

The Oviedo Sudarium and the Turin Shroud

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It is required, in simple fairness, to express appreciation for the work of all those who up to now dealt with this subject, a large group of researchers who frequently had more optimism than material and human means to study the Oviedo Sudarium and the Turin Shroud.

Due to our close relationship, I must thank the members of EDICES. Without their work, the Oviedo Sudarium would be totally unknown.

A special recognition is also due to those who spent part of their research activity in the study of the Turin Shroud. They began a work that must be further developed, and for which we cannot see a limiting horizon, since a lot remains to be studied. We can be sure that what remains still unknown is more than what has been discovered and reported as of today.

I must finally thank D. Antonio Gómez Gómez for his selfless cooperation, without which many of the limited discoveries of the past few years probably would not have taken place.

INTRODUCTION

During a significant time in the past, the fast development of scientific research in the field of Syndonology, its growing complexity and the amplitude and diversity of technical and scientific specialties that appear as necessary for its proper development, show the need for a multi-disciplinary approach if any research proposal is meant to be carried out in the future.

A different viewpoint cannot be accepted, since a minimal and insignificant progress in a given area of Syndonology could not only slow down the general knowledge of the Turin Shroud and the Oviedo Sudarium, but also interfere with the suitability of new and different future approaches, because it is very unlikely that those relics can be studied without some inevitable effects on them, due to methods used in that research. We can be sure that it is very unlikely that those relics can be studied without, in some way, modifying them as a consequence of the methods used. One of the basic rules of doing Science is that "It is impossible to make any kind of observation without causing the observed object to be modified, even minimally, as a consequence of that observation".

This being so, it is still true that no matter what the research methods might be, now or in the future, the Turin Shroud and the Oviedo Sudarium will never be anything else but what we now know: two burial cloths, whose study fully pertains to forensic Medicine, an area of scientific knowledge that already implies a complex multi-disciplinary approach, and that must include expertise in the field of textile materials related to specially serious crimes, such as those involving sexual freedom, homicides and murders.

On the other hand, there is a need for qualified persons that will be able to put together all the data provided by each and all the scientific branches found in Sydonology, in order to obtain a better understanding of the objects we study. Otherwise, an interested person beginning to read whatever has been published would soon flounder in a vast ocean of data and scientific facts without any clear structure, resulting in sheer confusion, since too much information frequently has consequences that are more harmful than the lack of information.

THE CONCERN OF LEGAL AND FORENSIC MEDICINE FOR THE TURIN SHROUD AND THE OVIEDO SUDARIUM

Tradition, through the centuries, holds that both the Turin Shroud and the Oviedo Sudarium are two cloths that had the same purpose, that were used to wrap Christ's Body in the tomb. But only at the end of the 19th century and the beginning of the 20th was a scientific study of both relics undertaken, surprising the researchers from the first moment simply because they weren't "silly relics". On the contrary, everything found in their study pointed to their authenticity.

Therefore, we will work within the area of legal and forensic Medicine; using the language proper to it, we would say that we are looking for **"the proofs of the most important magnicide in human history"**



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Both tradition and the Gospel texts, as well as the scientific studies up to this time, agree in stating that both cloths were used to cover a male human corpse, of an obvious strong build, with long hair, thick beard and moustache, who died in a violent non accidental manner, but rather because of the activities of third party persons, a fact that is legally considered -as a minimum- as homicide. And if, as it in fact occurs, there are circumstances such as those that indicate overpowering, treason, premeditation, tortures and the denial of any possibility of self-defense, the ensuing death is described as a murder.

Somebody might argue that in this case we are not talking about some mob process carried out by a group of excited people without any legal right to exercise that abuse of power, but that, at most, it would be a death by a decision formally arrived at by persons that were qualified and appointed for that purpose, who gave the explicit order. And that the whole process was according to legal formalities, after hearing both parts in their contentions, considering the proofs presented by both sides, listening to the defense of the one accused and also to the arguments of his opponents and their witnesses, so that after considering all circumstances, a judge gave the verdict of guilt. Then, following the legal norms of that time and place, a firm death sentence was pronounced, that required its being carried out as soon as possible, under the common practice of crucifixion.

