THE CRUCIFIXION

OF

JESUS CHRIST,

ANATOMICALLY CONSIDERED,

IN A

LETTER

ADDRESSED TO THE

REV. ELI NOYES, D. D.

AT HIS REQUEST,

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LETTER.

Boston, February 22d, 1853.

Rev. Eli Noyes, D. D.

Sir.—You ask me in your letter of the 12th ult., for an "Anatomical explanation" of the text:—John 19th; 34th,—"*But one of the soldiers with a spear pierced his side, and forthwith came there out blood and water.*" To this, I now reply:—

That "*blood*" should flow from *such a wound* might naturally be expected. The wound was so large and wide, that Christ afterwards said to Thomas: "*Reach hither thy* hand *and thrust it into my* side." Would He have said this, if *the wound* had not been large enough to admit a man's hand? When he said, "*Behold my hands,*"—the expression is,—"*Reach hither thy finger.*" The Greek word—*logke*—translated *spear*—was the Roman "*lancea,*" or *lance;* and every military man had one,—besides other armor. Its length was generally about half that of the *pike,* which was from sixteen to eighteen feet, sometimes longer. The lance, therefore, was about eight or nine feet long, and was sometimes called "*the half pike.*" It consisted of a strong, stiff, wooden shaft, or handle, armed at once, or both ends with a sharp penetrating weapon called "*the dart.*" The *dart* was made before that time—of iron, or brass—long, broad and sharp, with two edges, and pointed at the end. The lance, of course, could be used, either to cut, or thrust an enemy; and by having two edges, easily penetrated the fleshy parts of the body to a considerable depth, by cutting each way.*

Such a weapon pierced into the side of a man, nailed to a Cross high enough above the heads of the multitude, that those "*standing afar off,*" could behold the things that were done," would necessarily occasion a

*See Grose on Ancient Armor, Vol. 2d; Rees' Cyclopædia, Vol. 21st; Roman Antiquities, &c.

flow of blood. But *that alone* would furnish no certain and positive proof that *the body was dead.* How many men have lived and got well, after losing much blood from deep and ghastly wounds in the side, it would be tedious to enumerate. An author, of very high authority, says, it is a thing really wonderful, "that the thorax, containing the heart, lungs, and great vessels, should be so often wounded with so little danger! Many, no doubt, die, but *numbers escape;* for a wound of the *substance* of the lungs is far from being mortal." And again; "When the *weapon is broad,* and it has entered the substance of the lung, the hemorhage is considerable; blood is immediately extravasated in the cavity of the thorax, and also flows out of the external wound; the patient has a violent paroxysm of coughing in which some of the blood is ejected from the mouth; the air comes out of the chest with a hissing noise;—the danger of such an injury depends upon the depth of the wound, and the size of the vessels which are opened. Some patients *recover,* while others die instantly, or in a very short space of time."*

M. Sabatier mentions a case, since noticed by Bell, Cooper and Dorsey, "of an officer, who was shot in the *left side.* The ball entered about where the bone and cartilage of the seventh true rib unite.", (i. e. where the longest rib of either side unites with the breast bone,) "and came out in the situation of the circular angle of the same rib, and which rib was broken in two places. The neighboring part of the first false or short rib was also broken behind." Near the back part of the body "incissions were made," and both holes made larger, to "enable the Surgeon to take away several splinters of bone In consequence of the dangerous nature of the accident, the patient was bled," in the course of a few days, "twenty-six times, with a view of relieving the fever, difficulty of breathing, and spitting of blood. In about a fortnight, he was more comfortable, and passed some of the ensuing days in a tolerably easy state. On the twenty-fourth day, he was moved to another place; and became more unwell. Febrile symptoms again took place, and two more bleedings were practised. The critical state of the patient led the Surgeon to re-examine the wounds. On passing his finger into the posterior wound, where the ball came out, a foreign body was felt, and when extracted, proved to be a piece of the patient's coat. A

*See Dr. John Bell on the Nature and Cure of Wounds, third edition, page 257 Also Professor Thomson's Reports of observations in Military Hospitals in Belgium, after the Battle of Waterloo, page 82. And Rees's Cyclopædia, Vol. 40, *Wounds of the Thorax or Chest.*

spicula of bone was also felt, *more deeply lodged*, which required the *second enlargement* of the wound, before it could be taken out. On the thirtieth day from the receipt of the wound, the bad symptoms again returned, and two more bleedings were practised. The patient then complained, for the first time, of something pricking him in a deep situation between the two openings of the wound. It was found impracticable to ascertain the cause of this sensation without dividing all the parts that intervened between the two openings of the wound, and which formed a space of *seven or eight finger breadths*. This serious operation was resolved on in consultation, and M. Guerin set about it by cutting, from within outward, the parts between the two ribs, with the aid of a finger introduced into the posterior wound. Care was taken not to cut near the lower edge of the upper rib. In this way the whole track of the ball was laid open, and in the middle of it, a very sharp splinter of bone was found, sticking in the substance of the lung. This was removed and the wound dressed with simple applications. From that day, all the bad symptoms ceased and the *cure was completed* at the end of four months.*

(Obs. de Guerin in Mem. de l' Acad. de Chirurgie, Tom. 2. 4 to.)

