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Puerperal Fever from Hippocrates to Pasteur

Hunter A. Hammill

Women's Hospital of Texas, Member of the Semmelweis Society of Houston

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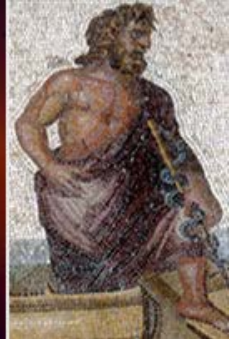
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Houston History of Medicine Society



Puerperal Fever from Hippocrates to Pasteur

Date: Feb. 1, 2012

Speaker: Hunter A. Hammill, M.D., Women's Hospital of Texas, Member of the Semmelweis Society of Houston



Abstract: The death of a mother in childbirth leaving a newborn deserted is a sort of a desecration. This was a frequent event for early physicians. It was felt to be caused by miasmas or punishment from the gods. DaVinci felt the cause was milk stasis, Hippocrates - lochia, Virchow - weather. Then came Semmelweis, Pasteur and Lister. They started a battle with ignorance, hospital administration, budget and academic politics. Ending with the murder of Semmelweis!

INTRODUCTION ROBERT E. RAKEL MD

Welcome to our February lecture for the [Houston History of Medicine Society](#). I put our website up on the board again for those of you that may not remember it and encourage you to look at if you missed any lectures and would like to read about them. We have a service that transcribes the lectures and will be doing that for today's lecture and for Dr. Eknoyen's lecture, if you remember it, he had some fantastic slides and we were able to put the slides on the website, too. So if you have an interest in any of our past speakers, most of them will have the transcripts on the website. For Dr. Eknoyen, we have his slides on there as well, which are excellent.

One other announcement is that the Jones Library, which is one of the third sponsors for this History of Medicine Society, is having an [Evening with Icons](#). If you're not familiar with it, it's a meeting with

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Denton Cooley and “Red” Duke and it’s a special banquet, and for the students here, all students at the Texas Medical Center, instead of paying \$250 like everybody else, you can get in for \$75. There’s a catch, however. You must pay between February 9 and February 13, so tomorrow doesn’t work, but between the 9th and the 13th, you can get in for a greatly reduced price.

Our lecture today I’ve been looking forward to for a long time because the topic is one of my favorites. If you’re not familiar with Semmelweis, you will be, and there is a [Semmelweis Society](#) of Houston, of which Dr. Hammill has been a member for some time.

Our speaker is Dr. Hunter Hammill, who has trained all over the country, it seems like. In New York at Columbia, and then he went to UCLA. He’s been on the staff here at Women’s Hospital for quite some time. His specialty is infectious disease and although he has done quite a bit in HIV he also has a special interest in puerperal fever, so our title today is: Puerperal Fever from Hippocrates to Pasteur. It’s my pleasure to introduce Dr. Hunter Hammill.

HUNTER A HAMMILL, MD

I see some distinguished people in the audience and some friends, so I feel more relaxed—or more nervous. A historical perspective from Hippocrates to Pasteur, so I will mention no antibiotics and I have no industrial disclaimers. This is an interesting talk because the perpetrators of the problem in this disease from old are still with us. I’ll explain that cryptic statement in a minute. Well, Dr. Bard—actually, I lived in Bard Hall at Columbia. It’s named for him, and his definition of childbed fever is: you complain of loathing, an offensive taste, your belly gets distended, you vomit, you become clammy; sweaty. You discharge from your bowels and your womb. Your pulse sinks. You get spots. You go into DIC. Your strength fails; languor, extreme anxiety, and then you die. And unfortunately, having seen people die from septic shock and they go into DIC, it actually follows this pattern and I found it interesting that historical descriptions of diseases, although they didn’t have the technology, how they describe these is actually very accurate.

Now, for a moment, Dr. Bard was a loyalist during the American Revolution and did not support the Revolution, but he was such an excellent physician, he became George Washington’s physician, and cryptically, he’ll fit into this lecture later as someone who’s really compulsive.

You’ve got to picture the time. This is pre-Pasteur. We didn’t have knowledge of microorganisms. People just sort of fantasized and theorized and speculated. Dr. Meigs, who was a chairman—chairmen run through this theme—in 1861, he had a description of the disease. There was something so touching in the death of a woman who has recently given birth to her child; something so pitiful in the deserted condition of the newborn, it is a sort of desecration. The word “fear,” when I utter the name “puerperal

fever.” And for me, this is sort of a personal subject, because every year, I’m usually in the wrong spot at the wrong time, pumping on some woman’s chest who’s just had a baby who dies, and it’s a terrible feeling. A terrible feeling and still goes on.