What really happened was quite different, and the legal process against Christ must be qualified, at least, as irregular. At no time were the rights of the accused respected, the witnesses gave contradictory reports -when not obviously false- and even those accusing him did not clearly know what were the imputed charges or the supposed misdeeds attributed to

him. Worst of all, the guilty verdict was pronounced while *the judge claimed to be sure of the innocence of the accused* with regard to the charges imputed to him, for which there was absolutely no proof. Thus we have an unjust sentence, pronounced while knowing it to be unjust. Such behavior, according to the Penal Code presently valid in Spain, would be considered under the heading of "prevarication", with punishments attached to it and the exclusion from any public office for a long period of time.

In this case we can say, as a simple comment, that in the present Penal Code -article 139- this way of acting is described as "murder", since it includes the added circumstances of helplessness and torture, plus the added guilt of a "price or reward" due to the money given to Judas for his treason. This could also apply to the false witnesses, who spoke -if not for an immediate monetary payment- at least to receive a favorable reaction from the Israel authorities. The same could be said of the Roman military who preferred to be in good terms with the Jewish powers rather than to uphold truth and justice, thus protecting the *Pax Romana* and, consequently, the interests of the Roman Empire. All of it for a ridiculous price, the life of only one man,

According to the Gospels, especially Luke 23, 13-16 and 22, during the legal process under Roman authority, the false witnesses accused Jesus of Nazareth of a series of acts that, apart from not being true, were not listed as illegal in Roman Law. Therefore, not being against "*Lex certa, previa et scripta*" (*A true law, previous to the facts and written*) the imputed facts were not punishable according to Roman Law, aside from lacking real and sufficient proof.

The Roman judge was certain that the accused was innocent, but still, having announced that *he would be released without charge*, in order to satisfy Jewish authorities as well as the yelling crowd, who were asking for his death under their influence, tried to change the attitude of those he really despised but whom he must govern without his errors being reported to Rome. For this purpose he tried to awaken a sense of compassion in those present there: he gave the order to have Christ scourged, to show him to the crowd in order to get a reaction of pity instead of hatred. This might appear as a gesture of generosity, but it is the opposite: Christ has been *publicly declared innocent*, the proofs presented against him were dismissed as worthless, he has not been judged and certainly *he has not been condemned*, but he has been repeatedly declared free of any wrongdoing.

In this setting, Pilate's behavior would today be typified as "prevarication" (Art. 446 of the present Penal Code), and since it caused the victim physical and moral wounds, it is also a conduct classified as harm (Penal Code, art. 147 and 148) and as imprudent homicide at the level of tending to that effect. (Penal Code, art. 142) since it imposed a scourging "ad libitum" (without limit) that in most cases caused death, either immediately after the scourging or some days later, because of the internal injuries that the punishment produced.

Not satisfied with this, Pilate tried to solve the problem by pitting Christ -already declared innocent- against somebody who has been tried, found guilty and condemned to death, Barabbas. Once more we find "prevarication": Jesus cannot be accused of anything, he has already been unjustly punished, he cannot be punished again for the same reason. This new "prevarication" adds the legal wrong of *punishing two times for the same reason*.

Finally Pilate cooperates with Jewish authorities in murdering Jesus by condemning him to death by crucifixion. *We have a homicide with premeditation, tortures and seeking personal gain*. Truly a shameful happening according to Roman Law and Penal process..

It is logical to suppose that if this damning verdict had been appealed to a higher authority at the proper time, it would have been rescinded. But the rush of an immediate execution made impossible any kind of legal step to save the victim from the death to which he was carried. The same could be said about the legal process before the Sanhedrin, where all kinds of irregular procedures can be found, and even the physical mistreatment of the accused took place during the "trial", adding to all the illegal aspects, previously mentioned, of the behavior of the Roman authorities.

