

AN EXAMINATION OF THE MEDICAL EVIDENCE FOR THE PHYSICAL DEATH OF CHRIST

Brad Harrub, Ph.D. and Bert Thompson, Ph.D.

[The following article examines the crucifixion and death of Christ from a medical point of view. Because of the scientific nature of the material, readers may wish to know something concerning the educational backgrounds out of which the two authors are writing. Dr. Harrub earned his doctorate in neurobiology and anatomy at the Health Sciences Center of the College of Medicine, University of Tennessee. Dr. Thompson earned his doctorate in microbiology at Texas A&M University, where he also served for a number of years as a professor in the Department of Anatomy and Public Health in the College of Veterinary Medicine, and as Director of the College's Cooperative Education Program in Biomedical Science.]

The perception of the death of Jesus Christ in the twenty-first century frequently takes place through human eyes that have been tainted with a sanitized, sterilized, and often stylized "art-deco" depiction of Christ on the cross. Today, it is exceedingly uncommon to hear a description of the medical details attending Christ's crucifixion, yet a complete and thorough investigation into such evidence can lead to a firmer knowledge and a deeper-rooted faith about what actually transpired on that old rugged cross nearly 2,000 years ago.

Christ's future appearance and suffering was first foretold in Genesis 3:14-15:

And Jehovah God said unto the serpent, "Because thou hast done this, cursed art thou above all cattle, and above every beast of the field; upon thy belly shalt thou go, and dust shalt thou eat all the days of thy life: and I will put enmity between thee and the woman, and between thy seed and her seed: he shall bruise thy head, and thou shalt bruise his heel."

The phrase, "He shall bruise thy head..." is the assurance that Christ will reign victorious in the end. "Thou shalt bruise his heel..." is without doubt speaking of Satan's temporary victory over Christ at the crucifixion. While the physical aspects of crucifixion admittedly consist of considerably more than a "bruised heel," this comparison certainly is valid when contrasted to the ultimate demise of Satan in the lake of fire (Revelation 19:20). Crucifixions were commonplace during the time the gospel accounts were written. Inasmuch as everyone knew about them, however, great detail was not provided in the Scriptures concerning the actual practice of crucifixion. Sadly, this omission leaves individuals living in the twenty-first century at a distinct disadvantage. How much do we really know, for example, about this ancient practice of torture and death?

Crucifixion is believed to have originated in the Persian Empire; however, Romans are given credit for perfecting it into a heinous means of inflicting death (see Shroud, 1871; DePasquale and Burch, 1963, p. 434). Romans appreciated the cruelty of crucifixion because it demonstrated three clear advantages over other means of execution. First, it was incredibly painful for the victim (so much so that the person being crucified often was rendered unconscious during the proceedings). Second, it provided a lingering death, which was much preferred for extremely vicious criminal acts. Third, it afforded a horrific deterrent for anyone contemplating a similar offense. So what did Christ actually endure in those few short hours? The discussion that follows is intended to be an exhaustive historical and medical review of the physical death of Jesus

Christ. It is our hope that the information provided here will enable you to pull back the curtain of history and experience a brief glimpse of the love that Jesus possesses for humankind. We believe you will find this material not only educational, but also edifying as you contemplate the physical agony Christ suffered for each one of us.

THE GARDEN OF GETHSEMANE

Even as Christ was instituting the Lord's Supper (Matthew 26:26-29), His private thoughts already were centered on His impending suffering and death (Luke 22:15). Shortly thereafter, Christ and His disciples went to the Mount of Olives, into the Garden of Gethsemane. Previously, Luke had enlightened his readers about the importance of this place, stating: "And in the day time he was teaching in the temple; and at night he went out, and abode in the mount that is called the Mount of Olives" (Luke 21:37). This grove of olive trees was a place to which the Lord had retreated before, and a place where He probably received a great amount of solace. However, this particular occasion at the Mount of Olives also provided the means by which His betrayer could deliver Him into the hands of the Jews who sought His death.

The name "Gethsemane" derives from the Hebrew "*gat shmanim*," meaning "oil press" (Kollek, 1995). Not coincidentally, it was within this place that Christ would feel the crushing weight of the things yet to come—so much so that an angel appeared to Him from heaven, strengthening Him (Luke 22:43). It also is significant that this is the only place in the King James Version of the Bible

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Editor:

Bert Thompson, Ph.D.*
(*Microbiology, Texas A&M University)

Associate Editor

Brad Harrub, Ph.D.*
(*Neurobiology, University of Tennessee)

Annual Subscription Rates:

\$ 8.00 Domestic
\$13.00 Canada & Overseas Airmail

Mailing Address:

Apologetics Press, Inc.
230 Landmark Drive
Montgomery, AL 36117-2752

General inquiries, changes of address, or international callers:

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Fax: (334) 270-2002

Orders:

Phone: (800) 234-8558
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where the word "agony" is employed. It is because of this agony over things to come that we learn during His prayer "his sweat was as it were great drops of blood falling down to the ground" (Luke 22:44). Some have tried to defend the impossibility of bloody sweat. However, a thorough search of the medical literature demonstrates that such a condition, while admittedly rare, can occur.

