



The Face of Christ on the Shroud

PROOF OF THE AUTHENTICITY OF THE SHROUD
IN THE BLOODSTAINS: PART II

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This concludes the address delivered by Dr. Pierre Barbet to the First International Congress of Sindonology and published in *Sindon*, December, 1970. Part I appeared in *Spectrum* #22, March 1987.

Individual Analysis of the Clots: *A forger could not have imagined the details.*

Let us now examine these clot images one by one. We are going to see immediately that they all seem abnormal; I mean that they deviate from the norm imposed by iconography. But by applying the physiological laws of coagulation, we will observe that in the case of each clot, the Shroud is right and artistic tradition, based on imagination, has led us astray.

I assure you that, as an amateur of art, I see no great harm when artists, if they are really Christian, use their imagination in expressing their feelings of profound piety. However, notice that their efforts are rarely crowned with success. Were they to approach what we believe to be the reality as seen on the Shroud, they would achieve, I think, an emotional intensity, an expression of compassion, which imagination alone does not supply. For example, the fine Crucifix which my dear friend Dr. Villandre modeled, in 1934, to my precise indications, with all his soul and all his talent. In contrast, to take a striking example, I confess that in spite of all the genius of Grünewald, for me the contortions of his Crucified are grotesque and false. The reality, as I see it, is infinitely more simple and very much more tragic.

A — *The Scourging*

Some 100 or 120 scourge marks have been counted on the Shroud, and only those lashes which broke the skin have left their trace. I will not pause to describe their form or their orientation. All has been said on this since a long time. But compare them, please, with the miserable wounds that one sees in all the paintings. And tell me if the traces on the Shroud are in perfect accord with archeology about this abominable torture. You will find this discussed in my latest book.*

**La Passion de Jésus-Christ selon le chirurgien*, Ed. Paulines, Paris (1950). English edition, *A Doctor At Calvary*, Doubleday Image Book (1963).

B — *Crowning with Thorns**

We will spend more time on this because I would like to describe for you one of the most magnificent and most realistic of all these portraits of clots. You know that all the textual and historical data permit us to believe that the crown was a large cap of thorn branches. This was held in place by a bandeau of braided rushes encircling the head. It was for this bandeau that King Saint Louis built the Sainte Chapelle and now is venerated at Notre Dame de Paris. One can easily follow its trace on the back and front imprints of the head.

The blood flowing down from thorn punctures over the entire head was stopped by the bandeau. Some of the blood passed over it and coagulated in the hair and on the forehead. The clots are more numerous in the back because for three hours, every time Jesus leaned backward, his head bumped against the wood of the cross, driving the thorns ever deeper into the scalp.

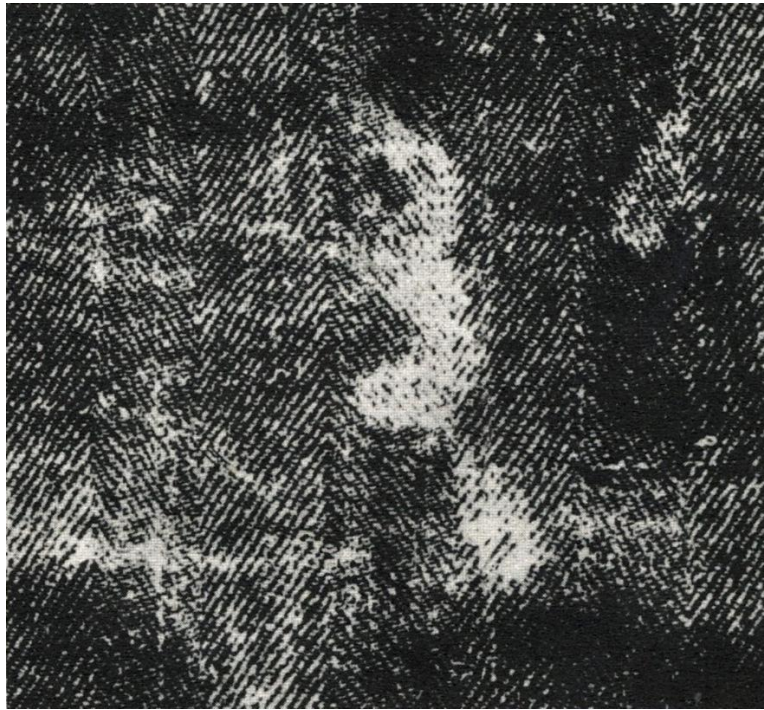
The clot that I am going to analyze is on the forehead. It begins from a puncture high up, near the hairline. It descends toward the inner part of the left superciliary arch by a sinuous course, a bit oblique, downwards and outwards. It widens progressively, the way it would if it encountered obstacles on a wounded person.

