Dissolving Illusions

Disease, Vaccines, and the Forgotten History

Suzanne Humphries, MD and

Roman Bystrianyk



Rally of the Anti-Vaccination League of Canada, Old City Hall
November 13, 1919
Photographer: William James
Thanks to the City of Toronto Archives

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ISBN: 1480216895 ISBN-13: 978-1480216891 Those who have had to take detailed notice of the immunisation accidents of the past few years know that to get the truth of what really went wrong generally calls for the resources of something like the secret service.

- Charles Cyril Okell, MC, MA, ScD, FRCP, 1938

Often have I wished that this work, for its own sake and the great issues involved, had been in more competent and less occupied hands, but the results of any investigations as to the effects of vaccination are given with the fervent hope that at least, they may promote inquiry, induce impartial consideration, and elucidate the truth on so important a question affecting the public health.

 J. T. Biggs, Member of the Leicester Town Council and its Sanitary Committee for more than 22 years. 1912

The fatal tendency of mankind to leave off thinking about a thing when it is no longer doubtful, is the cause of half their errors.

- John Stuart Mill (1806-1873)

Authors' Notes

The format of this book is somewhat unconventional, as it is filled with many direct quotes from a wide variety of historical and medical sources. We decided on this format to give you unfiltered information that will help you gain better insight into the true history of disease and vaccination. Oftentimes each quote tells a unique, self-contained story that can draw the reality of the past into view much better than a distilled summary would.

The book contains more than 50 graphs that are based on meticulously researched data. Each graph lists the references upon which the data is based. The graphs provide—in most cases—a neverbefore-seen view of the history of disease from the 1800s into the 1900s. They provide foundational evidence for the points presented in the text.

The book also includes many photographs extracted from numerous historic sources. Most of the photographs are presented with the exact captions that appeared in the original work.

Throughout the book, **bold text** indicates something that we think warrants special attention.

For more information related to the book, please visit **www.dissolvingillusions.com**. There you can see photos, full-color graphs, and other information that appears in this book.

Dedications

To Bryan, Kyle, and Dylan, whose entry into this world inspired this investigation, and to Meryl, whose steadfast support, help, and love kept this project moving forward.

- Roman Bystrianyk

To all who continue to move forward with the Truth, despite tyranny nipping at their heels.

- Suzanne Humphries, MD

Acknowledgments

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Cover Photo: Arthur Smith, Jr. August 1915 (approximately 1 year after vaccination)

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The scientists and researchers who, throughout the years, have done a great deal of important work that we were able to reference.

The few scientists in academia today who take the risks involved in reporting the truth about vaccines and vaccine components.

The countless souls who acquired, compiled, and maintained an enormous amount of statistical information.

Roman's parents, who were always there when he needed them.

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All parents who dedicate long hours of self-education in order to care for the precious lives that have been bestowed upon them.

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Foreword by Dr. Jayne L. M. Donegan

Vaccination is regarded as the most important health advance in the 20th century by most health professionals and laypeople. Although the dramatic decreases in morbidity and mortality from diseases that occurred in the course of the 20th century have been credited to the introduction of specific vaccines, scant acknowledgment has been given to improving social conditions.

Despite questioning the safety and efficacy of vaccination by reputable medical men since its introduction, debate has been, and is, increasingly discouraged.

Information published in scientific journals is used to support this position, other views being regarded as "unscientific."

It was a received "article of faith" for me and my contemporaries, that vaccination was **the** single most useful health intervention that had ever been introduced. Along with all my medical and nursing colleagues, I was taught that vaccines were the reason children and adults stopped dying from diseases for which there are vaccines.

We were told that other diseases, such as scarlet fever, rheumatic fever, typhus, typhoid, cholera, and so on, for which there are no vaccines at the time, diminished both in incidence and mortality (ability to kill) due to better social conditions.

You would think—as medical students who are supposed to be moderately intelligent—that some of us would have asked, "But if deaths from these diseases decreased due to improved social conditions, mightn't the ones for which there are vaccines also have decreased at the same time, for the same reason?" But we didn't.

The medical curriculum is so overloaded with information that you just have to learn what you hear, as you hear it: nonvaccinatable

diseases into the social conditions box and vaccinatable diseases into the vaccines box and then on to the next subject.

Everything I was taught and read in textbooks, both before I qualified as a doctor and through all my post-graduate training, reinforced this view.

Along with most doctors, I regarded parents who would not vaccinate their children as ignorant or, if not ignorant, sociopathic, for withholding what I believed was a lifesaving intervention and putting everybody else at risk by reducing herd immunity.

Indeed, at special clinics in the 1980s, I used to counsel parents who wouldn't vaccinate their children against whooping cough—which was regarded as the problematic vaccine in those days. I acknowledged that there were dangers associated with the vaccine. I was a truthful doctor, but I told them the official line: that the disease was 10 times more likely to cause death or disability than the vaccine, so any sane person would choose to vaccinate.

What changed?

In 1994 there was a massive measles/rubella vaccination campaign in the UK. Seven million schoolchildren were vaccinated against measles and rubella to protect them from an epidemic of measles, which was said to be imminent.

In those days, there was only one measles shot in the schedule—it is a live viral vaccine and was supposed to be like the wild measles virus. We were told, "One dose and you are immune for life." I did realize that one shot, however, might not protect every child—no vaccine is one hundred percent effective—but the chief medical officer said that even *two* shots of this "one-shot vaccine" would not necessarily protect children when the epidemic came and that they would need a *third*. He also said that the best way to vaccinate children was *en masse* to "break the chain of transmission."

This left me in a quandary. Obviously, the risk-to-benefit ratio of the vaccine was in favor of the vaccine if it was safer than the disease and if it stopped your child from getting the disease. This is what most parents expect to happen and certainly what they are encouraged to believe.

But if children can have the one-shot vaccine twice and still get the disease so they need to have a *third* shot, this means they can be exposed to all the risks of the vaccine two or three times . . . *and* at the same time, all the risks of the disease as well. Did I need to reevaluate what I had been saying to parents?

Also, if the <u>best way</u> of "breaking the <u>chain of transmission" of an infectious disease</u> was to vaccinate *en masse*, why did we vaccinate babies with all those different vaccines at two, three, and four months of age (UK schedule)? Why didn't we just wait for two or three years and then vaccinate all those who had been born in the interim en masse to break the chain of transmission?

This was the start of my long, slow journey researching vaccination and disease ecology and learning about other models and philosophies of health and natural hygiene such as those used by the great pioneers who cleaned up our cities and built clean water supplies and sewage systems.

I spent hours in libraries looking at archived journals and textbooks and the Office for National Statistics (ONS) getting out dusty volumes from the middle of the 19th century to make graphs of death rates from diseases for which we have vaccines but which, for some reason, have not been drawn—or made available to doctors or parents by the ONS or the Department of Health.

I read what prominent men of science, medical officers for health, and doctors wrote about vaccination and its sequelae that never made it into today's textbooks, and found out what anyone with even a passing acquaintance with disease figures of the 19th and 20th

century knew. For example, by the 1950s when the whooping cough vaccine was introduced, data showed that whooping cough was killing only 1 percent of the numbers of people who used to die in England and Wales 50 years before.

Official data showed that the same happened with measles. Indeed, when the measles vaccine was introduced to the UK in 1968, the death rate continued to drop steadily, even though the initial uptake of the vaccine was only 30 percent and didn't get above 50 percent until the 1980s.

Even the much-heralded success story of smallpox vaccination was not what it seemed. The enforcement of the compulsory smallpox vaccination law in 1867, when the death rate was already falling, was accompanied by an increase in the deaths from 100 to 400 deaths per million.

After overcoming an awful lot of fear, I came to the gradual realization that it was true what people on the outside had been telling me, that "health is the only immunity." We don't need protecting *from out there*.

We get infectious diseases when our bodies need to have a periodic cleanout. Children, especially, benefit from childhood spotty rashes, or "exanthems" as they are called, at appropriate times in order to make developmental leaps, so long as they are treated appropriately. In my experience, the worst complications of childhood infections are caused by standard medical treatment, which involves suppression of all the symptoms.

Has this knowledge helped my career? It has certainly enabled me to give better advice to parents about treating childhood illness and to be able to provide parents with enough information to give truly informed consent for medical interventions such as vaccination.

My research also led me to being asked, in 2002, to act as an expert witness for the mothers of two unvaccinated children whose absent

fathers were applying to the court for a vaccination enforcement order. I wrote a report based on my research, fully referenced, carefully using the methods and results of the studies I quoted to give my opinion, rather than the conclusions of the authors, which are often not supported by their results.

The experts for the fathers and the children were members of the Joint Committee on Vaccination and Immunisation (JCVI). They recommended vaccination for both children. If they had advised that vaccination was not necessary for these individual children, they would have been seen to be contradicting government health policy based on JCVI recommendations, which is a conflict of interest that was not explored in the case.

The judge decided that my opinion was less valid than theirs, and the mothers lost their case. When it went to appeal, one of the appeal judges called my evidence "junk science," and on this basis I was charged with Serious Professional Misconduct by the General Medical Council (GMC) of the UK, which could have resulted in being struck off the Medical Register, banned from practicing as a doctor, and losing my livelihood.

In 2007, after a long, drawn-out case lasting three and a half years, the GMC panel completely exonerated me. They did not merely acquit me, but said they were "sure that in the reports you provided you did not fail to be objective, independent and unbiased."

The successful outcome notwithstanding, the case took an inevitable and heavy toll on my children, our family, and my professional life.

In their meticulously researched book, Dr. Suzanne Humphries and Mr. Roman Bystrianyk take you right back to the roots of disease and the connection between living conditions, nutrition, and health.

They systematically piece together the information you need to pierce the myth that vaccination is what saved us from the infective scourges of the past. More worryingly, they also show how vaccines may be instrumental in creating a many-headed *hydra* of overt and covert disease, which is hardly recognised, barely understood, and may well be of immense consequence to our children and future generations.

With all this information there, waiting to be found, why don't more doctors go and look for it?

Why do doctors not even entertain the possibility that the Universal Childhood Vaccination Program may not be the unmitigated success that it is portrayed to be?

Why do doctors not even consider that there may be other ways of achieving health that are better and longer lasting?

In my opinion, the biggest obstacle to independent research and thinking is the professional consequence of stepping out of line and being seen to be different—as I know to my cost. As George Bernard Shaw says in his preface to "The Doctor's Dilemma" 1906:

Doctors are just like other Englishmen: most of them have no honour and no conscience: what they commonly mistake for these is sentimentality and an intense dread of doing anything that everybody else does not do, or omitting to do anything that everybody else does.

So next time you are in your doctor's office and you say, "I'm worried about the safety of vaccination," and you are told, "You don't understand, you're not a doctor . . ." remember that, if you are a doctor and say, "I'm worried about the safety of vaccination," you will be told, "We're charging you with serious professional misconduct . . ."

Dr. Jayne L. M. Donegan, MBBS, DRCOG, DFFP, DCH, MRCGP, MFHom 13 June 2013, London, UK jaynelmdonegan@yahoo.com www.jayne-donegan.co.uk

Authors' Introduction

Roman Bystrianyk

My journey began many years ago with the birth of my children. I always wanted to make sure they had the best I could provide: healthy food, a secure place to live, lots of toys, and plenty of caring, laughing, and love. When it came time to have them vaccinated I had assumed, like most parents, that it was a good idea. It had to begovernments, medical professionals, and just about everyone agreed that vaccines were one of the greatest medical discoveries of all time. Measles, whooping cough, smallpox, and all sorts of other horrible infectious diseases were nowhere to be seen, thanks to vaccines.

I'm by nature an inquisitive and questioning person, and something didn't sit right with me about vaccination. A nagging inner voice kept telling me that I should know more about these injections going into my family. Somehow I knew I shouldn't completely and blindly accept that vaccines were safe and effective. At this point, I knew almost nothing about vaccines, but as I began to do some reading I found some disturbing bits of information that built upon my baseline apprehension.

But because of the amount of pressure from doctors and my wife at the time, my children had received some vaccines. In the past, I felt enormously guilty after agreeing to allow my sons to be injected, and I hoped no terrible side effects would occur. I remember staying up at night, feeling distraught after agreeing to give them an injection and hoping nothing major would happen to them. I was overwhelmed with worry, wondering if I had done the right thing by succumbing to the pressure to have them vaccinated. Nothing overt appeared to happen, and they seemed to emerge basically unscathed. Despite being told that vaccines were harmless, I was still left with a feeling that maybe I had done the wrong thing.

I started keeping files with the information I was finding in an attempt to make sense of it all. Eventually, I ran across a book by Neil Z. Miller. In it, Miller showed a graph of deaths from measles that had declined by 95 percent before the measles vaccine was put into general use. I couldn't believe it! Wasn't the decline of deaths from disease the claim to fame for vaccines? Wasn't this the main reason for vaccinating? Could this graph be correct?

That graph left me with an irksome, yet simple, question: Were vaccines really responsible for the decline in mortality from infectious diseases and the eradication of certain diseases? It was important to me to remain objective. My goal was to get to the truth. It seemed that this obvious question should be easy to answer. After all, vaccines have been around for more than one hundred years. Surely the CDC or some medical organization would have a large database of mortality and disease rates available. I was amazed that this wasn't the case. Data that I sought wasn't that easy to find. I thought it was strange that the data wasn't on public display for the world to see, especially if vaccines had defeated the deadly infectious diseases of the past. Where was the proof?

I continued to research vaccination and spent countless hours at the Yale Medical Library as well as other research libraries. I located some mortality data and started gathering statistics from different sources and entered it all into a computer spreadsheet program. Few medical journals referenced historic mortality data, and those that did made no mention of something that now became clear to me. Looking at the data from the United States starting from 1900, the measles mortality rate had declined by more than 98 percent before the introduction of the vaccine! Even more shocking was that the same data revealed that whooping cough mortality had declined by more than 90 percent before the DTP vaccine was introduced! I was stunned that no one I knew, including my sons' doctors, had carefully examined this fundamental belief that vaccines were responsible for the massive decline in deaths from measles and whooping cough.