How common was it? In England in this time period in the 1800s, half a million died in the century just from puerperal fever. In those days, in Revolutionary War times, another number to put in your head is about 20 percent of women would die in childbirth. So you’d get married, have a young bride. She might have a child. Then she dies, then you got a new wife. This was the way things were. People died in childbirth.

What about here? There’s a number called the [Maternal Mortality Ratio](#). It’s the number of deaths per 100,000 live births. In the U.S., that’s 13 per 100,000. We are 49th in industrial countries, so we aren’t the greatest. Texas is 15 per 100,000, which means we have about 400 births per year, so we have 60 maternal deaths in the State of Texas. Paris County—not to offend anybody from the city health department that I saw here—17 per 100,000, so we’re actually higher. If you look at other countries, Sierra Leone is number one according to the World Health Organization for Maternal Death: 1,900 per 100,000. Afghanistan: 1,600 per 100,000. And Vienna, in 1842, which we’ll be visiting later, they had 11,200 maternal deaths per 100,000, so the numbers were not good.

They also talk about sentinel event. A maternal death is a sentinel event. Anyone who’s been involved in maternal deaths, you don’t need to make it a sentinel event. I remember all the patients I have taken care of who are pregnant who have died over the last two decades. Most of the hospitals in the Medical Center and the women have always said things like, “Take care of my baby,” or “I’ve seen my baby. I feel complete.” They’ve fulfilled their mission. They had a baby that was born. They see them in the nursery and then they go back to their room and go to sleep, so to speak, with complicated diseases.

In my practice in the last 15 years, I’ve had 90 HIV mothers die. Not in child birth, per se, but since they gave birth over the time period that I was following them, so my grieving angels sort of starch this talk. Now, not to offend any distinguished infectious disease people I see in the audience, but I’ll give you my perspective of how I think sometimes. If we were to count up the number of bacteria, yeast, and fungi in our bodies by cell count, we have more microorganisms in each of us than we do mammalian cells. Having had a Jesuit education, I always wonder if I don’t go to heaven, are those microbes going to hell with me or do they move on? We talk about the organisms.

I view this as a family of assassins that kill women after giving childbirth. For those of you who might guess, maybe that’s group A strep. Maybe there are organisms clustered in the upper fringes. Those families of organisms have survived. We sort of are like the big elephant. We think since we’re here and

we can't see those microbes, we're stronger. But actually, the cockroach and the microbes, they've outlived us all and they actually have survived. We're probably, I would say, almost the weaker of the species on planet Earth. Well, that's sort of how I view things. There's an invisible assassin that wants to kill pregnant women through infections. Now, some people say when I go to work, it's always like war, but we'll get into that in a minute.

So who's killing postpartum? If this was a TV show, it'd be *Criminal Minds*, and this is a war in my mind. And just to bring some present-day thing, this was a patient with synergistic gangrene and you've got realize certain bacteria can eat away through enamel. It can give you cavities. You can imagine what they can do to soft tissues. That's where we get the flesh-eating bacteria. Now we have the advantage of knowing about microorganisms. We feel sophisticated. When I was a medical student, we had all of these high-tech things. I thought I knew what was going on. Now, after being in practice for almost 30 years, I realize I know almost nothing and God is usually kind.

But what were the theories back when we started things? The telluric theory that the influences arising from the earth were causing the problem. Miasmas—another one. Bad air. They used to punch big holes in hospital walls to let the bad air in our out. Punishment from the gods for doing something bad. Lochial suppression, the vaginal discharge—you had to suppress that, was the cause of things. Milk metastasis—we'll get to that one in a minute. And other particular interesting one due to my Jesuit education: wounded modesty of the par truant mothers. So this is how people were thinking and these were theories. Hippocrates—a big deal in the history of medicine—his treatment for postpartum fever was to put a pessary—a pessary is a little plug you put in the vagina to push the organisms up—he thought if we could stop the lochial discharge and those foul odors coming out—most of the patients in that system died. So retained pessaries are not too good. And if you ever remove or retain tampon or vaginal sponge, it smells like a septic tank. You can see how that would fail.

