



PASTEUR PERSPECTIVES

THE NEWSLETTER OF THE PASTEUR FOUNDATION DEVOTED TO THE WORLD OF THE INSTITUT PASTEUR

Number 2
Spring 1997

A Message from the Chairman of the Board of the Institut Pasteur

Dear Readers:

The Institut Pasteur, a private biomedical research center devoted to public health, was created more than a century ago by Louis Pasteur. It is situated in Paris on the Left Bank, where Pasteur spent his last years. Although it remains faithful to what is known as the "Pasteurian spirit"—his philosophy that "Science and its applications are bound together like a fruit to the tree that bears it"—its growth over the past hundred years has been profound in scope.

Today, over 2,700 people, including 1,200 scientists, work at the Institut Pasteur. The main objectives of Pasteurian research are to understand the infectious agents (viruses, bacteria, parasites, etc.) that assault the human organism and to combat them with diagnostics and vaccines. In the last three decades, two traditional research fields, microbiology and immunology, have been greatly enhanced by the new techniques of molecular biology—a field that began, in part, at the Institut Pasteur. In addition to its 120 laboratories, the institute has a hospital which specializes in infectious, tropical and immune-deficiency diseases and plays an important role in the fight against AIDS in France. Clinicians and researchers at the institute work together to study these diseases.

Since its inception, the institute's teaching and medical training programs have brought together scientists from many different disciplines for postgraduate study. Annually, approximately 300 graduate students from close to 30 countries attend courses accredited by the French university system.

In this issue, you will learn about two other facets of our institute: its International Network and its World Health Organization Collaborating Centers. Both carry forth the mission of the Institut Pasteur: the improvement of public health worldwide.

If you would like more information, please return the coupon on page 5 to the Pasteur Foundation.

Sincerely,

Bernard Esambert
Chairman of the Board, Institut Pasteur



Bernard Esambert

THE CUTTING EDGE

Director General's Note: The following article describes the emergence of an infectious disease in the Third World similar to HIV and the AIDS pandemic, a prime example of the serious global threat posed by emerging diseases. To monitor new outbreaks, the United Nation's World Health Organization (WHO) has established an international network of Collaborating Centers comprised of laboratories that act as expert reference centers and consultants to WHO; the Institut Pasteur currently houses 13 of these centers. In the face of recent Ebola outbreaks, Pasteur's WHO Collaborating Center for Arboviruses and the Viruses of Hemorrhagic Fevers has worked closely with the Centers for Disease Control and Prevention (CDC) in Atlanta and with WHO to respond as effectively as possible.

— Maxime Schwartz

FOCUS ON EBOLA

by Hugues Fleury

Viral Hemorrhagic Fevers

Four families of viruses are known to cause hemorrhagic fevers. Most widespread are the flaviviruses, transmitted by mosquitoes, ticks and other arthropods, which cause yellow fever and dengue. However, over the last five years, new viruses have emerged: the arenaviruses (i.e., Lassa virus), the bunyaviruses (i.e., Hantavirus), and the filoviruses (Ebola and Marburg). The latter are RNA viruses named for their filamentlike form. To date, four strains of the Ebola virus have been identified: Zaire, Sudan, Reston and Ivory Coast. After an incubation period of three to 21 days, flulike symptoms such as muscle and joint aches, abdominal pain and nausea appear, followed by either a spontaneous recovery or a rapid decline marked by extreme bleeding. In fatal cases, the patient succumbs to internal hemorrhages, dehydration or organ failure.

This article focuses on the Ebola virus, which has been the subject of much media attention and featured in several recent books and films. It has captured our imagination not only because of its dramatically deadly effects, but also due to the facts that its natural host remains a mystery and that there is no effective treatment once infection occurs. While the primary reservoir has yet to be identified, secondary transmission, typically due to contact with bodily fluids of infected people, can be almost totally eliminated via standard hygiene practices and public awareness.

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PASTEUR
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A Brief Epidemiological History of Ebola

The name “Ebola” is borrowed from a river in Zaire, Africa, where the virus was first detected in 1976. That year there was also an outbreak in Sudan, resulting in a combined total of about 600 cases, with a mortality rate between 53% and 88%, followed by a significantly smaller Sudanese outbreak in 1979. In 1989, Ebola was detected in monkeys imported from the Philippines to Reston, Virginia. Deadly to the monkeys, the Reston strain did not afflict humans, although two people who had contact with the animals produced Ebola antibodies. In fact, since 1979, not a single human case of Ebola virus fever was identified for 15 years.