We are thus presented with a violent death, a proper subject for a judicial inquiry, since it was not due to an accident nor a suicide (it is impossible for a person to nail himself to a cross without others being involved). We have therefore to deal with a **violent homicide**.

This brief introduction of a legal type is meant to underline that, in spite of all the irregular aspects already mentioned, the whole development of Christ's Passion so impressed those who witnessed it that it was preserved in the Gospel texts in such detail that we are amazed, and also able to compare this factual information with the data we obtain from the study of the Turin Shroud and the Oviedo Sudarium.

When the branch of Legal and Forensic Medicine was established, its aim was to provide the Justice Department with professional and trustworthy persons, highly qualified, capable of studying and discovering the circumstances involved in violent deaths where a suspicion of criminal activity was justified, such as is the case in our subject. This should lead to a proper presentation of facts, that would help justice when studying this kind of illicit activities while most judges, lawyers, and others dealing with them, would lack the necessary knowledge and scientific training. In due time other fields of research were added to Forensic Medicine, to deal with different types of wrongdoing.

Somebody outside this work might think that "If there is no corpse, there is no crime". Obviously, in the case of Jesus of Nazareth we don't have a corpse; this renders our study more difficult, but not impossible. We do have evident proofs of a murder, not only in documents and witnesses (the Gospels and Tradition) but also in two physical objects: the Turin Shroud and the Oviedo Sudarium. It is in this context where Legal and Forensic

Medicine must work, and if it is done correctly it should be accepted by judges and juries, as happens in our daily affairs, and also by scientists and researchers, and -of course- by the general public. Beyond any reasonable doubt, we have evidence that a murder took place, and also data about the circumstances of the event, including its time in history.

We must stress that even without a corpse, the two cloths previously mentioned do provide very detailed information regarding the ill treatment that the Person suffered up to the moment of his death on the cross, and also about his burial. This would not have occurred if the corpse had undergone the normal process of decomposition after biological death while wrapped with the Shroud, next to the Sudarium that had been upon the head.

Therefore we can argue that the reason we can now have a true and detailed knowledge of what happened to Jesus of Nazareth and also to his dead Body (through the study of the burial cloths) is precisely the unique event, naturally unexplainable, that we describe as the "disappearance" of the Body.

After considering all the circumstances, it should not be surprising that a Forensic Doctor, used to work with those professionals who interpret and apply the Law, will pay attention to the judicial process with its irregularities, involving an exceptional case where the way the corpse was involved did not follow expected practice. The corpse was not left on the cross until it became just a skeleton due to its own decay and the actions of animals eating any edible rests, the common destiny of those who were crucified. And it was not buried in a common pit, but it wasn't exactly entombed according to Jewish uses and customs.

The information regarding wounds and the way the body was handled from death until its final burial, obtained from the Turin Shroud and the Oviedo cloth, is not only consistent but also in agreement with the Gospel accounts. According to these sources, the Body was taken down from the cross by Joseph of Arimathea and Nicodemus, two Jews well versed on the uses and customs of proper burials as well as on the tight prescriptions regarding the norms for legal purity and the dealing with corpses and their blood. Joseph was a member of the Sanhedrin (equivalent to our highest Tribunal) and Nicodemus was known as a Pharisee scribe (Jn. 3, 7 and 19), both expert in the Law and clearly expected to follow it exactly. It seems, therefore, rather strange that, in spite of the Jewish verdict against Jesus (Dt 17, 6-7; 19,15-20; 21, 22-23), they would risk their privileged positions and even their lives, by asking for the body of a condemned man in order to handle it, prepare it for the tomb and finally bury it in a most careful process as is shown by the study of the burial cloths.

If all this were not sufficient to attract the attention of a Forensic Doctor. we still have to point the most surprising fact: the corpse was missing, while it is obvious (especially from the Turin Shroud) that being dead it could not disappear by itself, and by present scientific arguments it could not have been removed by other persons.

