

# Spillover Animal Infections And The Next Human Pandemic David Quammen

Pathogens transmitted among humans, animals, or plants by insects and arthropod vectors have been responsible for significant morbidity and mortality throughout recorded history. Such vector-borne diseases – including malaria, dengue, yellow fever, and plague – together accounted for more human disease and death in the 17th through early 20th centuries than all other causes combined. Over the past three decades, previously controlled vector-borne diseases have resurged or reemerged in new geographic locations, and several newly identified pathogens and vectors have triggered disease outbreaks in plants and animals, including humans. Domestic and international capabilities to detect, identify, and effectively respond to vector-borne diseases are limited. Few vaccines have been developed against vector-borne pathogens. At the same time, drug resistance has developed in vector-borne pathogens while their vectors are increasingly resistant to insecticide controls. Furthermore, the ranks of scientists trained to conduct research in key fields including medical entomology, vector ecology, and tropical medicine have dwindled, threatening prospects for addressing vector-borne diseases now and in the future. In June 2007, as these circumstances became alarmingly apparent, the Forum on Microbial Threats hosted a workshop to explore the dynamic relationships among host, pathogen(s), vector(s), and ecosystems that characterize vector-borne diseases. Revisiting this topic in September 2014, the Forum organized a workshop to examine trends and patterns in the incidence and prevalence of vector-borne diseases in an increasingly interconnected and ecologically disturbed world, as well as recent developments to meet these dynamic threats. Participants examined the emergence and global movement of vector-borne diseases, research priorities for understanding their biology and ecology, and global preparedness for and progress toward their prevention, control, and mitigation. This report summarizes the presentations and discussions from the workshop.

Emerging infectious diseases are often due to environmental disruption, which exposes microbes to a different niche that selects for new virulence traits and facilitates transmission between animals and humans. Thus, health of humans also depends upon health of animals and the environment – a concept called One Health. This book presents core concepts, compelling evidence, successful applications, and remaining challenges of One Health approaches to thwarting the threat of emerging infectious disease. Written by scientists working in the field, this book will provide a series of "stories" about how disruption of the environment and transmission from animal hosts is responsible for emerging human and animal diseases. Explains the concept of One Health and the history of the One Health paradigm shift. Traces the emergence of devastating new diseases in both animals and humans. Presents case histories of notable, new zoonoses, including West Nile virus, hantavirus, Lyme disease, SARS, and salmonella. Links several epidemic zoonoses with the environmental factors that promote them. Offers insight into the mechanisms of microbial evolution toward pathogenicity. Discusses the many causes behind the emergence of antibiotic resistance. Presents new technologies and approaches for public health disease surveillance. Offers political and bureaucratic strategies for promoting the global acceptance of One Health.

H1N1 ("swine flu"), SARS, mad cow disease, and HIV/AIDS are a few examples of zoonotic diseases-diseases transmitted between humans and animals. Zoonotic diseases are a growing concern given multiple factors: their often novel and unpredictable nature, their ability to emerge anywhere and spread rapidly around the globe, and their major economic toll on several disparate industries. Infectious disease

surveillance systems are used to detect this threat to human and animal health. By systematically collecting data on the occurrence of infectious diseases in humans and animals, investigators can track the spread of disease and provide an early warning to human and animal health officials, nationally and internationally, for follow-up and response. Unfortunately, and for many reasons, current disease surveillance has been ineffective or untimely in alerting officials to emerging zoonotic diseases. Sustaining Global Surveillance and Response to Emerging Zoonotic Diseases assesses some of the disease surveillance systems around the world, and recommends ways to improve early detection and response. The book presents solutions for improved coordination between human and animal health sectors, and among governments and international organizations. Parties seeking to improve the detection and response to zoonotic diseases--including U.S. government and international health policy makers, researchers, epidemiologists, human health clinicians, and veterinarians--can use this book to help curtail the threat zoonotic diseases pose to economies, societies, and health.

