

## Conversations at the Tomb

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*This narrative account is inspired by the four gospels and the science concerning the authors' hypothesis for image formation of the Shroud of Turin. All the events from the Garden of Gethsemane to the burial in the tomb are seen as essential to the image's formation. The science behind this unusual but natural process is fully described in "The Jesus Biome, An Instagram from the First Century." by Stephen Mattingly, Ph.D. and Roy Abraham Varghese. This book was reviewed in Issue 93 of the BSTS Newsletter.*

**NOTE: Present day comments and information are presented in italics.**

"The body cannot be moved until you have permission from the governor," yelled the soldier to the small but growing crowd beneath the hanging corpse of Jesus. Joseph of Arimathea, a beloved Jewish friend and disciple of Jesus, approached Mary, and spoke softly. She nodded in the affirmative.

At the residence of Pilate, Joseph was greeted by the door keeper who rushed to inform Pilate, knowing the Jew would not enter the governor's residence before Passover. While waiting in the growing twilight, Joseph could hear soft sobbing coming from a deeper part of the residence. He had heard rumors of Pilate's wife and her anguish at Jesus' crucifixion. He wondered if this could be her weeping that he was hearing.

Suddenly Pilate appeared in the doorway and Joseph was struck by how haggard and disheveled the governor of Judea appeared. Joseph announced that Jesus of Nazareth was dead and asked for permission to remove the body. Not knowing the Roman law for obtaining the body of a loved one for burial, he offered several coins as a potential payment.

Pilate responded in disbelief. Shaking his head, he muttered, "So soon". He nodded his head and dismissed the offer of coins. Pilate informed the servant to give Joseph the approved death certificate.

As Joseph turned to leave, he now heard deep sobbing, which grew louder and more painful as he departed the residence.

Upon returning to Golgotha, Joseph handed the death certificate to one of the two soldiers guarding the body of Jesus. He nodded after reading the document and handed it back to Joseph.

Along with John, the two soldiers climbed the wooden scaffold and began pulling the nails from the feet and wrists of Jesus. Mary, exhausted from grief, stared in disbelief at her once devoted son bent nearly in two (rigor mortis) from his chest to his knees.

Insects swarmed around the body attempting to feed on the sticky fluids and dried blood layered on his body over time. Large ravens circled overhead.

Jesus' eyes were partially open from the crusted dried sweat that accumulated as salt crystals on his eyelids. As Jesus was placed in the cart that was used for hauling bodies from the execution site, John had to forcibly twist his arms so the body would fit inside the cart. This movement caused the crown of thorns to become dislodged from his head and fall to the ground. It was quickly retrieved by an unknown disciple. The crown of thorns had been placed on Jesus' head as a form of mockery. He had been beaten, wrapped in a purple robe, and given a crown (of thorns) because he had spoken openly to Pilate that he was a King, but his Kingdom was not of this world. Where the thorns had been embedded in his skull, watery blood began oozing slowly.

After covering the body with capes and tunics, a small procession of grieving friends and family began the short 30-yard journey to the garden tomb of Joseph of Arimathea, who had kindly offered his tomb as the burial site for Jesus. Although Joseph lived in Arimathea, he had a residence locally and frequently visited the city and wished to be buried here.

The constant jostling exposed the emaciated and bloodied body of Jesus. Although bent now, his once well-developed body was almost 6 feet in height. He had been a beautiful human being, well-nourished and cared for, and weighing about 170 pounds. The rocky road caused the body to continue to ooze watery blood from his many wounds on the head, body, wrists and feet. A sticky grayish white substance was mixed with the blood and attracted many flies and other insects that swarmed above the clothing. A closer look revealed many insects also stuck to the body.

Upon arrival at the garden tomb, Mary looked around and asked for several jars of water and cloth fragments. Despite the Jewish law forbidding the touching of the deceased, she was determined that her son was not going to his grave in such a wretched state of abuse and dishonor. She often assumed the leadership role in Jesus' absence and the assembly was especially eager to do whatever she requested. Mary Magdalene and several other women hurried away in different directions and came back within a quarter of an hour with clean scraps of clothing materials and jars of water. For a brief moment, the hustle and bustle of the women broke the sadness engulfing the beleaguered little group.

Nicodemus, a Pharisee and a member of the Sanhedrin, meanwhile had quietly entered the tomb area with the usual embalming spices carried by several servants. He was unable to speak immediately as he was bent over in grief. He made a motion to his servants to lay the spices on the ground near the cart. Lifting his head, he caught the attention of Mary. She immediately approached him and grasped his hand as he began softly sobbing. She had met him several times before and Jesus had told Mary that Nicodemus shared many of the truths that were close to his heart.