Commonly referred to as hematidrosis or hemohidrosis (Allen, 1967, pp. 745-747), this condition results in the excretion of blood or blood pigment in the sweat. Under conditions of great emotional stress, tiny capillaries in the sweat glands can rupture (Lumpkin, 1978), thus mixing blood with perspiration. This condition has been reported in extreme instances of stress (see Sutton, 1956, pp. 1393-1394). For example, a young girl who had a terrible fear of air raids during World War I developed the condition after a gas explosion occurred in the house next door to hers (Scott, 1918). Another report details that after being threatened by sword-bearing soldiers, a Catholic nun "was so terrified that she bled from every part of her body and died of hemorrhage in the sight of her assailants" (von Grafenberg, 1585). During the waning years of the twentieth century, 76 cases of hematidrosis were studied and classified into categories according to causative factors (Holoubek and Holoubek, 1996). Acute fear and intense mental contemplation were found to be the most frequent inciting causes. While the extent of blood loss generally is minimal, hematidrosis also results in the skin becoming extremely tender and fragile (Barbet, 1953, pp. 74-75; Lumpkin, 1978), which would have made Christ's pending physical insults even more painful.

BETRAYAL AND ARREST

As the night inched toward dawn, Jesus finally relented and allowed the disciples to sleep (Matthew 26:43-44; Mark 14:41). However, He found no sleep Himself prior to His betrayer's arrival. Soon after midnight, Christ was greeted with a kiss by Judas Iscariot, who for 30 pieces of silver sold information to the chief priest pertaining to Christ's whereabouts. The angry, armed mob seized the docile Son of God and led Him away to endure a sham of an illegal trial at the hands of corrupt Jewish authorities.

JEWISH TRIALS

The persistent procession of physical insults began soon after His arrest. We are told that Jesus was mocked, smitten, blindfolded, and struck on the face (Luke 22:63-64).

Hundreds of years earlier, Isaiah had prophesied about this very event, writing, "I gave my back to the smiters, and my cheeks to them that plucked off the hair; I hid not my face from shame and spitting" (Isaiah 50:6). It was in response to a question from the high priest that we read where Jesus was struck yet again. "And when he had said this, one of the officers standing by struck Jesus with his hand, saying, 'Answerest thou the high priest so?'" (John 18:22). While the exact force with which these blows were rendered is not described, it is easy to estimate that these early beatings were sufficient to incite multiple contusions, especially if Christ had suffered from hematidrosis earlier in Gethsemane.

Shortly after daybreak, Jesus was tried before Caiaphas and the political Sanhedrin (with the Pharisees and Sadducees) and found guilty of blasphemy (Matthew 27:1; Luke 22:66-71). Significantly, we never read of two witnesses coming forward with collaborating stories that would permit the death sentence to be meted out to Christ. Caiaphas and the Sanhedrin were bound by Jewish law, which plainly stated: "At the mouth of two witnesses, or three witnesses, shall he that is to die be put to death; at the mouth of one witness he shall not be put to death" (Deuteronomy 17:6). The law went on to state: "One witness shall not rise up against a man for any iniquity, or for any sin, in any sin that he sinneth: at the mouth of two witnesses, or at the mouth of three witnesses, shall a matter be established" (Deuteronomy 19:15). However, we are told that at the trial

many bare false witness against him, and their witness agreed not together. And there stood up certain, and bare false witness against him, saying, "We heard him say, 'I will destroy this temple that is made with hands, and in three days I will build another made without hands.'" And not even so did their witness agree together (Mark 14:56-59).

A study of Jewish law reveals that a number of those laws were broken the night Jesus was arrested and convicted (Bucklin, 1970).

- Arrests could not be made at night.
- The time and date of the trial were illegal because it took place at night on the eve of the Sabbath—a time that precluded any opportunity for a required adjournment to the next day in the event of a conviction.
- The Sanhedrin was without authority to instigate charges. It was only supposed to investigate charges that

had been brought before it, but in Jesus' trial, the court itself formulated the charges.

- As noted earlier, the stringent requirement of two witnesses testifying in agreement to merit the death penalty had not been met.
- The court did not meet in the regular meeting place of the Sanhedrin, as required by Jewish law.
- Christ was not permitted a defense. Under existing Jewish law, an exhaustive search into the facts presented by the witnesses should have occurred—but did not.
- The Sanhedrin itself pronounced the death sentence. During Roman captivity, however, the Sanhedrin was not allowed to impose the death sentence (John 18:31). As the Roman historian Tacitus recorded, "...the Romans reserved to themselves the right of the sword."