From the author of the #1 New York Times best-selling *How to Avoid a Climate Disaster: The COVID-19 pandemic isn't over, but even as governments around the world strive to put it behind us, they're also starting to talk about what happens next. How can we prevent a new pandemic from killing millions of people and devastating the global economy? Can we even hope to accomplish this? Bill Gates believes the answer is yes, and in this book he lays out clearly and convincingly what the world should have learned from COVID-19 and what all of us can do to ward off another disaster like it. Relying on the shared knowledge of the world's foremost experts and on his own experience of combating fatal diseases through the Gates Foundation, he first helps us understand the science of infectious diseases. Then he shows us how the nations of the world, working in conjunction with one another and with the private sector, can not only ward off another COVID-like catastrophe but also eliminate all respiratory diseases, including the flu. Here is a clarion call—strong, comprehensive, and of the gravest importance—from one of our greatest and most effective thinkers and activists.*

*Pandemic Panics and Deadly Diseases That Jump from Animals to Humans*  
the powerful, prescient book that predicted the Covid-19 coronavirus pandemic.

Open and Unabashed Reviews on Spillover

Once Upon a Time I Lived on Mars

The American Story

Conversations with Master Historians

Lyme Disease

*"From the author of *The Fever*, a wide-ranging inquiry into the origins of pandemics Interweaving history, original reportage, and personal narrative, *Pandemic* explores the origins of epidemics, drawing parallels between the story of cholera—one of history's most disruptive and deadly pathogens—and the new pathogens that stalk humankind today, from Ebola and avian influenza to drug-resistant superbugs. More than three hundred infectious diseases have emerged or reemerged in new territory during the past fifty years, and 90 percent of epidemiologists expect that one of them will cause a disruptive, deadly pandemic sometime in the next two generations. To reveal how that might happen, Sonia Shah tracks each stage of cholera's dramatic journey from harmless microbe to world-changing pandemic, from its 1817 emergence in the South Asian hinterlands to its rapid dispersal across the*

nineteenth-century world and its latest beachhead in Haiti. She reports on the pathogens following in cholera's footsteps, from the MRSA bacterium that besieges her own family to the never-before-seen killers emerging from China's wet markets, the surgical wards of New Delhi, the slums of Port-au-Prince, and the suburban backyards of the East Coast. By delving into the convoluted science, strange politics, and checkered history of one of the world's deadliest diseases, *Pandemic* reveals what the next epidemic might look like--and what we can do to prevent it"--

When it comes to Mars, the focus is often on how to get there: the rockets, the engines, the fuel. But upon arrival, what will it actually be like? In 2013, Kate Greene moved to Mars. That is, along with five fellow crew members, she embarked on NASA's first HI-SEAS mission, a simulated Martian environment located on the slopes of Mauna Loa in Hawai'i. For four months she lived, worked, and slept in an isolated geodesic dome, conducting a sleep study on her crew mates and gaining incredible insight into human behavior in tight quarters, as well as the nature of boredom, dreams, and isolation that arise amidst the promise of scientific progress and glory. In *Once Upon a Time I Lived on Mars*, Greene draws on her experience to contemplate humanity's broader impulse to explore. The result is a twined story of space and life, of the standard, able-bodied astronaut and Greene's brother's disability, of the lag time of interplanetary correspondences and the challenges of a long-distance marriage, of freeze-dried egg powder and fresh pineapple, of departure and return. By asking what kind of wisdom humanity might take to Mars and elsewhere in the Universe, Greene has written a remarkable, wide-ranging examination of our time in space right now, as a pre-Mars species, poised on the edge, readying for launch. This book provides insight into the instances in which wildlife species can create problems. Some species trigger problems for human activities, but many others need humans to save them and to continue to exist. The text addresses issues faced by economists and politicians dealing with laws involving actions undertaken to resolve the problems of the interaction between humans and wildlife. Here, the words 'problematic species' are used in their broadest sense, as may be appreciated in the short introductions to the various sections. At times, the authors discuss special cases while always extending the discussion into a more general and broad vision. At others, they present real cutting-edge analysis of ecological topics and issues. The book will be of interest to biologists, ecologists and wildlife managers involved in research on wildlife, parks, and environmental management, as well as to government departments and agencies, NGOs and conservation wildlife organizations. Even those in contact with nature, such as hunters, herders, and farmers, will be able to find a great deal of important information. Specific case studies are selected from among the most significant and prevalent cases throughout the world. A total of 26 papers have been selected for this book, written by zoologists, biologists and ecologists. Many have an interdisciplinary approach, with contributions by economists, criminologists, technical specialists, and engineers.