One must never forget that we see here only a part of the blood which, little by little, coagulated on the skin. The flow is slow and continuous; several minutes are needed for coagulation to take place. So only a small part coagulated close to the wound. The farther downward one goes on the image, the greater is the quantity of blood which has reached this level by the time of coagulation. Also, so much the more do the successive layers of blood accumulate their clots over the previous ones. The total mass of the clot, therefore, is that much wider and thicker the lower one looks, and this is because the blood encountered obstacles.

It must also be noticed that the blood did not flow straight down, in a straight line. When artists paint an irregular course for a blood stream, it is due to pure caprice, unjustified by any obstacle or any natural reason. On the Shroud, the flow undulates a bit to right and to left, either because the blood follows a wrinkle in the forehead or because a little thorny twig lying athwart the forehead guides the flow along this oblique direction.

This flow stops above the superciliary arch and spreads horizontally toward the median line and builds upwards in height. At the same time, the thickness of the clot is visibly increased, which renders the coloration of the transfer more intense. There are all the indications that something has impeded the descent, the way a mill-race is barred behind a dam. The blood accumulated slowly

*See RODANTE: "The Coronation of Thorns in the Light of the Shroud", *Spectrum* #1, Dec. 1981.



The clot on the forehead, sometimes called the "Epsilon bloodflow", sometimes the "Inverted 3".



The bandeau of braided rushes from the treasury of Constantinople, for which King Saint Louis built the Sainte Chapelle. Now in the treasury of Notre Dame de Paris, it measures 21cm in diameter (8¼").

and could coagulate at its ease, and this accounts for its spreading in width and growing in height, and for the thickness of the clot.

The obstacle is clearly at the place where the bandeau of rushes was bound tightly around the forehead, just above the eyebrows, for all across the forehead we see a horizontal stripe without a clot. Toward the right and the left temples, two clots stop short at the same level, and one can follow the whole course of the bandeau. Below it, a drop of blood from this flow reappears below the point where the clot had started to spread horizontally toward the median line. This drop ended up by spilling over the bandeau. It is narrow in the supra-orbital region, then it spreads and gets progressively thicker at the inner part of the left eyebrow as far as the eye socket. It is always the same mechanism of flowing and coagulating.

I defy any modern painter—unless he is a surgeon and has a thorough knowledge of the physiology of coagulation and has meditated a long time on all the possible avatars of this slender thread of blood gradually coagulating in the midst of obstacles—to reproduce in painting this image of the forehead clot. As for the claim that a medieval artist could imagine all the minute details of this transfer, as glaring with veracity as though it were here before us on a living person—that is enough to nauseate a physiologist and a surgeon. This image alone ought to be sufficient proof that no one touched the Shroud except the Crucified Himself.

C - Carrying the Cross

My friend Dr. Judica [Giovanni Judica-Cordiglia], in his article, "Le lesioni da traumi contusivi sul Corpo di Cristo" (*Medicina Italiana*, Nov. 1938), described extremely well the traces of the Carrying of the Cross seen on the Shroud. I leave all the credit to him, since he was the first to publish.

Some of the wounds are excoriations and contusions on the knees, particularly the right, testifying to the fact that Jesus fell while carrying the cross. Also on the frontal imprint there is a large zone of excoriations in the clavicular region. On the dorsal imprint, another zone of excoriations in the right sub-scapular region, and lower down another zone spreads over all the left sub-scapular region and the point of the left shoulder blade. These two zones thus slant across the back from upper-right to lower-left. They overlap numerous scourge wounds which seem to be mashed, reopened and widened.

All this, Judica described perfectly; but I cannot follow him in his interpretation. According to him, Jesus carried a complete Latin cross; the rubbing at the juncture of the horizontal and vertical pieces would have caused the wounds of the right shoulder.