Then, in November 1994, a team of Swiss ethologists was in the Tai Forest of the Ivory Coast to study a group of chimpanzees which had experienced two sudden bouts of mortality over the space of a few years. In search of the cause, the scientists autopsied several of the animals and discovered extensive hemorrhages. Following an autopsy on a chimp that had died on November 16, a Swiss scientist came down with an atypical fever and was hospitalized in Abidjan on November 26 with acute diarrhea and cutaneous eruptions. She was evacuated to Europe, where she recovered.

As director of the Institut Pasteur’s WHO Collaborating Center for Arboviruses and the Viruses of Hemorrhagic Fevers, Professor Bernard Le Guenno conducted serological studies of the Swiss ethologists and the chimpanzees. From a sample taken from the scientist during the fever stage of her illness, Professor Le Guenno and his technician, Daniel Coudrier, were able to isolate the virus by way of cell culture inoculations. Pierre Gounon from Pasteur’s Electron Microscopy Unit observed that it was an Ebola filovirus. With the help of the CDC, it was further determined that it was antigenically different from the other known Ebola strains. This strain, now named for the Ivory Coast, is likely to have been responsible for the lethal epidemic observed among the chimpanzees and was probably transmitted to the Swiss ethologist during her autopsy on the chimp. All other people who had contact either with this woman or the animal’s tissues tested negative for the virus. This case provides the first documentation of monkey-to-human transmission in the wild.

There was a resurgence of Ebola virus fever in Kikwit, Zaire, in 1995, traced to a forester who fell ill in January of that year. Undiagnosed, he was treated at the Kikwit hospital which in turn served as a transmission amplifier. Once the epidemic was identified, a public awareness campaign about how to handle patients and the bodies

of victims helped to drastically reduce transmission. The last person fell ill on June 20, 1995. In all, 296 infected people were identified; only 20% survived.

Cases of Ebola infection have been identified as recently as last fall, when outbreaks in Gabon produced approximately 100 cases causing about 60 deaths, the last on January 18, 1997. The Gabonese government and WHO announced the official end of this epidemic in March.

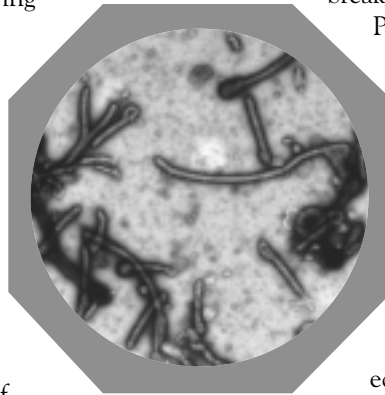
In an article in *The Lancet* this past January, Professor Le Guenno established that a 1994 epidemic in Gabon had been misidentified as yellow fever and was in fact Ebola. The most recent Gabonese outbreak led to the first case of Ebola fever in South Africa: a Johannesburg nurse became infected after treating an undiagnosed Gabonese doctor for a high fever last November. No other South African cases were reported.

Preventing Future Epidemics

One suspected victim of the 1996 Gabonese outbreak was transported to the Pasteur Hospital in Paris, which for over 100 years has specialized in the treatment of infectious diseases. The head of the hospital, Dr. Bertrand Dupont, describes the hospital’s sanitary system as one of extreme caution and vigilance where hospital personnel wear masks, goggles, gloves, two gowns, etc., and pass through pressurized chambers before and after contact with patients. All medical materials and equipment are disinfected and destroyed, effectively killing the virus and preventing further transmission.

There is still no cure or treatment for Ebola virus fever. While it does not currently threaten developed countries, a single undiagnosed case in any large Third World city could potentially unleash several waves of infection with devastating consequences. This scenario is unlikely thanks to the international network of WHO Collaborating Centers and their rapid response to monitor and contain outbreaks. Where the virus is endemic, education about handling the sick is essential and has proven very effective. Closer to home,

western hospital practices are likely to prevent any epidemic in the United States or Europe. But until scientists identify the natural reservoir of Ebola, this virus will remain a threat.



The Ebola virus, with its long filamentlike structure

Credit: Institut Pasteur



Professor Bernard Le Guenno in Pasteur’s highest-security-level laboratory

Credit: Institut Pasteur

AN EVENING TO CELEBRATE SCIENCE

by Caitlin Hawke

On October 23, 1996, the Pasteur Foundation held its first Award Dinner at the St. Regis Roof in New York City. Under the high patronage of French President Jacques Chirac and in the presence of the Consul General of France in New York, Mr. Patrick Gautrat, the gala evening was a great success. The Honorable Anne Cox Chambers and Mrs. Anastassios Fondaras, Co-Chairmen of the event, welcomed the dinner guests and thanked them and the many other donors who were unable to attend for supporting the Pasteur Foundation.