*Why have island ecosystems always suffered such high rates of extinction? In our age, with all the world's landscapes, from Tasmania to the Amazon to Yellowstone, now being carved into island-like fragments by human activity, the implications of this question are more urgent than ever. Over the past eight years, David Quammen has followed the threads of island biogeography on a globe-encircling journey of discovery.*

*The Cobra Event*

*Spillover*

*A Radical New History of Life*

*Our War Against Killer Germs*

*Viruses*

*The Song of the Dodo*

*The Perils of Discovery*

Examines the emergence and causes of new diseases all over the world, describing a process called "spillover" where illness originates in wild animals before being passed to humans and discusses the potential for the next huge pandemic. 70,000 first printing. A review of research on the ecology of Lyme disease in North America describes how humans get sick, why some years and places are so risky and others not, and offers a new understanding that embraces the complexity of species and their interactions. A leading epidemiologist shares his "powerful and necessary" (Richard Preston, author of *The Hot Zone*) stories from the front lines of our war on infectious diseases and explains how to prepare for global epidemics -- featuring a new preface on COVID-19. Unlike natural disasters, whose destruction is concentrated in a limited area over a period of days, and illnesses, which have devastating effects but are limited to individuals and their families, infectious disease has the terrifying power to disrupt everyday life on a global scale, overwhelming public and private resources and bringing trade and transportation to a grinding halt. In today's world, it's easier than ever to move people, animals, and materials around the planet, but the same advances that make modern infrastructure so efficient have made epidemics and even pandemics nearly inevitable. And as outbreaks of COVID-19, Ebola, MERS, and Zika have demonstrated, we are woefully underprepared to deal with the fallout. So what can -- and must -- we do in order to

protect ourselves from mankind's deadliest enemy? Drawing on the latest medical science, case studies, policy research, and hard-earned epidemiological lessons, *Deadliest Enemy* explores the resources and programs we need to develop if we are to keep ourselves safe from infectious disease. The authors show how we could wake up to a reality in which many antibiotics no longer cure, bioterror is a certainty, and the threat of a disastrous influenza or coronavirus pandemic looms ever larger. Only by understanding the challenges we face can we prevent the unthinkable from becoming the inevitable. *Deadliest Enemy* is high scientific drama, a chronicle of medical mystery and discovery, a reality check, and a practical plan of action.

*Spillover: Animal Infections and the Next Human Pandemic* W. W. Norton & Company  
Sustaining Global Surveillance and Response to Emerging Zoonotic Diseases  
Study Guide

Global Health Impacts of Vector-Borne Diseases

How to Prevent the Next Pandemic

Pandemic

Deadliest Enemy

An Unnatural History

**ONE OF THE NEW YORK TIMES BOOK REVIEW'S 10 BEST BOOKS OF THE YEAR** A major book about the future of the world, blending intellectual and natural history and field reporting into a powerful account of the mass extinction unfolding before our eyes Over the last half a billion years, there have been five mass extinctions, when the diversity of life on earth suddenly and dramatically contracted. Scientists around the world are currently monitoring the sixth extinction, predicted to be the most devastating extinction event since the asteroid impact that wiped out the dinosaurs. This time around, the cataclysm is us. In *The Sixth Extinction*, two-time winner of the National Magazine Award and New Yorker writer Elizabeth Kolbert draws on the work of scores of researchers in half a dozen disciplines, accompanying many of them into the field: geologists who study deep ocean cores, botanists who follow the tree line as it climbs up the Andes, marine biologists who dive off the Great Barrier Reef. She introduces us to a dozen species, some already gone, others facing extinction, including the Panamian golden frog, staghorn coral, the great auk, and the Sumatran rhino. Through these stories, Kolbert provides a moving account of the disappearances occurring all around us and traces the evolution of extinction as concept, from its first articulation by Georges Cuvier in revolutionary Paris up through the present day. The sixth extinction is likely to be mankind's most lasting legacy; as Kolbert observes, it compels us to rethink the

fundamental question of what it means to be human.

