

BOOK REVIEW

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The Death of Old Man Rice. By Martin L. Friedland. New York, New York University Press, 1994. Pages: 440. Price: 29.95.

Many of us as anesthesiologists have known of lawsuits or have been involved in lawsuits in which evidence has been misinterpreted or distorted by professional witnesses who are well paid for their so-called expertise. Martin L. Friedland, a law professor, raises important questions about medical expert witnesses, using a case study from almost 100 yr ago. This case is particularly interesting to anesthesiologists because part of the expert testimony, relating to the "flammability and irritant properties" of the anesthetic chloroform and to the physiology of the circulatory system, are grossly in error. Whether this resulted from ignorance on the part of the paid professional witnesses or from more sinister motives is of great concern, even today.

William Marsh Rice, the founder of Rice University, was found dead in his New York apartment on September 23, 1900. Albert T. Patrick, an attorney who claimed through a probably forged will to be the beneficiary of Rice's millions, was subsequently tried for murder in what has been described as "America's most remarkable murder case" * and "one of the most remarkable trials in all history." † Rice's valet, Charles Jones, turned State's evidence against Patrick, confessing that he chloroformed Rice at Patrick's instigation.

Patrick told the undertaker who came to Rice's apartment that Rice wished to be immediately cremated. But it was Sunday, the crematorium needed 24 h to be brought to operating temperature, and the body might begin to decompose in the interim. The undertaker suggested embalming the body, which was done through the brachial artery, without removal of venous blood. After Patrick's unsuccessful attempt to cash large checks of Rice's at the banks on Monday, the suspicious bankers notified the police, Patrick was arrested, and the cremation was stopped until the internal organs were removed for autopsy.

At the trial, Jones testified that he first placed a chloroform-soaked rag on the face of Rice, who made no objection, and then left the room for about half an hour. He further testified that, when he returned, Rice was in the same position, but dead. Jones then placed the chloroform-soaked rag in the stove where (he said) it burst into flame.

At autopsy, the lungs were found to be congested, and some medical experts swore that this was due to the pulmonary irritant effect of chloroform. There was also "expert" medical testimony to the effect that the pulmonary congestion could not have resulted from the retrograde flow of embalming fluid, which had been injected into the brachial artery. Such flow (it was alleged) would be prevented by the aortic and mitral valves, which permit flow only in a forward direction. How wrong they were! Every embalmer knows that the heart valves become incompetent after death, and retrograde flow of embalming fluid is routinely seen. It took a demonstration and a petition signed by many of the New York embalmers to convince the

Governor that the "expert" medical testimony might have been wrong.

With regard to Jones's testimony, it should be pointed out that chloroform is nonflammable, which casts doubt on Jones's story that the saturated cloth burst into flame in the range. In addition, it would have been almost impossible to place a high concentration of chloroform vapor on the face of a normally sleeping person without having some reaction of suffocation and attempt to remove or avoid the offending vapor. It is possible to induce inhalation anesthesia in a sleeping person only if the vapor is started slowly and at a very low concentration at first, with gradual increases as tolerated. When Jones returned after about 40 min, he said he found Mr. Rice in an unchanged position. Did Rice die of natural causes before Jones put the chloroform to his face? And was chloroform ever used? Jones's brother, Lafayette, later denied shipping it to him, although there were express records to the effect that some glass bottles had been shipped.

With regard to chloroform's effect on the lungs, there should be no edema, as was found in the post mortem examination. One reason for the popularity of chloroform at the time was its lack of respiratory tract irritation as compared with diethyl ether, which was the other widely used inhalation anesthetic of the era. The medical "experts" who testified to the pulmonary irritant effect of chloroform were again absolutely wrong.

What then was the cause of the pulmonary edema seen in the lungs when they were removed? Two possibilities occur to me. One is that Rice was suffering from increasing congestion of his lungs in his last days, as noted on the death certificate by Dr. Curry, his physician. The other (and probably major) cause of the pulmonary congestion was the retrograde flow of embalming fluid and blood. In life, the aortic and mitral valves normally keep the blood from flowing backward. The aortic valve snaps shut as a result of diastolic pressure in the aorta, and the mitral valve is closed by the generation of systolic pressure within the left ventricle. However, after death, the valve cusps may not seal perfectly in the absence of the usual pressures that keep them closed in life. Under such conditions, the slow injection of fluid into the brachial artery would pass in retrograde fashion up the arm and through the innominate artery into the aorta. Reaching the base of the aorta, the fluid could perfuse the coronary arteries and reach the coronary veins on the right side of the heart, which lead to the pulmonary arteries and the lungs. In addition, and especially if there was any significant degree of aortic valve insufficiency or mitral valve insufficiency, the embalming fluid could flow in a retrograde fashion through the aortic valve, into the left ventricle, through the mitral valve, into the left atrium, and into the pulmonary veins, which connect directly to the lungs. This was unquestionably shown in the embalmer's demonstrations and is another example of medical "experts" being completely wrong. Failure to drain venous blood from the body during the intraarterial injection could only increase the amount of pulmonary congestion seen.

Friedland writes with an enjoyable yet compelling style. Despite its meticulous scholarly approach, the book drew me irresistibly from the end of one chapter to the beginning of the next. As the book proceeds, the characters develop in fascinating ways and, even after the last page was finished, I was left with many questions about facts, truthfulness, and motives for many of the people in the story.

* Denver Post. November 28, 1912.

† Houston Chronicle. November 28, 1912.