Then there was Virchow, and he was a big deal because he was a bit pathologist of the time, and forgive my not pronouncing some names right, but he felt it was due to weather conditions—the miasma theory. And then there was Leonardo Da Vinci, another person I like, and he felt this was milk metastasis, and he thought—he made the observation that when people had pus or purulence coming out of the vagina and wounds, it looked like milk, so there must be a connection between the breasts and whatever was infected. So that was his theory. Now, you've got to realize they didn't have our knowledge of anatomy, so he thought there was a duct connecting the breast and the uterus and that was the cause of all the problems. He didn't have a cure but that was his view.

Revius(??), a 17th century French physician, felt cold air inadvertently received into the uterus closes the orifice of the vessels. Well, that sort of makes sense. Your hands get cold. Cold water, fear, grief,

passions of the mind withdraw the course of the blood from the uterus preventing its poisons from being discharged into the lochia. Sounds nice, but was wrong.

And then there was a Jesuit who came along, Father Kircher. He believed in small, living animals, invisible to the naked eye—he had no proof of this. I don't know what he was thinking or smoking or drinking. And then comes probably the first person who really got a handle on things, and that was Dr. Gordon. He was from Scotland and he had what I call "the fatal secret." He felt the disease was delivered by a practitioner or nurse who had previously attended patients affected with the disease. Infectious matter produced aerosyphilis DIC, the Pink Lady Syndrome that we see even today, and after delivery, it is copiously admitted by numerous patulous orifices opened to imbibe by separation of the placenta from the uterus.

I was delivering at two o'clock this morning. I did two C-sections in a row and removed the placenta and it had that patulous orifices for bacteria and all kinds of things to go in. So it was an interesting description. Now, his practice, unfortunately, had some issues. He looked—people were starting to count things and in Aberdeen epidemic of 1789, 75 patients with puerperal fever and 25 died usually on the fifth day. So he couldn't do much, but he sort of made this connection. And then, what happened? He wrote something. He wrote his treatise. It was published and before he could spread it around, he had to fulfill his naval obligation and went back with the Navy on a frigate, I believe, and died in 1799 when the French sunk the ship that he was on. So his approach, the "fatal secret" of the connection between the physician, et cetera, was lost.

Then came along Empress Maria Teresa in 1784, and she felt that we should provide better care for women in childbirth and she started this movement for lying in hospitals. You wouldn't give birth at home. They built a big hospital, but it provided a setting for unchecked epidemics and continued until the '30s and puerperal fever was the most common cause of maternal death.

There were several hospitals like the Hotel Deux in Paris, the Rotunda in Dublin—there were several large hospitals—the Vienna Lyonine(??) which we will visit. And even like today, we've got big medical centers. We build these big places and here we are, Harris County's got not such great maternal mortality statistics, but it's the largest medical center in the world. So there are still issues even today.

Let's go to the University of Vienna Medical School, which at the time I was told was the foremost medical school; was the place you wanted to go to, and the first chairman in 1784 of obstetrics, Johann Boër, his puerperal mortality was 1 percent for 30 years, which is pretty good in those days. But he had some different philosophies. Whatever is done artificially apart from necessity is mere bungling, serving only to torture and destroy mother and child, or as some people would say, "meddlesome midwifery."

Then, doctors' interference was always the precursor of death. As a little footnote, I'll say we live in a time where some places have 50 percent C-sections. We have lawyers, we have governments removing our clinical judgment, making us not choose that, and I'll leave that footnote. I'd better leave that footnote.

So things were pretty good, and then what happened? The chairman changed. Johann Klein became the chairman, and he was, shall we say, a political appointment. He believed in the strict use of cadavers for obstetrical students. There were a lot of them—a lot of cadavers—and he relaxed Dr. Boër restraints on internal exams during labor, forceps deliveries, and mortality rose to 30 percent in seven months. Just so you know, historically, people weren't wearing gloves when they did exams and they didn't wash their hands. It was a different world. You've got to picture this.

This was Dr. Klein; a picture from a film I'll reference at the end. He also collected butterflies. I wish he had stayed with butterflies. And he felt—this was his philosophy: from the morgue to the delivery room. Have the morgue close by. You could do the examinations, and in those days, the ideal physician—the best physician, like Dr. Greenberg—would be the one who makes the correct diagnosis. But in those days, unlike Dr. Greenberg, the diagnosis was always verified by autopsy, so not such a great system. So that was the world they were living in.