Zoonoses are a persistent threat to the global human health Today, more than 200 diseases occurring in humans and animals are known to be mutually transmitted. Classical infectious diseases, such as rabies, plague, and yellow fever, have not been eradicated despite major efforts. New zoonotic diseases are on the increase due global conditions such as overpopulation, wars, and food scarcity, which facilitate human contact with rodents, stray animals, and their parasites. In addition, humans are unwittingly becoming accidental hosts and new links in an infectious chain by engaging in activities such as survival training, which involves camping in open areas and consumption of raw or insufficiently cooked food. Zoonotic infections cause a variety of symptoms that often do not provide clear evidence of a known disease. Zoonoses, Fourth Edition, describes most occurring worldwide zoonosis and facilitates the identification, diagnosis and treatment of zoonotic infections. Written by a team of doctors, medical microbiologists and veterinarians, this completely, revised edition covers all aspects of the epidemiology and prevention of zoonotic diseases through clear descriptions of various illnesses. Specifically, this fourth edition covers zoonosis caused by viruses, bacteria, fungi and parasites infections caused by animal bites infections and intoxications by animal foods Iatrogenic transmission of zoonotic pathogens Zoonoses is an indispensable reference for clinicians and laboratorians.

Korean edition of [Spillover: Animal Infections and the Next Human Pandemic] by David Quammen. The next big human pandemic is likely to be caused by a new virus coming to humans from wildlife. Experts call such an event "spillover" and they warn us to brace ourselves. David Quammen has tracked this subject from Central Africa, Bangladesh, and southern China to the laboratories where researchers work in space suits to study lethal viruses. He illuminates the dynamics of Ebola, SARS, bird flu, Lyme disease, and other emerging threats and tells the story of AIDS and its origins as it has never before been told. Korean edition translated by Gang Byeong Cheol.

"Here, my previous edition of Viruses, Plagues, & History is updated to reflect both progress and disappointment since that publication. This edition describes newcomers to the range of human infections, specifically, plagues that play important roles in this 21st century. The first is Middle East Respiratory Syndrome (MERS), an infection related to Sudden Acute Respiratory Syndrome (SARS). SARS was the first new-found plague of this century. Zika virus, which is similar to yellow fever virus in being transmitted by mosquitos, is another of the recent scourges. Zika appearing for the first time in the Americas is associated with birth defects and a paralytic condition in adults. Lastly, illness due to hepatitis viruses were observed prominently during the second World War initially associated with blood transfusions and vaccine inoculations. Since then, hepatitis virus infections have afflicted millions of individuals, in some leading to an acute fulminating liver disease or more often to a life-long persistent infection. A subset of those infected has developed liver cancer. However, in a triumph of medical treatments for infectious diseases, pharmaceuticals have been developed whose use virtually eliminates such maladies. For example, Hepatitis C virus infection has been eliminated from almost all (>97%) of

its victims. This incredible result was the by-product of basic research in virology as well as cell and molecular biology during which intelligent drugs were designed to block events in the hepatitis virus life-cycle"--

Viruses, Plagues, and History

Tracking Contagions, from Cholera to Ebola and Beyond

The Hot Zone

Wildlife and Emerging Zoonotic Diseases: The Biology, Circumstances and Consequences of Cross-Species Transmission

The Emergence of Zoonotic Diseases

Spillover by David Quammen (SuperSummary)