In the above case, it may be noticed, that previous to the last "serious operation," both openings of the wound had been enlarged by the Surgeon's knife, to enable him *to feel* and extract with his finger and thumb, or finger and forceps, "several splinters of bone," and one at least "*deeply* lodged." The incissions necessary for that purpose, must have been made at least three finger-breadths in length, at the place where the ball entered; and four finger-breadths at the more fleshy parts "behind"—where the ball came out; making both openings seven finger-breadths in length, before the last operation. If, to this, be added, the seven or eight finger-breadths of space, between the two openings, the whole length of the wound, after the last operation, must have been *fourteen* or *fifteen* finger-breadths in extent! "A finger-breadth is a measure of two thirds of an inch." Consequently, fourteen finger-breadths would equal nine inches and one third; and fifteen finger-breadths,—ten inches. Whether a common sized man might not, "*thrust*" *two hands* at once, into the side of another—thus cut open more tnan nine, if not ten inches in length, and *deep into the cavity of the thorax;* is a question for any one to determine by merely measuring a

*Abstract. See Dorsey's Cooper, Vol. 2, p. 300 and 301, Philadelphia, 1810

common sized hand. It was at first a "*Gun-shot wound*," which is usually far more difficult to heal than one made with a cutting instrument, knife, sword, or "*spear*." Yet, formidable as it undoubtedly was, "*the cure was completed—at the end of four months!*"

This case, taken from scores of others on record, equally wonderful, is mentioned to show, that a large wound in the side with a flow of blood *only*, affords no absolute proof that the BODY WAS DEAD.

But M. Sabatier's report makes no mention of *water*, and for the best of all reasons—there was no *water!* The patient was a *living man;* and his recovery from such a wound is ample proof to my mind, that he possessed at the time of the accident, good health and a strong and vigorous constitution.

But John testifies, "and forthwith, came there out blood and *water*." He gives no opinion as to the quantity. The blood came out *first*, and then the *water*. Had they flowed out together, both would have appeared like blood, "*and he that saw it*," could not have been positive there was any water. If the extent of the wound was sufficient to admit a man's hand, as indicated by what Christ said to Thomas; it was large enough to discharge more than *three or four quarts* in a very short time, or "forthwith." But without intending to intimate any precise quantity, one thing appears certain, that the *flow* of *water* must have been in sufficient quantity, and have flowed for a time long enough to attract the special and deliberate notice of John; for otherwise he could not have borne "*record*" in the manner he has done to what he saw. And he is just as positive, that he saw the water, as that he saw the blood.

The main Question is—FROM WHENCE CAME THE WATER?

This is strictly an "*Anatomical Question;*" and as it relates to a subject, above all others, in which the whole human race are most deeply concerned, every medical man is bound to answer it, if he can.

In my humble attempt to discharge this duty, I shall endeavor to show—

First—That the *water*, which John saw, could not have flowed from the pericardium, unless the body of Jesus Christ had the dropsy at the time he was crucified.

Second—That the body of Jesus Christ was perfectly healthy, and that he possessed a vigorous constitution.

Third—That the water did not come from the bladder. But

Fourth.—That the water *did* come from the main arteries of the body; and as that never could take place, while the body was alive, and the

blood in motion; nor until some time after the body was *dead*, and the blood at rest, therefore, the *water*, which John saw, affords the only sure, scientific, and positive evidence, that the body of Jesus Christ had been *dead*—fully and absolutely *dead*, from thirty to ninety minutes, before it was pierced with the spear.

First.—I shall now endeavor to show, that the water, which John saw could not have flowed from the pericardium, unless the body of Jesus Christ had the dropsy, (Hydrops pericardii,) at the time he was crucified, —for the plain reason, that in a healthy state of that viscus, there is not enough to show *one drop of water there!* The inside of the pericardium is smooth, white, tendinous and glistening; and like all other secreting surfaces, is *bedewed* with a halitus, or lymph-like substance, similar to what is found in all the great joints, and for the same purpose,—merely to lubricate the parts, and thus prevent friction. The very idea, that the healthy pericardium contains any considerable quantity of *water*, is so totally absurd, as even to excite the ridicule of some anatomists of the highest authority.

I am aware, Sir, that a *host* of expositors of the text, (John 19th, 34th,) ancient and modern, and all without exception, that I have yet been able to find, have attempted to account for the water that John saw, in a manner, to which, I esteem it a misfortune, but my duty, to record my dissent. Think not by this remark, that I, in the least, undervalue the great learning, piety, talents, zeal and extensive labors of men, to whom the Christian world is so much indebted; or that I do not "esteem very highly in love for their work's sake. But they undertook to explain an "*Anatomical fact*," in this instance, without being anatomists or medical men themselves. And I cannot but think, if any of those expositors, especially those distinguished men of modern times, had presented the *same fact* for solution, to almost any medical man of common or even humble pretentions, as you Sir, had the precaution to do to me, that a satisfactory answer would have been made; and that one of the most important texts,—a text on which the *truth* of the whole Christian system is founded, would not have remained to this day, quite so much mystified and unexplained!

