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Lindsey Fitzharris's 2017 *The Butchering Art* is a compelling medical biography of Joseph Lister, pioneer of antiseptic surgical theory and practice. Lister's work, building on the germ-theories of Louis Pasteur, "Transform[ed] the Grisly World of Victorian Medicine" from a chaotic and deadly battle against seemingly inevitable infections to a more systematic and often successful battle against injury and disease.

Fitzharris, who earned her doctorate in the history of science, medicine and technology from the University of Oxford and created the website *The Surgeon's Apprentice*, opens her first book at the close of the surgical "Age of Agony." This was the period preceding the medical adoption of chloroform in the 1860's. *The Butchering Art* begins with Robert Liston's experimental use of the drug as a surgical pain-killer at London's University College Hospital on December 21, 1864. Joseph Lister – then a surgical student with an unorthodox interest in microscopes – attended that demonstration and came to professional maturity in a medical world revolutionized by the shift away from surgical agony that it signaled. But this revolution was a deadly one; surgical pain may have been largely conquered, but pain had served as a check on the kinds of invasive procedures that most insistently invite infection. That check was now gone and the large, urban hospitals that served the most disadvantaged in cramped and festering quarters were growing.

*The Butchering Art* is primarily concerned with Lister the professional, the man who spurred an "epochal moment when medicine and science merged" (232). But the book positions Lister's work in the context of his personal life as well as in the context of contemporary medical and scientific communities, which were in hotly disputed expansion and flux. Lister's scientific interests, for example, uncommon among medical men of his generation, express the filial piety of the son of a leader in microscopic technology and study. Though Lister joined the Scottish Episcopalian Church when he decided to marry Agnes – the daughter of his mentor, James Syme – Fitzharris frames his particular care for each of his patients as human beings with inherent worth in the context of the Quaker faith in which he was raised.

As Lister became an increasingly skilled surgeon, he also became increasingly troubled by the inescapability of post-operative infection, especially in the sprawling hospitals treating the poor. Mid-Victorian rates of death, particularly post-surgical death, in hospitals were dire. In fact, one of the more intriguing theories that Fitzharris raises – via Lister's student Guy Theodore Wrench – is

that Lister's innovations made possible the continued development of the hospitals that eventually developed into primary sites of medical treatment and study:

*Large hospitals were being abandoned and hut hospitals substituted...Lister's work...came in the nick of time. It saved not only patients but hospitals. It prevented...an entire reversion of the method of dealing surgically with the poor. (Wrench qtd. in Fitzharris 233)*

Perhaps, had Lister's antiseptic system (hand washing and the washing of surgical tools— and sometimes wounds— in carbolic acid) not been adopted, the course of medicine in the 20<sup>th</sup> century could have been very different.

Of particular interest to me as a scholar of nineteenth-century pregnancy and childbirth is the chapter on "Cleanliness and Cold Water." Here, *The Butchering Art* outlines some of the hygienic theories that predated Lister's antiseptic revolution. These theories were often articulated as responses to high rates of puerperal (or childbed) fever. As far back as 1795, Alexander Gordon had argued that the fever was the result of "something on the practitioners themselves" and advocated that "the nurses and midwives who cared for [patients who had died of the fever] 'ought carefully to wash themselves, and get their apparel properly fumigated, before it be put on again'" (146). Oliver Wendell Holmes made similar arguments in 1843, around the time that Ignaz Semmelweis was fighting for acknowledgment of a connection between medical handling of the dead (and dying) and puerperal fever. Though pregnancy and childbirth was not the particular trigger for Lister's own hunch that it was something, like germs, that could be introduced to or held back from a wound to cause or prevent infection, his discoveries work in an intellectual history shaped by the treatment of women's reproductive bodies.

Like those of Gordon, Wendell Holmes, and Semmelweis in particular, Lister's ideas were met with resistance. In sketching these reactionary dismissals, which tended to be fueled by wholesale disbelief in germ theory, Fitzharris both emphasizes Lister's patient and selfless insistence on practices that saved lives and also notes that his systems were not perfect. For example, for much of his life, Lister remained committed to the use of a carbolic spray "designed to sterilize the air around the patient, both during an operation and afterward when changing dressings" that he eventually forwent because "the German physician and microbiologist Robert Koch...showed that airborne pathogens were not the main culprit of wound infection, which meant sterilizing the air was futile" (208-9). In other words, Fitzharris, though admiring of Lister, is no hagiographer.

*The Butchering Art* is an entertaining, readable popular history that I would recommend to academic and non-academic readers alike. My only suggestion would be that the squeamish think carefully about their tolerance for the frank depiction of "grisly" material. Blood, guts, and pus are everywhere and the violence of pre-antiseptic surgery is sketched admiringly and gruesomely. The only passage at which I needed a break, though, was the story of Robert Hooke's 1664 research on a dog. Skip over the relevant a paragraph or two in the chapter "The Frog's Legs" if puppy eyes are what get you...

