOOD AND DRUG ADMINISTRATION THAT GOT THE A.Z.T. APPLICATION APPROVED IN ONLY 4 MONTHS -- RECORD TIME.

I KNOW THAT EVERYONE HERE UNDERSTANDS HOW DAZZLING THE PROGRESS AGAINST AIDS HAS BEEN. IT TOOK 40 YEARS OF STUDY TO LEARN AS MUCH ABOUT POLIO. IT TOOK 19 YEARS TO DEVELOP A VACCINE AGAINST HEPATITIS B.

TO KEEP UP THE MOMENTUM, THIS YEAR THE FEDERAL GOVERNMENT WILL SPEND $317 MILLION ON AIDS RESEARCH AND DEVELOPMENT AND $845 MILLION OVERALL. NEXT YEAR WE'LL SPEND 30 PERCENT MORE ON RESEARCH AND $1.26 BILLION OVERALL. SPENDING ON AIDS HAS BEEN ONE OF THE FASTEST-GROWING AREAS OF THE FEDERAL BUDGET. THE LIMITS ON RESEARCH PROGRESS TODAY ARE NOT THE LIMITS OF SPENDING, BUT OF THE SCIENTIFIC PROCESS ITSELF. GROWING CULTURES, MONITORING THE SPREAD OF INFECTION, CONDUCTING TESTS -- ALL OF THIS TAKES TIME.

TODAY WE'RE TAKING ANOTHER BIG STEP AGAINST AIDS. THIS MORNING AT THE WHITE HOUSE WE ANNOUNCED THE MEMBERS OF THE PRESIDENTIAL COMMISSION ON THE HUMAN IMMUNODEFICIENCY VIRUS EPIDEMIC.

DR. EUGENE MAYBERRY, THE CHIEF EXECUTIVE OFFICER OF THE MAYO CLINIC, IS CHAIRMAN OF THE COMMISSION, THE MEMBERS OF WHICH ARE DRAWN FROM A WIDE RANGE OF BACKGROUNDS AND POINTS OF VIEW. AND I SAY DR. MAYBERRY "IS" CHAIRMAN, NOT "WILL BE" CHAIRMAN, BECAUSE NOT ONLY DID WE ANNOUNCE THE COMMISSION's MEMBERSHIP TODAY, BUT TODAY IS ALSO THE COMMISSION's FIRST DAY OF WORK. THEY'RE WASTING NO TIME. AND, IN FACT, TALK ABOUT SPEED, DR. MAYBERRY WILL PRESENT THE COMMISSION's FIRST REPORT TO ME IN 90 DAYS.

DR. MAYBERRY AND HIS COLLEAGUES WILL RECOMMEND A FULL-FLEDGED STRATEGY FOR BATTLING AIDS. WE ALREADY HAVE A RESEARCH STRATEGY FOR FINDING A CURE. THE COMMISSION WILL BE REVIEWING NOT ONLY THAT, BUT ALSO LOOKING AT QUESTIONS OF TREATMENT AND PREVENTION.

HOW CAN WE MOST COMPASSIONATELY CARE FOR THOSE WHO HAVE AIDS? HOW CAN WE MOST JUSTLY AND EFFECTIVELY PROTECT THE PUBLIC FROM THE SPREAD OF AIDS?

WHAT WE NEED RIGHT NOW IN THE BATTLE AGAINST AIDS IS A GOOD, STRONG DOSE OF COMMON SENSE. IT SEEMS TO ME COMMON SENSE TO RECOGNIZE THAT, WHEN IT COMES TO STOPPING THE SPREAD OF AIDS, MEDICINE AND MORALITY TEACH THE SAME LESSONS.

IT's ALSO COMMON SENSE THAT IGNORANCE ABOUT THE EXTENT OF THE SPREAD OF AIDS WON'T HELP ANYONE -- THOSE WHO HAVE IT; THOSE WHO MIGHT GET IT; THOSE WHO ARE LOOKING FOR WAYS OF PREVENTING ITS SPREAD. THIS IS WHY I CALLED RECENTLY FOR CERTAIN KINDS OF TESTING. I HOPE THE COMMISSION WILL HELP US <u>ALL</u> PUT ASIDE OUR SUSPICIONS AND WORK TOGETHER WITH COMMON SENSE AGAINST THIS COMMON THREAT.

I WISH I COULD SAY THAT THE VAST AMOUNTS OF MONEY AND EFFORT WE'RE PUTTING INTO AIDS RESEARCH WILL GIVE US A CURE IN A WEEK, OR A YEAR, OR BY AN ABSOLUTELY CERTAIN DATE. THE TRUTH IS, NONE OF US KNOWS FOR CERTAIN JUST WHEN A CURE WILL COME. IT MIGHT NOT BE UNTIL THE LATE 1990's. IT MIGHT NOT BE UNTIL LATER. THAT's WHY PREVENTION AND TREATMENT ARE SO IMPORTANT NOW.

BUT IN THE SPIRIT OF HOPE, LET's NOT FORGET, A CURE MIGHT POSSIBLY ARRIVE MUCH SOONER. A FEW WEEKS AGO I WAS READING ABOUT ANOTHER FIELD OF ASTONISHINGLY RAPID SCIENTIFIC PROGRESS -- NOT IN MEDICINE, BUT IN PHYSICS.

DESPITE ALL THE ADVANCES OF THE LAST YEAR, IN WHAT HAS BECOME KNOWN AS THE PHENOMENON OF SUPERCONDUCTIVITY, ONE PROBLEM WAS SAID TO BE YEARS FROM SOLVING, THAT OF FINDING A MATERIAL THAT COULD HANDLE WHAT I, AS A LAYMAN, WOULD CALL LARGE AMOUNTS OF ELECTRICITY. THE NEXT WEEK, ANOTHER REPORT APPEARED ANNOUNCING THAT THE PROBLEM HAD BEEN SOLVED. WHAT SOME SAID WOULD BE YEARS IN COMING HAPPENED JUST ONE WEEK LATER.

I DON'T KNOW IF THE DAY WILL COME WHEN SUCH PROGRESS WILL BE IN THE CARDS FOR AIDS RESEARCH. BUT THAT IS MY HOPE. AND AFTER THE VISIT TO THE WARD TODAY AND AFTER THE DEATH BY AIDS OF FRIENDS AND FORMER ASSOCIATES, THAT IS MY PRAYER. ONE WAY OR ANOTHER, WHETHER BY BREAKTHROUGH OR STEADY PROGRESS, WE <u>WILL</u> BEAT THIS DISEASE.

AND NOW LET ME TURN THE MEETING OVER TO SECRETARY BOWEN.