All those expositors felt the importance of showing, that the body of Jesus Christ was actually *dead*, when taken down from the Cross. On that point, they reasoned correctly. For, if he only fainted—syncope cardiaca, vel syncope occasionalis, and was taken down alive;—laid in a cool place;—and there revived, he certainly had no resurrection,—made

no atonement—and the whole of Christianity is a falsehood! But they have all written about the water of the pericardium; without seeming to be aware, that if every word they said on that fallacy were true; it would show that Jesus Christ had a *diseased body;* that he had hydrops pericardii, a very dangerous, and often fatal complaint; and one which usually terminates very suddenly! And how could it be made certain; if Christ had such a disease, that it did not so terminate suddenly, while he was on the cross; and that he merely *died* of that complaint, as thousands of other men have died, without making any atonement for sin?

Several expositors have dwelt much on the fact, that if the body of Jesus Christ was not "*dead already*," the *soldier must have killed him* with the spear, by penetrating the pericardium!" and "that a wound in that part is *instantly fatal*." Here are two suppositions; and nothing but suppositions. To the *first*, I object, because Christ says, John 10th: 18th, "No man taketh my *life* from me, but I lay it down of myself. I have power to lay it down, and I have power to take it again." To the *second*, I likewise object, because, wounds in the pericardium, although generally fatal, yet, several cases on record have recovered.

In proof of the foregoing remarks, as to water in the pericardium, &c., I here quote from a work of the highest authority:—"Anatomy of the human body, in four volumes, by JOHN BELL, Surgeon, from the fourth London edition, New York, 1812"—volume 2d, page 33-34:—

"If I have not mentioned," says this distinguished author, "any fluid under the direct name of AQUES PERICARDII, or water in the pericardium, it is because I consider the accident of water being found there as belonging not to the healthy structure, but to disease. Yet this same water occupied the attention of the older authors in a most ludicrous degree—the same 'sad and learned men, viri graves et docti,' declare to us, that the uses of the aqua pericardii, are to cool the heart,—or to make the heart by swimming in it seem lighter. By this it is pretty obvious what absurd notions they had of the quantity of water, that may be found in the heart. But of all the outrages against common sense and common decorum, the most singular was the dispute maintained among them, whether it was or was not the water of the pericardium which rushed out, when our Saviour's side was pierced with the spear. The celebrated Bardius, in a learned letter to Bartholine, shows how it was the water of the pericardium that flowed out; but Bartholine, in his replication thereunto undertakes to demonstrate that it must have

been the water of the pleura alone! This abominable and ludicrous question, I say, they bandied about like boys, rather than men: Bartholinus, Arius Montanus, Bertinus, Nicelius, Fardovius, Laurenbergius, Chiprianus, with numberless other doctors and saints, were all busy in the dispute; for which they must have been burnt, every soul of them, at the stake, had they done this in ridicule; but they proceeded in this matter, with the most serious intentions in the world, and with the utmost gravity." Then, in a note, the author says, "The shocking indecencies of their reasonings on this subject, I will not condescend to draw out from the obscurity of that barbarous idiom in which it was delivered. Sed non cogar hue me conferre," &c. The author then proceeds:—"The whole truth concerning water in the pericardium, is, that you find water there whenever at any time you find it in any of the other cavities of the body. If a person have labored under a continued weakness, or have been long diseased; if a person have lain long on his death-bed; if a body have been long kept after death; there is both a condensation of the natural halitus in all the parts of the body, and an exudation of thin lymph from every vessel; there is water found in every cavity, from the ventrides of the brain to the cavity of the ankle joint; and so in the pericardium among the rest. But if you open any living animal,—or if you open suddenly the body of a suicide, or a criminal who has been just executed; *not a drop of water* will be found in the pericardium. When such fluid is to be found, it is of the same nature with the dropsical fluids of other cavities: in the child and in young people, it is reddish, especially if the pericardium be inflamed; in older people it is pellucid, or of a light straw color, in old age, and in the larger animals, it is thicker, and more directly resembles the liquor of a joint." And I add, that such has been the experience and testimony, for a long time of the best informed anatomists both in Europe and in this country as to the mooted, obsolete idea of water in the healthy pericardium.

If it be asked, whether the wounds in our Saviour's hands and feet might not have produced the death of his body, my answer is, they might; and they might not. So might the wound in his side have produced death; but we see from what has been shown, it might not. The hands and feet are copiously supplied with nerves to fit them for use. And hence a small puncture of either, often brings on tetanus and intense suffering. Christ said, "Behold my hands and my feet;" and afterward to Thomas, "Reach hither thy finger." These expressions seem fairly to import, that both his hands and both his feet had been pierced with

nails or spikes as large as a man's finger; and if so, they were a finger's-breadth, or two-thirds of one inch in *diameter;* and more than two inches in circumference!

In the life of Josephus, written by himself, near the close of that work, he says, "As I came back," (from Theecou,) "I saw many captives crucified; and remembered three of them as my former acquaintance. I was very sorry at this in my mind, and went with tears in my eyes, to Titus, and told him of them. So he immediately commanded them to be taken down, and to have the greatest care taken of them in order to their recovery. Yet, two of them died under the physician's hands; while the *third recovered.*" Jesus was taken down from the cross; why might not he have recovered?