Let's look at the Vienna Hospital, 1841 to 1846. We'll pick the year 1842. They had two clinical services, much like we sort of have today. The first service was for medical students and physicians and you delivered there during the daytime. And after midnight, between midnight and I guess breakfast—you delivered on the second clinic service, which was run by the midwives. Now, the midwives didn't do autopsies. They didn't work with cadavers. They just delivered babies. But if you look at the numbers, and it runs the theme. In 1842, on the first clinic, the medical student service, over 3,000 deliveries, 518 maternal deaths. On the midwifery service, 2,659 deliveries, 202 deaths. So there was a huge discrepancy between the midwifery service and the medical student service. And unfortunately, St. Gerard, who was in Italy around the time, not in Vienna—he's the patron saint for women in labor. (Inaudible) a handkerchief if anyone wants to ask that question at the end. But he was in Italy, not in Vienna.

When I was at UCLA, Cedars-Sinai Hospital, very upscale. They even had some of the nurses on the movie star floor wear a white coat with tails on the floor. It was an interesting time. It was a long time ago, and they every morning would bring a bell through the hallway and ring the bell and that was to announce breakfast was coming through. But where that came from is more ominous. In Semmelweis's day at the University of Vienna, a bell was rung in the morning, and that was announcing they were bringing out the cadavers—the women who had died the night before in childbirth—and sort of clear

the way. This caused a lot of anxiety among the patients who were in the beds just having had their baby finding out how many people died. And with their death rate, there were always a few people brought out every day, so the bell was not such a great bell.

Now we come to the meat of the talk. You'll notice on these slides, I'll spell Ignaz several different ways and Semmelweis with one "s," two "s's." They're various different ways. Let's review his story. He was born in 1880. He went to law school, and at age 19, decided he would change fields, became more humanistic and switched to medicine and got his MD in 1844 at age 26. Then he became the equivalent of the chief resident of obstetrics at the University of Vienna.

Now, you also have to realize certain things. Hungary and Vienna were not—well, they were at peace because the Austrians had conquered the Hungarians at the time and poor Semmelweis was a Hungarian in Vienna—a very Prussian, German type place. He had an accent and his German wasn't too good, so there were some issues going on. And he was a foreign medical graduate. He went to the University of Vienna and what did foreign medical graduates do sometimes? In my observation, sometimes because they'd had additional training, they'd traveled across hundreds of miles, thousands of miles. Semmelweis left the country during war and all this other stuff to learn better medicine. They tend to work harder sometimes. They'll stay up late. And what do they do? So they did more dissections in the cadaver lab, so people said, "Oh, it must be these foreign medical students causing all the diseases," so things were a little tough then.

So what happened? Well, he had a guy. His friend, Klecza, I think, up in the corner—he was a pathologist and he was in charge of doing all the cadaver exams, and believe it or not, a medical student accidentally cut him with a knife and he died with very similar symptoms to what Semmelweis had observed in women who died of puerperal fever. And the autopsy with the pus was similar to puerperal fever, and that was the epiphany, if you will, for Ignaz. So he decided he could get rid of the odor, if you will, by using a chlorinated lime solution and advocated hand washing and that's supposed to be Ignaz's, these are the medical students. This is the work, I guess, of a charge nurse, and Ignaz got in trouble because he advocated some other things. He wanted the sheets changed between patients and he had the solution he wanted to use. Now, what did this cause? Something that was not in a line item of the budget. The hospital administrator, the charge nurse—they did not like this. So what happened in those settings? You'll see.

Semmelweis made some observations from the two divisions, which I'm going to go over which were in his book. There were two divisions with about 3,000 patients each, 600 to 800 mothers died each year from puerperal fever in the medical student division and only about 60 deaths per year, one-tenth in the first division. No epidemic outside really correlated with what was going on. The mortality rate of home

births was low, even when giving birth in the street or a gas engerberten (Straße Geburt??), which I don't speak German, but I'm told that means "street birth." Women begged not to be brought to the hospital because they thought they were going to die. Mothers who self-delivered rarely died.

His third observation was decades of statistics at the Krakenhouse—that's the hospital—had neither incidence nor mortality of puerperal fever was related to weather. Greater degree of trauma was associated with the likelihood of an infection, like forceps, cuts. Closing the ward always stopped the death rate, and when mothers delivered elsewhere at that time, they did not get sick. The infant of a mother who died of fever had a similar fever with the mother. An autopsy of the mother and infant were similar.