(CLOSING)

THANK YOU, DR. BOWEN, DR. (WINE-GARDEN), AND DR. (FAU-CHEE). BY THE WAY, I THOUGHT YOU WOULD ALL LIKE TO KNOW THAT, NEAR AS I CAN DETERMINE, DR. BOWEN IS ONLY THE SEVENTH PHYSICIAN TO SERVE IN THE CABINET FROM GEORGE WASHINGTON's TIME TO THE PRESENT.

AS I WAS LISTENING TO THE PANEL AND GOING ON THE TOUR TODAY, I COULDN'T HELP REMEMBERING SOMETHING W. H. AUDEN SAID -- THAT THE TRUE MEN OF ACTION IN OUR TIMES ARE NOT POLITICIANS OR STATESMEN BUT SCIENTISTS. DR. MAYBERRY AND THE COMMISSION WILL BE WORKING WITH YOU AND MANY OTHERS TO CHART THE NATION's COURSE AGAINST THIS DISEASE. I BELIEVE THAT, WHEN THE MEDICAL HISTORY OF OUR TIMES IS WRITTEN, YOU AND THEY WILL GO DOWN AS AMONG OUR GREATEST MEN AND WOMEN OF ACTION.

THANK YOU AND GOD BLESS YOU.

SHOULD YOU WORRY ABOUT AIDS AND THE WORK-PLACE?

The American Red Cross addresses the most often asked questions about AIDS and the workplace:

CAN AN EMPLOYEE WITH AIDS INFECT OTHER EMPLOYEES?

The AIDS virus cannot be spread by everyday contact in the workplace. An employee with AIDS can infect another employee only if they have sexual contact or share intravenous drug needles.

CAN THE AIDS VIRUS BE SPREAD BY USING A TELEPHONE OR WATER FOUNTAIN?

No. The AIDS virus is not spread through air, water, or on surfaces, such as telephones, door knobs, or office machines. The virus is spread mainly through an exchange of body fluids during sexual activity, or the exchange of blood as occurs through sharing contaminated IV drug needles.

SHOULD I PROVIDE OR DESIGNATE SEPARATE BATHROOM FACILITIES FOR EMPLOYEES WITH AIDS?

There is no need to. The AIDS virus is not spread through ordinary use of toilets, sinks, or other bathroom facilities.

CAN I TELL IF SOMEONE IS INFECTED WITH THE AIDS VIRUS?

There are many *carriers* of the virus who do not have the symptoms or signs of the disease and may or may not develop the disease. A carrier of the AIDS virus can infect other people but not through ordinary workplace contact.

WHAT IF I TOUCH A COWORKER WITH AIDS WHO HAS A BLEEDING CUT?

There is no reason to believe that AIDS could be spread this way. Whether a person has AIDS or not, all open, bleeding cuts should be taken care of by observing good health and hygiene practices.

HOW SHOULD EMPLOYEES WITH AIDS BE TREATED?

On a day-to-day basis, treat them normally. You and your employees should learn about AIDS, and when dealing with their problem, use compassion and understanding.

Above all, remember...

AIDS IS HARD TO CATCH.

This information is based upon data from the U.S. Public Health Service. For more information, call your local health department, the Public Health Service Hotline (1-800-342-AIDS) or your local Red Cross Chapter.

Or, if you're interested in an educational program about AIDS for your company, call your local health department or your local Red Cross Chapter.

WE WANT YOU TO KNOW AS MUCH ABOUT AIDS AS WE DO.

American Red Cross

Ad Council

A social at a New York City club where lab results come before formal introductions

Paying for Peace of Mind

New dating services offer screening tests for AIDS

A lively crowd of 200 people flocked to the party at Houston's glitzy Ocean Club, but an uninvited guest also turned up: fear. The affair, sponsored by a new organization called Safe Adults, kicked off the city's first social club for people who are worried about contracting AIDS. To join, prospective members must agree to submit to an AIDS test every six months. Oil Production Analyst Mary Harter, 28, plans to sign up. At Safe Adults, she said, "you'll meet the kind of people who are at least aware of AIDS and willing to do something to protect themselves. Herpes you can treat, but AIDS will kill you, and no roll in the hay is worth that."

Across the U.S., social clubs are springing up to soothe singles who are jittery about AIDS. Although those most at risk for the disease remain homosexual men and intravenous drug users, a growing number of heterosexual singles are demanding a clean bill of health in place of spoken assurances that a new acquaintance is not carrying the virus. By requiring all members to take blood-screening tests, dating services are taking some of the risk out of meeting people, if some of the spontaneity.

Some of the AIDS-free organizations operate like clubs, sponsoring outings and encouraging dating among members. Others simply certify that members have tested negative for AIDS. In Santa Clara, Calif., the American Institute for Safe Sex Practices, for example, issues a photo ID card with renewable stickers stating that the bearer has passed an AIDS test.

At Judy Yorio's Compatibles, a New England dating service that claims 5,000 members in five states, clients have been asked to take an AIDS blood test at least twice a year. They may decline, but would-be partners who inquire will be told that the member refused to be tested. The response from clients, says Yorio, "has been very strong and very approving."

Peace of Mind, Inc., a club based in West Bloomfield, Mich., offers an elaborate menu of safe-sex services. Founded in February by six local businessmen, the club has signed up about 100 people so far for memberships ranging from the $99 basic package, which includes a blood-screening test for AIDS every six months, to the deluxe membership ($649), which includes tests every three months for AIDS, herpes and nine other sexually transmitted diseases. That is not all: Peace of Mind provides a telephone-counseling and referral service, a newsletter, a dental program and discounts at 43 local stores.

No matter how rigorous the testing requirements, no organization can be certain that its members are not infected with the AIDS virus. Reason: the body can take as long as four months to produce antibodies to the virus. Until that happens, an AIDS carrier will test negative and may gain a mistaken sense of security. Even a person who is AIDS free when the test is administered may shortly afterward become infected. To avoid lawsuits, most social clubs advertising protection from AIDS make a point of stating in their applications that they cannot guarantee that members are not infected. *—By Janice Castro. Reported by Lianne Hart/ Houston and Dick Thompson/ Washington*

RICK BROWNE

A card-carrying eligible male

Cat and Mouse

The subway gunman on trial

More than two years after Bernhard Goetz pulled out a revolver and shot four black teenagers who had demanded $5 from him in a Manhattan subway car, his case went before a New York City jury last week. The panel of two blacks and ten whites, half of whom have been victims of crime, will try to settle a question millions have debated since the December 1984 episode: Was the subway vigilante justified in defending himself against what he saw as an imminent attack, or was he a trigger-happy racist poised to strike at the slightest provocation?

As his trial opened last week, Goetz, 39, an electronics technician, faced 13 criminal charges, including four for attempted murder. Defense Attorney Barry Slotnick insisted, however, that Goetz "was the real victim in this case." Slotnick announced that he planned to defend his client by "prosecuting" the four "vicious predators" who surrounded Goetz on the subway car. Despite an admonition from Judge Stephen Crane, Slotnick referred to Goetz's victims as "drug addicts" and attempted to bring up their criminal records. (Two of the four are in jail on other charges, one for the rape of an adolescent girl, and a third is completing drug rehabilitation. The fourth shooting victim, Darrell Cabey, was left paralyzed from the waist down.)