ROMAN TRIALS—CHRIST BEFORE PILATE

The Jews were governed by Roman law, and thus did not have the power to execute Jesus. Therefore, we are told that early in the morning the Temple officials took Jesus to the Praetorium. Realizing that any charge of blasphemy was of little concern to the Romans, the charges against Him were upgraded from blasphemy to an allegation that Jesus claimed to be a king who forbade the nation to give tribute to Caesar, thereby fomenting sedition and treason (Luke 23:2). After an initial meeting with Jesus, Pilate admitted to finding no fault with Him. But instead of being restrained by Pilate's declaration of Christ's innocence and considering (as they should have!) whether they might be bringing the guilt of innocent blood upon themselves, the angry Jews were all the more infuriated.

Hearing that Christ was Galilean, Pilate placed Him in Herod's jurisdiction. We know from Luke's account, in fact, that Herod was in Jerusalem at the time (Luke 23:7). We are told that Herod was "exceedingly glad" because he "hoped to have seen some miracle done by him." [How fitting that the poorest anonymous beggar who requested a miracle for the relief of his ailment **was not** denied, while this proud prince, who asked for a miracle merely to satisfy his curiosity, **was** denied.] Herod returned Jesus to Pilate—an act that sealed the bond of a budding new friendship: "And Herod and Pilate became friends with each other that very day: for before they

were at enmity between themselves" (Luke 23:12). Although Pilate could find no fault in Jesus, we are told that he wanted to placate the people and thus "delivered Jesus, when he had scourged him, to be crucified" (Mark 15:15).

CHRIST'S HEALTH—UP TO THIS POINT

The most popular means of travel in Jesus' time were walking, boating, and riding on the backs of various animals. It is likely, therefore, that the daily rigors of His ministry, combined with His young age, ensured that the Lord was in good physical health before His walk to the Garden of Gethsemane. However, in the short span of time between the institution of the Lord's Supper and the end of the Roman trial, Christ suffered great emotional stress (as evinced by the probable hematomia), abandonment by His disciples, and a physical beating after the Jewish trial. It also is important to note that Jesus was forced to walk more than 2.5 miles to and from the sites of various trials, having slept little if any the night before. All these factors would have rendered Jesus particularly vulnerable to the physiological effects of scourging.

SCOURGING

From John's account, we learn that Pilate had Jesus scourged and then brought Him before the Jews once again, probably in an effort to forego the execution (John 19:1-2). However, the people still demanded Christ's death. The Greek term translated "scourging" in Matthew 27:26 and Mark 15:15 is the word *phragellosas*, which is translated "having scourged." The noun form is *phragellion*, which in Latin is translated *flagellum*, meaning whip or scourge. John used a word for scourge, *emastigosen*, the noun form of which is *mastix*, meaning a whip or a scourge. [It is from this word that we get our English word *mastigium*, which refers to an organ found in caterpillars that possess whip-like processes to keep parasites away.]

The practice of scourging was a legal preliminary to every Roman execution (Hengel, 1977) because it weakened the victim through shock and blood loss. Without scourging, strong, condemned men might live on the cross for several days until exposure, wild animals, insects, or birds resulted in their death. The only

allowable exemptions to this law were women and Roman senators or soldiers (except in cases of desertion) [Barbet, 1953, p. 45]. In their critically acclaimed article, "On the Physical Death of Jesus Christ," in the March 21, 1986 issue of the *Journal of the American Medical Association*, William Edwards and his coauthors (of the famed Mayo Clinic) described the instrument used by the Roman soldiers for flogging as "a short whip (flagrum or flagellum) with several single or braided leather thongs of variable lengths, in which small iron balls or sharp pieces of sheep bones were tied at intervals" (Edwards, et al., 1986, 256:1457, parenthetical item in orig.). Ironically, this is the same type of instrument Jesus Himself used in John 2:15 when He drove the moneychangers from the Temple (although the text does not indicate whether He actually used it, or merely held it out as a symbol of authority).

To position a man for scourging, soldiers tied the victim (frequently naked) to an upright post (Barbet, 1953, p. 46) in a bent position (Vine, et al., 1996, p. 551). The common method of Jewish scourging was via the use of three thongs of leather, the offender receiving thirteen stripes on the bare breast and thirteen across each shoulder (which explains the 40 stripes less one administered to Paul in 2 Corinthians 11:24). However, there was no such limit on the number of blows the Romans could deliver during a scourging, thus Christ's flogging at their hands would have been much worse. Christ would have received repeated blows to His chest, back, buttocks, and legs by two soldiers (known as lictors), the severity of which depended mainly on the mood of the lictors at the time. Initial anterior blows undoubtedly would have opened the skin and underlying subcutaneous tissue of His chest (Davis, 1965, p. 185). Sub-



Figure 1: Artist's rendition of a man undergoing scourging (via a flagrum) at the hand of a Roman lictor. Note the pieces of metal and/or bone imbedded in the leather flagrum.