The final touch for the mystery is that before disappearing, or in the unknown process of disappearing, the body produced the **Image of the Syndon**, a true mystery that "defies human understanding", in the words of Pope John Paul II when he could examine the Turin cloth. There is no clear explanation for its formation, and still nobody can make a similar image, or copy of it, that will reproduce all its properties, in spite of all the technical means that we currently have available.

This information had remained hidden until just a few years ago, because the cloth had not been studied by recognized professionals, even if others did some work. Being unknown, and at the same time very complex and detailed, it was impossible to attribute it to fraud, since one cannot fake something unknown. But still today nothing can be made that will duplicate the image, still less could have been done in the past with less advanced means and very limited scientific knowledge.

SYNDONOLOGY: FROM THE VIEWPOINT OF A FORENSIC DOCTOR

Research on the Shroud up to now has been very similar to the methodology used in Legal and Forensic Medicine, both when in the field and in the laboratory. This is why researchers working with the Turin Shroud and the Oviedo Sudarium felt obliged to follow the usual forensic techniques for the obvious reason that they are known to be reliable and trustworthy. If they could furnish results that earned the complete acceptance by the most advanced judicial systems of our time, those results should also convince the scientific community and public opinion.

A description of how a hypothetical period of work would develop if a Forensic Doctor were to begin the study of both cloths might be as follows:

"At some point during the day, the phone of a Forensic doctor rings, and a competent authority informs him that in two unexpected places two unidentified pieces of cloth have been found, that are not like any known common garment, and that show stains that might be due to human blood, according to some persons involved in the discovery. It might be blood from the same person, who could be someone important, and the place where the cloths were found is not the primary -or even secondary- source, but they could have been moved many times. In other words, they are not found where some possible punishable events took place, but they rather changed place several times, to points rather far from each other. On top of this, they will have suffered serious contamination, since they were handled several times without following the customary laboratory procedures".

"Once the forensic Medical Doctor receives the cloths, he records them photographically with reference rulers, and begins a visual study of them, that shows visible stains that could be due to human blood. Therefore, at least, the possibility arises that they might constitute a proof of

some event involving wounds, perhaps a homicide. Without any delay, the cloths are adequately kept in a safe place to avoid any contamination or wear, and they are taken to a lab under precise controls to assure the unbroken chain of custody".

"When the items arrive at the lab, they are examined in detail at the macroscopic level, and a new series of photographs is produced under strictly controlled conditions. Everything is done in a way meant to avoid any unnecessary damage to the cloths, and no chemical reagents will be applied that might reveal the presence of blood (something that we have become used to expect from watching movies and TV programs). Rather, only a reflective microscope will be used to begin the detailed study of the cloths at that level".

"If a source of UV light is available, a quick check can be made with it, remembering that if it is used without proper care, it can damage the DNA that might be present, thus affecting possible future genetic research. A quick and superficial test can reveal dark stains that do not fluoresce under UV light and are compatible with blood, while others shining with a clear blue color would be a possible sign of blood serum, especially in areas near the dark stains and their surroundings."

"When the possible blood stains are reached, the microscope will show red cells, the most abundant type in the blood. They have no nucleus, and this fact immediately means that they are not from fish, amphibians, reptiles or birds, since all those do have a nucleus. It is also possible to see their round shape, meaning that they do not come from mammals related to camels (camels, dromedaries, llamas, alpacas, guanacos), whose red cells have an elliptical shape".

The Forensic Doctor, by now, knows that there is blood, but not -as yet- if it is human or from a non-human mammal, possibly not even a primate. If there was a punishable event, it might have been the mistreatment of an animal, something of a different ethical, moral and penal order. In that case, the study would not be expected from the Medical Doctor. Thus, in order to be sure that the blood is human, a minute sample will be obtained from a spot that, at first sight, seems to be significant and typical, without causing undue harm to the material.

"Depending upon the amount available in the sample, new tests can be made. Most times the samples presented to the Forensic Doctor are typically old, small, precious and unique and this is also the case here. Therefore, without dubious processes, the most efficient methods will be used to find if it is human blood".