Goetz

In the face of Slotnick's guerrilla tactics, Assistant District Attorney Gregory Waples pressed on with the quiet demeanor of a man who believes that the facts and Goetz's own words will lead inescapably to a conviction. At midweek Waples played a two-hour tape recording made by the detectives who questioned Goetz when he surrendered to them in Concord, N.H. In it, Goetz said the four "wanted to play with me, like a cat plays with a mouse"—before he assumed a shooter's stance and methodically emptied his pistol at his tormentors. "I know this sounds horrible," he said, "but my intention was to murder them . . . to make them suffer as much as possible."

After his first four shots, the prosecution says, Goetz approached Cabey, who was slumped in the subway seat opposite him. "You don't look too bad," Goetz said. "Here's another." He fired his fifth shot, severing Cabey's spine. Even if Goetz's first rounds were fired in self-defense, Waples maintains, his final shot went well beyond the need to protect himself. In his taped confession, Goetz said, "If I was thinking a little bit more clearly, I would have put the bullet against his head and fired." ■

47TH STORY of Level 1 printed in FULL format.

Financial Times

June 30, 1987, Tuesday

SECTION: SECTION I; UK News; Pg. 8

LENGTH: 451 words

HEADLINE: Superconductor 'Obstacles Remain'

BYLINE: Jane Rippeteau

BODY:

Two leading IBM scientists elaborated on problems still blocking practical applications of the new family of so-called superconducting materials at a London conference yesterday.

Superconductors transmit electricity almost without resistance. The new family of recently-discovered materials do this at relatively warm temperatures, making them potentially far more efficient and cheaper.

But obstacles remain. "It's like a three-legged stool," says Dr Praveen Chaudhari, vice-president for science at IBM's J Watson Research Centre in Yorktown Heights, New York. "One leg is temperature, the other two are critical current and the shape you want." Critical current is the amount of electricity that can be transmitted at once.

Advances on all three fronts come almost weekly. The most stunning results concern temperature.

Dr Alex Muller, a research fellow at IBM's laboratory near Zurich, who launched the current wave of research when he announced his own discoveries of high temperature superconductors in February, noted that Energy Conversion Devices, of Troy, Michigan, and other companies recently observed momentary superconductivity at 45 deg F.

Superconductors currently in use have to be chilled to nearly absolute zero in a bath of liquid helium to work.

Two obstacles persist to commercial application of the new materials. Experts describe the new family of superconductors as like lumps of coal, brittle blocks or fine ceramic powders. Ways must be found to process them into usable wire, film or other malleable forms. Dr Muller says he expects these problems will disappear within a few years because of the number of researchers working on them.

The other main drawback has to do with the amount of current the materials carry, known as current density. The new alloys have about one one-hundredth the current density of longer-known superconductors. However, in a breakthrough, Dr Chaudhari's team in Yorktown recently overcame even this constraint in one alloy. The problem is analogous to trying to get a volume of water through a superslick pipe of very small diameter.

The transmission capacity that Chaudhari demonstrated is, he says, good for most practical applications.

Those anticipated applications include faster computers, trains that levitate above their tracks and lower-cost medical scanners.

The two scientists spoke at a conference at which IBM announced winners of its Europe Science and Technology Prize. They were: Dr Elisabeth Bauser, of the Max Planck Institute, Professor Bruce Joyce, of the Philips Research Laboratories in the UK, and Dr Manijeh Razeghi of Thomson-CSF. They will share a prize of Ecu 100,000 for materials research.

4TH STORY of Level 1 printed in FULL format.

May 11, 1987, Monday, BC cycle

SECTION: Financial

LENGTH: 480 words

HEADLINE: IBM scientists announce superconductor breakthrough

DATELINE: YORKTOWN HEIGHTS, N.Y.

KEYWORD: Superconductor

BODY:

IBM Monday said it has developed a way to send 1,000 times as much electric current through superconducting materials as is carried in typical household wiring, surmounting a major obstacle to practical applications for the new substances.

An International Business Machines Corp. spokesman said the company's researchers discovered a way to send 100 times more electrical current than previously thought possible through the superconductors, eliminating technical barriers to uses ranging from power transmission to electromagnets.

IBM also said the technique ''more widely opened the door to applications such as electronic devices, circuits and computer-chip interconnections and electric motors.''

''IBM's own interest is in the potential (use) in computers,'' said Gerald Present, a company spokesman.

The discovery has ''renewed optimism in the potential applications of these materials,'' said Present.

Present said that the new process could save money in power transmission, in which billions of dollars a year currently are lost because of electrical resistance. Superconductors do not resist electricity, but until recently they were only effective at temperatures approaching absolute zero and for small amounts of power.

Metals used in regular wire waste energy that is expended through heat.

Recent advances have raised the temperatures at which materials become superconductors, but the low power levels have remained a problem. The new materials function as superconductors at about 280 degrees Fahrenheit below zero, temperatures that can be achieved with liquid nitrogen. Nitrogen is much less expensive than liquid helium, which is required for lower temperatures.

IBM said the enormous currents were measured in a special thin film, about the size of a quarter and one hundredth the thickness of a human hair.

Similar films are used in electronic circuits to form microscopic wires on computer chips.

Present said the applications were several years away from the market place.

The scientists said the process could be matched by other researchers ''once we've given them the recipe,'' according to Praveen Chaudhari, an IBM vice president who led the research.

The new materials are ceramics, substances that normally do not conduct electricity. They are produced by mixing powders containing the elements yttrium, barium, copper and oxygen.

The announcement of the new technique marked the latest in a series of discoveries by laboratories in the United States, Europe and Asia in the four months since the ceramic superconducting materials were first uncovered.

A key question about the new materials has been how much electric current they could carry -- the more current, the more useful the material.

IBM said it has measured currrent 1,000 times the level carried by normal household wire, ''enough for most forseeable applications.''

6TH STORY of Level 1 printed in FULL format.

May 11, 1987, Monday, Final Edition

SECTION: FIRST SECTION; PAGE A1

LENGTH: 1170 words

HEADLINE: Conductor Technology Advances;
Ceramic Material Offers Breakthrough In Handling Current

BYLINE: Philip J. Hilts, Michael Specter, Washington Post Staff Writers

BODY:

IBM researchers said yesterday they have produced a new ceramic material able to handle 100 times more electrical current than any other of the new superconducting materials, overcoming the greatest single technical barrier to a new generation of compact high-speed computers, new medical instruments and efficient power generation and storage.