The Song Of The Dodo

**If you have any interest at all in epidemiology, modern medicine, or the survival of the human race, do read *The Chickens Fight Back* —Georgia Straight Emerging diseases like mad cow, SARS, and avian flu are — for the moment, at least — far more prevalent in animals than in humans. Still, the knowledge that measles, TB, and smallpox were at one time “emerging” diseases that eventually made a permanent, and quite deadly, jump to humans gives epidemiologists pause. This book examines the various groups of animal diseases, explains what attracts them to the human population — from food to sex to living conditions — and offers suggestions for keeping them at bay. It also points out that diseases must be looked at from an ecological, cultural, and economic point of view as well as from a biological standpoint. Cooking meat till its well done and slathering on insect repellent for a hike in the woods are effective preventative measures, but as the author notes, it’s more important to fundamentally rethink humankind’s place in the world.**

**"Rich detail and vivid anecdotes of adventure....A treasure trove of exotic fact and hard thinking." —New York Times Book Review For millennia, lions, tigers, and their man-eating kin have kept our dark, scary forests dark and scary, and their predatory majesty has been the stuff of folklore. But by the year 2150 big predators may only exist on the other side of glass barriers and chain-link fences. Their gradual disappearance is changing the very nature of our existence. We no longer occupy an intermediate position on the food chain; instead we survey it invulnerably from above—so far above that we are in danger of forgetting that we even belong to an ecosystem. Casting his expert eye over the rapidly diminishing areas of**

wilderness where predators still reign, the award-winning author of *The Song of the Dodo* and *The Tangled Tree* examines the fate of lions in India's Gir forest, of saltwater crocodiles in northern Australia, of brown bears in the mountains of Romania, and of Siberian tigers in the Russian Far East. In the poignant and troublesome ferocity of these embattled creatures, we recognize something primeval deep within us, something in danger of vanishing forever. Zoonotic diseases represent one of the leading causes of illness and death from infectious disease. Defined by the World Health Organization, zoonoses are those diseases and infections that are naturally transmitted between vertebrate animals and man with or without an arthropod intermediate. Worldwide, zoonotic diseases have a negative impact on commerce, travel, and economies. In most developing countries, zoonotic diseases are among those diseases that contribute significantly to an already overly burdened public health system. In industrialized nations, zoonotic diseases are of particular concern for at-risk groups such as the elderly, children, childbearing women, and immunocompromised individuals. *The Emergence of Zoonotic Diseases: Understanding the Impact on Animal and Human Health*, covers a range of topics, which include: an evaluation of the relative importance of zoonotic diseases against the overall backdrop of emerging infections; research findings related to the current state of our understanding of zoonotic diseases; surveillance and response strategies to detect, prevent, and mitigate the impact of zoonotic diseases on human health; and information about ongoing programs and actions being taken to identify the most important needs in this vital area.

*Blood Line* explores the complicated liaisons between fathers and sons. Though using traditional masculine backdrops, the three stories in the collection go beyond a portrayal of physical and emotional endurance to evoke the blending of guilt, rebellion, patricide, and the transcending power of kinship that allow both father and son to place themselves in relationship to each other and in relation to the world.

*The Terrifying True Story of the Origins of the Ebola Virus*

*Island Biogeography in an Age of Extinctions*

*Blood Line*

*Agents of Evolutionary Invention*



## **The Chimp and the River**

### **A Novel**

## **Taking a Multisectoral One Health Approach : A Tripartite Guide to Addressing Zoonotic Diseases in Countries**

The 2018 FAO-OIE-WHO (Tripartite) zoonoses guide, “Taking A Multisectoral, One Health Approach: A Tripartite Guide to Addressing Zoonotic Diseases in Countries” (2018 TZG) is being jointly developed to provide member countries with practical guidance on OH approaches to build national mechanisms for multisectoral coordination, communication, and collaboration to address zoonotic disease threats at the animal-human-environment interface. The 2018 TZG updates and expands on the guidance in the one previous jointly-developed, zoonoses-specific guidance document: the 2008 Tripartite “Zoonotic Diseases: A Guide to Establishing Collaboration between Animal and Human Health Sectors at the Country Level”, developed in WHO South-East Asia Region and Western Pacific Region. The 2018 TZG supports building by countries of the resilience and capacity to address emerging and endemic zoonotic diseases such as avian influenza, rabies, Ebola, and Rift Valley fever, as well as food-borne diseases and antimicrobial resistance, and to minimize their impacts on health, livelihoods, and economies. It additionally supports country efforts to implement WHO International Health Regulations (2005) and OIE international standards, to address gaps identified through external and internal health system evaluations, and to achieve targets of the Sustainable Development Goals. The 2018 TZG provides relevant country ministries and agencies with lessons learned and good practices identified from country-level experiences in taking OH approaches for preparedness, prevention, detection and response to zoonotic disease threats, and provides guidance on multisectoral communication, coordination, and collaboration. It informs on regional and country-level OH activities and relevant unisectoral and multisectoral tools available for countries to use.