Here again, iconographic tradition has led us far away from reality. I studied rather extensively the form of the cross, the methods of crucifixion, according to modern archeologists and exegetes and

in my latest book I furnished enough textual and documentary proofs to be categorical on this point. Today it is well-attested that the cross was in two separate pieces; the condemned carried only the horizontal beam, the *patibulum*, to the place of execution where the vertical beam, the *stipes*, was permanently set up. The patibulum alone weighed about 50kg, and Jesus was not able to carry it to the end. How could he have managed a complete cross weighing far more than 100kg?

Permit me to relate a personal experience of many years ago. I was then a sapper in the Regiment of Engineers in charge of the railroads, and many a time I carried railroad ties on my shoulder. I speak, then, from personal experience, and I can do so both as a laborer and as a doctor because, serving also as army nurse, I was charged with the care of the wounded.

The beam has to be balanced on the right shoulder (for right-handed persons) with a little more length toward the back so that the front end is a little higher. The right hand steadies it at the front to keep it from jerking up. If the beam lay exactly centered or precisely horizontal, the least false movement would upset the equilibrium; it would fall forward and nothing could hold it back.

But the hand that holds the beam guides it by a natural movement. The back branch hangs lower, pointing toward the left. All these details are very important at the moment a person falls. A man who stumbles usually falls on his knees, first the right one (Judica rightly notes this) and he rips his trousers and skins his knees. Then he sprawls forward and lets go of the beam to catch himself on his hands.

Now the beam was already slanting across the back, pointing downwards toward the left. It would fly up in front and slide obliquely across the back, flat against it, grating the skin of the right scapular region, then the left scapular region but lower down, near the point of the left shoulder blade; it grazes the spinal column as it goes, then it continues grazing the skin as far as the left iliac crest. In short, it rips the clothing and scrapes over all the bony protrusions, hitting them on a slant from the right shoulder all the way to the left sacro-iliac region. The violent friction of a hard and heavy mass produces lacerations and contusions on all the protruding bony parts.

This is my personal experience; does it not marvelously explain the wounds of the Shroud? Notice furthermore that even before Jesus fell, damage could begin in the left scapular region as well as the right shoulder. Jesus was bent forward from exhaustion; the patibulum being oblique, as I have described, would already have been rubbing on the left shoulder blade.

Finally, I would like to add that the Tunic of Argenteuil, which has its documents since the time of Charlemagne, shows bloodstains in the same places. These stains stand out conspicuously on

infra-red photographs made in 1934 by my friend Gerard Cordonnier, engineer in the Marine Corps and a fervent believer in the Shroud. Here is what Cordonnier says and what I myself verified on his photos:

1 - Several medium-sized stains on the outer half of the clavicle, the acromion and the upper right scapular region.

2 - Several small stains spaced at regular intervals on the apophyses of the vertebrae, beginning at the 7th cervical (the protuberant).

3 - One very large stain on the lower part of the point of the left shoulder blade, extending a little beyond and to the right of the median line.

4 - An important mass at the posterior part of the left iliac crest.

5 - Lower down and inwards, a group of stains in the sacral region.

D - *Wounds of the Hands*

I come to my old experiments, and as you know about these for the most part, I will impose upon your kind attention for less time.

I will resume my personal conclusions, emphasizing especially the strange but veracious images presented here. Never could a painter have thought of these before seeing the Shroud.

To begin, I remind you of a very important fact: all my experiments were made on amputated members immediately after amputation. They were, therefore, *living* members. They differed from the normal conditions of life only in the absence of blood circulation. They contained living muscles and nerves. The resistance of the tissues, the stimulation of the nerves and muscles, were exactly the same as on a *living* person.

1 - First I established that, in driving a nail into the palm and in making a traction of 40kg on the arm, the flesh and skin tore and the arm fell to the floor. Now with the angle of the arms at 65°, ascertained by calculations and experiments and confirmed by the image on the Shroud, a mechanical theorem informs us that a body of 80kg exerts an axial traction of 95kg on each hand. Later, in a book on the Shroud by Mons. Paleotto, Archbishop of Bologna,* I read that artists of XVIth century Bologna had made the same experiment on a complete corpse, and with the same result.

2 - Then I looked for a solid place to plant the nail, as the executioners of old times must have done empirically. Anatomy suggested driving the nail into the fold of the wrist flexion. There, with one blow of the hammer, a nail penetrates very easily in a space anatomically preformed, situated between the two tiers of the carpal bones. This is called the Space of Destot.

*PALEOTTO: *Espliatione del Sacro Lenzuolo ove fu involto il Signore* (1598).

