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### Reanalysis

#### February 2016

An older medical scientist returned home from his day's work at the university, where he was studying the toxicity of a chemical used to slow the development of fires in furniture. He had published a study showing that this chemical caused toxicity at very high levels in animals—the equivalent of fifty to seventy sugar packets per person per day. Other studies confirmed this finding. But actual exposures from consumer products were much lower than this, he thought, and would not cause any harm, even in sensitive people, like his four-year-old grandson, Finn, who had just spied him from across the room and who was even then making a beeline to run into his arms. Besides, he thought as he raised up Finn for a swooping hug, I will take the flame retarding benefits of these chemicals any day because destruction of lives and property by fire was a daily occurrence throughout his country.

He knew that not everyone agreed that this chemical was without risk. In fact, he had read a study in which effects from similar chemicals were seen at current human exposures, but this study had not been repeated. And repetition was important because studies were designed to find a positive occurrence every twenty or so times just by chance. Like flipping a coin and getting five heads in a row, he thought. Not a likely occurrence if done once, but if done all day long, five heads in a row would always show up at some point. He had used this example many times in his teaching. This is why repeating a study was so important for science and also why every scientist knew that any one study could not be used to make conclusions.

After giving Finn another hug, he went to his study to look over his evening's work, that on a very different topic—an array of evidence on the Shroud of Turin. Many of his academic colleagues did not give a second thought to this historical relic, or if they ventured a guess, concluded on the basis of one, well-publicized study of its radiolabeled carbon dating, that the Shroud was a clever forgery from the thirteenth century. However, the other studies of historical evidence did not confirm the radiolabeled carbon dating; rather these studies clearly pointed to the Shroud being around prior to the thirteenth century and that it was

even used as a template from which coinage and paintings had been made sometime between 300 to 700 AD.

Hmm..., he mused, so if these two types of evidence were contradictory as to the date of the Shroud, then confirmation one way or the other depended on the rest of the evidence. This evidence summarized by the Turin Shroud Center of Colorado was scriptural, historical, medical, fabric, and image formation. It uniformly pointed to a burial Shroud from near the first century, in Jerusalem, in the springtime. And this evidence was extensive. The weave of the cloth was consistent with cloth used for burials in this era. The blood stains were male type AB,<sup>103</sup> similar to that expected in a Jewish man. The stains from other body fluids and other markings on the cloth indicated a brutal execution including severe flogging with a Roman flagrum. The image also bore a wound consistent with a lance blow to the chest. Unusual wounds were also found to the head, along with a profusion of pollen from a plant known to bloom around the time of Passover and also known for its thorns. Additional pollen on the Shroud was from other flowering plants in the spring in Jerusalem. Smaller amounts of pollen were also found from countries around the Mediterranean Sea. The floral prints on the cloth were not inconsistent with plants blooming in Jerusalem during the springtime of Passover, and their placement on the Shroud would be consistent with Jewish burial practices. The soil on the underside of the cloth was of a particular type of limestone, which was typical of Jerusalem then and still now.<sup>100</sup> And importantly, all of these facts fit into the scriptural description of the crucifixion and burial of Jesus Christ.

This medical scientist was used to controversial findings. Thus, controversial evidence about the Shroud should not be unexpected, he thought. In fact, if all of the evidence lined up in support of the Shroud being from the first century, I'd be even more skeptical.

He continued his contemplation. While historical facts can be used to support one version of history over another, such ideas could not be easily tested. For example, the pollen from the plant associated with thorns might bloom in different locations, or the Shroud might have been open to the outdoors during the springtime in Jerusalem. Then again, he thought, if each of these "facts" were assigned a five percent chance of being on or associated with the Shroud—well, other than the radiocarbon dating—the odds of all of them being on or associated with the Shroud were overwhelming. In fact, this collection of facts would be well beyond a one in twenty occurrence due to chance alone and easily more than what I would need to convincingly argue a scientific position in my medical area of work, he thought.

He watched again a video in which Dr. Donald Lynn made a statement that the overall appearance on the Shroud of the executed man's face was completely inconsistent with the obviously tortured body.<sup>7</sup> This led to some additional quiet reflection and prayer, during which time he picked up the latest issue of Biblical Archeological Review and read a story about an analysis of another Shroud dated to around the first century. This Shroud was