sequent blows would have tattered the underlying pectoralis major and pectoralis minor muscles, as well as the medial aspects of the serratus anterior muscle (Netter, 1994, p. 174). Once these layers were ravaged, repetitive blows could fracture intercoastal ribs and shred the three layers of intercoastal muscles, causing superficial and cutaneous vessels of the chest to be lacerated. However we know that Christ did not suffer any broken bones because He was crucified in such a manner that “a bone of him shall not be broken” (John 19:36), as was foretold by earlier prophecies (cf. Exodus 12:46; Numbers 9:12; Psalm 34:20). Therefore, at best, the exposed superior epigastric artery and vein may have been compromised, while all other major anterior vessels would have been protected behind the ribs themselves (Netter, p. 175). Edwards and his colleagues described Christ’s scourging in the following manner:

Then, as the flogging continued, the lacerations would tear into the underlying skeletal muscles and produce quivering ribbons of bleeding flesh. Pain and blood loss generally set the stage for circulatory shock (1986, 256: 1457).

During scourging, the victim would experience an oozing of blood from cutaneous capillaries and veins until the wounds went deep enough to cause arterial blood to spurt out rhythmically with each successive heartbeat. In many cases, scourging “was itself fatal” (Kittel, 1967, 4:517).

Blows to Christ’s back would have started in a similar fashion, with skin being torn with the initial strikes. Subsequent blows then would have resulted in the laceration of the superficial back muscles (i.e., trapezius and latissimus dorsi). Continued beatings would begin to flay into the deep erector spinae muscles (iliocostalis, longissimus, and spinalis) that are innervated by dorsal rami from the spinal cord (Netter, p. 133). The perforation of these muscles would have sent excruciating pain to the spinal cord and then directly to the brain. No doubt in many victims the spinous processes that extend out in a posterior fashion from each vertebrae would have splintered as a result of the harsh blows. Having the ribs intact would protect the posterior intercoastal arteries, the veins, and the intercoastal nerves. During the scourging, it would be commonplace for the lacerated skin and bloodied, underlying muscle tissue to take on the appearance (in a quite literal fashion) of “shredded meat.” Peter referred to the beating of Christ when he reminded first-century Christians that it was Jesus “by

whose stripes ye were healed” (1 Peter 2:24). Significantly, the term “stripes” in the original language is in the **singular** number, suggesting that the back of the Lord was such a mass of bleeding, bruised tissue, that it appeared as a **single wound** (Wuest, 1942, p. 69).

The blood loss suffered by Christ during His scourging would have been substantial, and would have resulted in a lowered blood pressure and reduced flow of blood throughout His body. If this condition persisted, hypovolemic shock would have set in (characterized by reduced blood flow to cells and tissues), which then would lead to irreversible cell and organ damage, and eventually death. Jewish law originally allowed for 40 blows (Deuteronomy 25:3), but that number later was reduced to 39 to avoid inadvertently violating the law (Barbet, 1953, p. 46). The prophet Isaiah provided a graphic description of the outward appearance of our Lord after He had undergone the scourging: “Like as many were astonished at thee (his visage was so marred more than any man, and his form more than the sons of men)” [Isaiah 52:14]. Christ’s body was so disfigured that He almost did not appear human anymore. Yet, sadly, the worst was still to come.

CROWN OF THORNS

In an act of pure sadistic torment, Roman soldiers placed an imitation crown on Christ’s head and mockingly bowed down to Him in reverence. But this was no ordinary crown. John 19 states:

Then Pilate therefore took Jesus, and scourged him. And the soldiers platted a crown of thorns, and put it on his head, and arrayed him in a purple garment; and they came unto him, and said, “Hail, King of the Jews!” and they struck him with their hands (v. 1-3).

The thorns used to form this special crown were more than a few mere briars. Botanists familiar with foliage of the Middle East have suggested that

the thorns could have come from the lote tree—the *Zizyphus spina christi*. This tree had thorns averaging one inch in length. It was improbable for anyone to form a wreath-like crown using these thorns without being injured. It would be more probable, therefore, that the crown of thorns was more like a helmet. In fact, it would have been easier to cut off a bush and use it as a helmet of thorns (see “Crown of Thorns,” 2001).

Unlike the traditional crown, which often is depicted in artists’ portrayals as an open ring, the actual crown of thorns probably

covered His entire scalp (Lumpkin, 1978). The gospel accounts record that following His crowning, Jesus received continued blows to the head. These blows would have driven these thorns deep into the highly vascularized scalp and forehead, penetrating both the frontalis and occipitalis muscles (Netter, p. 21). Perforations of any of the numerous arterial or venous tributaries encircling the cranium—such as the frontal and parietal branch of the superficial temporal artery and vein—would have caused extensive bleeding. Additionally, branches of the superficial cutaneous nerves of the head, such as, for example, the greater occipital nerve and the auriculotemporal nerve, would have been perforated, causing indescribable pain.