Actor Tony Randall, the master of ceremonies, kept the program moving with his wonderful humor. As keynote speaker, the Honorable Lowell P. Weicker, Jr., former Governor of Connecticut, sounded a call to arms for voters to make scientific

research a national priority (*see excerpts*). Finally, in the presence of the Institut Pasteur's Bernard Esambert, Chairman of the Board, and Maxime Schwartz, Director General, Mrs. Chambers and Mrs. Fondaras gave the Pasteur Foundation Award to Guy Wildenstein, President of the American Society of the French Legion of Honor, "for his sustaining concern for the scientific research carried out at the Institut Pasteur to improve public health worldwide." Mr. Wildenstein accepted the award, which he called "a reminder that, just like the untiring Louis Pasteur who was never satisfied with what he accomplished, we must all continue to contribute in whatever manner we can."

EXCERPTS FROM GOVERNOR WEICKER'S REMARKS AT THE PASTEUR AWARD DINNER

"Science is international. There are no boundaries to diseases or their carriers; no politics or philosophies can interfere with the course of science. I think it terrific that we convene here. American and French, it is our job to see that science prevails and that research goes forward. Men and women in politics are our reflections, and if they are not speaking about science and research, then obviously we are not seeing to it that they are made a priority. I can assure you, as a former member of the Appropriations Committee, whoever controls the purse controls priorities and government policy. People can give lip service as to how they feel about the tragedies



Pasteur Award recipient Guy Wildenstein and event Co-Chairman Anne Cox Chambers

HONORING PASTEUR: THE UNITED STATES PAYS TRIBUTE

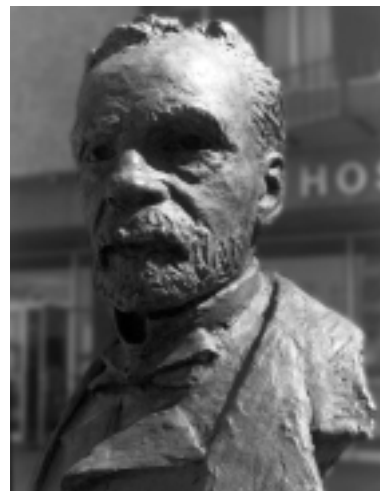
THE KAISER PERMANENTE HOSPITAL—FRENCH CAMPUS, SAN FRANCISCO

by Caitlin Hawke

In 1984, a handsome bronze bust of Louis Pasteur was commissioned by Constantine Raïses, a Greek philanthropist, for the courtyard of what is now the Kaiser Permanente Hospital—French Campus. A building on this campus also bears Pasteur's name. A great admirer of Pasteur, Mr. Raïses visited his tomb at the Institut Pasteur many times when he lived in Paris in the 1930s. The idea to erect this monument in San Francisco came to Mr. Raïses as he was eating lunch in the hospital's courtyard, which reminded him of the Marais district in Paris.

The sculptor Harriet Moore was inspired by photographs of Pasteur at the age of 67. On March 25, 1984, which was proclaimed Louis Pasteur Day by Mayor Dianne Feinstein, Ms. Moore made the following remarks at the dedication ceremony:

I chose Pasteur as an older man because with age his face expressed the great struggle and seriousness of his life's work. He looked rugged, craggy and bold, intensely possessed by his purpose. In this sculpture of Pasteur I have tried to evoke the solidity of his French bourgeois origin. From the heavy coat and vest of his day emerges the powerful, frowning head, mythical and godlike, held boldly erect. Above the short, pugnacious, slightly bulbous nose and beneath the frowning brows gaze the great solemn, far-seeing, relentlessly focused eyes, deeply lined with the fatigue and torment of his laborious investigations, the huge task he set for himself, probing the secret of life.



Courtesy of Harriet Moore

Our thanks to Marie-Claude Fortier of Arbois, France, for bringing this sculpture to our attention and to Harriet Moore, the artist, and Grayce Ceschi of the French Heritage Alliance for providing background information. If you know of U.S. tributes to Louis Pasteur that you would like to see featured here, please contact the Pasteur Foundation.

ATTENTION EDUCATORS!

If you would like to borrow our film "Pasteur: A Contemporary View," to receive scholastic materials such as the Pasteur Time Line or to organize our exposition at your school, please contact us at 212.599.2050. We will be happy to accommodate your request.