I now realized that the belief that vaccines were essential in eliminating the threat of at least these two diseases was based on a myth. There must have been other factors that led to such a dramatic decline in mortality before vaccine introduction.

I presented a great deal of information to the mother of my children. Even though she was an educated nurse, she found it impossible to accept what I showed her. On a weekend not long after, I noticed that all three of my children were very sick. I examined them more closely and saw that they all had high fevers and extremely red eyes. I couldn't imagine why they were all so sick. I called their mother and found out that they had, without my knowledge or consent, gotten the DTP, MMR, and polio shots all in one visit. A rush of emotions swept over me. I was angry, upset, worried, and devastated. One of the most important health decisions involving my children had been stripped away from me. The children were very ill all weekend. One of my boys kept having sporadic shooting pains in one eye that recurred intermittently for a couple of months and ultimately seemed to resolve.

By this time, I had accumulated a vast amount of information and hard data. It seemed more likely that we had been misled to believe that vaccination was responsible for eliminating the notorious diseases and devastation of the past. I wondered how statistics and information from medical journals were completely disregarded. That brought me to an understanding of how easily people can be ensnared in a faulty belief system. Assurances from medical authorities that, out of love and responsibility, parents should vaccinate their children were all most people needed to hear. I gained clarity that there was an underlying societal belief in vaccines that was not based on history or evidence. That belief is maintained by a public that remains foundationally subservient and obedient to governmental and medical hierarchies that may not deserve their trust.

Several years after my children had that vaccine reaction, one of them collapsed. Subsequent EEG (electroencephalogram) tracings reflected abnormal brain waves consistent with seizures. From my research, I couldn't help but suspect that the vaccines had caused neurological damage. The neurologist told me that nothing nutritionally could be done to help with the seizures. Unwilling to accept this, I did my own research and found studies in medical journals that showed certain nutrients could make a significant difference. I put my son on a protocol of omega-3 fatty acids, B-complex, magnesium, and other nutrients and an organic diet. Happily, after a few months, the EEG revealed no seizure activity! Not only was I thrilled that my son's condition had improved, but the experience had again shown me the power of belief systems. In this case, the belief that nutrients and diet had no effect on brain health was absolutely wrong. Conventional medical journals contained the information on using nutrients to stop seizures, but shockingly, the information just was not being used by the medical profession.

Each one of these experiences propelled me to continue my research. I obtained data from many sources that led me to solidify and round out my hypothesis that vaccines were not responsible for the decline in deaths from infectious diseases. Now I was left with new questions. What did cause the decline of infectious diseases? Why was there such a rock-solid belief that vaccines were responsible? What was the true history?

I continued to pour through hundreds of medical journals and longoverlooked books, magazines, and newspapers from the 1800s and early 1900s. I found thousands of pages that painted a new picture. I was astonished that an amazing and exciting history had all been tossed in the basements of libraries and possibly lost forever. This new information revealed to me a radically different view of life in the 1800s.

I also discovered how science can go horribly wrong. We can easily become captured by a belief system that is built on a shaky and flawed foundation. How often do we believe in something, not because we have done in-depth research on it, but because authority figures tell us it is the truth? What if what we believe is just an illusion?

I hope that you find the information in this book—graphs, quote-filled chapters, and more—an interesting addition to what you believe. I think the pages of each chapter will provide a unique insight and shine a different light on what really is a hidden past. For some of you, this might be a starting point to begin questioning what you may have innocently accepted as the truth. For others, the information might fill in large gaps and answer questions you may have had but never knew where to look. For me, it has been a rewarding process of dissolving illusions that I'd like to share with you.

Suzanne Humphries, MD

It may seem odd that a medical doctor with 19 years of experience has passionately turned away from the practice of vaccination. It may seem even stranger that, with a successful career as a nephrologist, she would pack her medical bags and leave the hospital without looking back. At the top of her game, she left a very lucrative practice and a shining reputation behind. Here's what happened:

Like most doctors, I received a cursory summary of the childhood and adult vaccine schedules and was told that vaccines are safe and effective and to give them on schedule. I never questioned the vaccine schedule and was largely agnostic about it.

After nearly two decades of working in the conventional medical system, several things converged to launch me into a new way of thinking. I never would have predicted that the medical establishment would present itself to me as a blatant violator of life or conflict with my moral and spiritual principles . . . but it did.

The most memorable event was during the winter of 2009 when the H1N1 flu vaccine was given as a separate injection from the seasonal flu vaccine. Many doctors were skeptical of the practice of influenza vaccination, and many of my hospital colleagues signed the exemption form and dodged the vaccine for themselves. However, there were trusting patients who did not have the discernment to refuse, and I got to see the potential result of vaccination on their kidneys.

That winter, three patients in close succession were wheeled into the emergency room of my hospital with total kidney shutdown. When I arrived to talk to them, each one volunteered to me, "I was fine until I had that vaccine." All three had normal kidney function at baseline, as per their outpatient records. All three required acute dialysis, two eventually recovered, and one died of complications several months later, supposedly from his other illnesses. After this series of events,

I began to take vaccine histories on each of my patients and was startled at the connections that could be made just by asking, "When was your last vaccine?" In my opinion, many cases of supposedly idiopathic (a medical term for *unknown*) kidney disease are not idiopathic at all.

During the weeks of dialyzing the three kidney-failure patients, I passed the chief of internal medicine in the hallway. He was someone I had always had a good relationship with, and we were on excellent terms. He asked me the usual, "How are you doing? How is the nephrology practice going?" I decided to tell him what was happening and how I thought the flu vaccine was causing problems. After conveying a small bit of my observations, he became stiff, his face tightened, his body language changed, and he asked me why I was blaming the vaccine. "They just got the flu, and the vaccine didn't have time to work," was his curt response. I replied by pointing out the fact that I had never, in my career as a nephrologist and an internist, seen a case of the flu present with kidney failure unless the patient had become severely dehydrated and/or taken copious amounts of ibuprofen, neither of which these patients had done. Even more striking was that the patients under discussion did not have symptoms of influenza prior to developing kidney failure.

The conversation continued. We ended up discussing the meningitis problem in teenagers and college students. I suggested that the drugs, vaccines, lack of rest, and poor diets of these children may make them vulnerable to bacteria they would otherwise have defense against. After all, I knew that meningococcal bacteria were often found in completely healthy people. Something else must be contributing to the situation in those who get sick. He laughed at me and said, "So you think the diet is causing meningitis?" He went on to remind me that "smallpox was eradicated by vaccines, and polio was eradicated in the United States by vaccines." At that time, I was ignorant of the history of smallpox and polio except that, six years prior, I was asked to be vaccinated for smallpox in order to be a first

responder. These first responders would be ready in the case of a terrorist attack or if a person developed smallpox from the vaccine.

As for polio, the images of crippled children, iron lungs, and the terrible days of the vicious poliovirus attacks were branded into my consciousness like most other people's. I thought Jonas Salk was a great American hero. Funny how the events of 1954 were programmed into me, since I was born in 1964. I wouldn't have been able to even think about polio until 1969 at the earliest. So when this doctor made his final comments to me, I was speechless and unable to respond. I felt lambasted.

Later, several patients were admitted with normal kidneys and had their health decline within 24 hours of vaccination. Even these well-defined and documented cases were denied as vaccine-induced by most of my colleagues. There was the rare doctor who would concur with me in private or the nurse who would come and thank me and agree with me while nobody was listening.

Over the following months, I first made it my business to find out everything I could about safety trials for vaccines in kidney patients. I was shocked to find that there were no trials on these types of patients. I was told they could tolerate vaccines because they are "safe and effective." On seeing that safety of vaccines in acutely ill (active heart failure, sepsis, cancer, autoimmune disease) and chronic nephrology patients was a myth, I decided to research the chief of internal medicine's assumptions about the flu vaccine, smallpox, and polio history. What I encountered threw me into a tailspin that ultimately led me to become a full time researcher on the immune system and vaccination.

I came to realize that the guidelines, evidence, and opinions of the leaders were unsound and were NOT leading the herds to authentic health. What was most puzzling to me was how I was treated when I tried to protect my own kidney-failure patients from being vaccinated—especially when they were ill.

After an attempt to get the hospital to defer vaccinating for pneumonia and influenza until the day of hospital discharge instead of admission, I was told not to interfere with the vaccination protocol. Even more outrageously, I was continuously told that if I wanted credibility for my views I should conduct my own study to prove that the vaccines were causing kidney failure. The burden of proof was somehow placed upon me to obtain IRB (Institutional Review Board) approval and funding and conduct a statistically significant study that those who doubted my evidence of harm would believe. Shouldn't the burden of proof rest upon vaccine manufacturers and those who tout their safety? After all, there was no data to support the belief that vaccines did not cause kidney failure and there was plenty of reason to believe they could. To me, it was obvious that nobody was looking, and thus the connections were not made.

This was the first time in my career that my opinion regarding kidney failure was not respected. Any other time I suggested that a drug was responsible for kidney damage, that drug was immediately discontinued—no questions asked. This happens routinely with certain blood pressure drugs, antibiotics, pain killers, etc. Sometimes kidneys can react to drugs in an allergic fashion—to any drug at any time—and that drug would have been stopped. Some drugs cause direct toxicity to the kidneys, and in the past if I suggested to stop or avoid them, they were always avoided. But now I was unable to protect my own kidney-failure patients from vaccinations given in the hospital.

Questioning the vaccines seemed to open an entire Pandora's box that apparently had yellow tape over the lock, along with the message, "Do not cross." I was met with doublespeak—permitted to write an order to stop a vaccine that was to be given if I got there in time, but I was also told that I was doing it too often and that I should not interfere with the hospital's vaccination policy.

When I pointed out the connection between vaccines and worsening or new-onset kidney failure to a couple of open-minded colleagues, they understood, started taking vaccine histories, and saw what was happening. Yet they remained silent. Most doctors continue to practice with comfortable indifference. Some see the errors, damage, and limits of their practices but still walk lockstep with the herd and protect the brotherhood. I don't know what it will take to get these doctors to resist the dictates who rule over them. I've had far more success reasoning with parents and intelligent people who are not attached to traditions that are damaging, unscientific, and not even supported by our own medical literature. This book is for those who want to read what I have discovered, after years of research, to be a much more accurate depiction of vaccination history.

Terminology

Inoculation: The act of introducing an antigenic substance (stimulates the production of antibodies) into the body to produce an immune system reaction to a specific disease.

Variolation: A procedure that entails inoculating a susceptible person with material taken from a vesicle (a blister formed in or beneath the skin) of someone who has smallpox (orthopox variola virus), to try to prevent smallpox in the susceptible person.

Vaccination:

- a) From *vacca*, the Latin word for cow: Inoculation of cowpox virus (orthopox vaccinia virus) with the intention of protecting against smallpox virus. Also known as *cowpoxing*.
- b) Today the term has been used to describe many other types of inoculations: A preparation of a weakened or killed pathogen, such as a bacterium or a virus, or of a portion of the pathogen's structure that, upon administration, stimulates antibody production or humoral immunity against the pathogen.

Immunization: A process that induces an immune response to a specific disease by exposing the individual to a natural or laboratory-derived antigen. The goal of the process is to raise antibodies to a specific antigen.

You can be vaccinated, but if there is no immunity, you are not immunized. You can be unvaccinated, but if you have had the disease and have protection, you are immune; therefore you are immunized.

DTP: Diphtheria, Tetanus, Pertussis vaccine that used the whole bacterial cell after it was killed. This was the original version of the pertussis vaccine that was highly antigenic but more problematic from a safety standpoint. This vaccine is often termed the *whole cell* vaccine. It is still used in developing countries.

DTaP: Diphtheria, Tetanus, acellular Pertussis vaccine. The pertussis portion of these vaccines does not use the whole cell but contains the pertussis toxin either alone or in combination with pieces of other virulence factors from the cell. These are the vaccines used in the United States, the United Kingdom, and most of Europe today. They are thought to be much safer but are far less antigenic. They are also more expensive.

THE NOT SO GOOD OL' DAYS

As we passed along the reeking banks of the sewer the sun shone upon a narrow slip of the water. In the bright light it appeared the colour of strong green tea, and positively looked as solid as black marble in the shadow—indeed it was more like watery mud than muddy water; and yet we were assured this was the only water the wretched inhabitants had to drink. As we gazed in horror at it, we saw drains and sewers emptying their filthy contents into it; we saw a whole tier of doorless privies in the open road, common to men and women, built over it; we heard bucket after bucket of filth splash into it . . .

- Henry Mayhew (1812-1887), September 24, 1849

Passing along a rough bank, among stakes and washing lines, one penetrates into this chaos of small one-storied, one-roomed huts, in most of which there is no artificial floor; kitchen, living, and sleeping-room all in one... Everywhere before the doors residue and offal [waste]; that any sort of pavement lay underneath could not be seen but only felt, here and there, with the feet.

- Friedrich Engels (1820-1895), 1844

Many of us have a picture of the 1800s colored by a myriad of filters that impart a nostalgic and romantic view of that era. You may picture a time when gentleman callers arrived to meet a well-dressed lady in a finely furnished parlor. A time where people leisurely drifted down a river on a paddlewheel riverboat while sipping mint juleps. A time of more elegant travel aboard a steam train passing through the beautiful countryside, or a stylish woman dressed in a long, flowing gown, descending from a sleek horse-drawn carriage with the aid of a dapper companion in a top hat. You

may think of those times where life was simple and ordered—a seeming utopia, free of the many woes that plague modern society.