"David Quammen is simply the best natural essayist working today."--Tim Cahill, author of *Lost in My Own Backyard* "Lively writing about science and nature depends less on the offering of good answers, I think, than on the offering of good questions," said David Quammen in the original introduction to *Natural Acts*. For more than two decades, he has stuck to that credo. In this updated version of curiosity leads him from New Mexico to Romania, from the Congo to the Amazon, asking questions about mosquitoes (what are their redeeming merits?), dinosaurs (how did they change the life of a dyslexic Vietnam vet?), and cloning (can it save endangered species?). This revised and expanded edition best-loved "Natural Acts" columns, which first appeared in *Outside* magazine in the early 1980s, and includes recent pieces such as "Planet of Weeds," an influential new *Natural Acts* is an eye-opening journey that will please both Quammen fans and newcomers to his work. Song lyrics have been redacted from this ebook owing to permissions issues.

"[Mr. Quammen] is not just among our best science writers but among our best writers, period." —Dwight Garner, *New York Times* The next big human pandemic—the next disease cataclysm, perhaps on the scale of AIDS or the 1918 influenza—is likely to be caused by a new virus coming to humans from wildlife. Experts call such an event “spillover” and they warn us to brace ourselves. David Quammen has tracked this subject from the jungles of Central Africa, the rooftops of Bangladesh, and the caves of southern China to the laboratories where researchers work in space suits to study lethal viruses. He illuminates the dynamics of Ebola, SARS, bird flu, Lyme disease, and other emerging threats and tells the story of AIDS and its origins as it has never before been told. *Spillover* reads like a mystery tale, full of mayhem and clues and questions. When the Next Big One arrives, what will it look like? From which innocent host animal will it emerge? Will we be ready?

While viruses—the world’s most abundant biological entities—are not technically alive, they invade, replicate, and evolve within living cells. Michael Cordingley goes beyond our familiarity with infections to show how viruses spur evolutionary change in their hosts and shape global ecosystems, from ocean

photosynthesis to drug-resistant bacteria.

The Tangled Tree

Spillover: Animal Infections and the Next Human Pandemic

Past, Present, and Future

The Natural and Human History

Problematic Wildlife

The Viral Storm

Workshop Summary

Read this gripping, timely book about the transmission of deadly viruses from animal to human populations, and how we can fight the current Covid-19 pandemic. WITH A NEW AFTERWORD ON CORONAVIRUS As globalization spreads and as we destroy the ancient ecosystems, we encounter strange and dangerous infections that originate in animals but that can be transmitted to humans. Diseases that were contained are being set free and the results are potentially catastrophic. In a journey that takes him from southern China to the Congo, from Bangladesh to Australia, David Quammen tracks these infections to their source, and asks what we can do to prevent some new pandemic spreading across the face of the earth. As we continue to feel the global impact of Covid-19, discover the book that predicted this viral disaster and the science that could stop the next one in its tracks. 'A tremendous book...this gives you all you need to know and all you should know' Sunday Times 'Chilling... [A] brilliant, devastating book' Daily Mail 'A frightening and fascinating masterpiece of science reporting that reads like a detective story' Walter Isaacson