The significance of Jesus bearing a scarlet robe during the course of this agonizing persecution signifies His taking on the sins of the world. Isaiah commented on the meaning of the scarlet color: “Come now, and let us reason together, saith Jehovah: though your sins be as scarlet, they shall be as white as snow; though they be red like crimson, they shall be as wool” (Isaiah 1:18). Each time Jesus was stripped or made to wear this robe, the fresh wounds would reopen and bleed, inflicting still more pain. And yet He continued on towards the cross, even though He had the power to stop the pain and agony at any given second.

CRUCIFIXION

The Jewish historian Josephus aptly described crucifixion, following the siege of Jerusalem by the Romans in A.D. 66-70, as “the most wretched of deaths” (*War of the Jews*, 7.203). The apostle Paul penned these beautiful words describing Christ: “And being found in appearance as a man, He humbled Himself and became obedient to the point of death, even the death of the cross” (Philippians 2:8). Knowing that He had to continue on for humanity’s sake, a beaten and scourged Jesus began that long walk to the site of His death. Archaeological evidence strongly suggests that criminals during the time of Christ were not forced to carry an entire T-shaped cross as is commonly portrayed in art-deco jewelry or Hollywood films, but rather only the crossbeam (known as a patibulum), which would have weighed between 75 and 125 pounds. It was customary, however, for convicted criminals to carry their own cross from the scourging site to the place of crucifixion (Barbet, 1953, p. 46; Tenney, 1964, p. 286; Bromiley, 1979, 1:829). Their hands normally were tied (or even left unbound) during the procession, rather than being nailed to the patibulum. The effects

of the scourging on Christ's physical condition can be inferred from His severely weakened condition—as demonstrated by the fact that later, Simon of Cyrene would be compelled to carry the patibulum. As a bloodied Christ struggled with that crossbeam, a centurion led the procession, which usually consisted of a full Roman military guard (Barbet, 1953, p. 49; Johnson, 1978, 70:100). One of the soldiers in the procession carried a sign that later would be attached to the top of the cross, denoting the convicted man's name and crime (Johnson, 70:100). Measurements indicate that the distance from the Praetorium to the site of Christ's crucifixion was approximately one-third of a mile (600-650 meters) [Davis, 1965, p. 186; Bucklin, 1970; Johnson, 1978, p. 99; Edwards et al., 1986, 256:1456]. The Bible never actually mentions that Christ collapsed under that heavy load. However, consider the possibility that if His hands were tied to the crosspiece and He had fallen, Jesus would have been unable to break the fall. Researchers have speculated that falling under the weight of a crossbeam very likely would have "resulted in blunt chest trauma and a contused heart" (Ball, 1989, p. 83).

Golgotha is the common name of the location at which Christ was crucified. In Greek letters, this word represents an Aramaic word, *Gulgatha* (Hebrew *Gulgoeth*), meaning "a skull." The word Calvary (Latin *Calvaria*; English calvaria—skullcap) also means "a skull." *Calvaria* (and the Greek *Kranion*) are equivalents for the original *Golgotha*. This particular area was located just outside the

city on a rounded knoll that has the appearance of a bare skull. It was here, flanked by two thieves, that Christ would bear the sins of the world. The Roman guards who accompanied Him in the procession were required to stay with Him until they could substantiate His death (Bloomquist, 1964; Barbet, 1953, p. 50).

Having suffered considerable blood loss from the scourging, Jesus likely was in a dehydrated state when He finally reached the top of this small knoll. Jesus was offered two drinks at Golgotha. The first—a drugged wine (i.e., mixed with myrrh) that served as a mild analgesic to deaden some of the pain—was offered immediately upon His arrival (Shroud, 1871; Davis, 1965, p. 186). However, after having tasted it, Christ refused the concoction. He chose to face death with a clear mind so He could conquer it willfully as He submitted Himself to the cruelty of the cross. "And when they came to a place called Golgotha, they offered him wine to drink, mixed with gall; but when he tasted it, he would not drink it" (Matthew 27:33-34). This particular drink was intended to dull the pain in preparation for the next step of crucifixion—the nailing of the hands and feet. Thus, it would have been around this time that a battered, bleeding Jesus was thrown to the ground and nailed to the cross. [We will discuss later in this article the second drink offered to Christ.]

Nailing the Hands

Were the gentle hands and feet of Christ truly pierced, or did ropes simply lash them to the cross? Ossuary findings document the

fact that nailing was the preferred Roman practice (Haas, 1970; Tzaferis, 1970; Bromiley, 1979, 1:829; Edwards, et al., 1986, 256:1459). Additionally, researchers have discovered a Jewish ossuary—bearing the Hebrew inscription "Jehohanan the son of HGQWL"—that contained a seven-inch spike piercing the remains of two heel bones, with a piece of olive wood at the point (Haas, 1970). Luke recorded for us Christ's invitation to examine His hands and feet (Luke 24:39), which indicates the wounds Christ suffered were ones that could be identified easily. John's written account is even more telling, as we learn that Thomas, one of the disciples, stated: "Except I shall see in his hands the print of the nails, and put my hand into his side, I will not believe" (John 20:25).