But if those filters are removed and a more objective light is cast upon that time, a different picture emerges. Instead, imagine a world where workplaces had no health, safety, or minimum-wage laws. The 1800s was a century when people put in 12 to 16 hours a day at the most tedious menial labor. Imagine bands of children roaming the streets out of control because their parents were laboring long days. Children were also involved in dangerous and demoralizing work. Picture the city of New York surrounded not by suburbs but by rings of smoldering garbage dumps and shantytowns. Cities where hogs, horses, and dogs and their refuse were commonplace in the streets. Many infectious diseases were rampant throughout the world, particularly in the larger cities. This is not a description of the Third World, but a large portion of what the United States and other civilized Western countries used to be only a century or so ago.

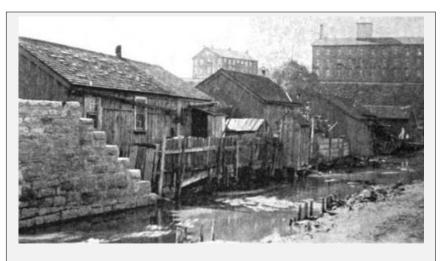


Photo 1.1: Syracuse, NY—Shanties Back to an Open Sewer. (1901)

The "good old days," when everything, in particularly human health, was supposedly better than it is today, are a myth. **The**

documented history of Western civilization describes an endless and unromantic struggle with sickness and death, tragically high infant mortality, and the premature death of young adults. Death-dealing epidemics attacked helpless communities nearly as often as summer and winter came to pass, and were followed every few years by major catastrophes. In Victorian England, the average age of death among the urban poor was 15 to 16 years.¹

During the 1800s, the number of factories grew along with a rapidly increasing population, which resulted in a flood of people from the countryside into the towns and cities looking for work. The population of the city of London, England, increased by almost ninefold during the 19th century. Industrialization rapidly multiplied threats to health because of the enormous simultaneous growth of towns.

In 1750, about 15 per cent of the population lived in towns; by 1880 a staggering 80 per cent was urban. In 1801 one in five workers was employed in manufacturing and linked occupations; by 1871 that had climbed to two in three. The largest city in the Western world, London had about 800,000 inhabitants in 1801; by 1841 its population had grown by a further million, and at the death of Queen Victoria in 1901 the heart of the empire [London] contained seven million inhabitants.²

Hazardous housing

Housing could not accommodate the population explosion, which resulted in overcrowding and a remarkable buildup of human and animal waste. In some cases, large buildings, originally built for breweries or sugar refineries, were later divided into numerous

¹ Velv W. Greene, PhD, MPH, "Personal Hygiene and Life Expectancy Improvements Since 1850: Historic and Epidemiologic Associations," *American Journal of Infection Control*, August 2001, p. 203.

² Roy Porter, *The Greatest Benefit to Mankind*, Harper Collins, New York, 1997, p. 398.

small, dark rooms for families to live in.³ These conditions contributed to high disease and death rates.

The stenches from the "horribly foul cellars" with their "infernal system of sewerage" must needs poison the tenants all the way up to the fifth story . . . the well-worn rut of the deadwagon and the ambulance to the gate, for the tenants died there like flies in all seasons, and a tenth of its population was always in hospital.⁴

The Tenement House Commission long afterward called the worst of the barracks "infant slaughter houses," and showed, by reference to the mortality lists, that they killed one in every five babies born in them.5

If there is an open space between them [tenements], it is never more than a slit a foot or so wide, and gets to be the receptacle of



Photo 1.2: Jefferson Street. The shed barn at right contains three horses. The barn next in view contains six horses and two goats. The house in the center of the picture is full of Italian families and presents no redeeming feature. On the left are other tenements full of families. (1911)

garbage and filth of every kind; so that any opening made for the purposes of ventilation becomes a source of greater danger than if there were none.⁶

³ Henry E. Sigerist, *Civilization and Disease*, Cornell University Press, New York, 1943, pp. 38–39.

⁴ Jacob A. Riis, *The Battle with the Slum*, Macmillan, New York, 1902, pp. 23–25.

⁵ Ibid., pp. 36–37.

⁶ Ibid., p. 115.

Although advances had been made by the early 1900s, many still lived in abysmal sanitary conditions. Some tenements were

furnished with indoor facilities, but they were often shared by families. Tales multiple despair and suffering were commonplace among the working Struggle poor. for survival was a daily affair. People were often close to financial and physical collapse.⁷

Poor planning with the everincreasing number of businesses and population led to haphazard city organization. Businesses of all types, including any of their hazardous environmental by-products, were built alongside crowded living quarters. The lack of health regulations and zoning rules resulted in a dangerous and demoralizing environment for



Photo 1.3: A so-called room of a three-room tenement, but it is merely a large size closet with a slanting ceiling, located under the main entrance stairs of the building. Here, in a three-quarter bed, sleep the father and mother and a little child. The rest of the family sleep in the front room and kitchen. This "room" has absolutely no light or ventilation. (1916)

the working-class people. An 1861 article on US cities and parks in the *Atlantic Monthly* described the situation in cities.

Narrow and crooked streets, want of proper sewerage and ventilation, the absence of forethought in providing open spaces for the recreation of the people, the allowance of intramural [within the walls of a building] burials, and of fetid nuisances, such as slaughter-houses and manufactories of offensive stuffs, have converted cities into pestilential enclosures,

5

⁷ Andrew Mearns, 'Light and Shade', A Sequel to 'The Bitter Cry of Outcast London,' 1885, p. 7.

and kept Jefferson's saying—"Great cities are great sores" true in the most literal and mortifying sense.8

Large numbers of families dwelled within poorly constructed houses. There was no running water and no toilet. An entire street would share an outdoor pump and a couple of outside privy vaults or outhouses.

In 1934 Professor Arthur Cole described how some inhabitants of New York and Boston in the 1850s lived in dark cellars overrun with vermin.

While the larger cities possessed handsome residential districts in which the streets were paved and kept clean and the sewage was properly cared for, there was also crowded foreign quarters, veritable hives of humanity lacking ordinary comforts and often necessities. New even York in 1850 had 8,141 cellars sheltering 18,456 persons. There, as in Boston, about a twentieth of the population lived in



Photo 1.4: The general insanitary conditions which surround the houses on both sides of the alley. The first house on the right is a small dilapidated frame house. Beyond it are three larger tenements. The outbuildings at the left are all dilapidated, and contain privies which are in a foul condition. There are not enough garbage boxes to supply the needs, and the ones provided are so seldom cleaned that the families dump their slops and garbage in the alley. (1901)

damp, dark, ill-ventilated, vermin-infested underground rooms. By the end of the war [US Civil War] fifteen thousand tenement

⁸ Henry W. Bellows, "Cities and Parks: With Special Reference to the New York Central Park," *Atlantic Monthly*, vol. VII, April 1861, p. 416.

houses had been built in New York, many of them hardly more than "fever nests." 9

The working classes inhabited the most deplorable housing, which was described by Friedrich Engels in 1844. Engels visited the slums while in Manchester, England, and noted the horrors he observed. He described the people he encountered in London and other towns in England.

... these pale, lank, narrow-chested hollow-eyed ghosts, whom one passes at every step, these languid flabby faces, incapable of the slightest energetic expression, I have seen in such startling numbers.¹⁰

Hordes of people crowded beneath smoldering, water-rotted roofs, or burrowed among the rats of clammy cellars.¹¹ Roy Porter, a British historian noted for his work on the history of medicine, wrote about the plight of millions of people in the newly industrialized cities.

For millions, entire lives—albeit often very short ones—were passed in new industrial cities of dreadful night with an all too typical socio-pathology: foul housing, often in flooded cellars gross overcrowding



Photo 1.5: The conditions of the filth-strewn alleys, of courts and yards littered with rubbish, of ill-smelling stables and manure boxes find their climax and in part their cause in the accumulation of garbage. (1901)

lars, gross overcrowding, atmospheric and water-supply

¹⁰ Friedrich Engels, *The Condition of the Working-Class in England in 1844*, Otto Wigand, Leipzig, p. 98.

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⁹ Arthur Charles Cole, *The Irrepressible Conflict 1850–1865*, *A History of American Life Volume VII*, Macmillan, New York, 1934, p. 181.

¹¹ Jacob A. Riis, *The Battle with the Slum*, Macmillan, New York, 1902, p. 13.

pollution, overflowing cesspools, contaminated pumps, poverty, hunger, fatigue and abjection everywhere. Such conditions, comparable to today's Third World shanty town or refugee camps, bred rampant sickness of every kind. Appalling neo-natal, infant and child mortality accompanied the abomination of child labour in mines and factories; life expectations were exceedingly low—often under twenty years among the working classes—and everywhere sickness precipitated family breakdown, pauperization and social crisis. 12

Contemporary writers of the time tried to call attention to the plight of the wretched poor and their terrible living conditions. Andrew Mearns and William C. Preston wrote about the poor in their 1883 book The Bitter Cry of Outcast London: An Inquiry into the Condition of the Abject Poor.

> Few who will read these pages have any conception of what these pestilential human rookeries are, where tens of thousands are crowded together amidst horrors which call to mind what we have heard of the middle passage of the slave ship. To get to them you have to penetrate courts reeking with poisonous gases arising from accumulation of sewage and refuse scattered in all directions and often flowing beneath your feet; courts, many of them which the sun never penetrates, which are never visited by a breath of fresh air, and which rarely know the virtues of a drop of cleansing water. You have to ascend rotten staircases, which threaten to give way beneath every step, leaving gaps that imperil the limbs and lives of the unwary. You have to grope your way along dark and filthy passages swarming with vermin. Then, if you are not driven back by the intolerable stench, you may gain admittance to the dens

¹² Roy Porter, *The Greatest Benefit to Mankind*, Harper Collins, New York, 1997, p. 399.

in which these thousands of beings who belong, as much as you, to the race for whom Christ died, herd together.¹³

The extremely stressful conditions rapidly aged the poor workingclass people. Those who escaped death from disease or disability at an early age often only lived into their thirties or forties.

Among the laboring classes, life expectation remained everywhere low—little more than thirty years—and from the 1830s photographs show working people looking old by their thirties and forties, as poor nutrition, illness, bad living conditions and gross overwork took their toll.¹⁴

Water and sewage and everything offal

Clean water, proper sewage treatment, and fresh air did not exist in these areas. Without any sanitary infrastructure, human and animal waste would flow into the streets, ending up in the local streams and rivers, which happened to also be the people's primary water supply. Sanitary facilities designed for smaller populations failed. Cesspools overflowed and seeped into the local water supplies.

The manner in which the great multitude of the poor is treated by society to-day is revolting. They are drawn into the large cities where



Photo 1.6: Water-closet used by fourteen families. (1916)

¹³ Andrew Mearns and William C. Preston, *The Bitter Cry of Outcast London: An Inquiry into the Condition of the Abject Poor*, James Clarke & Co., London, 1883, p. 4.

¹⁴ Ibid., p. 425.

they breathe a poorer atmosphere than in the country; they are relegated to districts which, by reason of the method of construction, are worse ventilated than any others; they are deprived of all means of cleanliness, of water itself, since pipes are laid only when paid for, and the rivers so polluted that they are useless for such purposes; they are obliged to throw all offal and garbage, all dirty water, often all disgusting drainage and excrement into the streets, being without other means of disposing them; they are thus compelled to infect the region of their own dwellings.¹⁵

In the mid-1800s, public water supplies in McLean County, Illinois, and Chicago were described as being contaminated with human animal and waste. Medical Chicago Society frequently criticized the city's water supply, which after 1853 was drawn from Lake Michigan by means of a crude wooden inlet 600 feet long, close to where the sewage-filled Chicago River emptied.16

> Before the 1870s, all kinds of garbage and human and animal waste had been thrown into what

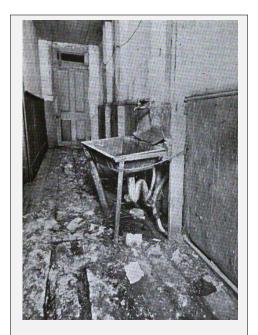


Photo 1.7: Public hall and sink. Sink supported only by string and flimsy wooden props. Hall floor covered with fecal matter and sewage. (1903)

¹⁵ Friedrich Engels, *The Condition of the Working-Class in England in 1844*, Otto Wigand, Leipzig, p. 97.

¹⁶ Thomas Neville Bonner, *Medicine in Chicago 1850–1950: A Chapter in the Social and Scientific Development of a City*, American History Research Center, Madison, Wisconsin, 1957, p. 179.

became known as the "North and South Sloughs," originally small streams running into Sugar Creek. Over the years the Sloughs "became a . . . sodden pool of stench that was the breeding places for disease . . . because it drained sewage into the community's primary water source, Sugar Creek."¹⁷

Poor waste management continued in Paris even after World War I, with many of the city's cesspools still in use.

Unlike Londoners, most Parisians were still getting their water in 1870 from fountains or water-sellers, and disposing of waste in court pits. Paris was a city of 85,000 cesspools; many remained until after the First World War. 18

Edwin Chadwick, an English social reformer who worked to improve sanitary conditions and public health, believed that sickness bred poverty. He enlisted the aid of three doctors who were sympathetic to sanitary reforms—Neil Arnott, James Phillip Kay-Shuttleworth, and Thomas Southwood Smith. Their 1838 report revealed the squalor in London.

"The room of a fever patient, in a small and heated apartment in London, with no perflation [blowing] of fresh air, is perfectly analogous to the stagnant pool in Ethiopia full of the bodies of dead locusts," declared Southwood Smith. "The poison generated in both cases is the same; the difference is merely in the degree of its potency." 19

¹⁷ Lucinda McCray, *A Matter of Life and Death: Health, Illness and Medicine in McLean County, 1830–1995*, Bloomington Offset Process, Inc., 1996, pp. 54–55.

¹⁸ Roy Porter, *The Greatest Benefit to Mankind*, Harper Collins, New York, 1997, p. 416.

¹⁹ Ibid., p. 410.