"Surprisingly, the DNA test is disappointing. The first cloth shows no nuclear DNA, but only mitochondrial, and there is no proof that this comes from the victim: there is a high probability that it could be human DNA from later contamination"

"The second cloth is no better. It seems that in the lab they avoided the mitochondrial DNA and did find nuclear DNA, but it is so badly decayed and fragmented that the largest pieces have only 323 bases¹ making it impossible to compare the genomes of both cloths to know if they come from the same person. But, at least, it can be said that we have human blood".

"The presence of human blood can be confirmed with any of the analytical tests available for purchase, but each of them requires the destruction of a sample that might be most valuable for other future tests. It is clear that extreme prudence is required, not using the full set of tests now available, since some of them will not provide new significant information while using an excessive amount of material, that would be irreversibly lost".

"The blood group has been determined as being AB. Until recently the study of blood groups was basic to identify an unknown victim, but from the moment that DNA can be checked rather simply, blood groups have remained only as something useful in anthropological studies. In the future, as far as Legal and Forensic Medicine is concerned, they will likely be forgotten, something that has already happened with many techniques that were thought to be absolutely necessary and unique"

"Summing up: Our Forensic Doctor by now knows that the cloths contain blood, that it is human blood of type AB. To further dismiss any doubt, genetic studies show that there is human DNA in the blood of both cloths, but -as of now-, a comparison of both cannot be made."

"Faced with this dead end, our Doctor chooses to pursue the dynamic study of the blood stains, and he finds that the processes giving rise to each stain are extremely difficult to disentangle, requiring every effort to think in abstract terms, helped by common sense and past life-long experience. Thus, little by little, as a reward to his persistence, dedication, efforts and dreams, the stains end up revealing their secrets".

Every bit of information from those researches is coherent, meaning that the Forensic Doctor is sure that both cloths were used covering a corpse of a human male, middle aged, with a beard, moustache and long hair bunched upon the back of the neck, having a strong physical constitution with normal proportions, who was murdered in a terrible way. This is the verdict presented to his listeners".

At this point, he decides that the time has arrived to have both cloths dated, and when he sees the report of the laboratories, he is awestruck to find that, according to their tests, it is impossible that both cloths were applied to the same corpse, because -always trusting the techniques used- both cloths were in two time periods so far apart that it would be impossible for the two of them to had been applied to the same body"

"Still, statistically, it is practically impossible that two different bodies, even trying every possible way to make them show the same wounds in the same anatomical areas and with the same mutual distances, would leave similar stains in two different cloths, also dated at different times with an unacceptable time gap"

"Still more: neither cloth shows any hint of fraud or any sign of decomposition of a corpse".

"Not being satisfied with the previous work, the Doctor begins an anthropological study based upon data obtained from the blood stains of both cloths. To his surprise, he finds an overwhelming set of data that are coherent, as -for example- that the mouth was practically closed and the nose flattened and bent towards the left as a result of the pressure of the burial cloth upon the face".

"Another surprising fact is that the person wrapped in the cloths had to be dead, since the processes leading to the formation of the blood stains required long time periods with the body totally motionless, even without breathing, something clearly incompatible with life".

"Therefore, if there was a corpse, how is it that we find no sign of decomposition in the cloths? The most likely hypothesis is that at some point, before seventy-two hours elapsed from death, the body, in some way, was set apart from the cloths".

The normal process for this series of studies requires them to be carried out within a maximum time of a few weeks. In other words, statistically, the Forensic study of a murder - for example- will be finished within four to twelve weeks, rarely more, and this only in cases where unusual analytical techniques are required.

This should be enough to realize the high level of complexity of the research required in Sydonology, in which hundreds of scientists have worked for over a century. And still, after all their efforts and their new findings, we don't have a satisfactory answer to all the questions that the Turin Shroud and the Oviedo Sudarium oblige us to address.