Furthermore, wherever one points the nail in this particular area, so easy for executioners to locate, one of two things will happen: either the nail slides into the palm, where we know that it cannot support the body, or it takes an oblique direction by itself, and enters the Space of Destot.

I remind you that the carpus is an integral part of the hand. In fact, all the scriptural texts speak of the hand, and not of the palm. Crucifixion in the palms is, again, an error of the artists. So much the more should we congratulate the "valenti pittori e scultori bolognesi" [master painters and sculptors of Bologna] mentioned by Mons. Paleotto in 1598.

3 - Another thing. According to archeology, the victims' hands were nailed while the patibulum was on the ground. The arms spread naturally to 90° along the patibulum. Then, with the victim attached, this was hung up atop the permanent vertical stipes. At this moment, of course, the body sinks down, the arms pass from 90° to about 65°, making the angle indicated on the Shroud. It is the angle that the axis of the forearm makes with the vertical bloodflow issuing from the left hand.

This experiment eliminates, therefore, two contrivances, both of which would have impeded the sagging of the body: a) The perineal peg, or so-called "*sedile*", which could support the body. It seems attested that a peg was added to the cross only in cases where it was desired to prolong the torture. b) Tying the body and/ or arms with ropes. Crucifixion was sometimes done by ropes, but no ancient text allows us to suppose that ropes and nails were combined; the three nails were perfectly sufficient and all the rest is pure imagination.

4 - On the other hand, the only way the victims could keep alive a little longer was to lift themselves up, using the nail in the feet as a fulcrum. Hanging by the hands brings on cramps and contractions, which eventually reach the respiratory muscles. The victims, unable to empty their lungs, die of asphyxia.

All the agony, then, takes place in this alternation of sagging and lifting, of asphyxia and momentary relief. In each of these two positions, the blood on the back of the wrist should therefore take two directions. Now the clot of the left hand divides in an angle of about five degrees. Each branch corresponds to the flow made during one of the two positions. What forger, however crafty, would ever have thought of this important detail?

5 - Another observation. In each of my twelve experiments—made, as I said, on living arms—at the moment the nail penetrated the wrist I saw the thumb abruptly move in opposition and in slight flexion into the palm. This is because the median nerve was always injured by the nail, as I saw later doing the dissection. The nerves of the *oponens* muscles and of the short flexor muscle of the thumb, which branch off at this level of the median nerve, were also injured. This mechanical stimulation of the nerves lasted until the death of the Crucified, for the median nerve remained stretched

across the nail, and as it is not only a motor nerve but also a main trunk sensory nerve, this was, of all the sufferings, the most atrocious. Rigor mortis set in brutally right from the last breath, immobilizing the thumbs in this position, bent down into the palms.

What artist, then, ever dreamed of hiding the thumbs in the palms, and to paint only four fingers, as we see on the Shroud?*

6 - Finally, on the forearm we see several bloodflows that did not follow the vertical but ran upwards obliquely toward the elbow, obviously running in the deep furrow between the extensor muscles contracted by tetany. Here and there, a small rivulet found the vertical and ran off toward the ulnar edge of the forearm.

E - *Wounds of the Feet*

A comparison of the frontal and dorsal imprints of the feet led me to conclude that the feet were crossed one over the other and that one nail was used. The left foot was over the right, which was directly flat on the stipes. The feet cross easily without any dislocation or twisting. The very splendid imprint of the right sole shows the location of the nail hole. I was therefore able to experiment on a corpse, and to conclude that the two feet were transpierced in the posterior part of the second intermetatarsal space. The technic is extremely easy, just what would please an executioner. One nail of 10cm, as for the hands, is amply sufficient.

This nail was of absolutely no support when the body was in the sagging position. However, it was possible for the whole body to push up on it and thus momentarily gain relief from asphyxia. The *suppedaneum*, or footboard, that one sees on crucifixes is pure imagination of artists; there is no trace of it in ancient texts.

Our so-called forger has painted the clots of a bloodflow going from the nail toward the toes, just as many of his fellow artists did; but he has displayed an extraordinary originality! He has added the clots of a second flow, going from the nail toward the heels, which issued during the transport [to the grave]. He even had the

*Here is an exciting area for research, entirely unexplored. In the IXth and Xth centuries, countless examples can be found of crucifixion scenes in manuscript illuminations, ivory reliefs, embossed gold, as well as carved crucifixes, in which the thumbs are deliberately and consistently bent into the palms. The great majority, if not the totality, are found in Germany. The well-known Gero Cross (Cologne, IXth c.), is but one example. Interestingly, during these same centuries, no Italian crucifixion shows this detail of thumbs bent inwards. However, this is not for the iconographer to discuss. The Shroud does not show us that the thumbs are bent inwards. It is, instead, a matter for the medievalist, who might relate this detail to the rather frequent crucifixions carried out in the early Middle Ages, especially on peasants and especially in Germany.