Clearly, from the text we see that Christ's hands and feet were **nailed** to the cross. Archaeological data indicate that the specific nails used during the time of Christ's crucifixion were tapered iron spikes five to seven inches long with a square shaft approximately three-eighths of an inch across (Haas, 1970; Tzaferis, 1970; Clements, 1992, p. 108). Various studies have demonstrated that the bony palms cannot support the weight of a body hanging from them (e.g., Barbet, 1953). The weight of the body would tear quite easily through the lumbricals and flexor tendons—breaking the metacarpal bones as the nails pulled free—allowing the body to fall to the Earth. However, in ancient terminology, the **wrist** was considered to be part of the hand (Barbet, 1953, p. 106; Davis, 1965, p. 184; Major, 1999, 19:86). At the base of the wrist bones, the strong fibrous band of the flexor retinaculum binds down the flexor tendons. Iron spikes driven through the flexor retinaculum easily could have passed between bony elements and held the weight of a man. This location would require that the nail be placed through either: (1) the space between the radius and carpal bones (lunate and scaphoid bones); or (2) between the two rows of carpal bones (Barbet, 1953, p. 106; DePasquale and Burch, 1963, p. 434; Lumpkin, 1978; Netter, 1994, p. 426).

A spike driven through this location, however, almost certainly would cause the median nerve or peripheral branches to be pierced (see Figure 2), resulting in a condition known as *causalgia*. The median nerve is a major nerve that passes directly through the midline of the wrist and services all but one-and-one-half of the muscles in the anterior portion of the forearm. It passes directly under the flexor retinaculum of the wrist as it sup-



Dr. Bert Thompson

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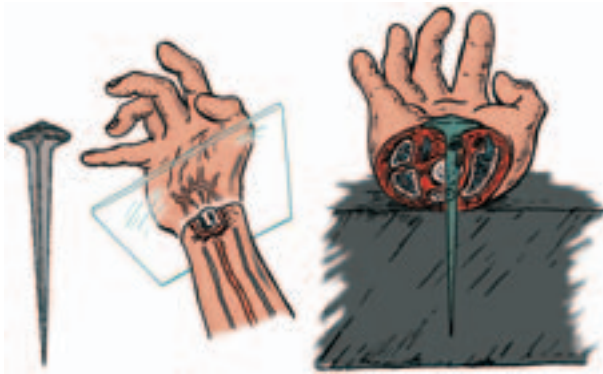


Figure 2: Artist's rendition of crucifixion nail. Note the piercing of the median nerve in the midline of the wrist.

plies motor innervation to the three thenar (thumb) muscles and the first and second lumbrical muscles. This large nerve also provides sensory innervation to the palm, as well as to digits two and three in the hand. Any damage to this nerve would have caused extraordinary pain to radiate up the arm, then through the axilla, to the spinal cord, and finally to the brain. Primary arteries travel on the medial and lateral aspects of the wrist, and therefore would be spared if the spike had been driven into this location. [Scientific studies—using volunteer college students—have shown that people suspended from crosses with their arms outstretched in the traditional manner depicted in religious art have little problem breathing (Zugibe, 1984, p. 9). Thus, the oft'-quoted idea that death on the cross results from asphyxiation would be a factor **only** if the hands were **nailed** in an elevated fashion **above** the head of the victim.] And so, with His hands firmly nailed to the cross and His back bleeding and emaciated, Christ was hoisted onto the rough-hewn, upright stake.

Nailing the Feet

The pain Christ must have experienced up to this point would have been excruciating, and yet the Roman soldiers were about to deliver even more. There were many ways to nail the feet to the stipes, but most required the knees to be flexed and rotated laterally. It is likely that the spikes were driven through either the: (1) tarsometatarsal joint (between the metatarsal bones and cuneiform bones); or (2) the transverse tarsal joint (between the calcaneus and cuboid or navicular bones). While this placement undoubtedly would prevent the bones of Christ's feet from breaking, it nevertheless would cause severe injury to the deep peroneal nerve or lateral plantar

nerve (and artery), and certainly would pierce the quadratus plantae muscle (Netter, 1994, p. 509).

It would not be uncommon by this time for insects to burrow into open wounds or orifices (such as the nose, mouth, ears, and eyes) of a crucified victim; additionally birds of prey frequently were known to feed off the tattered wounds (Cooper, 1883). It was in this position, with His precious blood seeping down the

cross, that Christ uttered the amazing statement: "Father, forgive them; for they know not what they do" (Luke 23:34).