In the common language of that day, a man was said to be *crucified*, when he was first nailed to the Cross;—not that he was *then dead.* This appears evident from the above language of Josephus. "I saw many captives *crucified.*" Three were taken down alive—two died,—"the third recovered." The Evangelists say, "When they were come to the place,—there they *crucified him* and the malefactors—and it was about the sixth hour." But his body was not dead till he voluntarily "Gave up the Ghost, about the ninth hour." And so we use language at the present day. A man is properly said to be executed, or put to death, the moment he is hung. And to execute, or to put to death an innocent person, is the same as to *kill, slay,* or *murder.* Christ told his disciples that, "The Son of Man should be betrayed into the hands of men; and *they shall kill him;—they shall scourge and put him to death.*" And so *they* did, when *they* nailed him to the cross. Then *they* crucified him. The deed was done, when the whole weight of his body was suspended on nails driven through his hands and feet, in agonizing torture, that no pen, language, or tongue can describe. But Christ also said, "I lay down my life, that I might take it again. *No man taketh it from me,* but I lay it down of myself." And so he did; when he voluntarily offered up himself as the great atoning sacrifice, saying, "it is finished, and gave up the ghost.

Second.—That the body of Jesus Christ was perfectly healthy, and and that he possessed a vigorous constitution; is shown from the whole history of his life. "*And the child grew, and waxed strong in spirit,* filled with wisdom, and the grace of God was upon him." At twelve years old he showed his active industry, "Wist ye not that I must be about my Father's business?" And Jesus *increased in wisdom and stature,* and

was in favor with God and man." No one with a sickly, or feeble habit of body, and none but with a strong and vigorous constitution, could have performed what he did. Does it not require very strong lungs,—a powerful voice, and vigorous energy of body, to preach so continually in the open air to great multitudes of many thousand hearers? And can a cachectic,—weak and debilitated state of body endure to pass the night season, repeatedly in the open air, where "the dews like mists of rain," wet the garments and the whole body "with the drops of the night!"

But, suppose the body of Jesus Christ had a dropsy of the chest—"*hydrothorax*"—or hydrops pericardii—a dropsy of the pericardium, at the time he was pierced with the spear. When then? Evidently—the water, (or rather "*yellowish colored fluid*") *would have gushed out first*, and before any blood could have made its appearance,—and for the obvious reason, that the spear would have penetrated, and cut open the sack, or cavity containing the water, before any important blood vessel could have been reached by that weapon. Therefore, John, in giving a true, and exact, account of that all important fact, must have said, "and forthwith came there out *yellow water and blood*"—and not "*blood and water.*"*

Again—A dropsy of the chest, or of the pericardium, when fully formed, is attended with a pale, cadaverous visage; great shortness of breath; a sense of suffocation; a distorted or "*blemished*" countenance; and with almost a total inability to utter a connected sentence in a manner to be understood. The patient is confined, most of the time, to nearly a sitting posture;—the lungs and heart, being so oppressed with the accumulated fluid, he cannot endure a recumbent or prostrate position of body, as that greatly increases his shortness of breath, and sense of suffocation. Does such a diseased state of body in any way comport with the recorded acts of Jesus Christ? Read the testimony from the twelfth to the twentieth chapters of John, and then judge. Witness his constant preaching;—his coming to Bethany; his posture at supper there;—and again at the passover;—his washing his disciples feet;—his long discourses;—his prostration on his *face* in prayer at Gethsemane as told by Matthew;—his bloody sweat in the garden, mentioned by Luke; and his loud voice—uttered more than once—on the cross!

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*See—Modern Practice of Physic, Robert Thomas, M. D., England—Appendix—Dr. Hosac, N. Y., page 476.

But again—that the body of Jesus Christ was perfectly sound and healthy, is shown by what you Sir, and other learned divines tell us, that the sacrifices under the Mosaic law were "a shadow of good things to come," and prefigured "Christ our passover, who is sacrificed for us." And Mr. Pool, commentating on Exodus 12: 5—"Your lamb shall be without blemish," adds, "without any *deformity or distemper* of body"—and so, all the animals for sacrifice were required, "to be without blemish and without spot"—"neither lacking in their parts, or having "any thing superfluous." Christ is called "the Lamb of God that taketh away the sin of the world." "Ye know," says the Apostle Peter, "that ye were not redeemed with corruptible things,—but with the precious blood of Christ, as a *a lamb* without blemish and without spot." Christ, therefore must have been unblemished by any *disease of body, or mind,* when he thus "offered himself without spot to God." He was the end of the law; the great and unblemished sacrifice for sin; and as such was prefigured by the sacrifice of healthy, unblemished animals; for if otherwise, the *type* and the *antitype* could have had no resemblance. And is it not absurd to suppose, that *He,* who "went about healing all manner of diseases among the people," should himself be diseased in any form! If he had not been in perfect health up to the hour he was betrayed, would it not have been said to him, "Physician heal thyself!" True, it it said, "Himself took our infirmities and bare our sicknesses." And so he did, by going about and healing them; but in no other way.

Third.—I proceed to show, that the water which John saw, did not come from the bladder.

This appears, first, from the location of that viscus, being placed low in the pelvis;—and again, by the position, the body of Jesus was in being raised up on the cross, at the time it was pierced with the spear.