PRESENT STATE OF OUR SCIENTIFIC KNOWLEDGE

Both the Turin Shroud and the Oviedo Sudarium are linen cloths, with the Shroud showing a "sarga" structure while the Sudarium is "taffetta"². Under the microscope both agree in having almost the same number of threads per surface unit, and thus they also have about the same thickness. Up to now both cloths have been thoroughly studied by different researchers, but almost always each by itself. Very few people have had access to both, with the consequent difficulty if we want to get some definitive results comparing them.

To do research based only on photographs, even of the highest quality, necessarily increases the chances of error in measurements and judgments, some attributed to optical distortions (aberrations) that photographic lenses always suffer, some due to changes in the color rendition. These errors can be minimized, not totally avoided, if -instead of regular cameras- a high definition scanner is used. But it is always desirable to have direct access to the object of our study.

A new problem that researchers must face is that they have to work in a new field, where working protocols, analytical techniques and suitable equipment aren't well known and easily available. Existing methods, techniques and instruments must be adapted to the new needs or they might require a totally new design, necessarily implying the danger of errors when untried and non-calibrated processes can lead to wrong interpretations or hypotheses that are not realistic.

From the anthropological and historical viewpoints, according to present knowledge of Jewish funeral rites and customs of the first century of our calendar, there is nothing odd or out of place in the cloths we are studying. Just as it is now, at that time and place it was a shame and even a matter of a curse, to leave a corpse without burial, not only for the person whose body was left as prey to animals, but also for the family and close friends of the deceased. According to Jewish beliefs, there was an added reason for a burial: a corpse was a source of legal impurity and it made impure everything that came into contact with it, persons, animals or any object. No corpse could be left unburied (Lv 21,1; Ag 2,13), even those of people legally condemned to death: *"If a man, deserving death, has been killed hanging him from a tree, you will not allow the corpse to remain there during the night; you will bury him the same day, because a hanged man is cursed by God. Thus you will not defile the ground that Yahweh your God gives you as an inheritance"*(Dt 21, 23),

This applied even to the enemies killed in battle, to keep the ground from becoming impure. (Ez 39, 12-15). The Mishna agrees, saying that *"whoever allows a dead to remain unburied during the night, goes against a negative precept, unless the delay is due to the desire to honor the deceased by seeking a coffin or a suitable garment"*.

The hot desert climate of the Jerusalem area was also an obvious reason why bodies should be buried as soon as possible, as well as why there was an effort to delay their decay with perfumes and wrapping them with a white cloth also covered with aromatic powders.

In our case, the Gospels mention that Nicodemus provided a large amount of aloes and myrrh, about 100 pounds (close to 45 kilograms) according to John's Gospel (Jn 19, 39). But that didn't seem enough to the women, followers of Jesus, who went on Sunday to finish the embalming they considered incomplete, with spices they had previously bought. In fact, in the Oviedo Sudarium we find a large number of particles (originally described as "potatoes" by the researcher Felipe Montero Ortego, who studied them with the SEM microscope). Those

particles, after the suitable analysis, were found to be composed of Diterphenoids- Manoil oxide and esthers of the cynamic acid- whose origin could be attributed to aloes resin and storax balsams (*Liquidambar Orientale*) found mostly on top of the blood stains, meaning that in the Oviedo Sudarium they were added after the cloth received the stains¹ .

This is not a useless remark, but rather meaningful, since it points to the time flow of facts that are explained by the hypotheses proposed by EDICES.

Different researchers discuss whether the body of Jesus was washed as the custom would suggest, or not. The Forensic medical studies point to the second answer, something that appears strange, but that nevertheless could be in accordance with the exceptions found in the rites of purification called *Tahara*, still applicable today. The list of those exceptions is as follows:

- * When the person suffered a violent death or there was a flow of blood while alive, that still continued after death.
- * When the dead person suffered the death penalty for a crime of a religious type.
- * When the dead person had been excluded from the Jewish community
- * When the dead person was murdered by a non-Jew

In the case of Jesus of Nazareth, he died a violent death, his blood was flowing while still alive and continued after death: that was the reason why his head was covered by the Oviedo Sudarium. He was killed for religious reasons, he was expelled from the community by the religious Jewish authorities, he was killed by non-Jews. Four circumstances that excluded the body being washed before burial.