As Nicodemus turned his head to the covered body of Jesus, John made a motion to lift

the crumpled body to a nearby stone slab. John and Nicodemus carefully raised his dislocated arms while Joseph lifted his lower body. Once the body was on the somewhat level stone, they attempted to force his chest, legs and arms back to a more natural resting position. They had some success but additional efforts would be needed.



Painting by Nancy Mattingly of the scene in the tomb

Mary standing next to Nicodemus softly asked him to say the Jewish Mourning prayer for the dead.

Although having difficulty speaking and losing his voice several times, Nicodemus petitioned the God of the Israelites to comfort the grieving.

After finishing the prayer, there was complete silence for several minutes before Mary turned to the small pile of clothing fragments and selected a piece roughly two foot square. She poured water on it, squeezed out the excess, and began gently wiping the anguished face and beard of her deceased son. Many insects, dirt particles, salt crystals, and small bits of plant material along with caked-on dried blood were removed. She repeated the process several times.

Meanwhile, Mary Magdalene began working next to Mary combing and cleaning Jesus' matted hair in a way that depicted reverence and honor to the body of Jesus. As the women applied water to the skin and hair, they each noticed a white sticky substance that remained on the skin and hair as they washed. After being unsuccessful in removing the substance, Mary spoke to Mary Magdalene in a soft voice about this, and asked if she was having the same problem. Mary Magdalene whispered yes, and asked Mary if she might know what it might be. Mary shook her head in the negative. Not wanting to alarm the others, they continued to quietly prepare Jesus' body.

*If the curtain of time could now be parted, we might see a present day medical microbiologist appear with a sterile inoculating loop and obtain a sample of the sticky white material and heat-fix it to a clear glass microscope slide. In addition, a second loop would be used for streaking for isolated colonies on a blood agar plate. A Gram stain performed on the fixed sediment on the glass slide indicated purple Gram positive cocci (round) appearing as clumps of grapes along with copious amounts of darkly stained material in the background. Examination of the blood agar plates after incubating at 98.6 degrees F for 24 hours showed the presence of many white, raised, shiny 1-5 mm objects or colonies on the surface. A few other small colonies on the blood agar plate were clear and colorless. A Gram stain of the larger, more numerous white colonies indicated*

*Gram positive cocci in grape-like clusters as seen in the initial slide. Performance of several other diagnostic tests identified the bacterium as Staphylococcus epidermidis. This bacterium is present on the skin of all human beings in large numbers, particularly in the facial area. Under most conditions it is considered a good bacterium because it occupies skin areas preventing the attachment of the more dangerous bacterium Staphylococcus aureus as well as other pathogenic bacteria.*



Colonies of *Staphylococcus epidermidis* on a blood agar plate

After Jesus' face was cleaned, Mary sought to have it covered in the Jewish burial tradition. John handed her an approximately three foot by two foot moistened cloth, which she applied to his head. The women then asked several observers to help turn the body of Jesus onto his left side so the back and chest areas and remainder of the hair could be cleaned.

In an attempt to soak up the sticky white material, Mary was only able to spread the sticky material evenly over the skin surface. Repeated applications of water and rinsing seemed to make the problem worse. Despite the stickiness of the hair, Mary Magdalene was beginning to be able to comb the hair and gently pull it into a braid. Within 30 minutes, previously cleaned areas of the body began to dry and the skin surface appeared clear and shiny but sticky to the touch. Re-application of water to the cleaned areas resulted in the immediate reappearance of the raised sticky white material. It was becoming clear that repeated washings of the body were not helpful.

*Staphylococcus epidermidis (SE) is one of about 1000 species of bacteria that have been shown to reside on human skin. Clearly, the microbiology of human skin is complex and knowledge of the interactions (Human Skin Microbiome Project) of the various microbes will lead to an understanding of what contributes to healthy and diseased skin.*

*As indicated previously, blood agar plates are used to isolate and grow SE. The nutrients required to grow this bacterium are present in whole human blood. They include sugars, amino acids, nitrogen bases, vitamins, salts, and a variety of growth factors. In normal situations, SE living on our skin, obtains essential nutrients from sweat glands, decaying epithelial cells and other sources. But the nutrients are in limited supply so rapid growth is not possible. In the case of Jesus' crucifixion, following scourging and crowning (capping) of thorns, blood covered his entire body. So SE had an unlimited supply of nutrients and could grow continuously.*

*Under these conditions, SE cells can divide every 20-30 minutes. It is the fastest growing microbe on human skin. Thus, starting with a few thousand SE at one location, multiple millions could be present during the time period of crucifixion (6-8 hours).*



The author's hand after contamination with *Staphylococcus epidermidis* and then washed with water as described in this article. Note the white coating over the skin surface.

the midsection with the hands covering the groin area. After cleaning his arms and hands, he covered his hands and groin area with a clean damp cloth. He also noted that the white sticky film was also present on his bloodied legs and feet. Repeated washings only seemed to spread it more evenly over the skin. In the course of washing the upper body and hair, the face cloth fell off and was quickly replaced.