This book summarizes current advances in our understanding of how infectious disease represents an ecological interaction between a pathogenic microorganism and the host species in which that microbe causes illness. The contributing authors explain that pathogenic microorganisms often also have broader ecological connections, which can include a natural environmental presence; possible transmission by vehicles such as air, water, and food; and interactions with other host species, including vectors for which the microbe either may or may not be pathogenic. This field of science has been dubbed disease ecology, and the chapters that examine it have been grouped into three sections. The first section introduces both the role of biological community interactions and the impact of biodiversity on infectious disease. In turn, the second section considers those diseases directly affecting humans, with a focus on waterborne and foodborne illnesses, while also examining the critical aspect of microbial biofilms. Lastly, the third

section presents the ecology of infectious diseases from the perspective of their impact on mammalian livestock and wildlife as well as on humans. Given its breadth of coverage, the volume offers a valuable resource for microbial ecologists and biomedical scientists alike.

The bestselling landmark account of the first emergence of the Ebola virus. Now a mini-series drama starring Julianna Margulies, Topher Grace, Liam Cunningham, James D'Arcy, and Noah Emmerich on National Geographic. A highly infectious, deadly virus from the central African rain forest suddenly appears in the suburbs of Washington, D.C. There is no cure. In a few days 90 percent of its victims are dead. A secret military SWAT team of soldiers and scientists is mobilized to stop the outbreak of this exotic "hot" virus. The Hot Zone tells this dramatic story, giving a hair-raising account of the appearance of rare and lethal viruses and their "crashes" into the human race. Shocking, frightening, and impossible to ignore, The Hot Zone proves that truth really is scarier than fiction.

The real story of AIDS - how it originated with a virus in a chimpanzee, jumped to one human and infected more than 60 million people - is very different from what most of us think we know. Recent research has revealed dark surprises and yielded a radically new scenario of how AIDS began and spread. Excerpted and adapted from Spillover, with a new introduction by the author, Quammen's hair-raising investigation tracks the virus from chimp population s in the jungles off the southeastern Cameroon to laboratories across the globe, as he unravels the mysteries of when, where and how such a consequential 'spillover' can happen. An audacious search for answers amid more than a century of data, The Chimp and the River tells the haunting tale of one of the most devastating pandemics of our time.

Animal Infections and the Next Human Pandemic

The Demon in the Freezer

The Reluctant Mr. Darwin: An Intimate Portrait of Charles Darwin and the Making of His Theory of Evolution (Great Discoveries)

Infectious Diseases Transmissible from Animals to Humans

Stories of Fathers and Sons

One Health

Ebola

First, a horse in Brisbane falls ill: fever, swelling, bloody froth. Then thirteen others drop dead. The foreman at the stables becomes a trainer dies. What is going on? As globalization spreads and as we destroy the ancient ecosystems, we encounter strange and

infections that originate in animals but that can be transmitted to humans. Diseases that were contained are being set free potentially catastrophic. In a journey that takes him from southern China to the Congo, from Bangladesh to Australia, David Quammen tracks these infections to their source and asks what we can do to prevent some new pandemic spreading across the face of the earth. In 1976 a deadly virus emerged from the Congo forest. As swiftly as it came, it disappeared, leaving no trace. Over the four decades since Ebola has emerged sporadically, each time to devastating effect. It can kill up to 90% of its victims. In between these outbreaks it is untraceable, hiding deep in the jungle. The search is on to find Ebola's elusive host animal. And until we find it, Ebola will continue to spread. Acclaimed science writer and explorer David Quammen first came near the virus whilst travelling in the jungles of Gabon, accompanied by local men whose village had been devastated by a recent outbreak. Here he tells the story of Ebola, its past, present and its future. In this New York Times bestseller and longlist nominee for the National Book Award, "our greatest living chronicler of the natural world" (New York Times), David Quammen explains how recent discoveries in molecular biology affect our understanding of evolution and life's history. In the mid-1970s, scientists began using DNA sequences to reexamine the history of all life. Perhaps the most startling discovery to come out of this new field—the study of life's diversity and relatedness at the molecular level—is horizontal gene transfer (HGT), the movement of genes across species lines. It turns out that HGT has been widespread and important; we now know that roughly 10% of the human genome arrived sideways by viral infection—a type of HGT. In *The Tangled Tree*, "the grandest tale in biology....David Quammen presents the science—and the scientists involved—with patience, candor, and flair" (*Nature*). We learn about the major players in the story: Carl Woese, the most important little-known biologist of the twentieth century; Lynn Margulis, the notorious maverick whose wild ideas of "mosaic" creatures proved to be true; and Tsutomu Wantanabe, who discovered that the scourge of antibiotic-resistant bacteria is the result of horizontal gene transfer, bringing the deep study of genome histories to bear on a global crisis in public health. "David Quammen proves to be an immensely well-informed guide to a complex story" (*The Wall Street Journal*). In *The Tangled Tree*, he explains how modern studies of evolution have brought startling recognitions about the tangled tree of life—including where we humans fit upon it. "With modern technologies, we now have the ability to alter even our genetic composition—through sideways insertions, as nature has long done." *The Tangled Tree* is a source of wonder....Quammen has written a deep and daring intellectual adventure" (*The Boston Globe*). SuperSummary, a modern alternative to SparkNotes and CliffsNotes, offers high-quality study guides for challenging works of literature. Our 118-page guide for "Spillover" by David Quammen includes detailed chapter summaries and analysis covering 9 chapters, as well as more in-depth sections of expert-written literary analysis. Featured content includes commentary on major characters, 25 important essay topics, and key themes like The Value of Scientific Expertise and Randomness and Risk.