The importance of the Oviedo Sudarium was unknown until the EDICES researchers managed to unlock the information that, in a cryptic form, was there to be uncovered. It is most interesting to realize that this information is perfectly in agreement with what we find in the Gospels and also, from the viewpoint of anthropology, with what we could expect considering the customs and beliefs of the people and places where the events seem to have taken place.

In other places -Greece, for instance- the moment when the corpse was placed in the tomb was the point when the face of the dead person was covered with a cloth, a *sudarium*. But Jn. 20, 27¹ seems to suggest that Jesus had the Sudarium before the burial, not later. Probably only during the time involved in taking him down from the cross and carrying him to the tomb, something that would be normal in order to suppress the blood flow from the wounds of the thorns and from the nose, making this delicate process somehow easier. The cloth was less necessary once this complicated process was finished and the body remained horizontal and motionless.

On the other hand, it is obvious that the cloth had to be removed in order to proceed with the first purifying rites. But since the burial process was not carried through or finished on Friday,

as argued above, the Sudarium was simply put aside until the moment when such rites could be completed (possibly also with the intention of replacing it with a clean one) once the holy day was over. Jn. 11-44 says that Lazarus did have a sudarium on when he came out of the sepulcher. In the meantime, the Shroud, placed in a temporary fashion due to the time constraints, substituted for the Sudarium by covering the whole body.

Another fact to be considered is that the human body that was the source of the Shroud images as well as of the blood stains and others from body fluids, present in both cloths, is a 3-dimensional "object" while the images formed by it, upon a very flexible surface like a cloth, appear only in two dimensions, with the consequent loss of information. Add to it that we should expect distortions due to the motions of the body, changes in position, foldings, stretchings and other changes that both Shroud and Sudarium surely underwent when they were placed upon the body.

The study of both relics becomes easier when we compare areas where we easily see that they are similar, especially those that were in contact with the neck of the corpse, where blood stains are visible compatible with the hypothesis that they were due to pointed elements causing them before death, suggesting blood flows about an hour before the Oviedo Sudarium was placed upon the wounds¹.

Even so, the Shroud image cannot be expected to be identical to a possible one obtained from the information arising from the Oviedo Sudarium, for the simple reason that it is most unlikely that both images might coincide on a single surface even if they belong to the same corpse. But they should present the same elements due to the same body wounds caused in turn by the same processes.

Still, the following anatomical similarities did appear when comparing both face imprints¹:

1. The full nose area: 2,260 mm² in the Oviedo Sudarium and 2,000 mm² in the Shroud.
2. Superciliar arcs.
3. Lack of imprint of the right cheek corresponding to the blow that is inferred at that point in the image found in the Shroud.
4. A swelling, half way down on the right side of the nose, with an area of 100 and 90 mm² for the Oviedo Sudarium and the Shroud, respectively.
5. Tip of the nose, nose openings and sides.
6. Placement and size of the mouth, where we should remark the blood flow on the right side, already mentioned and first described by Ricci.
7. The chin.
8. The shape of the beard.

Basically, the full areas of the head, face, neck and part of the back that were covered by the Oviedo Sudarium were abundantly covered with blood before they were covered by this cloth.

The blood has the properties of flowing from a living body and most likely arose, almost exclusively, from wounds like those due to a crown of thorns.