The announcement marks the most important step in the explosive development of superconducting materials since the discovery that some materials can carry electricity without resistance at temperatures considerably higher than previously thought possible.

Until now, these materials could handle only small amounts of electricity in laboratory experiments. As the current increased, these materials lost their superconductivity. The material developed at IBM's research center at Yorktown Heights, N.Y., will handle current as strong as that in major commercial use.

"Up to now, many applications were still at the level of fantasies," said Dr. Herbert Weinstock, head of the Air Force's Office of Scientific Research. "Now they are not fantasies. We can go into the labs and start making them." He said the advance might "unleash" the industrial laboratories, few of which have been willing to commit to major new programs on superconducting products for fear the full technology would not materialize.

The find is a significant practical advance. An IBM spokesman said it will mean to electricity what breaking the sound barrier meant to aviation, or what breaking out of the Earth's atmosphere meant to the space program.

The advance is expected to shorten considerably the time it will take to create a large array of electronic products that will be smaller and use less energy than current versions.

For example, the world's most powerful computers, now the size of several tall filing cabinets, could "come down to the size of a football, and probably operate 10 times faster as well," said Dr. Theodore Geballe, director of Stanford University's Center for Materials Research. "This means the marriage of superconductors and semiconductors."

"This is wonderful. I think it's very important news," Geballe said. It is the most significant advance in the field since the announcement that suggested superconductors could be made at temperatures warm enough to be of use in practical applications, he said.

That announcement set off an international race of historical proportions, with scores of laboratories in the United States, Japan and other countries running seven days a week to make the theoretical possibility real.

Leaps in the electrical technology have been recorded almost daily since the beginning of the year. Many materials, called conductors, can carry electrical current. Superconductors can pass current without offering any resistance or creating heat.

A major part of the cost of making and using electricity stems from resistance and heat, and major losses in the efficiency of tiny electrical circuits also come from the difficulties of passing electricity through normal conducters such as copper or aluminum. In computers, for example, operating time is doubled by problems associated with resistance.

Until recently, scientists believed that materials would be superconductors only near absolute zero -- the temperature at which atomic motion ceases -- about 460 degrees below zero Fahrenheit.

Superconducting devices have been impractical because they had to be refrigerated by expensive and difficult-to-handle liquid helium cooling.

The discovery of superconducting materials that can operate at relatively warm -- though still quite cold -- temperatures set off waves of speculation suggesting that if the materials could reach full theoretical potential, almost all uses of electricity would be altered. Everything from making and storing massive quantities of electrical power to consumer electronics, such as recorders and radios, could be made to work more cheaply, using less energy with greater efficiency.

But researchers faced two fundamental challenges. First, the new superconducting materials had to operate at relatively warm temperatures. Second, they had to carry high enough currents to make useful electrical devices.

The temperatures at which the superconducting materials work has been pushed steadily upward over recent months. First, researchers at IBM in Zurich reached 35 Kelvin (35 degrees above absolute zero). Then in December 1986, several labs announced jumps to 40 and 52 K, then early this year to 98 K. Promising but still unconfirmed reports have said superconductors have been developed at temperatures as high as 155 to 170 K.

Practically speaking, the first major threshold was 77 K, the temperature at which relatively inexpensive cooling by liquid nitrogen can be used. Liquid helium costs $ 11 per gallon and liquid nitrogen 22 cents per gallon. The next threshold is about 230 K, or about 50 degrees below zero Fahrenheit, the temperature reached by ordinary commercial freezers.

Until now, however, the amount of electricity carried by these refrigerated materials was small, about 100 amperes. The filament of a standard light bulb can carry 1,000 amps per square centimeter; some magnets and electronic devices use a current that is 1 million amps per square centimeter.

Some scientists said they feared that the new materials would never carry current as dense as 100,000 to 1 million amps.

"What we did here is show that the material is intrinsically capable of carrying the kind of current we need to make them useful," said Praveen Chaudari, director of research at IBM's Yorktown Heights research center, who led the team that made the discovery. Other leaders in the group are Robert Laibowitz and Roger Koch.

Chaudari said he is confident that both higher temperatures and higher currents will be achieved.

The method used by the IBM researchers was to vaporize one of the new materials -- made of barium, yttrium and copper oxide. The vapor was made to settle onto a surface prepared with another material, strontium titanate, that helped the copper oxide compound form into a crystal with a neat lattice structure.

The "thin film" crystal was about an inch in diameter and one micron thick, about one one-hundredth of the thickness of a human hair. Such a thin film is used to make computer chips, and thus is immediately applicable to computer technology.

The next problem will be to make the superconducting materials into convenient shapes.

The new materials, for example, are quite brittle and cannot be made into wires. Also, experiments so far have shown that packing the new materials into wires instead of crystal films drastically cuts their power-carrying ability.

John Hulm, Westinghouse's director of research in this area, said that pressing these materials into many uses will be difficult, but the new finding "is very encouraging. It shows that the trouble with getting high currents is an artifact. The question now is how to make it in bulk."

GRAPHIC: PHOTO, COMPUTER CHIP CARRIER IS COATED WITH HIGH-TEMPERATURE SUPERCONDUCTOR FILM.

TYPE: NATIONAL NEWS

SUBJECT: RESEARCH AND DEVELOPMENT; TECHNOLOGY; NEW YORK; ELECTRICITY; COMPUTERS

ORGANIZATION: IBM

ENHANCEMENT: SUPERCONDUCTOR

10TH STORY of Level 1 printed in FULL format.

Time

November 24, 1986, U.S. Edition

SECTION: SCIENCE; Pg. 86

LENGTH: 977 words

HEADLINE: A Theory with Strings Attached;
Scientists explain why the universe is full of holes

BYLINE: By Michael D. Lemonick

BODY:

Astronomers have struggled for years, and in vain, to answer a nagging, fundamental question: Why is the universe lumpy? Some regions of the cosmos are crowded with giant clusters of galaxies, millions of light-years across. Other, even vaster spaces seem to be largely empty of matter. Scientists have assumed that this unevenness resulted from irregularities in the big bang that began the universe between 10 billion and 20 billion years ago. But that greatest of all explosions was almost perfectly uniform, as evidenced by its leftover radiation, which radio telescopes can detect in every part of the sky. Then how did such a smooth start result in a chunky cosmos?

The answer may be provided by a fantastic new theory reported last week in the Dutch journal Physics Letters B. In their report, two renowned Princeton scientists and a graduate student suggest that the pressure of electromagnetic radiation, emanating from dense "threads" of pure energy called cosmic strings, could have been responsible for making the universe lumpy. That pressure, the theory holds, pushed matter outward, piling it into thin shells and leaving huge voids in the cosmos. "If this theory is correct," says Astrophysicist Jeremiah Ostriker, the theory's co-author, "our views about cosmic-scale structure will be radically changed."