And he had some statistics. In this graph, they show this is Dublin Hospital and wine is Vienna, and this is when autopsies started coming up with Dr. Klein pushing them and this is when Semmelweis came in. So he actually had some pretty good data. I don't know if it was graphed this way, but then again, this is just to indicated Semmelweis's dramatic influence due to hand washing. And he advocated the Semmelweis Method, and this was disinfection of the hands by washing the hands of the obstetrician or the midwife with a chlorinated solution. This was used in order to prevent the fever and he advocated changing the sheets.

And he did an animal experiment. He took some cadavered pustule material and injected it into rabbits. Rabbits died sort of the same way and he made a conclusion. He sort of fulfilled his theory. So what happened? His chairman, Johann Klein—and I used to say, "No one remembers Johann Klein's name but me" but they remember Semmelweis. Anyway, he was fired. Why was he fired? Because today they call the HR committee, they'd say he was guilty of disruptive behavior and a way to get rid of dissent if you disagree with the chair, then you are disruptive to the hospital, so Semmelweis got canned. Any similarities are only fictitious.

So Dr. Klein's theory was the milk theory; foreign medical students because they were doing too many autopsies, and poor walls. So he punched more holes in the walls and wanted to get rid of the foreign medical students. Semmelweis had to be replaced because of the tension between the chairman and Klein was harming the clinic, so poor Semmelweis. And he had presented a little abstract to the University of Vienna. He sent his fellow off, if you will, and he actually had pushed this, but he had been rejected. And Klein said he could be some kind of docent or something where he would still let him stay at the University of Vienna, but not as the person in charge of obstetrics. He would have an unpaid position during which he could only touch mannequins—not even cadavers. That was his new position. He got demoted.

I know today, we have the world of cadavers, models, and computers and stuff but I'll just say since this is the History of Medicine Society, from my perspective, I see with my fingertips. When I dissect in a deep pelvis, there's something different with real tissue that you cannot get from a mannequin, so Semmelweis objected to the mannequin. He said, "I'm not putting up with this shyte." You know what "shyte" is? "Shit" in Gaelic. My mother taught me that, but we'd better go on.

So he went to the Roch House Hospital or whatever, it was in Pest, in Hungary. But there, again, he had some dilemmas. There again, he had another chairman, I believe, Dr. Burleigh, and he believed that colonic impurities were the cause of puerperal fever and we'd better treat everybody with enemas. So Semmelweis didn't—he wasn't well-received, but he did let them use his technique and the puerperal fever rate dropped.

Semmelweis did write a book about 10 years later—*The Etiology of the Concept and Prophylaxis of Childbed Fever*. There it is in German, if you want it. And what happened? His book was published and his motto was, "My doctrine is produced in order to banish terror from the hospital, to preserve the wife to the husband and the mother to the child."

You can't read that slide too well, but that is Dr. Bill Roth, a surgeon, of Bill Roth one and two, and he commented that it was gratifying at this time. Rapid progress of our knowledge, the best textbooks become antiquated quickly. Bill Roth also knew Semmelweis's chairman. To show you what Grand Rounds must have been like, and he said Dr. Klein was among many who has been reared in an intellectual straightjacket with dark spectacles before their eyes and cotton wool in their ears. You can use this at Grand Rounds, any of these expressions.

You'll recognize some of these names from pathology textbooks and things that are named after Dr. Roget Hanski. He was a pathologist who actually liked Semmelweis and he said the specific diagnosis became the Holy Grail but ultimate proof was in the autopsy. But he supported Semmelweis and he was at the University of Vienna. But then there were other guys like this Dr. Schmidt. He was the professor of obstetrics in Berlin. He was also the head of the cultural ministry and he was a Semmelweis fellow. He said normal birth is a slow process. It is unreasonable to expect young doctors to remain in the delivery room. In this respect, it is convenient that the wards and the clinics should be connected and they should be able to go quickly to the morgue to see what's going on. So they spent their time in the morgue, quick ran over to do deliveries.

In this model of cadaveric particles causing the infection, this was sort of like—I'm told one time they had all the TB patients discard their medicine at the county jail and put them all together. Certain ideal models that perpetuate infections and this was that, in retrospect.