Animals: Dead and live, dangerous and diseased

Because there were no environmental laws, industries simply discharged their waste into the air and water. In 1850s London, the environment was filled with dirt that spewed from factories. If human and animal waste in the city streets was not revolting enough, the people withstood an even worse addition to the loath-some scenario—putrefying corpses of animals.

In manufacturing towns, factory chimneys spewed soot, and everything was covered with dirt and grime. Smoke was a major ingredient of the famous London fog, which not only reduced visibility, but posed serious health risks. Refuse, including the rotting corpses of dogs and horses, littered city streets. In 1858, the stench from sewage and other rot in London was so putrid that the British House of Commons was forced to suspend its sessions.²⁰

Animals were found in great numbers in the cities, either roaming freely or in slaughterhouses. The *Annual Report of the Metropolitan Board of Health* in 1866 describes slaughterhouses that were intermingled with tenement housing.

The suffering caused to animals by the present system of slaughtering is a source of pain and annoyance to all persons living near these establishments. The animals are seldom fed from the time they arrive until they are killed, and constantly give expression to their suffering. Many slaughter-houses are located in the centre of blocks of high tenement-houses, and the business of slaughtering, as viewed from the adjacent

²⁰ Thomas F. X. Noble, Barry Straus, Duane J. Osheim, Kristen B. Neuschel, Elinor A. Accampo, David D. Roberts, and William B. Choen, *Western Civilization: Beyond Boundaries*, volume II, 6th ed., Wadsworth, Boston, Massachusetts, 2010, p. 579.

windows, is in the highest degree demoralizing in its effects upon the young.²¹

People threw their garbage out onto the city streets, where it was consumed by scavenging pigs, dogs, and rats. The filth in New York City streets had amassed to a depth of two to three feet in the winter. Household refuse and animal waste from horses and the other animals mixed with the muddy streets.

... nearly every city—from the national capital to some budding Western porkopolis—had its hog nuisance or some equivalent. The streets, squares and parks amounted to public pens, hog holes offending the eye and nose at every turn . . . In the fall of 1853 porkers were more numerous on the streets of Springfield [Illinois] than in the pens at the state fairgrounds. The near-by town of Urbana had a record of more hogs than people, and they had at least equal rights with citizens upon the streets.²²

Kill Your Rats!

There are 2,000,000 or more Rats in Boston, causing annual damages of \$70,000,000 and jeopardizing the lives, property and prosperity of our city. (City Document No. 114,=1916, p. 20)

\$50 to the person bringing the greatest number of dead rats on Tuesday, February 13, 1917, between 7 A. M. and 6 P. M. to City Sanitary Yards at Rutherford Avenue, Charlestown, Atlantic Ave., North Grows St., Albany St., and Highland St., Rozbury. \$100 to the person who brings the greatest number of any one in the city.

Women's Municipal League of Boston

Photo 1.8: Kill Rats Poster. (1917)

With the accumulation of garbage came the inevitable increase in vermin such as rats, which became an accepted part of city life. Disease-spreading insects of all types, including cockroaches, were commonplace in tenements.

Prisons, dock-yards, and wharves have been celebrated for the multitude and magnitude of the

²² Arthur Charles Cole, *The Irrepressible Conflict 1850–1865: A History of American Life Volume VII*, Macmillan, New York, 1934, pp. 179–180.

²¹ Annual Report of the Metropolitan Board of Health, 1866, C.S. Wescott & Co.'s Printing House, New York, 1987, p. 34.

rats which infest them, and the cruelty of their voracious attacks upon the inmates of these receptacles of vermin.²³

In 1916 the cities of New York and Boston were infested with millions of rats, causing a huge amount of destruction.

It is estimated by the bacteriological department of the Boston board of health that \$72,000,000 in damage is done yearly by the **2,000,000 rats that infest Boston**. About \$91,250,000 in damage is done yearly by rodents in New York City.²⁴

During the mid-1800s, hospitals were unsanitary and overcrowded. The American public looked upon them with little regard, considering them a place where the sick and poor went to die. An 1860 article entitled "Rats in the Hospital" published in *Harper's Weekly*, a leading journal of that time, exposed the horrific conditions at Bellevue Hospital in New York. The article was inspired by an incident of a baby who was eaten by rats at that hospital.

This day, the inquest held on the body of the infant that was eaten by rats in Bellevue Hospital, New York, was concluded. The evidence of Mary O'Connor, the mother of the child, and that of numerous other witnesses, was taken . . . and recommended that proper means be taken to rid the hospital of the rats that now infest the institution.²⁵

Diseased food

The limited sources of food consumed by the population were often of poor quality or contaminated. A lack of laws or unenforced laws and a systemically corrupt food supply chain led to an abysmal health situation for those eating diseased food. Attempts to improve the situation were almost always opposed by the individuals and businesses engaged in the offenses because it impacted their bottom

²⁵ Vincent's Semi-Annual United States Register, 1860, p. 346.

²³ The American Medical Gazette, vol. XI, Hall, Clayton & Co. Printers, New York, 1859, p. 387.

²⁴ The Women's Municipal League of Boston Bulletin, May 1916, p. 20.

line. In Chicago and New York City, milk was of such poor quality that it caused the deaths of thousands of children each year.

. . . milk sold in Chicago came from cows "fed on whiskey slops with their bodies covered with sores and tails all eat off," a circumstance which enabled the editorial critic to explain "Why so many children die in Chicago." New York's milk supply

was also largely a byproduct of the local distilleries and the milk dealers were charged with the serious offense of murdering annually eight thousand children.²⁶

[Cows] shut up, without proper exercise or pure air, the milk is necessarily diseased, and is the cause of extensive



Photo 1.9: A case of Acute Milk Poisoning Having Vomiting, Diarrhoea, Mucous and Bloody Stools, General Emaciation, Acute Cholera Infantum, and Dysentery. (1914)

mortality among young children and infants. Besides the unhealthy slops, decayed vegetables, and the sour and putrid offals and remnants of kitchens, are gathered up for food of these animals; the consequence of which is, that they become diseased...²⁷

In 1860s England, city inspectors attempted to control the sale and use of diseased meats. To avoid financial losses, diseased meat was made into sausages, pickled and cured for ham and bacon, to be sold to an unsuspecting public. Meat that was too diseased for even sausage was fed to the pigs, which would later be eaten by humans.

²⁷ Jonathan Pereira, MD, "Milk as Affected by the Diet and Regimen of Cows," *A Treatise on Food and Diet*, J. & H. G. Langley, New York, 1843, p. 287.

²⁶ Arthur Charles Cole, *The Irrepressible Conflict 1850–1865: A History of American Life Volume VII*, Macmillan, New York, 1934, p. 181.

The dead-meat markets are contaminated by the carcasses of diseased animals from all sources . . . in the City markets alone his inspectors seize from one to two tons of diseased meat every week; and similar seizures, but to a less extent, are made in butchers' shops and slaughter-houses outside the City by Medical Officers of Health and their assistants. In Edinburgh [England], Mr. Gamgee tells us that 100 to 200 diseased cattle are sold in the dead-meat market every week, carcasses being smuggled in by night even from adjoining piggeries. In this way the best butchers, in ignorance "may and do serve diseased meat to the wealthiest in the land." . . . Pigs are largely fed upon diseased meat which is too far gone even for the sausage-maker, and this is saying a great deal; and as an universal rule, disease pigs are pickled and cured for bacon, ham, etc.28

People often consumed nutrient-deficient diets and contaminated food that left them weak and susceptible to disease. This 1865 report talks about the deplorable state of food in the city of New York. Decayed and diseased foods were often sold to the working classes, which left them in a weakened physical condition.

> The quality of the food sold at the corner and butchers' shops in this neighborhood deserves a more extended notice than it can receive here. A casual examination shows much of it to be unfit for human sustenance. Unwholesome meat, particularly slunk veal [flesh from the fetus of a calf, found during the slaughter of its mother], is constantly vended and consumed. Piles of pickled herrings are exposed to the air till the mass approaches a condition of putridity; and this slimy food, with wilted and decayed vegetables, sausages not above suspicion, and horrible pies, composed of stale and unripe fruits, whose digestion no human stomach can accomplish, all find ready

Practical Medicine and Surgery, vol. XXXV, John Churchill & Sons, London,

January–April 1865, pp. 32, 33.

²⁸ The British and Foreign Medico-Chirurgical Review, Quarterly Journal of

purchasers. These decaying animals and vegetable remains are daily entombed in the protuberant stomachs of thousands of children, whose pallid, expressionless faces and shrunken limbs are the familiar attributes of childhood in these localities.²⁹

The glimpse we have just taken of the underside of Western culture in the 1800s to the 1900s is never discussed in terms of the medical issues and diseases of that notoriously sickened era. Yet those were the most important aspects of susceptibility and spread of illness.

It was not only the adults who suffered these awful conditions. Frequently, children lived an unthinkable existence too. Their lives were often beset not only with pitiful living conditions and diseased, rotten food, but also with long hours of arduous and demoralizing labor, all of which took an enormous toll on their immunity.

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²⁹ Report of the Council of Hygiene and Public Health of the Citizens' Association of New York, 1865, p. 59.

SUFFER THE LITTLE CHILDREN

I have been working below three years on my father's account: he takes me down at two in the morning, and I am up at two the next afternoon. I go to bed at six at night, to be ready for work the next morning. I have to bear my burthen [burden] four traps or ladders before I get to the main road, which leads to the pit bottom. My task is four or five tubs; each tub holds 4 ½ cwt [1 cwt. or hundredweight = 112 pounds]. I fill five tubs in twenty journeys. Am very glad when my task is wrought, as it sore fatigues.

- Ellison Jack, 11-year-old girl, coal bearer, 1840s

But the young, young children, O my brothers!

They are weeping bitterly.

They are weeping in the play-time of the others

In the country of the free.

"For oh!" say the children, "we are weary,

And we cannot run or leap.

If we cared for any meadows, it were merely

To drop in them and sleep."

They look up with their pale and sunken faces,

And their look is dread to see.

Elizabeth Barrett Browning (1806–1861),
 "Cry of the Children," 1842

In the Western world, many children enjoy what we have come to define as a normal childhood. They generally get up in the morning and have a reasonable breakfast, and then, during the majority of the year, attend school. In public and private schools, they are educated in math, science, languages, and other areas of study. While in school, they are fed, and all their basic needs are usually met. They often

have a chance to experience art, music, and physical education and to play games at recess. During the balance of the day, they may interact with their friends, play games, enjoy sports, watch television, play with their pets, or engage in an entire host of other leisure activities. At night they sleep in a relatively safe environment. In the summer months, they often enjoy long, leisurely days playing and may even take vacations with their family.

Although this life is not enjoyed by all and may not be perfect, it is far more common in the developed world than it used to be. During the 1800s and into the 1900s, life for many children in the United States and England was that of long and brutal hours of hard labor and poverty. Their lives were not filled with joy and laughter, but often with suffering and crushing misery.

From the late 1700s into the 1800s, machines frequently replaced manual labor for the production of most manufactured goods. With the large number of factories, the owners needed sources of cheap labor, which was often found in the form of children. Many machines did not need adult strength to operate, so children could be hired more inexpensively than adults. Factory work for children was abusive and demoralizing.

Children from seven years of age upward, were engaged by hundreds from London and other large cities, and set to work in the cotton spinning factories of the north. Since there were no other facilities for boarding them, "apprentice houses" were built for them, in the vicinity of the factories, where they were placed under the care of the superintendents or matrons . . . They were remotely situated, apart from the observation of the community, left to the burdens of unrelieved labor under the harshness of small masters or foremen. Their hours of labor were excessive. When the demands of the trade were active they were often arranged in two shifts, each shift working twelve hours, one in the day and another in the night, so that it was a common saying in the north that "their beds never got cold," one set climbing into bed as the other got

out. When there was no night work the day work was the longer. They were driven at their work and often abused.³⁰

The 1816 report of the Select Committee on the state of children employed in manufacturing detailed the distress that children endured. They labored long hours to the point of exhaustion. Those who lived suffered physical breakdown from the harsh conditions they endured.



Photo 2.1: Boy coal miners. (1914)

Children of all ages, down to three and four, were found in the hardest and most painful labor, while babes of six were commonly found in large numbers in many factories. Labor from twelve to thirteen and often sixteen hours a day was the rule. Children had not a moment free, save to snatch a hasty meal or sleep as best as they could. From earliest youth they worked to a point of extreme exhaustion, without open-air exercise, or any enjoyment whatever, but grew up, if they survived at all, weak, bloodless, miserable, and in many cases deformed cripples, and victims of almost every disease.³¹

Some children began work at the age of four. An 1843 report by John W. Parker detailed the ages of the children employed to work.

That instances occur in which **Children are taken into the mines to work as early as four years of age, sometimes at five**, and between five and six, not unfrequently between six

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³⁰ Edward P. Cheyney, *An Introduction to the Industrial and Social History of England*, Macmillan, New York, 1920, p. 233.

³¹ William Franklin Willoughby and Mary Clare de Graffenried, *Child Labor*, American Economic Association, Guggenheimer, Weil, & Co., Baltimore, March 1890, p. 16.

and seven, and often from seven to eight, while from eight to nine is the ordinary age at which employment in these mines commences. That a very large portion of the persons employed in carrying on the work of these mines is under thirteen years of age; and a still larger portion between thirteen and eighteen. That in several districts female Children begin to work in the mines at the same early age as the males.³²

By the mid-1800s, child labor had been recognized as a major problem. In England, a commission was appointed in 1840 to investigate.

This lad is a pitiable specimen of a much enduring class of colliery [underground mine] boys, whose subsistence depends on their own exertions, often prematurely stimulated, either from being deprived of their fathers by death, or laboring under the curse of drunken, dissolute, and unfeeling parents, who would apathetically see their children enslave themselves, rather than contribute to their comfort by a single act of self-denial. These neglected beings turn out in the morning, taking with them a scanty bag of provisions, to be eaten in the bowels of the earth, where they toil out their daily dole of eight or ten hours; then return to a comfortless home, taking their chance of good meal, a bad one, or none at all. For a bed they are content with an old coal-sack laid upon straw, or occupy whatever portion they can secure of a family bed, which must suffice for three or four other inmates.³³

A public investigation exposed distressing situations termed by some as *mine slavery*.³⁴

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³² John W. Parker, *Physical and Moral Condition of the Children and Young Persons Employed in Mines and Manufactures*, William Clowes and Sons, London, 1843, p. 1.