A LETTER FROM THE CHAIRMAN OF THE AMERICAN ADVISORY BOARD



Spring 1997

Dear Friends of the Pasteur Foundation:

We are happy to present this second issue of *Pasteur Perspectives* and will welcome your comments and suggestions for future issues.

The first Award Dinner at the St. Regis Hotel last October was a notable success, thanks in great part to your generosity and of course to our honoree, Guy Wildenstein, and to Governor Lowell P. Weicker, Jr., the keynote speaker. We were privileged to have Tony Randall as our spirited, entertaining master of ceremonies, and the American Boychoir, who greatly enhanced the evening. We hope to have an equally successful event in 1997.

The Pasteur Foundation Board will meet in Paris in June, the exact date to be determined. Should any of you plan to be there at that time, please let us know so that we can include you in some of our activities.

This brings my sincerest thanks to all of you who contributed to the Pasteur Foundation last year. Your support comes at a time when significant government cutbacks have necessitated a heightened reliance on private gifts. Your participation, great or small, is helping to achieve Louis Pasteur's goal: to improve public health throughout the world.

Warmest wishes,

Mr. Anastassios Fondaras
Chairman
American Advisory Board

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PASTEUR PERSPECTIVES

A 501(c)(3) corporation, the Pasteur Foundation is the U.S. nonprofit affiliate of the Institut Pasteur. Located in New York City, the foundation works to introduce the research conducted at the Institut Pasteur to the American public, to develop exchanges between Pasteurian and U.S. scientists, and to raise funds for Pasteurian research. For more information, please contact the Pasteur Foundation.

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Caitlin M. Hawke

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“LOUIS PASTEUR: HIS LIFE AND WORK” TOURS NEW ENGLAND

by Caitlin Hawke

As most celebrations of Louis Pasteur's remarkable career were winding down at the end of 1995, events in the Northeast were just beginning, thanks to the tireless work of Jacques Staelen, a Chevalier of the *Ordre National du Mérite* and a former president of Richelieu International. Having seen the Pasteur Foundation's exposition at the Franco-American Center in Manchester, New Hampshire, Mr. Staelen was struck by the incredible strength of Louis Pasteur as a role model. He promptly contacted the Foundation and has since been the catalyst for organizing the exposition at the Rhode Island State House, the Providence Public Library, Johnson & Wales University, the University of Rhode Island, the University of Massachusetts at Dartmouth and the Fall River Public Library. It will also be on display this spring in Biddeford and Yarmouth, Maine.

The inauguration of this mini-tour was held at the Rhode Island State House. Speakers included the Lieutenant Governor of Rhode Island, Robert Weygand; the Vice Consul of France in Boston, Denis Matton; Rhode Island's Speaker of the House, John Harwood; R.I. Representative Gerard Martineau and Mr. Staelen. Dr. Roger LeBrun, a young American entomologist who has worked at the Institut Pasteur in Paris and is now on faculty at the University of Rhode Island, presented the highlights of Pasteur's illustrious career.

While space constraints make it impossible to thank all participants by name, we are grateful to each of you who brought the timeless story of Louis Pasteur to your campuses and libraries. In addition to the hosts, our thanks go to the French Consulate in Boston, the Alliance Française of Providence, the U.S.J.B. Division of Catholic Family Life and the network of Richelieu Clubs who supported this project. Thanks also to Dr. Robert Krasner of Providence College for his participation and, finally, to Mr. Staelen, whose help was invaluable.

For information about the current whereabouts of the Pasteur Exposition or to organize a showing in your area, please contact the Foundation.

THE GLOBAL PASTEUR NETWORK

Boasting 22 institutes, 19 with the Pasteur name, the International Network of the Institut Pasteur is a unique infrastructure united by both the Pasteurian tradition and the pursuit to improve public health. Its foundations were laid over a century ago by Louis Pasteur. In 1891, he sent Albert Calmette to establish the first foreign Institut Pasteur in Saigon, now Ho Chi Minh City, Vietnam, to produce and administer rabies and smallpox vaccines. Soon, other institutes to which Pasteur lent his name were created all over the world. Some of these have faded into history, but many others survive today. The network has continued to develop and, most recently, has grown to include the Institut Cantacuzène of Bucharest and the Institut Pasteur de Saint-Petersbourg.