Breathing on the Cross

Even though blood poured from His lacerated back, one major pathophysiological impairment Jesus faced during crucifixion was normal respiration (i.e., breathing). Maximum inhalation would have been possible only when the body weight was supported by the nailed wrists of the outstretched arms. When Christ first was lifted onto the splinter-covered surface of the cross, His arms and body were stretched out in the form of a "Y." A momentary "T" position would be required to allow proper support for inhalation. Thus, in order to breathe He was required to lift His body using His nailed wrists for leverage. Exhalation would be impossible in this position, and the immense pain placed on the wrists quickly would become too great; therefore, Christ would have to slump back into a "Y" position to exhale. Jesus would be forced to continue alternating between the "Y" and "T" positions with every breath, trying all the while not to reopen the wounds He had received from the scourging. Fatigued muscles eventually would begin to spasm, and Christ would become exhausted from these repeated tasks, slumping permanently into the shape of a "Y." In this position, chest and respiratory muscles soon would become paralyzed from the increased strain and pain. Without strength for breath, Christ's body would begin to suffer from asphyxia.

The True Passover Lamb

The agony that Christ would experience on the cross was foretold in Psalm 22:

"My God, my God, why hast thou forsaken me? Why art thou so far from helping me, and from the words of my groaning? O my God, I cry in the daytime, but thou answerest not; And in

the night season, and am not silent. But thou art holy, O thou that inhabitest the praises of Israel. But I am a worm, and no man; A reproach of men, and despised of the people. All they that see me laugh me to scorn: They shoot out the lip, they shake the head, saying, 'Commit thyself unto Jehovah; Let him deliver him: Let him rescue him, seeing he delighteth in him.' I am poured out like water, And all my bones are out of joint: My heart is like wax; It is melted within me. My strength is dried up like a potsherd; And my tongue cleaveth to my jaws; And thou hast brought me into the dust of death. For dogs have compassed me: A company of evil-doers has enclosed me; They pierced my hands and my feet. I may count all my bones; They look and stare upon me. They part my garments among them, And upon my vesture do they cast lots."

As insects and dogs circled, and as passersby spat on Him, Christ—with blood dripping from the open wounds on His back and nail holes in His hands and feet—shouldered the sins of the world. As exposed nerves exploded into unbearable pain with each movement, and as His internal organs began failing due to a lack of sufficient oxygen, for the first and only time in His life, Jesus found Himself separated from His Father. Matthew 27:46 describes His anguish: "And about the ninth hour Jesus cried with a loud voice, saying, 'Eli, Eli, lama sabachthani?' that is, 'My God, my God, why hast thou forsaken me?'" This was the first time in His life, so far as Scripture records, that Jesus did not address God as His Father. Isaiah 59:2 informs us of that separation, and the reason that God had to turn His face from His sin-laden Son: "But your iniquities have separated between you and your God, and your sins have hid his face from you, so that he will not hear."

The second drink that Jesus was offered on the cross came after this plaintive cry. He accepted this potion, which consisted of wine vinegar, just moments before His death.

After this Jesus, knowing that all things are now finished, that the scripture might be accomplished, saith, "I thirst." There was set there a vessel full of vinegar: so they put a sponge full of the vinegar upon hyssop, and brought it to his mouth. When Jesus therefore had received the vinegar, he said, "It is finished": and he bowed his head, and gave up his spirit (John 19:28).

Interestingly, this drink was delivered using the stalk of a hyssop plant. Recall that the crucifixion took place around the Feast of the

Passover. In describing the Passover Lamb in Exodus 12:22-23, Moses told the children of Israel to "take a bunch of hyssop, dip it in the blood that is in the basin, and touch the lintel and the two doorposts with the blood in the basin. None of you shall go outside the door of your house until morning." It is worth mentioning that at Christ's crucifixion, this hyssop stalk pointed to the blood of the Perfect Lamb, which was shed for the salvation of all mankind.

Piercing Christ's Side

While death on the cross may have been caused by any number of factors, and likely would have varied with each individual case, the two seemingly most prominent causes of death probably were hypovolemic shock and exhaustion asphyxia (DePasquale, 1963; Davis, 1965). Others have proposed dehydration, cardiac arrhythmia, and congestive heart failure with the rapid accumulation of pericardial and pleural effusions as possible contributing factors (Lumpkin 1978; Clements, 1992, pp. 108-109). The ability of Christ to cry out with a **loud** voice indicates that asphyxia was probably not the major causative factor.

The finality of death upon the cross often was accomplished by the breaking of the legs of the victims, which caused still more traumatic shock and prevented an individual from pushing up in order to fully respire. In an effort to get the bodies off the crosses before the Sabbath day,

the soldiers therefore came, and brake the legs of the first, and of the other that was crucified with him: but when they came to Jesus, and saw that he was dead already, they brake not his legs: howbeit one of the soldiers with a spear pierced his side, and straightway there came out blood and water (John 19:32-34).

Much speculation has centered on the exact location of the puncture wound and thus the source of the resulting blood and water. However, the Greek word (*pleura*) that John used clearly denotes the area of the intercoastal ribs that cover the lungs (Netter, 1994, p. 184). Given the upward angle of the spear, and the thoracic location of the wound, abdominal organs can be ruled out as having provided the blood and water.