They also have to realize—are there any surgeons in the audience? Good. Okay, because the old surgery—the father of modern surgery used a little cocaine; there were lots of things going on, but this is Dr. Gross in the Gross Clinic Surgeons, operated in blood-stiffened frock coats. I'm not sure what a frock coat is, but the stiffer the better because you had more blood on your coat. The medical student—some of the surgeons would have white shoes or clogs and they just keep putting the white shoe polish over all the blood. So in similar days, the stiff, bloody coat meant you had an experienced surgeon. Pus and blood were part of the surgery. Cleanliness was next to prudishness and Dr. Gross, I believe, is there, and in this painting, which is in Philadelphia, I believe, Dr. Gross is saying to the mother, "Don't worry, I'm doing the operation for free." But the mother of the patient says, "Who's going to pay for the funeral?"

Sir Frederick Crevasse, the British surgeon of the mid-1800s, there was no object in being clean. Indeed, cleanliness is out of place. It is finicky and affected. An executioner might as well manicure his nails before chopping off a head. Let's go on. You got the picture.

So Virchow—epistemology. I may be doing this wrong—philosophy of science. They were positive—they believed in positivism. They rejected Semmelweis's speculation because they couldn't see these bugs. You can't see it, you can't prove it. It didn't exist. They thought they'd dropped acid or something, so they rejected Semmelweis, the prophet of microbiology.

So that was Virchow's. Basically, he said that Semmelweis was a bug-bear who speculated he was the worst kind of individual in science. He was a big deal in medical schools and science of the time, but not everybody took that view. The poor guy, Gustaf Adolph was a German obstetrician, became depressed so many of his patients died, including his cousin, due to unsanitary practices. He committed suicide.

And then Pasteur came along and group A strep, if you look at it under the microscope, forms a little pattern for those of you who weren't kept after school by the nuns like me—and Pasteur described group A strep as the rosary bead organism, if you will. Streptococci he found in blood in the lochia, so here we have the connection—the proof—between group A strep, a microorganism, and the cause. Everything Semmelweis was saying was being proven. Pasteur reiterated Semmelweis. It is the doctor and his staff who carry the microbes from sick women to healthy women.

Lister. In Vienna, we talk about prepping the skin; all this stuff. Without Semmelweis, my achievements would be nothing, but they were later. Then Oliver Wendell Holmes, who was a father of a Supreme Court judge; he also wrote a book on the contagiousness of puerperal fever and did some lecturing—and he was in the United States. He was over here, but he was a more affable person, but he also had

more political clout, and they said if Semmelweis had written like Holmes, Europe of this disease would have been conquered in 12 months, but a lot of issues were going on, which we will get to.

And then this poor guy: Charles Delucena Meigs. Remember I mentioned at the beginning of the lecture I had that poignant description of woman in childbirth dying in desecration? Well, he opposed the idea that doctors could convey childbed fever. Even today—even today—and I can say this, being in the surgical field. If a surgeon has a complication, his or her initials are on the belly. There's some personal ownership whether they like it or not, and this still, today, is at times a problem. I couldn't have caused this complication.

Dr. Greenberg gets consult sometimes. "This complication couldn't have come from my surgery." Things happen. Maybe I'm wrong. I don't know. Maybe things have improved. In any event, Dr. Meigs opposed the idea that childbed fever could be passed on the hands, that doctors are gentlemen and gentlemen's hands are clean. That's why sometimes you even see today—who are the people who don't wash their hands the most in the hospital? I've got to admit, it's the doctors because they have magical powers.

Well, Dr. Rudder of Philadelphia in 1843 was Dr. Meigs's friend, and to show you how things thought, it's sort of like you take one of your young protégés and Dr. Meigs wanted his friend to prove or disprove this theory. He left the City of Philadelphia for 10 days. Thirty-five miles away from the city, he bathed and shaved his head. He got a new wig—in those days, they wore wigs—and attended a patient who still died of puerperal fever. So Meigs's conclusion was providence rather than contagion was the cause of puerperal fever. His friend, Dr. Rudder, had sort of cleaned up his act and couldn't have passed anything.

Again, to show you what Grand Rounds were like in those days, Dr. Holmes to Dr. Meigs said, "To those who have been ignorant of the cause of such misery—puerperal fever—the time has come when the existence of a private pestilence in the sphere of a single physician should be looked upon not as a misfortune, but as a crime." I've used that at certain Grand Rounds. Nevermind.