As for representations of the back of the hand with only four fingers, perhaps the art historian could, cautiously, relate this to a knowledge of the Shroud. Here, too, there are many examples; few, however, dating from before the XIIIth century. The Pray MS, dated the end of the XIIth, may indicate that other early examples showing only four fingers might be discovered by further research. Ed.

genius to imagine that one part of this flow, continuing in the Tomb, ran beyond the heels and seeped through from one surface to the other of a fold in the cloth, thus producing symmetrical images. And since in this case it is liquid blood—and it is the only time—this artist was careful to lightly crenelate the borders of the clot instead of giving them sharp outlines, as he usually did.

But, to make a truce with irony, I will add that an attentive examination of the frontal imprint, the localization of the instep in relation to the kneecaps and the general curve of the body, led me to believe that the large trapezoidal clot is probably located on the instep of the right foot.* It is the blood that ran between the top of the right foot and the sole of the left foot, pressed together by the nail. The left sole spread this blood over the top of the right foot, and some of the blood flowed down in the furrow between the joined feet. The clot is completely visible because when the nail was removed the feet separated a little way, so the left foot covered no more than the toes of the right foot.

F - Wound of the Heart

You know how I was able, on the natural size photographs of the Shroud, to locate the wound in the side in relation to the point of the sternum. The bony locations are the only exact points of reference in anatomy. Then, on a living person, I established by x-ray the location of this wound in relation to the thoracic viscera, particularly the heart.

My experience in cadavers showed me that the lance blade reached eight or nine centimeters deep into the pericardium and the right auricle of the heart. "*And immediately there came out blood and water.*" I demonstrated that the blood came through the right auricle as it emptied through the superior vena cava from all the veins of the head and upraised arms. The water was hydropericardic liquid, accumulated in the serous envelope of the heart.

The wound is astonishingly distinct; still open, still filled with blood. Below it, the flow from the superior vena cava produced a long, wide clot. This magnificent transfer is well-known to you all: perhaps less well-known than you believe. In spite of the traces of the fire that nibbled away some of the outer border, one sees this transfer spread over the chest and down along the rib cage onto the upper part of the right hypochondrium.

The lance-thrust is seen at the right. This is a very ancient tradition, affirmed by several texts; most of the artists conformed to it. They did not know, of course, that a blow on the left would open only the ventricles, empty of blood in a corpse. They may have known that the blow on the right—in fencing, the exposed side, the *latus apertum* in the words of Caesar—is always mortal.

*Vignon believed that this stain was on the left foot.

Here we see some bizarre details which a forger would have been careful to avoid. You have noticed that this clot does not have the straight, parallel margins of the painters, but instead presents a border of regular undulations, alternately widening then shrinking as it descends. Now each of these undulations of the anterior margin of the clot corresponds to one of the muscular projections; and that is easy to understand: the blood, flowing down, stopped and coagulated, widening out in each of the intermuscular depressions.

Antoine Legrand pointed out to me two apparent anomalies which, as you will see, are correlative. It is evident that the right arm is a bit longer than the left. The slight lowering of the right shoulder does not sufficiently account for it. In fact, the right forearm is also longer than the left, so that the right elbow not only is lower, but also farther outward than the left. The protrusion of the great right pectoral muscle also confirms this apparent separation outward of the right arm.

However, if one imitates the wound and clot on a man of the stature of Christ, one will see, as I did from the beginning of my research, that the wound and clot are far behind the level of the anterior sterno-costal surface. A cloth laid upon the body bridges over this lateral area because the arm is on a higher level. *The cloth cannot touch this wound and clot.* Now without contact, we would not have this splendid transfer.

But suppose that someone tucks the Shroud between the arm and chest, to apply it to the wound. There are two ways to do it:

- a) The cloth can be drawn from the chest to lie upon the clot;
- b) The cloth can be pulled a bit inwards from the elbow-side. In this case, the imprint of the elbow is formed a bit farther out than it would have been if the cloth had been stretched taut. So when the Shroud is laid out flat, the imprint of the elbow is too far out, with an apparent lengthening of the arm and forearm, and the cloth carries a magnificent transfer of the cardiac clot. Conclusion: Either our forger was a bad painter, or he possessed an incredible cunning.