Indeed, the theory could explain not only the large-scale structure of the universe but also the origin of galaxies and other puzzling celestial phenomena. It combines some of the most advanced ideas in astrophysics and elementary-particle physics, and joins the independent research of Ostriker and Physicist Edward Witten. The unifying element: the cosmic strings -- bizarre, hypothetical entities that are thinner than an atomic nucleus, as long as the universe is wide, and so dense that a mile-long segment would weigh as much as the earth.

Strings first popped up unexpectedly in the mathematical models of particle physicists. Right after the big bang, the mathematics suggests, the rapidly cooling cosmos underwent a phase transition, roughly analogous to the sharp change that occurs when water turns into ice. And just as an ice cube is marred by cracks and lines left over from uneven freezing, the universe too might have developed flaws -- in the form of strings. These strings would try to straighten and contract, often whipping about and getting tangled in the process. When a string crossed itself, the resulting loop would pinch off from the main string and go vibrating away on its own.

Ostriker was thinking not about strings but about the structure of the universe when in 1981 he co-authored a theory on the formation of new galaxies, which are huge islands of billions of stars. Aware that entire galaxies can erupt in explosive bursts of energy, Ostriker had suggested that the force of such mighty blasts would drive away surrounding dust and gases, leaving vast regions of the sky virtually empty and compressing the expelled gases and dust into shells around the voids. It was from this compressed matter, he said, that new galaxies might form.

But one problem remained. While Ostriker's calculations showed that the forces released by an exploding galaxy could condense gas and dust enough to begin the formation of new galaxies, they were not powerful enough to sweep clean any regions as large as the largest observed in the sky. Then what mysterious agent had created the giant voids? *

* Early in 1986, a team at Harvard announced a survey showing that these enormous bubble-like voids appear all over the universe. It also showed that galaxies seem to lie on the surfaces of the voids, results that the Princeton scientists call "primary motivators" in the construction of their theory.

Cut to Edward Witten, who was studying the properties of cosmic strings. "I was looking at ways you might be able to observe these very thin objects at cosmological distances," he recalls, "and I discovered that they could be superconductors -- they would conduct electric current forever." If that was true, he figured, electric currents as large as 100 quintillion (100 followed by 18 zeros) amperes could be induced in the strings. These currents could in turn produce intense magnetic fields around the strings, and particles, like electrons, caught in the fields would glow. In fact, a radio-telescope image of the center of the Milky Way, taken last spring by Mark Morris of UCLA and Farhad Yusef-Zadeh of Columbia University, shows threads that some astronomers think could indeed be glowing strings.

With his conclusions, Witten had inadvertently provided Ostriker with the agent he needed to produce the giant voids. "When I first saw Ed's paper, in 1985," Ostriker says, "it blew my mind." Reason: a vibrating, current-carrying loop is a radio transmitter, and if the current is large enough, the ultralow-frequency radio waves it emits will be incredibly powerful -- strong enough to push surrounding gases and dust incredible distances away from the loop. With Witten and Graduate Student Chris Thompson, Ostriker went to work calculating the effects of the waves. "Again and again," he says, "we thought we had found a fatal flaw, that the whole thing was crackers. But we haven't so far." A string loop, it seemed, could theoretically produce an awesome void.

While the theory looks promising, Ostriker shows proper scientific restraint. "We still don't know that there are such things as cosmic strings," he says, "or that they are necessarily superconductors or will in fact carry large currents. But all these things are quite possible. Within a few years, superconducting strings will have either transformed our view of the large-scale universe -- or be entirely forgotten."

GRAPHIC: Picture 1, Computer maps of the universe show clumps of galaxies, JOAN CENTRELLA, DREXEL UNIVERSITY; Picture 2, "Threads" at the core of the Milky Way Bizarre entities known as cosmic strings. MARK MORRIS, UCLA; FARHAD YUSEF-ZADEH, COLUMBIA UNIVERSITY

1ST STORY of Level 1 printed in FULL format.

The Associated Press

May 11, 1987, Monday, PM cycle

SECTION: Business News

LENGTH: 575 words

HEADLINE: IBM Reports Major Breakthrough In Superconductivity

BYLINE: By PETER COY, AP Business Writer

DATELINE: NEW YORK

KEYWORD: Superconductivity

BODY:

Researchers at IBM have found a way to make superconductors carry 100 times as much current as before, eliminating "a major technical obstacle" to widespread use of the new materials, the company has announced.

The discovery demonstrates the possibility of using new superconducting materials for vastly improved computer chips, power transmission lines, magnets, electric motors and other uses, IBM said.

Superconductors are materials that lose all resistance to electricity below a certain temperature.

"It's very exciting," said Praveen Chaudhari, vice president for science at International Business Machines Corp. "From a science point of view, what we've done is to show that, yes, the (necessary) current is there."

IBM officials discussed the development with some reporters Friday with the understanding that no information be released until Monday.

Although scientists have made a series of breakthroughs in raising superconductors' critical temperature, they had made little progress until now in improving their ability to carry current.

Existing materials could carry the same "current density" as household wiring, but that was not enough for most potential uses.

Major companies and universities in the United States, Japan and elsewhere have given high priority to research on superconductors, which could lead to magnetically levitating, "flying" trains, tiny but powerful computers, and eventually nuclear fusion through magnetic confinement for clean, cheap, safe energy.

914

IBM scientists at the company's research center in Yorktown Heights, N.Y., demonstrated that superconductors were capable of carrying more than 100,000 amperes of current per square centimeter at the temperature of liquid

nitrogen, which is 77 degrees Kelvin or 320 degrees below zero Fahrenheit, the company said.

That is enough current density for almost any use except super-compact computer chips, the company said. "I am confident given what we've done so far that we'll get there, too," Chaudhari said.

Chaudhari said scientists at other laboratories would be able to duplicate IBM's results now that the company had shown high current densities to be possible.

"If you know it can be done, then you look for ways of making it happen. If you don't know it can be done, you're not sure if you should be doing it because it may never pan out," he said.

IBM said its process was different from others, but there was nothing unusual about the superconducting material it used.

Researchers achieved the results by laying a thin film of ordinary superconducting material in the form of a single crystal onto a surface made of another crystal. The film was deposited as a vapor and measured just one micron in thickness, or about one one-hundredth the thickness of a human hair.

"The key was to crystallize the film so it would follow the crystal structure" of the underlying material, Chaudhari said.

IBM discovered that current in the superconducting materials flows 30 times better in one direction inside the crystal than in other directions. That provides insight into the structure of the little-understood materials.

The vast improvement in current density in a single crystal showed that the problems with current density were not in the crystals themselves, but probably in the boundaries between crystals, Chaudhari said. Knowing that, he said, gives researchers a lead on finding ways to smooth the boundaries between crystals.

47TH STORY of Level 1 printed in FULL format.