"The pelvis, *in shape,* somewhat resembles a basin or bowl with high walls on two sides, right and left, composed of wide and strong bones." The bladder being thus secured within the wide, strong and high bones of the pelvis, and especially on each side of the body, could hardly be penetrated by even a horizontal thrust—and at a time when that viscus was much distended. And only the upper part of it could be wounded by such a thrust, which would not discharge its natural contents. In order to penetrate that cavity, the thrust must have been made, either more in front, and then not properly at the "*side*;" or if at the side, over the os ilium and then downwards; and if the thrust had been made downwards, the bladder *at that time,* beyond all reasonable doubt,

would have been found empty. Why empty? Because that bleeding for any considerable length of time always produces great *thirst*. Witness the reports after the battle of Waterloo; where, "the wounded complained of suffering more from *thirst* than from their wounds." Such bleeding and thirst, like fevers, always diminish the secretion of the kidnies; and when long continued, the bladder is found empty, and shrunk to a small space, as inspections after death have often shown.

And again. The position of the body of Jesus by being raised up on the cross, shows conclusively that the thrust of the soldier's spear was not made *horizontally, or downwards;* but obliquely and upwards; and if made at the side, as John testifies, it is utterly impossible that the spear could have touched the bladder, whether that viscus was distended or not.

The height of the cross on which our Saviour suffered, is no where stated. Crucifixion was not a Hebrew mode of execution; though it had been long practiced by the Assyrians, Egyptians, Persians, Carthagenians, Greeks and Romans. Among the Romans it continued, till abolished by Constantine.

It is not probable, that where great numbers were crucified, there was much uniformity of size, or height of crosses. But with respect to the height of our Saviour's cross, I think it safe to conclude, as before suggested. that he was placed high enough upon it, for most, if not all of his body to be seen above the heads of the multitude. For, "they that passed by," which implies, *in the common road*, addressed him, and "railed on him, wagging their heads, and saying—Ah, *thou* that destroyest the temple,—save *thyself*." And others, "standing afar off," beheld "the things that were done."

I am aware that some commentators have suggested, "the probability of Christ's position on the cross, as being about two or three feet from the ground." They seem to have been led to this, from what John says about "*Hyssop*,"—a small woody shrub, hyssopus officinalis, common in England and on the continent, and which grows about eighteen inches high. But that is by no means the only species of hyssop known to botanists. Cruden speaks of *the garden* and mountain hyssop; and says, "it probably grew to a great height in Judea. The different species of hyssop mentioned by botanists are too numerous to repeat. One species the "Hyssopus nepitoides," grows in Virginia, and Canada, to the height of *four feet*.* Matthew and Mark mention "*a Reed;*" but neither of

*See Ree's Cyclopœdia, article Hyssop, third species.

them, or Luke, mention hyssop. Is it not most likely that both were used? It was with "a bunch of hyssop," dipped in blood, that "the lintel and the two side posts of the door," were smitten in Egypt. It was with "hyssop dipped in blood," that "Moses sprinkled the Book of the Law and all the people" at Sinai. And might not the "sponge filled with vinegar have been put upon hyssop," as John says, and the hyssop and "sponge put upon a reed" and both put to his mouth? John has added many things omitted by the other Evangelists; and as neither of them had mentioned "*the hyssop*," might not John have added it, without mentioning the Reed? But however it may have been, I can perceive no valid reason for supposing, that Christ was crucified *on a low cross*, from what John says of the "hyssop." And whether the Saviour was raised three feet, or six feet from the ground, I deem it impossible for an *upward-thrust* with a spear to have penetrated the viscus under consideration.

Fourth.—My next endeavor will be to show, that the *water*, which John saw, did come from the main arteries of the body; and as that never could take place, while the body was alive and the blood in motion; nor until some time after the body was *dead*, and the *blood at rest*; therefore, THE WATER, which John saw, affords the only sure, scientific, and positive evidence that the body of Jesus Christ had been *dead*,—fully and absolutely *dead*,—from thirty to ninety minutes before it was pierced with the spear.

The healthy body of a man of medium size and middle age, contains, by general estimate, about twenty-eight pounds of blood. But the body of our Saviour had been losing blood, more or less, for, from twelve to eighteen hours. First—by an agonizing sweat in the garden. Second—by a crown of thorns—smote in to the scalp of his head. Third—by scourging, if not by buffetting in the face, which usually produces bleeding from the nose. And forth—by large nails, or spikes, driven through each of his hands, and both his feet, for about four hours. To my own mind, it would not be unreasonable to suppose, he might have lost four pounds in that length of time, which would leave about twenty-four pounds of blood. Each pound of healthy blood has ten ounces of water. This would make two hundred forty ounces; and amounts to fifteen pounds or pints of *water*. This water, combined with a small quantity of animal gluten, composes what is called the serum of the blood. The more adhesive, or thick part, such as we see swimming in the bowl, after letting blood with the lancet, is called the crassamentum.