³³ Ibid., p. 30.

³⁴ The Universalist Union, vol. VII, August 13, 1842, p. 615.

Children began their life in the coal mines at five, six, or seven years of age. Girls and women worked like boys and men; they were less than half clothed, and worked along-

side men who were stark naked. There were from twelve to fourteen working hours in the twenty-four, and these were often at night. Little girls of six or eight years of age made ten to twelve trips a day up steep ladders to the surface, carrying half a hundred weight of coal in wooden buckets on their backs at each journey. Young women appeared before the commissioners when summoned from their work, dressed merely in a pair of trousers, dripping wet from the water of the mine, and already weary with the labor of the day scarcely more than begun. A common form of labor consisted of drawing hands and knees over the inequalities of a passageway not more than two feet or twenty-eight inches high a

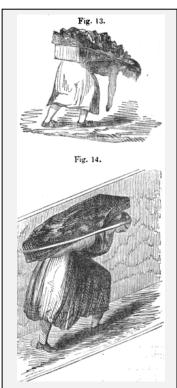


Photo 2.2: Girl and older girl using a creel to move coal. (1842)

car or tub filled with three or four hundred weight of coal, attached by a chain and hooked to a leather band around the waist.³⁵

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³⁵ Edward P. Cheyney, *An Introduction to the Industrial and Social History of England*, Macmillan, New York, 1920, pp. 243–244.

The testimony of a young girl named Ellison Jack illustrated the hardship of her life as a mine worker. She would descend a pit ladder with a basket-like device, or creel, on her back that allowed the lumps of coal to rest on her back and shoulders. With this device, she could fill four or five tubs of coal during her day's work. Each tub holding roughly 500 pounds meant she moved between 2,000 and 2,500 pounds of coal a day. Since each tub took her four trips, each load she carried was about 125 pounds.

Large lumps of coal are then placed on the neck, and then she commences her journey to the pit bottom, first hanging her lamp to the cloth crossing her forehead. In this girl's case she has first to

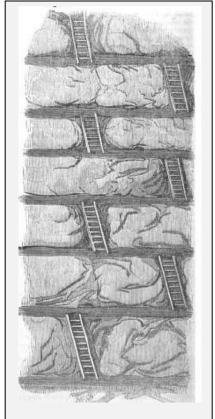


Photo 2.3: Typical passage a coal bearer traversed. (1842)

travel fourteen fathom, eighty-four feet, from the wall face to the first ladder; this ladder is eighteen feet high. From this ladder she proceeds along the main road, that is probably from three feet six inches to four feet six inches high, and so on to the second ladder, which is eighteen feet high, and so to the third and fourth ladders, until she reaches the pit bottom, where she casts her load.³⁶

³⁶ The Universalist Union, vol. VII, August 13, 1842, p. 615.

Injuries and disease were commonplace. Many children died of diseases such as typhus, and women also had stillbirths due to the stressful conditions.³⁷



Other mine jobs, although not as labor intensive, were also dull and dreary. One job for boys was to wait all day long to open and close the gates for

the wooden sleds, or corves, which were used for hauling coal.

The trappers sit in a little hole scooped out for them in the side of the gates behind each door, where they sit with a string in their hands attached to the door, and pull it open the moment they hear the corves at hand; and the moment it passes they let the door fall to, which it does of its own weight . . . They have nothing else to do but as their office must be performed from the passing of the first to the passing of the last corve during the day, they are in the pit during the whole time it is worked, frequently above twelve hours a day. It is a most painful thing to contemplate the dull dungeon-like life these little creatures are doomed to spend—a life, for the most part, spent in solitude, damp, and darkness. They are allowed no light—but sometimes a good-natured collier will bestow a bit of candle upon them as a treat.³⁸

³⁸ The Universalist Union, vol. VII, August 13, 1842, p. 615.

³⁷ Parliamentary Papers: Volume 15, Reports from Commissioners—Children Employment (Mines), February 3–August 12, 1842, p. 93.

In the early 1900s, children were still being employed by the mining industry. Even though children younger than 14 were officially prohibited from working, some as young as 9 or 10 could be found employed in the mines. Due to improved machinery, boys were principally employed as



Photo 2.5: The Lonely Trapper Boy. (1914)

coal breakers, picking out slate from coal as it was dumped into the mine cars. In the breakers where coal was dried, the coal dust was so dense that, even on bright days, light would not penetrate. Breaker boys needed to wear mine lamps on their caps to allow them to see the coal at their feet. Although safety precautions were taken, children sometimes suffered horrific deaths.

It is true we occasionally hear of a little boy in the mine run over by a coal car, or kicked to death by a mule, or fatally injured by a piece of falling slate. And in the coal breakers little boys are sometimes ground in large crushers that break the coal, caught in the wheels or other machinery, or buried in a stream of coal—the death suffered recently by the little boy in Pittston [Pennsylvania].³⁹

In the 1800s, children employed in glass manufacturing worked long hours in extremely challenging conditions. They suffered from a wide variety of physical problems.

In the manufacture of glass . . . the hard labour, the irregularity of the hours, the frequent night-work, and especially the great heat of the working place (100 to 190 Fahrenheit), engender in children general debility and disease, stunted growth, and especially affections of the eye, bowel

³⁹ Owen R. Lovejoy, *Child Labor in the Coal Mines, Child Labor—A Menace to Industry, Education, and Good Citizenship*, Academy of Political and Social Science, 1906, p. 38.

complaints, and rheumatic, and bronchial affections. Many of the children are pale, have red eyes, often blind for weeks at a time, suffer from violent nausea, vomiting, coughs, colds, and rheumatism . . . The glass-blowers usually die young of debility or chest infections.⁴⁰

A 1906 article by Owen R. Lovejoy spoke about child labor in the manufacturing of glass. Boys worked near the blistering heat of the performed furnace and many jobs. Because glass manufacturing could continuously operate, boys were also employed to work at night. After laboring long hours in excessive heat, they were sent home early in the morning.



Photo 2.6: Boys in the manufacturing of medicine bottles. (1914)

It is significant that in many glass-houses one hardly finds the child of a glass-blower. One worker who spent his life in the glass-house when asked the reason replied: "I would rather send my boys straight to hell than send them by way of the glass-house." A young friend, whose character and family are well known, said recently that of the 175 boys with whom he worked in an Indiana factory two years ago there were only ten at the end of the fire who were not confirmed drinkers of intoxicants.⁴¹

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⁴⁰ Roy Porter, *The Greatest Benefit to Mankind*, Harper Collins, New York, 1997, p. 401.

⁴¹ Owen R. Lovejoy, *Child Labor in the Glass Industry, Child Labor—A Menace to Industry, Education, and Good Citizenship*, Academy of Political and Social Science, 1906, p. 44.

In the early 1900s in the state of New York, children worked in the

cannery industry for endless hours. The housing supplied for these seasonal workers was inadequate and unsanitary. As many as eight people were found living in a small room. The outhouses were unspeakably filthy. There were no screens covering the openings of the windows, permitting swarms of flies to travel from the filth of the outhouses to the

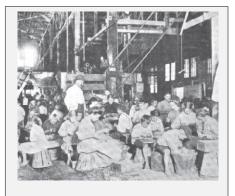


Photo 2.7: Children snipping beans in Maryland. (1913)

small rooms that contained exposed food. The canners blamed God for the terrible plight of the children and women.

"It's the Lord's fault; we cannot control the ripening of the crops," that canners gave in 1912, as in previous years, as their excuse for beginning the work of 12 year old boys at 3 A. M., for working 10 year old girls 14½ hours a day, for working women as many as 100 hours a week.⁴²



Photo 2.8: At a Dangerous Capping Machine. (1913)

Eight-year-old girls capped cans. They placed a small tin disk that was soldered to the cover on the filled cans of fruits and vegetables, capping 40 cans a minute. A child was hard pressed to keep up with that rate.

In other industries, the difficult and dirty working

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⁴² The Child Labor Bulletin, vol. 1, no. 4, February 1913, pp. 22–23.

conditions, long hours, and exposure to toxins such as lead created a variety of physical disabilities in many.

... women and children in lacemaking were often kept at work during the busy season till nine, ten, and even twelve o'clock at night; that the girls in dye-houses who carried wet goods on their backs into drying rooms at as high a temperature as 110, and then out on to the grass fields, were often summoned to work at four or five o'clock in the morning; that there were more than 2,000 children under ten years of age at work in the Birmingham hardware industry, one-fourth of them under eight; and that weak-sight, blindness, and lead poisoning were prevalent in the potteries and other industries, which were carried on under shockingly unsanitary conditions.⁴³

An 1890 book on child labor describes the manufacture of paper boxes. Like other factory work, it involved long, endless hours of mind-numbing work.

The ceilings were low and begrimed, the light not unfrequently inadequate. Each worker is then provided with an oil-lamp whose smoke and fumes combine with the odors of the glue-pot and neglected water-closets to make the close room more hurtful. Piles of inflammable paper and stacks of boxes await but a spark to kindle a fire



Photo 2.9: A child employed as a doffer. (1914)

that would sweep the building before the dazed inmates could

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⁴³ Edward P. Cheyney, *An Introduction to the Industrial and Social History of England*, Macmillan, New York, 1920, p. 276.

rush to the dark and dangerous stairs, only to find the way barred by packing-cases. In such death-traps thousands of children labor. The lame and humpbacked choose box-making as light work permitting them to sit. Their distorted figures and pain-marked features stand out sadly in the dim light behind long tables piled grotesquely with box-shapes.⁴⁴

A 1913 article in *Good Housekeeping* details the labor of children in the cotton mills.

... a majority of the workers in the cotton mills are under 16, and that the ages of them run down to 6 and 7. The girls are used as "spinners" and for the most part—walking

up and down between the spinning
frames and knotting threads that
break; and the
boys are employed
as "doffers"—for
the replacement of
the empty bobbins
with full ones. The
hours that these
children work is



Photo 2.10: Children 6, 8, and two of 12 years making hose supporters by lamplight. (1913)

well nigh incredible. Either they toil from six in the morning until six at night, or from six at night until six in the morning ... It is also the truth that the day-shift is frequently asked to work two and three nights a week, so that there are days when the child works for seventeen hours at a stretch.⁴⁵

⁴⁵ Judge Benjamin B. Lindsey and George Creel, "Children in Bondage: The Sacrifice of Golden Boys and Girls," *Good Housekeeping*, July 1913, pp. 17–18.

⁴⁴ William Franklin Willoughby and Mary Clare de Graffenried. *Child Labor*, American Economic Association, Guggenheimer, Weil, & Co., Baltimore, March 1890, p. 90.

Children could also be employed at home, doing tedious work in what was known as tenement industries. This work involved the production of clothing or other products that factories hired out to be done at home. A 1913 Massachusetts Child Labor Committee report describes the difficult working conditions and the effects on children.

It [work] is done in close, poorly-ventilated rooms, often in dirty kitchens and in unhygienic houses . . . The children work long hours and often late at night by lamplight. Small children of five, seven, and nine years of age work in a bending position until nine or ten o'clock. This is bad for the eyes, causes nervous strain, interferes with the child's schooling. The anemic, tired, nervous, overworked children are driven until they cry out against the abuse . . . A girl seven years old had worked sitting in the hot sun while she was sick with measles. The lack of care at that time was followed by her death . . . 46

The breakdown of healthy family systems and the resultant infant neglect was a large contributor to disease in the past 200 years. Women and girls were often forced to work in order to survive. According to the 1901 English census, of the 13 million females older than 10, 4 million were working. The difficult working conditions often resulted in physical breakdown, leaving a population of children who were frequently neglected.

Mothers employed in factories are, save during the dinner hours, absent from home all day long, and the care of their infants during their absence is entrusted to young children, hired nurse-girls, sometimes not more than eight or ten years of age...⁴⁷

⁴⁶ Child Labor in Massachusetts Tenements, Annual Report of the Massachusetts Child Labor Committee, January 1, 1913, pp. 5–6.

⁴⁷ Sir George Newman, *Infant Mortality: A Continuing Social Problem*, Methueun & Co., London, 1906, p. 95.

Lack of knowledge regarding proper child care, combined with poverty, stressful working conditions, meager nutrition, improper hygiene, and poor sanitation, led to a large number of child deaths.

Few facts receive more unanimous support from those in intimate touch with this question than the ignorance and carelessness of mothers in respect of infant management. Such ignorance shows itself not only in bad methods of artificial feeding, but in the exposure of the child to all sorts of injurious influences, and to uncleanly management and negligence. Death in infancy is probably more due to such ignorances and negligence than to almost any other cause, as becomes evident with we remember that epidemic diar-

rhoea, convulsions, debility, and atrophy, which are the most common causes of death, are brought about in large measure owing to improper feeding or ill-timed weaning; bronchitis and pneumonia are due not infrequently to careless exposure;



Photo 2.11: Massachusetts Mill Workers. (1914)

and death from measles and whooping-cough is largely caused by mismanagement of nursing.⁴⁸

Due to the extreme working conditions—long hours, revolting environments, little rest, poor nutrition—the resulting health of children was deplorable. Their weakened constitutions left them extremely susceptible to diseases of all types.

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⁴⁸ Sir George Newman, *Infant Mortality: A Continuing Social Problem*, Methueun & Co., London, 1906, p. 262.