Financial Times

June 30, 1987, Tuesday

SECTION: SECTION I; UK News; Pg. 8

LENGTH: 451 words

HEADLINE: Superconductor 'Obstacles Remain'

BYLINE: Jane Rippeteau

BODY:

Two leading IBM scientists elaborated on problems still blocking practical applications of the new family of so-called superconducting materials at a London conference yesterday.

Superconductors transmit electricity almost without resistance. The new family of recently-discovered materials do this at relatively warm temperatures, making them potentially far more efficient and cheaper.

But obstacles remain. "It's like a three-legged stool," says Dr Praveen Chaudhari, vice-president for science at IBM's J Watson Research Centre in Yorktown Heights, New York. "One leg is temperature, the other two are critical current and the shape you want." Critical current is the amount of electricity that can be transmitted at once.

Advances on all three fronts come almost weekly. The most stunning results concern temperature.

Dr Alex Muller, a research fellow at IBM's laboratory near Zurich, who launched the current wave of research when he announced his own discoveries of high temperature superconductors in February, noted that Energy Conversion Devices, of Troy, Michigan, and other companies recently observed momentary superconductivity at 45 deg F.

Superconductors currently in use have to be chilled to nearly absolute zero in a bath of liquid helium to work.

Two obstacles persist to commercial application of the new materials. Experts describe the new family of superconductors as like lumps of coal, brittle blocks or fine ceramic powders. Ways must be found to process them into usable wire, film or other malleable forms. Dr Muller says he expects these problems will disappear within a few years because of the number of researchers working on them.

The other main drawback has to do with the amount of current the materials carry, known as current density. The new alloys have about one one-hundredth the current density of longer-known superconductors. However, in a breakthrough, Dr Chaudhari's team in Yorktown recently overcame even this constraint in one alloy. The problem is analogous to trying to get a volume of water through a superslick pipe of very small diameter.

The transmission capacity that Chaudhari demonstrated is, he says, good for most practical applications.

Those anticipated applications include faster computers, trains that levitate above their tracks and lower-cost medical scanners.

The two scientists spoke at a conference at which IBM announced winners of its Europe Science and Technology Prize. They were: Dr Elisabeth Bauser, of the Max Planck Institute, Professor Bruce Joyce, of the Philips Research Laboratories in the UK, and Dr Manijeh Razeghi of Thomson-CSF. They will share a prize of Ecu 100,000 for materials research.

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INSERT

That's why it is so important that we stop the spread of this disease. Men and women continue to become infected and in doing so their lives are at risk. For those who are already infected with the virus, it is important to continue our efforts to develop treatments to keep the virus from doing harm. And our ultimate goal is to develop a vaccine which that will give full protection from this scourge. It is my hope that you will be successful in your research and that your success will come soon.

From Cabinet Affairs

(Judge/ARD)
July 16, 1987
6:00 p.m. SS

PRESIDENTIAL REMARKS: NATIONAL INSTITUTES OF HEALTH
PANEL DISCUSSION ON AIDS
WEDNESDAY, JULY 22, 1987

Thank you. As you know, generally, when I talk to a group like this, I open with a joke or two -- to put all of us at ease, get things rolling. I hope you'll forgive me if I skip that today. I've just come from the ward you have here for children who are dying of AIDS. Let me just make a promise to those children and all others who have contracted this disease. We will -- I will -- do all that God gives us the power to do to find a cure for AIDS. We will not stop, we will not rest, until we have sent AIDS the way of smallpox and polio.

Those are words of resolve. Now I'd like to add a few words of hope. One of the amazing stories of modern medicine is the progress that we've already made against AIDS. I know this is old news to you in this room. So many of the breakthroughs were achieved right here in this building. But, for our friends in the press, I thought I should put the speed of progress in perspective. Just think that the day I was sworn in as President, we didn't even know that AIDS existed. It wasn't until 5 months later that the disease was discovered. But only 3 years after that, in a laboratory three floors below us, Dr. Robert Gallo isolated the AIDS virus. Within a year, a blood test was available. And now a treatment drug, A.Z.T., is also on the market, also developed here in this building, by Dr. Sam Broder, whom I met earlier this afternoon.

Dr. Broder told me, by the way, that more progress is coming. He mentioned work on a number of new and promising drugs for treating AIDS. And I understand that a vaccine will soon go into testing. As these drugs and vaccines come along, I am determined that red tape will not keep them away from those in need. We will make certain that they get the same kind of accelerated review from the Food and Drug Administration that got the A.Z.T. application approved in only 4 months -- record time.

I know that everyone here understands how dazzling the progress against AIDS has been. It took 40 years of study to learn as much about polio. It took 19 years to develop a vaccine against hepatitis B. To keep up the momentum, this year the Federal Government will spend $317 million on AIDS research and $766 million overall. Next year we'll spend 30 percent more on research and $1 billion overall. The only limits on research spending today are the physical limits of research facilities and people trained in the necessary techniques.

Today we're taking another big step against AIDS. This morning at the White House we announced the members of the Presidential Commission on the Human Immunodeficiency Virus Epidemic. Dr. Eugene Mayberry, the Chief Executive Officer of the Mayo Clinic, is chairman of the Commission, the members of which are drawn from a wide range of backgrounds and points of view. And I say Dr. Mayberry "is" chairman, not "will be" chairman, because not only did we announce the Commission's membership today, but today is also the Commission's first day of work. They're wasting no time. And, in fact, talk about speed,

Dr. Mayberry will present the Commission's first report to me in 90 days.

Dr. Mayberry and his colleagues will recommend a full-fledged strategy for battling AIDS. We already have a research strategy for finding a cure. The Commission will be reviewing not only that, but also looking at questions of treatment and prevention. How can we most compassionately care for those who have AIDS? How can we most justly and effectively protect the public from the spread of AIDS?

What we need right now in the battle against AIDS is a good, strong dose of common sense. It seems to me common sense to recognize that, when it comes to stopping the spread of AIDS, medicine and morality teach the same lessons.

It's also common sense that ignorance about the extent of the spread of AIDS won't help anyone -- those who have it; those who might get it; those who are looking for ways of preventing its spread. This is why I called recently for certain kinds of testing. I hope the Commission will help us <u>all</u> put aside our suspicions and work together with common sense against this common threat.

I wish I could say that the vast amounts of money and effort we're putting into AIDS research will give us a cure in a week, or a year, or by an absolutely certain date. The truth is, none of us knows for certain just when a cure will come. It might not be until the late 1990's. It might not be until later. That's why prevention and treatment are so important now.