But the serum and crassamentum never separate till the blood is *at rest, and in contact with the atmospheric air*, which contains oxygen. This oxygen is received into the blood, while circulating in the lungs by the process of breathing; and gives to arterial blood its bright scarlet color. And this same scarlet-colored blood, that moves with so much velocity in the arteries, and the parts with all its oxygen, returns back more slowly through the veins, and is there of a purplish or dark crimson color; showing that blood, while in the veins, has no oxygen. Yet this same dark crimson or purplish colored fluid continues to flow on with a sluggish motion, to the great *vena cave*, and through that into the right auricle of the heart; thence to the right ventricle and thence to the lungs. *There;* this dark colored, or venous blood again receives the oxygen from the atmospheric air, which we inhale by breathing, returns with its scarlet color to the left auricle,—then to the left ventricle of the heart,—*there* receives a new impetus by the contraction of that strong engine of circulation,—enters the great aorta, with renewed and stimulating velocity, passes through all the arteries, with its scarlet color,—distributes all its oxygen, and then returns more slowly through the veins, *with its dark color*, as before stated. In consequence of this difference of motion in the circulation, the veins generally contain about two thirds of the whole mass of blood, without any oxygen in it; while the arteries contain about one third part with oxygen. Consequently, if the whole mass of blood in the body, contained fifteen pints of water, the arteries would contain five pints, when the blood therein had coagulated, or in other words, had concreted, which is merely the separation of the serum and crassamentum. But this never occurs while the body has life. Then the blood continues to circulate, and the water maintains its fluidity. But the heart no sooner ceases its motion, than the circulation stops. The blood is at rest; and the body is *dead—then*, that "dust may return to earth as it was," the first process of decomposition commences. The blood in all the arteries, with its oxygen, just assumed from the atmosphere in the lungs; and stopping in its course before that oxygen was distributed; *coagulates there in the arteries*, as naturally, as all healthy blood concretes, *when still, and exposed to the atmosphere*, any where else. Blood drawn from an artery coagulates in less time, than blood drawn from a vein; for the reason, that arterial blood contains oxygen; when drawn, while venous blood contains none. Hence, all the blood in the arteries begins to coagulate;—that is, the serum and crassamentum begins to separate, as soon as the body is *dead*, for the

reason that it contains oxygen; while, for the want of oxygen, the blood in the veins continues fluid. If the body of a man, suddenly killed in good health, is opened at any time from thirty to ninety minutes after the accident, the arteries appear to contain nothing but a large quantity of water, and a much smaller quantity of a substance that resembles *jelly*, or crassamentum, after being soaked or washed in water. I have once seen such a case in the circle of my own practice. But if the body is not opened till, perhaps, the next day, the arteries are found in a placid and more contracted state, containing the washed crassamentum, or jelly-like substance, (which some have mistaken for polypus, when found in the auricles or ventricles of the heart;) with less water. For as the arteries have muscular coats, they naturally shrink, and thus the water is mechanically moved forward into the veins. And hence, the veins are then found more distended, and the blood within more fluid than before.

The fact, that the blood coagulates in the arteries immediately after death, while it remains fluid in the veins, has been known to medical men ever since the time of Boerhaave, the celebrated lecturer and professor at Leyden, whose works were first published in Latin in 1708. After five impressions in Latin, his works were translated into most of the modern languages of Europe, and one edition in Arabic, was printed at Constantinople. In the English translation of six volumes, printed in London, 1773, volume 2d, section 225, page 171, Boerhaave says:—"If it be asked, why the venal blood in a dead body is found to retain its fluidity, a long while without congealing, when, at the same time, that in the heart and arteries is quickly concreted; we answer, that it is probably owing to the more fluid parts being continually pressed and discharged into the *veins*, while the arteries in the mean time continually lose all their more fluid juices and receive no fresh supplies."

Boerhaave succeeded Dr. Drelincourt as professor at Leyden, in 1701. Consequently, the *fact*, that blood coagulates in the arteries, very shortly after death, while it continues fluid in the veins, has been known about one hundred and fifty years; and for about one hundred years, extensively known through Europe and America. And yet, no writer or commentator, that I can find or hear of, has ever referred to it for the purpose of removing all "*doubt*" *and* "*mystery*," that Pool and other distinguished expositors, speak of about the *water*, seen at the crucifixion of our Saviour. The old writers, in their dispute before mentioned, did no such thing.

But while the fact, that blood does coagulate in the arteries, *very soon after death*; but not in the veins, is admitted by all intelligent physicians and surgeons; yet Boerhaave's conjecture as to the *probable cause* of that phenomenon, I cannot admit; for, to my mind, it affords no chemical or philosophical reason whatever. But then it must be remembered, that in the time of Boerhaave, who died in 1738, oxygen, or "vital air of the atmosphere," as it was called, had not been discovered. Had the learned and eminent professor at Leyden, lived in the time of Priestly and Scheele, who first discovered oxygen in 1774 and 5; I think he would have assigned *oxygen in arterial blood, as the cause why* the blood coagulates in the arteries, and the want of *oxygen in venous blood. as the cause why* the blood continues fluid in the veins, as I have ventured to state. If "*a fluid is pressed*," as the professer speaks of, that pressure must be equal on all its parts; and if one part is discharged into the veins, why not the other part, if it is a fluid? But Boerhaave's observations were doubtless made on dead bodies, after the coagulation of blood in the arteries had taken place; and then he says in answer to his supposed question, "that it is probably owing to the *more fluid parts* being continually pressed and discharged into the veins; while the arteries in the mean time, continually lose all *their more fluid juices*, and receive no fresh supplies." Here he speaks of "*more fluid parts*," and "*more fluid juices*." But do not these expressions imply, that there are *less* fluid parts, and *less* fluid juices? And what is this but a separation of the blood into serum and crassamentum? Does this explain *the cause* of that separation? To my mind, it is merely stating the *fact* over again, in a little different form of words, that the blood *does thus separate* in the arteries and not in the veins.