The medical witnesses state that the general health is greatly deteriorated; that the Children are pale, thin, delicate, feeble, stunted in growth, more than usually susceptible to certain formidable diseases, and much less able than common to resist the ordinary causes of disease. The prevailing complaints are general weakness, often amounting to fainting, pains in the head, side, back, and loins, palpitations, sickness, vomiting, and loss of appetite, curvature of the spine, scrofula, and consumption. The female health, in particular appears to be constantly and grievously disturbed.⁴⁹

Children who began work so early in life were subjected to such long hours of labor did not grow so rapidly, nor reach their full stature, nor retain their vigor so late in life, as did the

population outside of the factories.⁵⁰

In regard to health, also, there is no occupation which a child can pursue all day and every day without injury... As a matter of fact there are a considerable percentage



Photo 2.12: Child factory workers. (1913)

of accidents in the mills, and a high death rate from tuberculosis. But, we repeat, these incidental dangers might all be done away without affecting the fact that the mental strain involved in the noise of the mill, and the sheer muscular strain of any simple motion repeated past the point of fatigue do seriously weaken the growing child. **Even where there is no immedi-**

London, 1843, pp. 132–133. ⁵⁰ Edward P. Cheyney, *An Introduction to the Industrial and Social History of England*, Macmillan, New York, 1920, p. 240.

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⁴⁹ John W. Parker, *Physical and Moral Condition of the Children and Young Persons Employed in Mines and Manufactures*, William Clowes and Sons, London, 1843, pp. 132–133.

ate traceable injury, there is always an indirect effect whereby the child is made more susceptible to infection.⁵¹

Children in industries were also exposed to a number of poisonous materials that impacted their health and immune systems.

... crouching down out of sight behind bales of paper where arsenic is used; exposed to the poison of lead, mercury, phosphorus, copper, and other toxic influences; and the ills of the artificial humidity essential to the spinning of cotton, flax, wool, and silk. The difficulty is to "catch them at it," to discover

them really at work, and then to prove that they are under the age required by law, for, as these little people say themselves "It is easy to fix the Board of Health certificate if you only know how." Lead poisoning, or plumbism, causes loosening and dropping out of teeth,



Photo 2.13: Only a box for a house, and railroad yard for a playground. (1919)

frightful colic, blindness, paralysis, and sometimes death in convulsions. Phosphorous ulcerates the gums, causes decay of bone, terrible disfigurements, blindness, and paralysis of the wrists, and often death. Mercury gives rise to anemia, or bloodlessness, to spongy gums, loosened teeth, and paresis [impaired movement] of the limbs. Nitric acid, used for cleaning, may cause instant death. The germs of lockjaw reside in hides, wool, and fur.⁵²

Into the early 1900s, many children of the working poor lived in crowded tenements with no yards. When they had free time, their

⁵² The American Journal of Nursing, vol. III, no. 8, May 1903, p. 664.

⁵¹ The Child Labor Bulletin, vol.1, no. 4, February 1913, pp. 93–94.

playgrounds were the city streets or worse. A 1920 article in *Good Housekeeping* stated that 250,000 children died each year in the United States due to poverty.

There is no escape from the conclusion that **the United States**, **the richest nation in the world, is allowing every year a quarter of a million of her own children to be killed by poverty**. All other causes come back, in the last analysis, to that one.⁵³

The world we enjoy today is built in part on the ceaseless labors of children of the past. The conditions they worked and lived in were just as horrifying as they were for the adults of the time. Extreme working conditions, poor nutrition, and lack of sanitation and hygiene left many children in a terrible state of health. Unfortunately, many children elsewhere in the world today are subject to similar working conditions and poverty.

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⁵³ Rose Wilder Lane, "Mother No. 22,999," *Good Housekeeping*, vol. 70, March 1920, p. 112.

DISEASE—A WAY OF LIFE

Like beasts, like maniacs, the people fell on them . . . There is no more dreadful sight than such popular anger thirsting for blood and throttling its defenseless victims . . . In the Rue Vaugirard, where two men were killed . . . I saw one of these unfortunates when he was still breathing and the old hags were just pulling the wooden shoes from their feet and beating him on the head with them till he was dead. He was quite naked and bloody and mashed; they had torn off not only his clothes but his hair, his sex, and his nose, and one ruffian tied a rope to the feet of the corpse and dragging it through the streets, shouting constantly, "Voilà le Cholera-morbus!"

- Heinrich Hein (1797-1856), 1832 Paris cholera epidemic

... the cupidity [extreme greed] of landlords had tempted them to build up narrow alleys with small wooden tenements, which, costing but little, and being let to numerous families, yield immense profits. The alley is often not more than six feet wide, paved with round stones and with very insufficient means for draining off the water. It is not uncommon in such situations to find one or two apartments in each house entirely under ground. Can we wonder if in such a state of things we find moral as well as physical disease, vice as well as sickness? Can we expect men who live thus to be sober and orderly, or women to be cleanly and domestic? In such situations, during the summer months, diarrhoea and dysentery are rife, and among children fatal.

- New York physician Benjamin McCready (1813-1892), 1837

Infectious diseases were a constant terror during the 1800s. With increasingly dense populations, wars, and abject poverty, diseases of all varieties exacted a horrendous toll. The poverty-stricken masses carried the brunt of the relentless assaults of these diseases, yet no

class was spared. Periodic epidemics and pandemics swept across the globe, wreaking havoc and killing millions, rivaling the horrors of war. Abysmal sanitation, hygiene, nutrition, and working and living conditions, combined with a sense of utter hopelessness, laid the foundation for the devastation.

Sanitation was not a new concept. In the time of the Old Testament, there were clear-cut biblical rules laid out governing the management and disposal of dangerous human waste and rubbish outside the cities and away from water sources. Greece and Rome also perfected well-regulated public health systems. During the Dark Ages, these ideas simply dropped out of the collective memory in many areas of the world.

In the United Kingdom, as a result of the Enclosures Act that pushed people off common land and the Industrial Revolution, dispossessed people suddenly massed into cities. People lived waist deep in their own midden heaps in overcrowded hovels, drinking filthy polluted water and eating terrible food. These living conditions were the single common factor that led to rampant disease epidemics.

Dr. French noted the influences of living conditions on disease in an article published in 1888.

The depressing influences of extreme poverty, filth in all its forms, and the overcrowding of large cities, are great promoters of contagion, resulting in epidemics, plagues, and pestilences; while strict cleanliness, fresh air, pure water, and hygienic living; tend greatly to restrict its spread and prevent these results . . . The death-rate among infants and young children is especially influenced by the five principal acute contagious or infectious diseases—namely, measles, scarlet fever, small-pox, diphtheria, and whooping-cough.⁵⁴

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⁵⁴ J. M. French, MD, "Infant Mortality and the Environment," *Popular Science*, vol. 34, no. 10, December 1888, p. 228.

The gastrointestinal tract is known to contain around 70 percent of a person's immunity. With insults to a healthy digestive system from toxins, infections, and parasites in water and food, it is easy to see how myriad diseases were able to take hold.

Typhoid fever

Typhoid fever is caused by food or water that's contaminated with *Salmonella typhi* bacteria. Symptoms of typhoid fever include fever, general ill feeling, and abdominal pain. As the disease progresses, the person experiences a high fever with severe diarrhea. Like cholera and dysentery, typhoid fever was a disease that evolved out of improper sanitation and defective civilization.⁵⁵

But while it is true both historically and as a fact of to-day, that typhoid fever is a disease of civilization, it ought to be clearly understood that it is only a disease of defective civilization, for it has gradually become notorious that the widespread or frequent occurrence of typhoid fever in any community must be due, somehow, to defective sanitation; and defective sanitation means defective civilization.⁵⁶

Like other diseases of poor sanitation, typhoid fever killed thousands. In the late 1800s to the early 1900s, it was estimated that 40,000 to 50,000 people died from the disease in the United States every year.⁵⁷

From January, 1907, to October, 1911, there occurred in Russia 283,684 cases of Asiatic cholera. This included the appalling epidemic of 1910. According to a conservative estimate there occurred in the United States during the same period one million and a quarter cases of typhoid fever, or more than four

⁵⁶ George Chandler Whipple, *Typhoid Fever: Its Causation, Transmission, and Prevention*, John Wiley & Sons, London, 1908, pp. xxiii–xxiv.

⁵⁵ H. Curschmann, MD, *Typhoid Fever and Typhus Fever*, W.B. Saunders & Company, 1902, p. 42.

⁵⁷ *Typhoid Fever: Causation and Prevention*, Seventh Biennial Report of the Board of Health of the State of Iowa, 1893, p. 58.

cases of typhoid fever in the United States for every case of cholera in Russia. We heard a great deal of the ravages of cholera in Italy in 1910-11, yet in these two years there occurred in Italy about 16,000 cases of cholera and about 6,000 deaths and in the United States in the same period we had more than a half million cases of typhoid fever and 50,000 deaths.⁵⁸

The disease wreaked havoc on the military and was the major killer of US soldiers during the Spanish-American War. It was epidemic in the national encampments, accounting for 86.8 percent of the total deaths from disease during the war.⁵⁹ The Civil War was also plagued by typhoid.

Although typhoid had a high mortality rate (36.9 percent) in the Civil War, diarrhea and dysentery—nicknamed the "Tennessee quickstep"—caused more disability and death among Union and Confederate soldiers than any other disease. Records from Chimborazo Hospital in Richmond, Virginia, and from Confederate army surgeons suggest that at least 90 percent of the soldiers had diarrhea, and that throughout the conflict few ever experienced a normal bowel movement. Speaking for the Union, Walt Whitman noted that the war had been "about nine hundred and ninety-nine parts diarrhea to one part glory." As most soldiers realized early, "Good guts were more important to good soldiering than good brains."60

Tainted food was also a source of disease epidemics. In July 1879, in a canton of Zurich, Switzerland, a large number of people came down

⁶⁰ Ibid.

⁵⁸ Sewage Pollution of Interstate and International Waters with Special Reference to the Spread of Typhoid Fever, no. 83, Hygienic Laboratory, March 1912, p. 18.

p. 18. ⁵⁹ Vincent J. Cirillo, *Bullets and Bacilli: The Spanish-American War and Military Medicine*, 2004, p. 33.

with what was considered to be typhoid fever, referred to by some as *sausage poisoning*.

513 persons of all ages sat down to a cold collation of veal and ham, both of inferior quality. Of that number, 421 were subsequently seized with an acute febrile disease which was at the time looked upon as typhoid. Thirty-four other persons who had obtained meat from the same butcher were also attacked with similar symptoms; and subsequently, a further number of eleven of fifteen who had also been supplied by the same butcher. These cases appear to have ushered an epidemic of what was described as typhoid fever. The symptoms were those of severe gastro-intestinal irritation, with high fever, delirium, stupor, congestion of the lungs, and great prostration . . . With reference to this epidemic, the significant remark occurs—"But great doubts have been expressed as to whether it was really typhoid fever, or a form of poisoning resembling sausage-poisoning."61

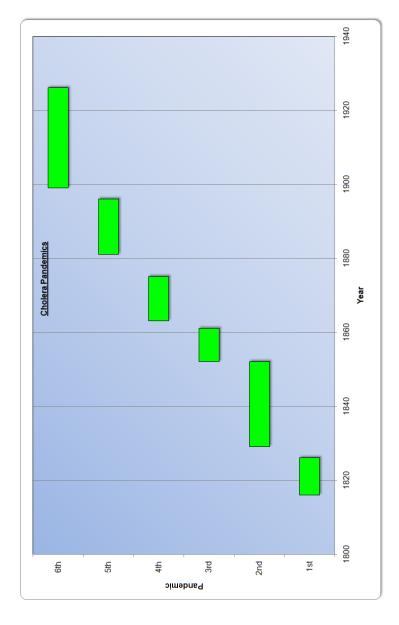
Cholera

Cholera is a disease of poor sanitation and crowding. It is a bacterial infection of the small intestine that results in copious watery diarrhea and vomiting and leads to death with agonizing cramps and dehydration. Infants, children, and adults were all its victims during pandemics that resulted in enormous numbers of sick and dead.

The increased commercial trade and travel, combined with atrocious hygienic conditions worldwide, brought forth six cholera pandemics in the 1800s. The first pandemic started in 1816, and the last ended in 1926 (Graph 3.1).

Fever," *Medical Times and Gazette*, vol. II, J & A Churchill, London, October 1, 1881, p. 409.

⁶¹ Surgeon-General C. A. Gordon, "Remarks on Certain Assigned Causes of



Graph 3.1: Six cholera pandemics. The first pandemic started in 1816, and the last ended in 1926.

More than 15 million cholera deaths in India are estimated to have occurred between 1817 and 1860 . . . The disease reaches Russia, causing Cholera Riots in the streets of major urban centers . . . In 1849, a second cholera wave occurred in Paris and London. It was the worst outbreak in London's history, claiming 14,137 lives, more than twice as many as the 1832 outbreak. The 1849 cholera outbreak in Ireland is estimated to have killed as many people as died during the Irish Famine. Cholera also followed along with the settlers heading to the California gold rush, with 6,000 to 12,000 dying in 1849. Russia was affected early in this cholera pandemic (3rd pandemic), with more than 1 million deaths . . . In North America, 3,500 people (5.5% of Chicago's population) died of cholera in 1854, with up to 150,000 Americans dying of cholera between 1832 and 1860 . . . London's epidemic in 1852-1854 killed 10,738 . . . By 1866, the outbreak reached North America, causing up to 50,000 deaths . . . The 1883-1887 epidemic claimed 250,000 lives in Europe and, in spreading, killed at least 50,000 in America, 267,890 in Russia, 120,000 in Spain, 90,000 in Japan, 60,000 in Persia, and more than 58,000 in Egypt . . . The major Russian cities reported more than 500,000 cholera deaths during the first quarter of the 20th century.62

In 1832 cholera prevailed in France, and within the year caused 120,000 deaths, 7,000 of which occurred in Paris in the space of eighteen days.⁶³

Cholera struck the United States in 1849, leaving a wide path of devastation. The disease appeared in the South in early spring and spread quickly throughout the country, causing scores of deaths in many towns and villages. In an attempt to stop the epidemic and

⁶² David L. Streiner, Douglas W. MacPherson, and Brian D. Gushulak, *PDQ Public Health*, 2010, p. 198.