But in the spirit of hope, let's not forget, a cure might possibly arrive much sooner. A few weeks ago I was reading about another field of astonishingly rapid scientific progress -- not in medicine, but in physics. Despite all the advances of the last year, in what has become known as the phenomenon of superconductivity, one problem was said to be years from solving, that of finding a material that could ~~handle~~ carry what I, as a layman, would call large ~~volumes~~ currents of electricity without losing any of it. One week later, another report appeared announcing another major breakthrough in the process of developing a material that could be applied on a widespread basis, ~~announcing that the problem had been solved.~~ Years of progress in one week. I ~~don't know if~~ hope the day will come when such progress will be in the cards for AIDS research.

But that is my hope. And after the visit to the ward today and after the death by AIDS of friends and former associates -- Rock Hudson for one -- that is my prayer.

And now let me turn the meeting over to Secretary Bowen.

[CLOSING]

Thank Dr. Bowen, Dr. _____, and Dr. _____. By the way, I thought you would all like to know that, near as I can determine, Dr. Bowen is only the seventh physician to serve in the Cabinet from George Washington's time to the present.

As I was listening to the panel and going on the tour today, I couldn't help remembering something W.H. Auden said -- that the true men of action in our times are not politicians or statesmen but scientists. The Commission will be working with you and many others to chart the Nation's course against this disease. I believe that, when the medical history of our times is written,

you and they will go down as among our greatest men and women of action.

Thank you and God bless you.

(Judge/ARD)
July 20, 1987
6:00 p.m. RR

PRESIDENTIAL REMARKS: NATIONAL INSTITUTES OF HEALTH
PANEL DISCUSSION ON AIDS
THURSDAY, JULY 23, 1987

Thank you. As you know, generally, when I talk to a group like this, I open with a joke or two -- to put all of us at ease, get things rolling. I hope you'll forgive me if I skip that today. I've just come from the ward you have here for children who have AIDS. Let me just make a promise to those children and all others who have contracted this disease. We will -- I will -- do all that God gives us the power to do to find a cure for AIDS. We will not stop, we will not rest, until we have sent AIDS the way of smallpox and polio.

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A.Z.T., is also on the market, also developed here in this building, by Dr. Sam Broder, whom I met earlier this afternoon.

Dr. Broder told me, by the way, that more progress is coming. He mentioned work on a number of new and promising drugs for treating AIDS. And I understand that a vaccine will soon go into testing. As these drugs and vaccines come along, I am determined that red tape will not keep them away from those in need. We will make certain that they get the same kind of accelerated review from the Food and Drug Administration that got the A.Z.T. application approved in only 4 months -- record time.

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Today we're taking another big step against AIDS. This morning at the White House we announced the members of the Presidential Commission on the Human Immunodeficiency Virus Epidemic. Dr. Eugene Mayberry, the Chief Executive Officer of the Mayo Clinic, is chairman of the Commission, the members of

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It's also common sense that ignorance about the extent of the spread of AIDS won't help anyone -- those who have it; those who might get it; those who are looking for ways of preventing its spread. This is why I called recently for certain kinds of testing. I hope the Commission will help us <u>all</u> put aside our suspicions and work together with common sense against this common threat.

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And now let me turn the meeting over to Secretary Bowen.

[CLOSING]

Thank Dr. Bowen, Dr. Wyngaarden, and Dr. Fauci. By the way, I thought you would all like to know that, near as I can determine, Dr. Bowen is only the seventh physician to serve in the Cabinet from George Washington's time to the present.

As I was listening to the panel and going on the tour today, I couldn't help remembering something W. H. Auden said -- that

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Thank you and God bless you.

MAJOR CONTRIBUTIONS OF Pr. LUC MONTAGNIER

In 1963, with F.K. Sanders, Luc Montagnier discovered an infectious double-stranded form in cells infected with encephalomyocarditis virus. At that time, the mode of replication of single-stranded RNA viruses was not known. There were some thoughts that such RNA might not be replicated via base pairing like DNA. The isolation and characterisation of double-stranded form of EMC RNA was the first demonstration that viral RNA replicates by synthesis of a complementary stand, which upon extraction was base-paired with the template viral strand. Others double-stranded RNAs were soon found after first Montagnier and Sanders description., in cells infected with poliovirus and in RNA phages, as well as the RNA dependent RNA polymerases coded by these viruses. An extension of this work was the subsequent isolation by L. Montagnier of double-stranded RNA structures in cells apparently not infected with RNA viruses. Such RNAs were found to be of cellular origin, and a significant portion hybridized with repetitive sequences of DNA.

A second important finding by L. Montagnier was its discovery with Ian Mac Pherson in 1964, that transformed cells and tumor cells can grow in soft agar and soft agarose, whereas normal cells do not. This was the first description of a property which allows to selectively discriminate normal and transformed cells, and which is still widely used by biologists working with cancer viruses and oncogenes. In the following years, Montagnier studied more deeply this property and showed that it consisted of two : the anchorage independence and the resistance to acid mucopolysaccharides of agar. Some transformed cells possess only the first property, so that he was able to propose a two steps mechanism of transformation of cultured cells, a concept widely used and whose the molecular basis has been recently found to resid in the expression of two or several oncogenes.

This work and the long experience of working on oncogenic retroviruses and interferon acquired by L. Montagnier during his 25 years research carrier, helped to understand why Montagnier and his group succeeded so quickly in finding a new retrovirus considered to be the causative agent of AIDS. In 1983, they described for the first time a new human retrovirus isolated from a patient with generalized lymphadenopathy, often a prodromic sign of AIDS. This virus proved to be different from the Human T-cell Leukemia virus described by R.C. Gallo and his colleagues, and to be the best candidate for being the AIDS agent. During 1983 and early 1984, Montagnier and his colleagues accumulated biological and serological evidence that the virus was indeed the cause of AIDS. This discovery represents a major advance for understanding the pathogeny of AIDS and preventing his spread, especially by blood transfusion. It also demonstrated that they are at least two groups of human retroviruses, so that man is no more devoid of pathogenic retroviruses than other primates or other mammalian and avian species.

The search for a retrovirus in AIDS patients was actively pursued by several laboratories in the U.S.A. However, they were searching a retrovirus close to HTLV-I, having in mind that a leukemogenic virus as HTLV-I could have also immunodepressing activity.

Montagnier and his group did not have such preconceived ideas, and were first to find a different retrovirus they called LAV (Lymphadenopathy Associated Virus). They showed that this virus was very different by morphology and lack of cross-antigenicity of its core protein, from the HTLV-I and -II. The originality of the approach also lies in the fact that they were not looking for a transforming virus, but for a cytopathic retrovirus, replicating only transiently in T-lymphocytes. They also used antibodies to interferon in order to increase the virus yield, since they had previously shown that antibodies to interferon have similar effect on mouse retroviruses.