While the Pasteur network spans five continents, most of its members are situated in developing countries where, due to the state of public health, epidemics frequently emerge and spread. Historically, institutes within the network are devoted primarily to combating the diseases that plague their own countries. Therefore, research concerns vary somewhat from institute to institute: leptospirosis in New Caledonia, lymphatic filariasis and ciguatera in Tahiti, AIDS and tuberculosis in Bangui, malaria and tuberculosis in Madagascar, etc. The research activities of each institute are prioritized in concert with local health authorities. To address multicentric research issues more efficiently, certain institutes regroup along specific disease axes such as those for malaria (Paris, Cayenne, Dakar, Tananarive), tuberculosis (Paris, Bangui, Yaoundé, Tananarive) or polio (Paris, Bangui, Tunis, Ho Chi Minh City).

The institutes of the Pasteur network offer a variety of on-site services such as vaccinations, diagnostic tests and laboratory analyses sometimes not available elsewhere in the country. Additionally, they provide first-rate training to the local health personnel in medical biology

INTERNATIONAL NETWORK OF THE INSTITUT PASTEUR	
EUROPE	
Institut Pasteur	Paris, France
Institut Pasteur Hellénique	Athens, Greece
Institut Pasteur – Fondation Cenci Bolognetti	Rome, Italy
Institut Cantacuzène	Bucharest, Rumania
Institut Pasteur de Saint-Petersbourg	Saint Petersburg, Russia
AFRICA	
Institut Pasteur d'Algérie	Algiers, Algeria
Centre Pasteur du Cameroun	Yaoundé, Cameroon
Institut Pasteur de Bangui	Bangui, Central African Republic
Institut Pasteur de Côte d'Ivoire	Abidjan, Ivory Coast
Institut Pasteur de Madagascar	Tananarive, Madagascar
Institut Pasteur du Maroc	Casablanca, Morocco
Institut Pasteur de Dakar	Dakar, Senegal
Institut Pasteur de Tunis	Tunis, Tunisia
AMERICAS	
Institut Pasteur de la Guyane française	Cayenne, French Guiana
Institut Pasteur de la Guadeloupe	Pointe à Pitre, Guadalupe
ASIA	
Institut Pasteur du Cambodge	Phnom Penh, Cambodia
Institut Pasteur d'Iran	Teheran, Iran
Institut national d'Hygiène et d'Epidémiologie de Hanoi	Hanoi, Vietnam
Institut Pasteur de Ho Chi Minh Ville	Ho Chi Minh City, Vietnam
Institut Pasteur de Nha Trang	Nha Trang, Vietnam
SOUTH PACIFIC	
Institut Pasteur de Nouvelle-Calédonie	Noumea, New Caledonia

and research. The public-health role of these institutes is even more vital given the global ramifications; they provide invaluable data for the surveillance, control and ultimate prevention of epidemics.

The International Network of the Institut Pasteur is a worldwide community which pools its resources and knowledge to accomplish its humanitarian and scientific mission: to serve the public-health needs of developing countries and better equip its members to continue the fight against today's most pressing and menacing scourges.

—Source: Institut Pasteur

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PP2

I want to help support the research conducted at the Institut Pasteur to improve worldwide public health.

I am enclosing a tax-deductible gift to the Pasteur Foundation in the amount of:

\$1000 \$500 \$150 \$100 \$50 Other \$ _____

I would like more information on how to make a bequest in support of Pasteurian research.

NAME _____

Please add my name to your mailing list.

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GOVERNOR WEICKER'S REMARKS

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of disease and death, but if the money is not in the budget, nothing happens. That's why your philanthropy is so important to a body like the Institut Pasteur. If the money isn't there the research doesn't take place, and if the research doesn't take place discoveries are nil.

"[Election season] is the time when all of us in this room and millions of others establish priorities, and the candidates become a reflection of our beliefs. We went through a debate on national healthcare reform, while at the same time cutting the budgets of the NIH. I will tell you what reform is: reform is Louis Pasteur and

immunization, which reformed healthcare practices of those times. Just conceive of the money those immunizations have saved in terms of downstream costs.

"So my thanks to the researchers, to the doctors, to the scientists of Pasteur, to those of you who have lent your resources. In this political world of ours, you've now got to make the last step. Politics is the business of setting priorities. You are needed on this playing field as never before but, believe me, your efforts will justify the results.

Certainly I feel that way after thirty years, and I know that for the men and women of the laboratories of France who daily come forth with discoveries, it has been well worth their lives."



Mr. and Mrs. Tony Randall, event Co-Chairman Mrs. Anastassios Fondaras and Governor Lowell Weicker at the Pasteur Award Dinner