Now, Semmelweis wrote his book and then later he had another publication which includes many personal comments to his academic colleagues. For example, this is Semmelweis: "Your doctor and professor is based upon the corpses of par truant women, murdered out of ignorance. If you think my theory is wrong, I challenge you to communicate to me your reasons, but should you continue without refuting my theory to teach your pupils the theory of epidemic puerperal fever, I declare you a murderer before God and the world." There was clarity.

Scanzoni, who the Scanzoni Maneuver, if you do obstetrics—he called him, "a murderer and a medical Nero." So to summarize Semmelweis's work here, he went to Vienna Leonine(??) Hospital, reduced the

death rate. He saw his friend die and that gave him the hint of the cadaveric particle thing. Smell not removed by hand washing but by this chlorinated solution and we come up with the term, "Iatrogenic disease." He's sort of the premiere study of iatrogenic disease.

So what happened to Semmelweis? What do we have of him today? We have a Semmelweis stamp. There's a Semmelweis University, some people of which I've met. That's in Hungary. There's a Semmelweis coin; ironically, it's from Austria, the country that didn't like him. There's Semmelweis statues. There's the Semmelweis reflex, which if you look up his mob behavior, which basically says on undeveloped planets which a discovery of an important scientific fact is punished rather than rewarded

So what were the personal issues with Ignaz, with Dr. Semmelweis? He was a foreign medical student. He was a Hungarian in Austria and Hungary had lost the war. He was Jewish, he had an accent, and he was a flashy dresser and liked to dance.

If we look at his personal life, his parents are there, Terézia, and József. They had the White Elephant, a consumer goods store. I guess they lived in the Heights. There's Ignaz at age 12, a happy little kid. He had a brother who later decided to be converted and become a priest. When he went back to Pest after being sort of unfunded at the University of Vienna, he got married to his wife, Maria. They had five children; two of them died at a young age. And what else happened? In 1865, he died at age 47, but how and why?

Well, if you look at him from his youth to his greater years here, some people thought because he would go around the streets of Vienna or Hungary and different places he was at and would approach pregnant women and say, "Make sure your doctor washes their hands," and people thought he was crazy. And finally, he got so crazy about this, his wife spoke to his academic colleagues, and this was a big problem. And his friend, Dr. von Hebra, brought Semmelweis to a sanitarium. They told him they were bringing him back to medical school for a conference. They snuck him into the sanitarium in 1847 and he died 14 days later.

But that's not the rest of the story. His body was exhumed in 1963 and they found a depressed skull fracture. You could say he was beaten to death by sanitarium attendants or his academic colleagues—your choice. But they put him there.

So Semmelweis had a problem. Was he the "Fool of Pest," author of his own destruction because he was sort of mouthy? Or was a victim of character assassination by a racist, anti-Semitic, anti-scientific, decadent, murderous medical establishment in Vienna?

Today, we have infection control committees, department of pathology, antibiotics, IVs—we've got lots of things, all of which, when you look back, Semmelweis made sense. The germ farm. Scrub your hands. And this was before we had gloves.

Now, if you're of interest, there was a short movie I discovered by Fred Zimmerman. It's a 10-minute movie. It won an Academy Award in 1938, I believe, or '39, at the Academy Awards. Fred Zimmermann also was the director of *High Noon* and *From Here to Eternity*. I hope I'm not the only one in the room who's seen those movies.

There's an interesting film, if you're a Google person. You can just Google "*Semmelweis and Berry*" and you'll get a very good award-winning film that's 22 minutes about Semmelweis's life, and it's free. But if you really want to know about Semmelweis, *The Cry and the Covenant* by Morton Thomas in 1949, a bestseller, it's the life of Semmelweis. It starts off with his mother dying and also him making rounds. And some of the descriptions, although it's historical fiction, are very accurate. Nineteen-forty-nine. That's the year I was born. So Semmelweis, the immortal magular(?), he helped us learn about iatrogenic disease and as we say, we stand on the shoulders of our predecessors. If you could see the germs on your hand, you'd wash them.

And again, to review that 10-minute movie, Semmelweis's mission was that mothers might live by his work. I apologize for these meanderings of mine with this talk, but for me, Semmelweis and what happened to him, I feel it and I feel a connection every time I'm dealing with a woman who's in septic shock or dies. But thank you for your attention. I'll entertain any questions.

HAMMILL