It appears from what has been stated, that the arteries of a healthy man, very soon after *death*, contain a large quantity of *water*; that this water, with a small quantity of animal gluten, compose the serum of the blood; that the serum and crassamentum of the blood never separate, while the body has life, and the blood in motion; nor, until some time after the body is dead,—the blood at rest,—and in contact with oxygen.

It appears further, that the *water* which John saw at the crucifixion of our Saviour, could not have come from the pericardium, unless the body of our Saviour was diseased with hydrops pericardii,—a dropsy of that viscus. But it is shown that he had no disease,—that his body was a perfectly healthy body, and that he must have possessed a vigorous

constitution to perform what he did. And it is also shown, that the *water* could not have come from the *bladder*, for the spear could not have reached that viscus; and if it did, under all the circumstances, that cavity would naturally be found nearly, or quite empty. *Therefore, the water* did come from *the main arteries of the body*, for it could not have come from any where else. The *quantity of water in the arteries* of the body of Jesus Christ, after he had been *dead* from thirty to ninety minutes, would probably, amount to about five pints, and one half of this might naturally have been discharged from a wound, if made in the left side of the body. If the wound had been made in the right side, nearly all the blood and water, probably, would have remained in the right cavity of the thorax and abdomen. But I must go back a moment and review those tragic events as they occurred.

The crucifixion commenced about noon, when our Saviour was nailed to the cross. It was on Friday, the day before the Jewish Sabbath; and amidst a great multitude of spectators. "The soldiers parted his garments, casting lots, and sitting down, they watched him there." From noon, "there was darkness over all the land" until three o'clock. About that time, Jesus cried with a loud voice—saying, Eloi, Eloi, lama sabachthani. Soon he said, "I thirst." He then received the sponge filled with vinegar on the hyssop and reed, or a reed of hyssop; said, "It is *finished*,"—and "cried again with a loud voice, saying, Father, into thy hands I commend my spirit;" and bowing his head, "he gave up the Ghost." No wonder the earth quaked, and the rocks rent! The whole multitude were struck with amazement. The centurion *who stood* over against him, and they that were with him, watching Jesus, when they heard him so cry out, and saw the earthquake, feared greatly, saying, truly this was a righteous man,—this was the Son of God! And all the people that came together to that sight, beholding the things that were done, smote their breasts and returned.

This sudden fright among the crowd of spectators, must have occupied some little time. Still the two malefactors were not dead. If they had been, why beseech Pilate, that their legs might be broken, and why were they broken?

Whether Pilate held his court in that part of Jerusalem, in which tradition and modern maps represent it to have been, I will not undertake to determine. For myself, I place very little dependance on the traditionary locations of Scripture events, in a city so repeatedly laid waste; and after such a lapse of ages of bigotry, ignorance, superstition

and barbarism. All I can say is, if Pilate's court was held where it has been represented—the same where the present Turkish Governor resides; and if the present designated location of Calvary be correct, the distance between those places is from one quarter to a half a mile. But supppose it, if you please, to have been one quarter of a mile; Pilate was Governor. He had his life-guards, a band of Roman soldiers; and a *band* is said to have consisted of five hundred men. The Roman Governor represented Cæsar, and lived with great pomp and ceremony. Joseph of Arimathea, went to Pilate to beg the body of Jesus. This makes one passage from the cross to Pilate's court. Joseph, after the usual ceremonies, obtained an audience, told Pilate his errand. "The Governor marvelled," and seemed not to believe that Jesus was dead. He sent for the Centurian. This makes the second passage between those places. The centurian came to Pilate—nothing to warrant that he rode; for Mark says, he was standing, or "*stood*" but a little before. This made the *third* passage over the same ground, The centurian, after obtaining an audience, stated to Pilate what he knew; and after hearing the facts, and asking such questions as he pleased; the Governor gave Joseph leave to take the body. The centurian and Joseph then returned to the cross. This made the fourth passage over the ground between Pilate's court and the cross. The soldiers then went and broke the legs of the *first* malefactor, and then of the other; "but when they came to Jesus, and saw that he was *dead* already, they broke not his legs."

Here Sir, I would ask any candid person to judge whether, the fright about the earthquake,—and the four passages, *back and forth*, between the cross and Pilate's court, would not probably occupy from thirty to ninety minutes? And if so, there was ample time, and I judge so from a case I have seen myself, for the blood in the arteries to coagulate, and the serum and crassamentum, fully to separate. But as if to make the *death* of our Saviour perfectly certain; and to put the most positive and scientific evidence of that supremely important fact, beyond all doubt and controversy in all after ages of the Church, "One of the soldiers with a spear pierced his side, and forthwith came there out *blood* "*and water.*" The soldier probably acted in that case of his own free will and accord, without any order from the centurion; for it can hardly be supposed, after what that officer had just said and witnessed, he would have given such a command. But the soldier, like some other men in our own day, hoping, perhaps, *for promotion*, by showing *greater zeal against innocence;*

and *more readiness* to promote and extend iniquity, than even the vilest of the vile "*expected*," aimed his spear at the Saviour's heart! If he were prompted TO THIS ACT by the accusers of JESUS; whether they were slave-holding Jews, high-priests, or low-priests, rulers, scribes, lawyers, pharisees, hypocrites; they showed themselves to be the *enemies of* ALL RIGHTEOUSNESS; and the soldier was under no obligations to obey them. But so it was;—and still is, that, even the barbarity and wickedness of man, "while he thinketh not so," are over-ruled to accomplish the wisest and most beneficial purposes in the providence of God.