Finally, let us look at what I called the posterior transversal flow.* From the point of view of the anatomist, this flow is easily explained. We have seen that the clot on the chest was formed in the vertical position. But below the heart, in the inferior vena cava and in the lower members, there is still an enormous mass of blood. After the nail is removed from the feet and the patibulum unhooked from the stipes, the corpse is carried to the Tomb with the hands still nailed to the patibulum. This is facilitated by the extreme rigidity of the corpse due to tetany. With the body now in horizontal position, the blood from the inferior vena cava issues from the lance wound, which has remained open, and flows transversely across the back.

*This is now generally referred to as the "bloody belt".



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The only practical way to carry the corpse without touching it is to carry it with the patibulum. A porter takes each end; a third holds the heels. The hands are not freed until the Tomb is reached and only then will the corpse be laid on the Shroud. If the Shroud had been used to transport the body, it would have been saturated with blood.

But the corpse and patibulum weighed about 130kg. So it was thought a good idea to support the loins with a cloth of some kind, twisted like a rope. The blood of the inferior vena cava emptied out through the right auricle and the gaping lance wound, soaking into the belt. Blood which reached the skin between the irregular twists of the belt coagulated in these bizarre multi-ramified meanders. These clots, still fresh, did not retract until after they were put in contact with the Shroud. And that is why there is a large ring of exuded serum framing the image of the dorsal flow.

G - *Nudity*

Even though it is not directly related to the bloodstains, this last fact must also be mentioned. Nudity is almost unique in the iconography of the Passion. All the painters have left Jesus at least the *subligaculum*, a garment that the men of ancient times kept always rolled around the back and thighs. But it was always the general opinion of the Fathers that He was nude on the cross, and He is nude on the Shroud; we see the posterior pelvic region covered with the very clear wounds of the scourging. Would a forger have dared to paint this nakedness, so shocking that most of the artists who copied the Shroud added a loincloth? And would this artist have done that for an image meant for the veneration of the faithful? It is absolutely incredible! Only the terrible reality of Golgotha could presume to leave on the Shroud of Christ the traces of this supreme ordeal.

Conclusion

We can conclude this study in very few words.

1 - All the blood images on the Shroud, without exception—and most of the time in a bizarre way and, one might say, with a tranquil nonchalance—diverge from iconographic tradition. All coincide strictly with reality, which is supported by anatomical experiments, physiological observations, and the certain data of archeology.

2 - All these images are magnificent reproductions of clots which formed naturally on the skin and were transferred onto the Shroud by contact. Their aspect is of a startling realism, proof enough for a surgeon.

3 - Even in our day, with all that we know about blood coagulation, a forger could never imagine all these clots with the infinite variety of their details, all consistent with our experience; and not a single error has been detected.

4 - Even had he imagined these images, an artist could not have produced them on a cloth of raw linen, neither with paint nor with a dye nor even with blood.

5 - We can therefore firmly conclude, even before a hoped-for scientific examination, that these images are made of blood, and the clots of that blood were transferred spontaneously onto a cloth enveloping a corpse covered with the wounds of crucifixion.

A fantastic objection has been raised: Is this actually the corpse of Jesus? All the crucified would have to carry these wounds....

But the corpse of the Shroud did not undergo corruption. Whatever process might have formed the corporal imprints, which still remain for us wrapped in mystery, putrefaction would have marred and veiled all these images. Only Jesus could emerge from his Shroud, leaving there, intact and perfect, the transfers of his clots.

Here the scientist, I believe, has nothing more to say. Scientifically this hardly admits of explanation. But the Christian knows by revelation that the Son of God emerged from his Shroud with a glorious body, as easily as He traversed the walls of the Upper Room, *januis clausis*. In this, we can catch a glimpse, perceivable even for our poor human intelligence, of a material proof of the Resurrection of the Lord Jesus.

In closing, let us contemplate this adorable Face, where, transparent beneath the masque of death, the Presence of the Divinity is still seen. And tell me what artist ever knew how to paint a portrait that comes close to this.

We can therefore proclaim with the centurion of Calvary: "*Vere hic homo filius Dei erat.*"