In this work and the subsequent achievements, Montagnier played a leading part. He did himself the isolation of the first 4 isolates from "pre-AIDS" and AIDS patients and set up the conditions to propagate the virus in T-lymphocytes. Pasteur He was the organizer of a team which includes a dozen of scientists from the Pasteur Institute and outside. This team successively showed the tropism of the virus for the T4 subset of lymphocytes, made isolates from all groups of patients with AIDS or at risk for AIDS (homosexuals, haemophiliacs, Haitians, Zairians, IV drug users), set up an ELISA test for sero-epidemiological tests as well as a radioimmunoprecipitation assay. With his senior technicians, Montagnier was able to show that the virus could also grow on B lymphocytes transformed by Epstein-Barr virus.

This work was well on, when he was extended and confirmed by several american groups, first that of NCI (Dr. Gallo) with the description of a virus with similar properties (HTLV-III) and then the CDC group (Dr. Francis) and that of Jay Levy in San Francisco (AIDS related virus). The sequence data recently published, including those of LAV by the Pasteur's group, show clearly that all of these viruses belong to the same group, and differ from HTLV-I and -II.

Clearly, Montagnier and his co-workers were first in the three above mentioned findings : the double-stranded RNA associated with replication of single-stranded RNA viruses, the growth in agar of cancer cells and the retrovirus associated with AIDS. In the latter case, first publication of Montagnier's group appeared in May 1983 in Science, and two other publications (Annals of Virology, March 1984 ; The Lancet, April 1984) as well as 6 written presentations at international meetings preceeded Gallo's first publications on HTLV-III in Science of May 1984.

The nominee's discovery of a second group of human retroviruses, with cytopathic effect and specific tropism for T4 lymphocytes, besides its impact on the prevention and treatment of AIDS, opens the way to a renewed search for retroviruses associated with human diseases. Such retroviruses may be involved in some cancers and degenerative diseases of the central nervous system, perhaps also in auto-immune diseases.

The search of human retroviruses had discouraging negative results in the past. Montagnier, with Gallo and a few others, had the merit to tenaciously pursue this research, when most of his colleagues turned their effort to others subjects. Finally, the knowledge as how virus-induced immunodepression leads to the appearance of cancers such as those seen in AIDS patients (Kaposi sarcoma, lymphomas) may help understanding the role of cellular immunity in the development of cancers.

I should like to add that Montagnier and his colleagues as soon as they isolated their new retrovirus, informed other scientists working in the field, generously gave to them samples of their isolates, and shared with them detailed techniques to grow the virus.

At a recent meeting, Montagnier was designated by experts of the European Communauty as project leader for a collaborative program on AIDS virology at the european level.

In 1986, Montagnier and his co-workers made a second significant breakthrough in the field of AIDS virology, by isolating a second virus, named LAV2 and now HIV2, from West African patients with AIDS. This virus has the same structure, and the same biologic properties than HIV type 1, and is associated with the same clinical pathology in man, but has only distantly related genetic sequences. The proviral DNA of this virus has now been cloned by Montagnier's co-workers and is now being sequenced.

Important information from the sequence data is to be expected, which may help defining the conserved genetic sequences in the envelope protein which could be critical for attachment of both viruses to T4 lymphocytes. Identification of these sequences by comparing sequences of HIV2 to those of HIV1 will permit to design new vaccines and therapeutics.

Furthermore the addition of HIV2 antigens to blood screening tests will allow an accurate detection of HIV2 infection in blood donors, making blood donation safer.

Finally, owing to the similarity of the envelope protein of HIV2 to that of simian AIDS virus SIV, it may be possible in the future to adapt HIV2 to growth of monkeys, such as macaques and baboons, opening the way to new animal models.

B I O G R A P H Y

Luc MONTAGNIER was born in 1932 in Chabris (France). After his medical and scientific studies in Paris, he became a fully appointed researcher in 1960 at the 'Centre National de la Recherche Scientifique'.

He then spent three and half years in England in two laboratories of the Medical Research Council, first in Carshalton and then in Glasgow

In 1963, he discovered with F.K. Sanders the first double-stranded RNA induced in replication of a single-stranded RNA virus, demonstrating for the first time that RNA replicates as DNA via base pairing.

In 1964, in Glasgow, with I. MacPherson, he discovered a new property of cancer cells, the growth in agar, which is now a routine technique in laboratories working on cell transformation and oncogenes.

After his return to France, he ran a laboratory at the Institut Curie, Orsay, and then moved in 1972 to the Pasteur Institute to set up a new laboratory, the Viral Oncology Unit, under the Directorship of Jacques Monod. He worked there on oncogenic viruses and interferon biochemistry.

With E. and J. de Maeyer, he made the first characterization of interferon messenger RNA, opening the way for cloning the interferon genes.

In 1983, with J.C. Chermann and F. Barré-Sinoussi, he discovered the third human retrovirus and showed its etiologic role in AIDS.

He has been awarded the Prize Rosen (1971), Gallien (1985), Jeantet (1986), the Lasker Prize (1986) and Santé (1987).

He is Chevalier de la Légion d'Honneur (1984).

CURRICULUM VITAE

NAME : Luc MONTAGNIER

DATE & PLACE OF BIRTH : August 18, 1932, Chabris, Indre

CITIZENSHIP : FRANCE

MARITAL STATUS : Married, three children

EDUCATION :

1953	Diplôme d'Etudes Supérieures Sciences Naturelles, Poitiers
1955	Licence ès Sciences, Poitiers and Paris
1960	Doctorat en Médecine, Paris University

POSITIONS HELD :

1954	Moniteur des Travaux Pratiques de Physiologie
1955-60	Assistant à la Faculté des Sciences de Paris
1960	Attaché de Recherche au C.N.R.S.
1960-63	Research fellow at the Virus Research Unit of the Medical Research Council, Carshalton
1963-64	Research fellow at the MRC Institute of Virology, Glasgow
1963	Chargé de Recherche au C.N.R.S.
1967	Maître de Recherche au C.N.R.S.
1965-72	Chef de Laboratoire à l'Institut du Radium d'Orsay
Since 1972	Chef de l'Unité d'Oncologie Virale à l'Institut Pasteur
Since 1974	Directeur de Recherche au C.N.R.S.
1973-84	Responsable de l'Equipe de Recherche N° 147 du C.N.R.S.
1980-85	Directeur du Cours de Virologie Générale de l'Institut Pasteur
Since 1984	Responsable de l'Unité de Recherche associée UA 1157 du C.N.R.S.
1982-85	Chef du Département de Virologie de l'Institut Pasteur

DISTINCTIONS :

1964	Médaille de Bronze du C.N.R.S.
1971	Prix Rosen de Cancérologie
1973	Médaille d'Argent du C.N.R.S.
1984	Chevalier de la Légion d'Honneur
1985	Prix Gallien
1986	Commandeur de l'Ordre National du Mérite
1986	Prix Louis Jeantet
1986	James Blundel Prize
1986	Korber Fundation for European Research Prize
1986	Albert Lasker Clinical Medical Research award
1987	Prix Santé