While cleaning of the body of Jesus was underway, Joseph of Arimathea had silently returned to his local residence. As he walked the short distance, he was becoming more concerned about providing a suitable burial shroud. The vendors were all closed now prior to Passover.

Once entering his home he began quickly looking through the rooms. Coming to the dining room he saw the beautiful 12-foot dining table with the white linen runner. He and his wife were especially fond of the unusual weave pattern. He smiled to himself as he remembered the dinner not many weeks before when Jesus and many of his disciples were guests. As the group was making its way through the dining room, he remembered that Jesus had stopped at the dining table and had gently run his fingertips over the beautiful linen. For a moment He seemed to be somewhere else in his thoughts.

That evening before dinner, He quietly taught the disciples. Joseph remembered one thought that stood out. Jesus said "I am the living Bread come down from Heaven". Later as they filed into the dining room to take their place at the table, there was not the loud joyful banter. The table was now beautifully set. The linen runner had been replaced with a full tablecloth. He remembered how the candle light reflected in their eyes. Jesus, looking up to heaven, led them in prayer.

*An additional significant factor is the effect of human sweat on SE. There can be no doubt that Jesus exhibited extreme sweating as reported in the Garden of Gethsemane and throughout the ordeal of crucifixion, especially when he was forced to carry the crossbeam.*

*The presence of high levels of salt (NaCl) in sweat is known to inhibit most skin bacteria but not SE. In fact, commercial culture media are available containing 7-10 per cent NaCl to selectively isolate staphylococci. Thus, Jesus' blood covered body would effectively serve as a culture medium for growing SE. In that the optimum temperature for growth of SE is 98.6 degrees F, his body would also serve as the incubator set at the right temperature.*

As Mary and Mary Magdalene cleaned Jesus' upper body, John worked on the lower extremities. With some struggle, he pulled Jesus' arms toward the

Of course! The linen table runner will serve as the burial shroud. He explained to his wife the intended use of the linen and she embraced him in tears and buried her face in his chest. Upon his return to the tomb, he announced that if they agreed, his linen would be used as the burial wrapping for Jesus.

Mary sincerely thanked him. He stretched the fabric out on the slab that would be the burial site in the crypt for Jesus. Along with his servants, Joseph began rubbing the embalming spices into the linen fabric. The fragrant aromas immediately filled the little alcove and were welcome after experiencing the death-like odor produced by the sticky white material coating the body of Jesus. As they finished cleaning the body and laid him on his back, the burial party moved to help Joseph complete the embalming of the 14-foot long burial fabric. Shadows from the outside were beginning to creep into the burial chamber and a sense of urgency motivated the little group to quickly finish the embalming process of the linen. Embalming the body would have to wait until after the Sabbath.

Once the linen was prepared, they returned to Jesus' body. Joseph and John lifted the upper and lower regions of the stiffened body, respectively, with the women supporting the arms on either side. They carefully placed the body lengthwise on the linen with about a foot of linen free at the feet for tying. John attempted again to force Jesus' body to a more relaxed position having some success with his upper body. Mary removed the still damp face cloth and wiped his face again while smoothing out his facial hair. She then neatly rolled it up and placed it on the stone slab out of the way of the burial linen.

John attempted to remove the cloth, which was now dry, that covered his hands and groin area. To everyone's surprise, he could not remove it on his first attempt. Looking closer, they noted that the cloth almost seemed like it had melted into Jesus' hands, outlining the bones and folds of the hands in great detail. Grabbing an edge of the cloth, John now pulled with great effort and it temporarily lifted the skin away from the bones as it came loose.

Looking at the inside region of the cloth that had been in contact with the skin, embedded hairs from the hands were observed. Almost instantaneously, John loudly announced "his hands are starting to appear". He laid the cloth down and the amazed little team watched in awe as the straw yellow color slowly increased in intensity.

The image was a near perfect replication of Jesus' folded hands. With tears in her eyes, Mary touched John's shoulder but was unable to speak. They continued to stare for another ten minutes until darkness was almost upon them. With light rapidly disappearing, they folded the rest of the linen over the head of Jesus, down to his feet, and tied the top and bottom portions with twine.