⁶³ Alfred Stillé, MD, Cholera: Its Origin, History, Causation, Symptoms, Lesions, Prevention, and Treatment, Lea Brothers & Co., Philadelphia, 1885, p. 19.

purify the atmosphere, huge piles of wood were burned. The smoke hung low in the heavy midsummer air.

Thousands fled panic-stricken before the scourge, while days of fasting, humiliation, and prayer were appointed in view of its probable advent... The streets were empty except for the doctors rushing from victim to victim, and the coffin makers and undertakers following closely on their heels.⁶⁴

Human and animal waste continuously emptied into the only source of water for the people. Lack of knowledge in basic hygiene and primitive or nonexistent sanitation fueled these almost unbroken pandemics of cholera during the 1800s and into the early 1900s.⁶⁵ People were under siege from chemicals and toxins that left their battered immune systems at a huge disadvantage.

...drinking water presented a growing problem. The spill-off from the slaughterhouses and the glue factories, the chemicals of the commercial manufacturers, and all of Chicago's raw sewage had begun to contaminate the drinking water. Chicagoans had endured the cholera epidemic of 1848, an epidemic caused by polluted water; nearby Lake Michigan was far more contaminated in the 1850s.66

Dysentery

Dysentery is an inflammation of the intestine caused by bacteria or an ameba. It is characterized by severe diarrhea with blood and mucus in the feces. Like cholera, dysentery is spread by fecal contamination of food and water, usually in impoverished areas with

⁶⁵ William Buckingham Canfield, MD, *Hygiene of the Sick-Room*, P. Blakiston, Son & Co., Philadelphia,1892, pp. 87–88.

⁶⁴ Arthur Charles Cole, *The Irrepressible Conflict 1850–1865: A History of American Life Volume VII*, Macmillan, New York, 1934, p. 183.

⁶⁶ Jane Byrne, *My Chicago*, Northwestern University Press, Evanston, Illinois, 1992, p. 32.

poor sanitation. These diseases of poor sanitation resulted in a monstrous loss of life.

The Union army in the Civil War (1861-65) lost 186,216 men to disease, twice the number killed in action; nearly half were claimed by typhoid and dysentery.⁶⁷

During the US Civil War, life within the prison stockades was frightful. Those who died were often buried without coffins in mass graves. Conditions for the sick prisoners were appalling, with "hospitals" supplying little comfort or any hope of help.

The hospital itself was a group of worn-out tents, many of them leaky and some of them without sides. There were no bunks and but little straw. Hundreds of patients lay upon the bare ground. Their food differed little from that of the prisoners within the stockade though the surgeon in charge was able to obtain small quantities of flour and arrowroot. The prevalent diseases were scurvy, diarrhea, dysentery, and hospital gangrene.⁶⁸

Typhus fever

Typhus fever is different than typhoid fever and is caused by a rickettsial bacterium most commonly transmitted by the bite of the body louse, which feeds on the blood of humans as it spreads disease. It is considered a filth disease and occurs where there is poor hygiene and sanitation. The vitality of the germs increases in direct proportion to overcrowding and inadequate ventilation.⁶⁹ Typhus was another disease that killed enormous numbers of people at different times and places in history.

⁶⁸ Francis Miller and Robert Lanier, *The Photographic History of the Civil War: Prisons and Hospitals*, Review of Reviews Co., New York, 1911, p. 82.

⁶⁷ Roy Porter, *The Greatest Benefit to Mankind*, Harper Collins, New York, 1997, p. 399.

⁶⁹ H. Curschmann, MD, *Typhoid Fever and Typhus Fever*, W. B. Saunders & Company, 1902, p. 499.

Like the war itself, typhus began in Serbia, with 10,000 cases as early as November 1914; within six months, deaths had leapt to 150,000. With the revolution of 1917 and the civil war, typhus ran riot in Russia: between 1917 and 1921 Russia had 25 million cases with up to 3 million deaths.⁷⁰

. . . Henry P. Davison, Chairman of the League of Red Cross Association, who declared there were 230,000 cases of typhus fever in Poland . . . According to information sent by Colonel E. R. Gilchrist, head of the United States Medical Unit in Poland, 95 per cent of the population has been or is now suffering with typhus. The mortality has run from 15 to 60 per cent.⁷¹

Sir David Henderson, Director General of the newly created League of Red Cross Societies, with headquarters in Geneva, Switzerland, said last night that the league, at the beginning of its organization was confronted with one of the most serious scourges since the Middle Ages—the typhus epidemic in Eastern Europe... There were more than 120,000 cases in Poland alone in July, and conditions are growing worse. We are approaching the worst season for typhus now. Typhus goes with dirt, and our chief difficulty is in keeping the people clean. We sent soap, but then there was no coal to heat the water. We have sent fresh clothes, but we have been unable to supply enough. There is a great lack of materials, hospitals are unequipped, and there is only one doctor to every 10,000.72

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⁷⁰ Roy Porter, *The Greatest Benefit to Mankind*, Harper Collins, New York, 1997, p. 399.

⁷¹ "All Poland Ravaged by Typhus Epidemic, American Medical Experts Report 95 Per Cent. of the People Victims of Disease," *New York Times*, March 25, 1920.

⁷² "Typhus in Europe a World Problem, Director of Red Cross League Admits Inability to Cope with It Alone, Worst Since Middle Ages," *New York Times*, November 11, 1919.

Diphtheria

Diphtheria is a term used to describe a particular type of upperrespiratory illness. The determinant of clinical diphtherial disease is not the bacteria *Corynebacterium diphtheriae*, but rather a toxigenic virus (bacteriophage) that infects some of the bacteria. The vast majority of diphtheria bacteria are actually never invaded by a bacteriophage. However when the bacteria are invaded, there is a possibility of serious clinical disease. The virus switches on bacterial toxin genes, which lead to symptoms such as the leathery thick parchment-like secretion that can cover the back of the throat and obstruct breathing and swallowing.

In severe cases, the toxin is distributed to distant organs by the circulatory system and can cause paralysis and congestive heart failure. In the era of slum living and poor nutrition, as with other infectious diseases, considerable numbers of people died with diphtheria.

> Diphtheria cases are averaging sixty a day, according to statistics to the Department of Health. Health Commissioner Royal S. Copeland said yesterday that an epidemic stage is being approached. Since the beginning of the year there have been 2,773 cases of the disease and 274 deaths . . . "A death from diphtheria should be condemned just as severely as a death from typhoid fever," said the statement. "Both are entirely unnecessary and represent what is in effect a sanitary crime ..."73

> An infectious disease, dreaded in childhood, but also affecting adults, is diphtheria. The number of deaths, caused by it [diphtheria] among the ten million inhabitants of the larger towns in Germany during the ten years 1882-1891 amounted to 111,021 and of every thousand deaths 45 are

February 25, 1920.

^{73 &}quot;Reports 60 Cases of Diphtheria Daily, Dr. Copeland Plans Campaign Against Disease Approaching Epidemic Stage, 274 Deaths This Year," New York Times,

due to the disease. In 1892 the death-rate from diphtheria was 12,361 or 41 per 1,000.⁷⁴

Seldom has a community been so alarmed as are the country people along the line of Berks and Lehigh Counties, where two counties join and where diphtheria rages in such a violent epidemic form. Nothing like it has ever affected a similar stretch of country in this section with such fatal results. Many families have lost their children. An estimate made to-day of the number of funerals held places the deaths within the confines of 10 square miles at not less than 60 and probably more.⁷⁵

Pertussis

Pertussis, commonly called whooping cough, is a toxin-mediated bacterial disease that can cause uncontrollable and violent coughing, which is far worse in the undernourished. Whooping cough begins like a common cold, with hoarseness; watering eyes and nose; a short, dry cough; and fever. The fever gives way, and the short, dry cough can be followed by a whoop-sounding cough that often, though not always, characterizes this disease.

Whooping cough is epidemic in every portion of Philadelphia, and tens of thousands of little children are suffering from the disease. It is in the homes of both rich and poor, and as soon as one child in a square is attacked all the children on the same street become affected. Pneumonia and bronchitis often follow in its train, and in severe cases which have been neglected the lungs are so weakened that the patient offers fruitful ground for the seeds of consumption [tuberculosis].⁷⁶

⁷⁵ "Ravages by Diphtheria, A Large Number of Deaths in Berks and Lehigh Counties," *New York Times*, January 5, 1889.

⁷⁴ Hygiene and Sanitation: A Popular Manual to Hygiene, Imperial Board of Health, Berlin, 1904, p. 199.

⁷⁶ "Whooping Cough in Philadelphia," New York Times, July 24, 1893.

Significant figures concerning children's diseases were given by Dr. Royal S. Haynes... "Whooping cough," said Dr. Haynes, "kills more babies under one year of age than any other contagious disease. There are almost as many deaths from whooping cough as from typhoid." He gave startling statistics showing the "harmless" diseases. The deaths in New York in 1910 from measles were 785; scarlet fever, 953; whooping cough, 461; diphtheria, 1,715; and smallpox only 5... In the same year the dreaded typhoid caused only 558 deaths.⁷⁷

Scarlet fever

Scarlet fever is another toxin-mediated bacterial disease. The bacteria involved are Streptococcus pyogenes, also known as group A strep. The disease got its name from the red rash that appears on the skin, mostly on the chest and abdomen, which can then spread to the entire body. In susceptible individuals, symptoms are caused by toxins that the bacteria produce as a result of a specific bacteriophage (virus) that can integrate into the Streptococcal genome, instructing the bacteria to produce the toxin.

In some people, serious complications such as heart and kidney disease can arise. These complications are actually the result of an autoimmune reaction from the antibody produced in response to the infection. Antibodies are thought to be good, but in reality they can cause problems whether induced by a vaccine or an infection.

The idea that antibiotics have eliminated the disease is a fallacy. Scarlet fever still exists, yet the mortality is nothing like it used to be and declined long before antibiotics. In fact, antibiotics actually seem to increase the toxin release from the bacteria.⁷⁸ In the 1800s and

⁷⁷ "Beware of Whooping Cough, Kills More Babies Than Any Other Disease, Says Dr. Havnes," *New York Times*, February 16, 1912.

⁷⁸ M. Tanaka, T. Hasegawa, A. Okamoto, K. Torii, and M. Ohta, "Effect of Antibiotics on Group A Streptococcus Exoprotein Production Analyzed by Two-Dimensional Gel Electrophoresis," *Antimicrobial Agents and Chemotherapy*, vol. 49, no. 1, January 2005, pp. 88–96.

early 1900s, when people were undernourished and sickly, scarlet fever resulted in a great many deaths.

> During the fifteen years 1847-1861 inclusive, the deaths from scarlatina and diphtheria in England and Wales amounted to 262,429, and in London alone to 38,890. In other words, one out of every twenty-three deaths occurring in London was due to scarlatina . . . The reader whose own family has been visited by the fell destroyer, can figure to himself the vast amount of human misery which these figures imply. Although not uncommonly the disease runs such a mild course that medical treatment is almost unnecessary, it is, on the other hand, but too true, that very many cases are amenable to no treatment whatever.⁷⁹

> Hempstead, Long Island, Nov. 20, 1884—Scarlet fever is raging in Smithville South and vicinity to such an extent that the schools have been closed on that account. Three deaths from the disease have occurred . . . 80

> Canandaigua, N.Y., April 29, 1884—There have been 16 deaths from scarlet fever in this village within eight days. The Board of Health has issued an order prohibiting public funerals and commending the adoption of other sanitary regulations as the epidemic continues.81

Measles

Unlike the diseases discussed so far, measles is a viral infection. Initial symptoms include runny nose, hacking cough, high fever, and aches and pains. Measles is characterized by small red, irregularly shaped spots with white centers that appear on the skin. Like other diseases, measles epidemics resulted in many deaths.

^{79 &}quot;Scarlatina Epidemics," British Medical Journal, September 12, 1863, pp. 285–286. ⁸⁰ "Scarlet Fever on Long Island," *New York Times*, November 21, 1884.

^{81 &}quot;A Scarlet Fever Epidemic," New York Times, April 30, 1884.

The startling mortality among children from the little-regarded ailment of measles was indicated to-day by a statement issued by the State Department of Health, showing that in 1906 there were 1,463 deaths from it, 1,240 being of children under 5 years of age. In December alone 2,807 cases of the disease were reported, and a search of the records shows that it kills $2\frac{1}{2}$ times more children than does scarlet fever.⁸²

Thousands of natives of Herschel Island are along the Arctic coast are dying of measles... They are dying off like rabbits, and there seems to be nothing to check the death rate. The march of civilization has increased the death rate from Nome north. Two years ago the devastation began, and it has continued since. When the natives began to wear civilized man's clothing, and drink white man's whisky, then began their decline. Pneumonia, rheumatism, grip, and every conceivable malady made their appearance among them and spread along the coast with appalling results.⁸³

Yellow fever

Yellow fever is an acute viral disease transmitted by infected mosquitoes. In 1855 yellow fever devastated the towns of Norfolk, Portsmouth, and Gosport, Virginia, and the surrounding areas. The plague was unrelenting, killing thousands and leaving cities with the highest mortality rates nearly deserted.

... the main business street of the city was utterly silent. Not a store was open; only two druggists' shops gave evidence of life. Thoroughfares lately vocal with the bustle of Trade, are now silent as midnight, their stillness broken only by the footfalls of nurses hurrying to the apothecary for medicines. A very few weeks have sufficed to turn a population of a least Twenty

⁸² "Measles Kills1,463, And 1,240 Were Children Under 5 Years—Pennsylvania's 1906 Record," *New York Times*, January 19, 1908.