A more likely scenario would suggest that the piercing affected a lung (along with any built-up fluid), the pericardial sac surrounding the heart, the right atrium of the heart itself, the pulmonary vessels, and/or the aorta. Since John did not describe the specific side of the body on which the wound

was inflicted, we can only speculate about which structures might have been impaled by such a vicious act. However, the blood could have resulted from the heart, the aorta, or any of the pulmonary vessels. Water probably was provided by pleural or pericardial fluids (that surround the lungs and heart).

CONCLUSION

It is with both medical and biblical certainty that we know Christ died upon the cross at Calvary. He was laid in a tomb with nail wounds in His hands and feet, and still possessed those scars following His resurrection. The extreme physical insults to Christ's body left Him ragged, torn, bleeding, and tormented with pain. Yet He endured willingly all the agony and torment of the cross for each one of us. As Paul wrote:

For He Himself is our peace, who has made both one, and has broken down the middle wall of separation, having abolished in His flesh the enmity, that is, the law of commandments contained in ordinances, so as to create in Himself one new man from the two, thus making peace, and that He might reconcile them both to God in one body through the cross, thereby putting to death the enmity (Ephesians 2:14-16).

We would do well to heed the advice of the writer of the book of Hebrews, who said:

Let us lay aside every weight, and the sin which so easily ensnares us, and let us run with endurance the race that is set before us, looking unto Jesus, the author and finisher of our faith, who for the joy that was set before Him endured the cross, despising the shame, and has sat down at the right hand of the throne of God (12:2).

Oh, the overwhelming love that God showed each one of us when He allowed His only begotten Son to suffer that excruciating (Latin, *excruciates*, or "out of the cross") pain and agony—for our sake!

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WELCOME TO THE “NEW” REASON & REVELATION!

On rare occasions, we make changes to *Reason & Revelation* that are of such a significant nature I feel our readers deserve an explanation. This is one such occasion.

In my “Note from the Editor” in the January 1993 issue of *R&R*, I explained that we were introducing a brand new concept—a special “insert” section called *Resources*. I wrote at the time:

With this issue of *Reason & Revelation*, we have added a four-page supplement called *Resources*. We intend these pages to be just that—resources for our readers. Each month we will bring you brief book reviews, in-the-news items, and announcements about new publications.

Resources will allow us to communicate with you, keep you up to date on happenings in the area of apologetics, and advertise items that might be useful to you in the proclamation and defense of the Gospel.

Resources was a resounding success—one that our readers especially appreciated because we included the four extra pages **without increasing the subscription price**. One consideration that **always** has been of importance to us was that we be able to make improvements to *R&R* without radically increasing the cost to subscribers. From the inception of our work in 1979 to the present day, one of our primary goals has been to produce materials that not only are biblically sound and scientifically accurate, but **affordable** as well. We never have lost sight of that goal, and remain committed to it even as I write these words.

The reason we could afford to include the new 4-page *Resources* section (without increasing the cost) was that *R&R* was being printed in a two-color format at the time. Four years later, in January 1997, we unveiled (yes, with a little flourish and a lot of pride!) the “new” full-color version of *Reason & Revelation* that you now hold in your hands. However, in order to employ the expensive four-color printing process and yet still be able to avoid raising the price, “something had to give” as the old saying goes. That “something” was *Resources*. It was with heartfelt disappointment that we discontinued the *Resources* insert as of the December 1996 issue.

But perhaps you’ve heard of another saying—“That was then; this is now.” The work of Apologetics Press has grown in ways that we never could have dreamed—even just five short years ago in January 1997. And as it has grown, we have seen the need to reinstitute the *Resources* insert—which is exactly what we are doing.

As of January 2002, each issue of *R&R* will contain not only the 8 pages of rich material that our readers have come to expect (and are used to seeing), but also the new 4-page *Resources* insert. “Oh,” you may be thinking, “how nice. But at what cost? What’s the catch?” There is no “catch,” because **there will be no additional cost to our subscribers**. The subscription price will remain exactly what it is currently—\$8 per year for domestic and \$13 for foreign. This is our way of fulfilling our continuing commitment to produce biblically sound and scientifically accurate materials that are **affordable to everyone**. It is our goal to produce first-class materials of the highest quality—materials from which our readers will learn and benefit, materials of which they can be justifiably proud when they recommend them to others, and materials that are reasonably priced. We believe you expect no less from us. And we do not plan to disappoint!

I believe this new change to *Reason & Revelation*—which we are calling *R&R Resources*—will accomplish each of these goals quite admirably. We will be using each month’s 4-page insert to introduce one brief feature article. Plus, we will be including (on an alternating schedule) an “in the news” section, a “questions and answers” section, a book review section, announcements about new Apologetics Press publications, updates about additions and improvements to our two Web sites (www.ApologeticsPress.org and www.DiscoveryMagazine.com), etc.

My staff and I sincerely hope you enjoy *R&R Resources*. We are working hard to make *Reason & Revelation* the best journal of its kind anywhere in the world. As always, of course, your constructive criticism, ideas, and thoughts are welcome at Apologetics Press. We do what we do for you, so feel free to let us know how we’re doing.

Bert Thompson