The Connections Between Ecology and Infectious Disease

Natural Acts: A Sidelong View of Science and Nature

The Ecology of a Complex System

The Chickens Fight Back

Space, Exploration, and Life on Earth

People, Animals, and the Environment

The Sixth Extinction

*Now in paperback--the timely and terrifying investigation into the dark underworld of biological weapons from the #1 "New York Times" bestselling author of "The Hot Zone."*

*A Stanford biologist reveals the lesser-known origins of some of the world's most deadly viruses while explaining the link between modern life and global pandemic threats, recounting his research missions in various world regions while sharing insights into how developing technologies may counter potential threats. 75,000 first printing.*

*This volume offers an overview of the processes of zoonotic viral emergence, the intricacies of host/virus interactions, and the role of biological transitions and modifying factors. The themes introduced here are amplified and explored in detail by the contributing authors, who explore the mechanisms and unique circumstances by which evolution, biology, history, and current context have contrived to drive the emergence of different zoonotic agents by a series of related events.*

*The Cobra Event is set in motion one spring morning in New York City, when a seventeen-year-old student wakes up feeling vaguely ill. Hours later she is having violent seizures, blood is pouring out of her nose, and she has begun a hideous process of self-cannibalization. Soon, other gruesome deaths of a similar nature have been discovered, and the Centers for Disease Control sends a forensic pathologist to investigate. What she finds precipitates a federal crisis. The details of this story are fictional, but they are based on a scrupulously thorough inquiry into the history of biological weapons and their use by civilian and military terrorists. Richard Preston's sources include members of the FBI and the United States military, public health officials, intelligence officers in foreign governments, and scientists who have been involved in the testing of strategic bioweapons. The accounts of what they have seen and what they expect to happen are chilling. The Cobra Event is a dramatic, heart-stopping account of a very real threat, told with the skill and authority that made Preston's The Hot Zone an internationally acclaimed bestseller.*

*A Cross-Disciplinary Approach*

*The Dawn of a New Pandemic Age*

*Monster of God: The Man-Eating Predator in the Jungles of History and the Mind*

*How AIDS Emerged from an African Forest*

## *Understanding the Impact on Animal and Human Health: Workshop Summary*

### *Zoonoses*

"Quammen brilliantly and powerfully re-creates the 19th century naturalist's intellectual and spiritual journey."--Los Angeles Times Book Review Twenty-one years passed between Charles Darwin's epiphany that "natural selection" formed the basis of evolution and the scientist's publication of *On the Origin of Species*. Why did Darwin delay, and what happened during the course of those two decades? The human drama and scientific basis of these years constitute a fascinating, tangled tale that elucidates the character of a cautious naturalist who initiated an intellectual revolution.

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