The thrust of the soldier's spear, or *lance*, as before described, must have laid open, more or less, of the great blood-vessels—veins and arteries, near the heart. Whether the pericardium, or the heart itself, were pierced or not, is wholly immaterial. The adjoining blood-vessels being severed, the blood and water would naturally flow very profusely, for a short time; but only from those parts of the body above the wound. The principal of gravity would prevent any flowing of blood or water from parts of the body beneath the wound. But all the arteries above, containing the crassamentum, then in form of jelly, with the water, would not be so soon emptied as the veins, which had no such obstruction. Therefore, the water would continue to flow from the *arteries* for some space of time after the blood had ceased to run from the veins. While the blood and water mixed together, and both continued to flow from the same wound, both would appear so much like blood, that John could not have been certain there was any water. But when he saw the *water* continue to flow, and for some time after the blood had stopt; his attention was fixed upon it. He saw that *it was water?* He was sure *it was water;* and therefore, he could with truth and safety testify as he has.

But how came John to attach so much importance to *the fact*, that *blood and water did flow* from the Saviour's side, as he seems to have expressed? For he says in the next verse—"And he that saw it," (blood and water,) "bare record, and his record is true, and he knoweth that he saith true, that ye may believe." Believe what? Does he mean "that ye may believe *his record*, that he saw the side pierced and forthwith came there out blood and water? Or second.—Does he mean, as Pool says, "that men may *believe*, that Jesus was *He* in whom all legal type and figures, had their accomplishment?" Or third.—Does he mean "that ye may *believe* that the body of Jesus *was dead*, and that *the water* proved that important *fact?* I confess myself in favor of the latter

meaning, as [in a measure, embracing the two former; and as being the more allied to the subject which John was relating, he seems to have given his testimony to it, in a manner almost in the form of an affidavit. He saw the wound, and he saw the blood. But neither of them proved the *death* of the body. He saw the *water*, whether one pint, one quart, or three pints in quantity, cannot be known.

But he saw a *quantity*, *sufficient* to make him certain, that it was *water*. And that water could have proceeded from no place but the arteries. The arteries could show no water, till the blood *within them* had coagulated. The blood in the arteries could not coagulate while the body had life; nor until some time after the body was *dead*. Therefore, THE WATER that John saw flowing from our SAVIOUR'S SIDE, *furnishes* the most conclusive and scientific proof that the BODY OF JESUS CHRIST WAS DEAD, and that *it had been some time* DEAD, (*probably about one hour*, perhaps a little more or less,) before it was pierced by the soldier's spear. On the truth and certainty of the *death* of our Saviour's body, *lies the whole foundation of the* CHRISTIAN RELIGION, JESUS CHRIST HIMSELF being the chief corner stone. The death being made certain; the sure evidence of his resurrection follows. "The glorious hope of life and immortality brought to light in the Gospel," is strengthened; and the assurance of faith, "that Christ gave himself for us, an offering and a sacrifice to God for a sweet smelling savor," confirmed. Wherefore let us comfort one another with these words,

Wishing you health, mercy and peace,

I subscribe myself,

Your most obed't serv't,

ABNER PHELPS.

POSTSCRIPT.

Since the above was written, I have had opportunity, through the special politeness of Professor Holmes, the learned occupant of the Anatomical Chair in Harvard University, and his able and obliging Demonstrator, Samuel Kneeland, Jr., M. D., to make every desirable experiment on the dead subjects at their Dissecting Room, for the purpose of *determining whether* a nail or spike, *as large as a man's finger*, can be driven through a common sized hand or foot, without breaking one of the metacarpal, or metatarsal bones;—for "a bone of him shall not be broken." My

experiments were all made in presence of Dr. Kneeland, and several medical students there under his instruction. The experiments have been made, and repeated, in several different ways; at various times, and on different subjects; during the last two weeks, with perfect success *each time;* for not a bone, either in hand or foot, has been in the least *fractured or broken!* The two iron nails or spikes used, were each about six inches in length; two inches and two-tenths of an inch precisely, in circumference, and both weighed fourteen and a half ounces. But the body of one was made square in shape of a common wrought iron nail. The body of the other was made round; but both girded exactly the same—two inches and two-tenths of an inch round. The points of each were ground to a small cutting edge. After procuring a square block of timber, with a hole bored through it with a three-quarter-inch auger, for the purpose of receiving the nail or spike when driven, and to facilitate its extraction afterwards, I commenced operations upon the dead subjects, as I found them from time to time, in the most desirable state, as to age, size and preservation, and in no instance was a bone broken! Such is always the harmony between truth, science and the Bible.

A. P.

Boston, March 28, 1853.—Dr. Abner Phelps has made quite a number of experiments on different subjects at our Dissecting Rooms during the last two weeks, for the purpose of ascertaining whether a nail or spike, as large as a man's finger can be driven through a common sized hand or foot, without breaking either of the metacarpal or metatarsal bones. I have witnessed his success with much interest; and am free to say, that I consider his experiments to have been made with great accuracy, and each one to have been highly satisfactory; for no bone was broken in either hand or foot.

SAMUEL KNEELAND Jun.