Meanwhile John had tucked the cloth image of the hands into the sleeve of his tunic. Picking up empty water jars and used clothing fragments, they quickly exited the garden tomb. With the help of several other men nearby, John and Joseph pushed and rolled the stone over the small entrance to the tomb. They agreed to meet back after the Sabbath to

finish the anointing of Jesus' body.

*Understanding the characteristics of SE is key to appreciating how the image of Jesus formed on his burial shroud (Shroud of Turin). As indicated previously, this bacterium lives on human skin. It has specific receptors that bind it and then seals its location by layering massive amounts of an extremely sticky polysaccharide around and over it. This polysaccharide is composed of the sugars, glucose, glucosamine and others that form huge macromolecules, much larger than the cells of SE. These structures serve to occupy the skin surface so other bacteria cannot gain a foothold and hold SE in place.*

*Because of the chemical composition of these polysaccharides, they are basically quite similar to the cellulose that makes up most of the structure of the burial linen itself. When chemically purified and dried, both materials would have a fluffy white appearance; and if mixed together would be impossible to separate. The one major difference is in how they function.*

*When water contacts the SE polysaccharide, it forms a white sticky paste, while no such effect is seen with cellulose. Allowed to dry, it forms a clear gel-like material. If the SE polysaccharide makes contact with skin or any solid structure, it will bind tightly to that surface. In the medical field, this can be quite a problem with indwelling catheters, if not properly cared for, or solid prostheses for bone or joint support.*

*Relating this observation to the burial shroud of Jesus, we can begin to appreciate how his skin coated with SE and its polysaccharide would bind tightly to the linen surface when water is introduced.*

*After Jesus was placed in his shroud and the burial party closed the tomb and left, the water-seeking SE polysaccharide, along with the linen itself, became attracted to the fluids (water) remaining in the body of Jesus. As the polysaccharide pulled water from decaying epithelial and/or other cells on or near the skin surface, the white paste reappeared and made contact with the linen surface. This paste formed a distinct layer between the skin surface and the cellulose linen. As the water sources on or near the surface of the body became limited the linen was pulled tighter and tighter. When the water source was exhausted, the SE polysaccharide gel dried forming a three-dimensional network on the linen surrounding the body.*

*The sudden appearance of the straw yellow color observed by John, when he examined the cloth that covered Jesus' hands, is due to the oxidation of unsaturated fatty acids of SE when suddenly exposed to air (oxygen). This is a phenomenon observed by all human beings and is understood as "ring-around-the-collar". Skin bacteria rubbing against our clothing, especially the neck and armpit area, leave insoluble fatty acids from their dried cell membranes on the fabric over time. Fatty acids produced by skin bacteria (and all bacteria) are of two types, saturated and unsaturated. Chemically, saturated fatty acids have atoms at all available bonds of carbon, while unsaturated fatty acids are more unstable with one or more sites unoccupied and available for bonding. These sites*

can thus react with oxidizing agents, such as oxygen producing yellowed by-products, e.g. rancid butter.

*In the case of the Shroud of Turin, the yellowed image is largely due to the oxidation of insoluble (chain length greater than ten carbons) unsaturated fatty acids. Soluble fatty acids with less than ten carbon chains would dissolve in humid atmospheres and dissipate over time. In that all carbon-based material will eventually oxidize and yellow, some color will also be due to other cellular components of skin bacteria (cell wall peptidoglycan, protein, and others) and even the carbon-based cellulose linen itself.*

As the stone was rolled into place, the wrapped body of Jesus lay in the darkness. With each passing hour the linen was being drawn inward by the drying skin, tissues, and bony structures. Upon completion of drying, the stage is now set for the development of the most remarkable three dimensional image of his sacred body. All that remains is the exposure to oxygen. This would only happen with the sudden absence of the undecayed body at a moment known only to Jesus. As the upper linen collapsed onto the bottom cloth, the image would already be starting to form in this unusual “darkroom”. By Easter morning the image would be completely developed for all of us to marvel at then and through the ages.



*The above ‘Conversations at the Tomb’ article reminded our Membership Secretary, Brenda Benton, of a possible ‘conversation about the tomb’ that was suggested by the Pastor at her Church to the amusement of the congregation during an Easter weekend service:*

**Pontius Pilate:** “Joseph I really don’t understand. You’re one of the richest men in the region, and you’ve spent a small fortune on a new tomb for you and your family and you want to give it to this man Jesus?”

**Joseph:** “It’s just for the weekend.”