⁸³ "Thousands Die from Measles—The Disease Reported to Be Carrying Off Arctic Coast Natives at Rapid Rate," *New York Times*, November 4, 1902.

Thousand, lately residing in Norfolk and its suburbs, scarcely *Three Thousand remains . . . A common spectacle in the streets* is a cart laden with coffins, which are deposited at some convenient street-corner, and removed hence by the undertakers as occasion demands. Three or four of these coffins often stand together. The dead are immediately taken out of the houses and placed upon the sidewalks: a strip or parchment inscribed with the name, age and date of the decease of the victim, being nailed upon the lid of each coffin . . . The deaths here have been recently numbered fifty, sixty, seventy—aye, very nearly eighty per day in our remnant of a population of about six thousand, at most, seven thousand! The rich, the poor—old and young, white and colored, all have been indiscriminately leveled down by the disease which now holds fearful sway in our once happy city, throughout whose streets, avenues and squares there reign a silence and a desolation that are sickening and oppressive beyond description.84

The article in the *New York Times* describes a scene of swarming insects covering coffins, which reads more like a modern-day horror novel than a news report.

Soon after the attack, the skin of the white patient takes on a yellowish tinge, similar to that of a lemon or orange. Black patients undergo a similar metamorphosis—their hue changes to bronze. In all cases, the progress of the fever is very rapid and very often fatal... Since the fatal epidemic has prevailed in our city, a most singular looking fly has made its appearance ... its body is about the size of the common fly, of a yellowish color... They fly together in swarms, and may be seen in large numbers on the fig trees—but their great point of attraction seems to be the coffins in which repose the ill-fated victims of "Yellow Jack." We took a stroll out to that Golgotha of burial grounds, Potters Field, yesterday, and was intensely horrified

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⁸⁴ "Yellow Fever—Fearful Progress of the Disease at Norfolk," *New York Times*, September 11, 1855.

at the seeing many of the coffins that lay on the ground, scattered around, awaiting internment, literally black with these loathsome little insects, that squirmed themselves upon one another so thick as to exclude the coffin entirely from sight.⁸⁵

Cities in the southern United States were accustomed to frequent epidemics and were sometimes stricken with multiple illnesses at the same time, causing widespread panic.

Memphis in 1873 was attacked from three quarters at once by yellow fever, smallpox and cholera. The people fled in a panic, leaving half the houses vacant.⁸⁶

Consumption

Many other diseases plagued the people of the 1800s and the early 1900s. Tuberculosis is a bacterial infection that affects the lungs. It was once known as "consumption" because it wasted away, or consumed, its victims.

One of the most potent factors in the production of consumption, and especially in tenements, is overcrowding and consequent foulness of the air. "The respiration of impure air," says one great authority on tuberculosis, "directly debilitates the vital powers, enfeebles the nervous system, depresses the appetite, deranges the secretions, and leads to the retention of effete matters in the blood."87

Together, pneumonia and tuberculosis were by far the biggest killers of the time.

. . . tuberculosis and pneumonia are in the lead, causing, respectively, death-rates of 1.16 and 1.02 per 1,000 living, with

⁸⁶ Allan Nevins, *The Emergence of Modern America 1865–1878: A History of American Life Volume VIII*, Macmillan, New York, 1927, p. 323.

⁸⁵ "Yellow Fever—Fearful Progress of the Disease at Norfolk," *New York Times*, September 11, 1855.

⁸⁷ Arthur R. Guerard, MD, *The Relation of Tuberculosis to the Tenement House Problem*, Macmillan, New York, 1903, p. 462.

deaths by violence, heart disease, and carcinoma in the next places... Consumption and pneumonia are far in the lead, causing together about one-fifth of the total deaths.88

The bare statements that no less than 700,000 men and women of working age in this country are afflicted by a preventable and curable disease and more than 92,000 of them die annually from the disease, sound startling. This is the case, and tuberculosis is the disease. Yet the 92,000 or more workers who die from tuberculosis are only 70 per cent of the total death toll from this disease. During the past year 132,000 persons of all ages died from tuberculosis in the United States.⁸⁹

Although these infectious diseases are often considered as separate illnesses, they could strike together or shortly after each other.

Diphtheria, when epidemic, also frequently complicates measles. Much of the mortality from measles in this city, since the year 1858, was due to this cause.⁹⁰

At the Eurana Schwab Home near Huguenot, S. I., at first known as St. Joseph's-by-the-Sea, an epidemic of measles with scarlet fever and pneumonia, has existed among the 300 young children, during which twenty have died of more than 150 who have been affected . . . "The children that come to us, you should remember, are the unwelcome children of the world," said she [Sister Teresa]. "They do not get proper care. They are

⁸⁹ "Increasing Output by Preventing Tuberculosis," *The American Contractor*, October 29, 1921, p. 30.

⁸⁸ Publications of the American Statistical Association, vol. 9, nos. 65–72, 1904–1905, pp. 260, 261.

⁹⁰ J. Lewis Smith, MD, *A Treatise on the Diseases of Infancy and Childhood*, Lea Brothers & Co., Philadelphia, 1886, p. 193.

always weak and frail when we get them. It is not strange that when disease breaks out, 20 out of 150 should perish."91

... one of the most serious combinations is that of measles with diphtheria. I cannot escape the impression that the organism attacked by measles off less resistance to the intoxication and infection from diphtheria . . . when measles follows diphtheria with an almost simultaneous infection, both diseases may influence each other in a very ominous manner. A strong boy aged seven years, in good circumstances, taken ill upon February 18th, from diphtheria, which rapidly assumed dimensions in the pharynx. On February 20th he received 600 antitoxin units, and on February 21st, after I visited him for the first time, he at once received 1,500 more . . . Upon March 2d an eruption of measles appeared, at once severe apathy and high graded asthenia [loss of strength] occurred; gallop rhythm . . . During the night, from March 8th to 9th, death occurred. In this case the periods of infection with the contagium of measles and diphtheria were close together.92

Puerperal fever

One of the ugliest, most tragic, and most avoidable chapters in the history of medicine is that of puerperal fever. Puerperal fever is the name given to a deadly infection that affected many mothers in the immediate post-partum period. Severe pain, pelvic abscesses, sepsis, high fever, and agonizing death were brought about by an ascending infection introduced by the contaminated hands of doctors and unsterile medical instruments. There is no single type of microorganism responsible, though the most common bacteria isolated after the germ theory was developed was *Beta haemolytic streptococcus*, Lancefield Group A.

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⁹¹ "Many City Waifs Die in St. Joseph's Home, Scarlet Fever, Measles, and Pneumonia Affect 143 of the 300 Inmates, Twenty Fail to Recover," *New York Times*, July 6, 1911.

⁹² J. C. Wilson, MD, *Infectious Disease*, D. Appleton and Company, New York, 1911, pp. 338, 339.

In the United States, Europe, New Zealand, Sweden, and wherever conventional midwifery was abandoned and taken over by the new male midwives known as obstetricians and medical students, puerperal fever followed.

Man-midwifery was an uncertain but increasingly fashionable and sometimes quite lucrative area of practice for physicians; it may, for this reason, have been a field in which ideas about theory and practice were particularly strongly contested. Midwifery, formerly the preserve of women, was receiving increasing attention from medical men-both physicians and surgeons—during the eighteenth century. Prominent within this area of practice were the surgeons, for whom midwifery was seen as a natural extension of their activities. Surgeons had traditionally been called in to difficult births by midwives, usually when there was a need to extract an already dead foetus from the womb in order to save a mother's life. During the eighteenth century, surgeons were increasingly finding ways to extend their practice into the area of normal childbirth. Men-midwives, although recognized by society as holding respectable positions and possessing expertise, found their status limited by the "handson" nature of their work. Nevertheless, within broader social terms, man-midwifery could be seen as a field of financial and career opportunity. These ambiguities and uncertainties within the status of men-midwives may have contributed to the intensity and competitiveness of the debates which can be found in their writings.93

Puerperal fever, also known as childbed fever, was a disease mediated by doctor arrogance. Dr. Oliver Wendell Holmes of the United States and Dr. Ignaz Semmelweis of Austria were prominent, long-suffering advocates for women, who tried to get the medical

Theory," *Medical History*, vol. 49, no. 1, January 1, 2005, pp. 1–28.

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⁹³ Christine Hallett, PhD, "The Attempt to Understand Puerperal Fever in the Eighteenth and Early Nineteenth Centuries: The Influence of Inflammation

profession to wash their hands and practice more like the traditional midwives did. Both were ignored and even professionally attacked for their views. After years of mental anguish, watching women die needlessly, they left the field of medicine in disgust. Dr. Holmes became a writer. In 1865 Dr. Semmelweis was deceived into entering an insane asylum and when he tried to escape, he was severely beaten by guards. A gangrenous wound to his hand, probably caused by the beating, led to his untimely death two weeks later.

The reason it is important to never forget the history of puerperal fever is because the massive loss of maternal life impacted husbands, surviving infants, older surviving children, the family unit, society . . . and the statistics on life expectancy. Yet we rarely hear the words "puerperal fever" mentioned or discussed.

The epidemic of women and babies dying is documented from records as early as 1746, where more than 50 percent of mothers who gave birth in a Paris hospital died. However, the best and most comprehensive writing on the problem came from Dr. Ignaz Semmelweis in his book, *Etiology, Concept, and Prophylaxis of Child-bed Fever.* After noting that the mothers who were tended by medical doctors had more than three times the rate of death than those who were tended by midwives, and that those who were not internally examined lived, he suspected a contagious agent. Doctors often went from touching infected corpses in the cadaver dissection lab, to the maternity ward, where they examined women and delivered babies without handwashing.

Dr. Semmelweis directed the doctors of his hospital to use a chlorinated lime solution on their hands prior to touching women. When doctors and medical students complied, the maternal mortality rate went from a high of 32 percent down to zero. Using a similar

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⁹⁴ Christine Hallett, PhD, "The Attempt to Understand Puerperal Fever in the Eighteenth and Early Nineteenth Centuries: The Influence of Inflammation Theory," *Medical History*, vol. 49, no. 1, January 1, 2005, pp. 1–28.

antiseptic technique, Dr. Breisky of Prague reported in 1882 that he delivered 1,100 women in succession without a single death.⁹⁵

Dr. Semmelweis held several sequential staff positions, and wherever his hygiene method was followed, maternal mortality rates dropped. But most of his contemporaries ignored such outrageous and offensive "nonsense."

Doctors were insulted at the suggestion that their hands were dirty⁹⁶, and many had the arrogance to continue to ignore factual evidence showing that they were the cause of maternal suffering and death up until the 1940s when antibiotics were invented.

After the invention of antibiotics, puerperal fever dropped significantly, but Semmelweis' and Breisky's records proved that doctors could have stopped almost all the puerperal fever deaths from occurring in the 1700s if they had only washed their hands and their instruments and stopped using unnecessarily invasive birthing techniques.

Another example, from Britain, was the widespread use of chloroform and forceps by general practitioners in uncomplicated deliveries between 1870 and the 1940s. This was described by one observer as a tendency a "little short of murder" and accounted for many unnecessary deaths.⁹⁷

Considering that one-fifth of the population consisted of women of childbearing age and that a higher than 30 percent maternal mortality rate was not uncommon, the impact on society, life expectancy statistics, and the infectious disease rate (infants whose mothers died around childbirth had a four times higher risk of dying,

in America, Yale University Press, 1989, p. 122.

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Frederick C. Irving, MD, "Oliver Wendell Holmes and Puerperal Fever," New England Journal of Medicine, vol. 229, no. 4, July 22, 1943, pp. 133–137.
 Richard W. Wertz and Dorothy C. Weritz, Lying-In: A History of Childbirth

⁹⁷ Irvine Loudon, "Maternal Mortality in the Past and Its Relevance to Developing Countries Today," *American Journal of Clinical Nutrition*, vol. 72, suppl. 1, July 2000, pp. 241S–246S.

most commonly from infections) was enormous. Yet vaccine enthusiasts never mention this tragedy in their assessment of history and infectious disease. Instead, vaccines are lauded as the great gift to humanity when, in fact, had doctors simply washed their hands, they would have prevented countless millions of deaths and raised the life expectancy curve markedly.

The end result of puerperal fever was millions of motherless children relegated to die, or to live a life of malnutrition and disease, often forced to work in mines, factories, and sweat shops. Puerperal fever fueled a social bonfire that left enormous damage in its path. If

Preventable medical error is well documented all throughout the world and is the third leading cause of death in the United States (225,000 deaths per year*), with similar numbers wherever the same medical paradigms are implemented.

Yet every time an unvaccinated person enters their office, zealously provaccine doctors arrogantly overlook the truth that a person's risk of dying or being maimed from accepted medical practice they offer, is far, far higher than any possible death or maiming from a supposedly vaccine-preventable disease.

*Barbara Starfield, MD, MPH, "Is US Health Really the Best in the World?" *Journal of the American Medical Association*, vol. 284, no. 4, July 26, 2000, pp. 483–485.

those infants had mothers to breastfeed them and love them and the older siblings had a mother at home to tend to their needs, the disease and misery of the 1700s to 1900s would have been far prominent. **Doctors** today believe that vaccines would have reduced those diseases, while they ignore fact that their own the predecessors created one of the situations which resulted in high disease rates and low life expectancy.

There are numerous reputable sources that clearly demonstrate how improved

living conditions, more nutritious food, better obstetric care, and other non-vaccine elements were responsible for the decline in infectious disease death rates. Despite this clear evidence, today's vaccine proponents continuously and falsely claim that vaccines are the principal reason for the increase in life expectancy we enjoy today.

In the pages that follow, you will be able to decide for yourself what makes more sense. Was it the vaccines? Or were there other factors that corresponded with the timing of decline in death rates? If so, are *they* to thank for our longer life expectancy? If the answer is that it was not the vaccines, should the World Health Organization (WHO) be working in a different direction today, in poor countries that mirror the conditions of our past?