The study of the Shroud face shows a clear blood stain with the shape of an "epsilon" that immediately attracts the attention of the observer and, as it should happen, that stain has its equivalent in the Oviedo Sudarium, just as we find stated in the following quote;

*"If we observe the right frontal area, we can verify that the drop of blood found over the left eyebrow is geometrically compatible with the stain found in exactly the same place on the Oviedo Sudarium. Both measure 80 mm² and their relative positions are practically the same in both cloths. It is worthwhile to underline that in the Oviedo Sudarium this stain appears in two positions, a clear indication that the cloth **was moved horizontally across the face**"¹*

The study of the face injuries that seem to be responsible for the Shroud images and the blood stains shows that they are also compatible, if we take into account the ways both cloths were used, just as stated in this literal quotation: *"Therefore we observe an adequate correspondence between the blood stains found in both cloths and the markings or traces present in both. This correspondence is found in the sizes of the stains, their relative positions in each cloth, and their origins. If we carefully examine the blood stains in the face of the Shroud, we can notice that they seem to have been softly "dragged" towards the right, something that perfectly fits the motion inferred and described in transporting the body of the Man of the Oviedo cloth, to which we earlier made reference"*

Both tradition and the Gospel texts, as well as the scientific studies up to this time, agree in stating that both cloths were used to cover a male human corpse, of an obvious strong build, with long hair, thick beard and moustache, who died in a violent non accidental manner, but rather because of the activities of third party persons, a fact that is legally considered -as a minimum- as homicide. And if, as it in fact occurs, there are circumstances such as those that indicate overpowering, treason, premeditation, tortures and the denial of any possibility of self-defense, the ensuing death is described as a murder.

Somebody might argue that in this case we are not talking about some mob process carried out by a group of excited people without any legal right to exercise that abuse of power, but that, at most, it would be a death by a decision formally arrived at by persons that were qualified and appointed for that purpose, who gave the explicit order. And that the whole process was according to legal formalities, after hearing both parts in their contentions, considering the proofs presented by both sides, listening to the defense of the one accused and also to the arguments of his opponents and their witnesses, so that after considering all circumstances, a judge gave the verdict of guilt. Then, following the legal norms of that time and place, a firm death sentence was pronounced, that required its being carried out as soon as possible, under the common practice of crucifixion.

What really happened was quite different, and the legal process against Christ must be qualified, at least, as irregular. At no time were the rights of the accused respected, the

witnesses gave contradictory reports -when not obviously false- and even those accusing him did not clearly know what were the imputed charges or the supposed misdeeds attributed to him. Worst of all, the guilty verdict was pronounced while *the judge claimed to be sure of the innocence of the accused* with regard to the charges imputed to him, for which there was absolutely no proof. Thus we have an unjust sentence, pronounced while knowing it to be unjust. Such behavior, according to the Penal Code presently valid in Spain, would be considered under the heading of "prevarication", with punishments attached to it and the exclusion from any public office for a long period of time.

In this case we can say, as a simple comment, that in the present Penal Code -article 139- this way of acting is described as "murder", since it includes the added circumstances of helplessness and torture, plus the added guilt of a "price or reward" due to the money given to Judas for his treason. This could also apply to the false witnesses, who spoke -if not for an immediate monetary payment- at least to receive a favorable reaction from the Israel authorities. The same could be said of the Roman military who preferred to be in good terms with the Jewish powers rather than to uphold truth and justice, thus protecting the *Pax Romana* and, consequently, the interests of the Roman Empire. All of it for a ridiculous price, the life of only one man,

According to the Gospels, especially Luke 23, 13-16 and 22, during the legal process under Roman authority, the false witnesses accused Jesus of Nazareth of a series of acts that, apart from not being true, were not listed as illegal in Roman Law. Therefore, not being against "*Lex certa, previa et scripta*" (*A true law, previous to the facts and written*) the imputed facts were not punishable according to Roman Law, aside from lacking real and sufficient proof.

The Roman judge was certain that the accused was innocent, but still, having announced that *he would be released without charge*, in order to satisfy Jewish authorities as well as the yelling crowd, who were asking for his death under their influence, tried to change the attitude of those he really despised but whom he must govern without his errors being reported to Rome. For this purpose he tried to awaken a sense of compassion in those present there: he gave the order to have Christ scourged, to show him to the crowd in order to get a reaction of pity instead of hatred. This might appear as a gesture of generosity, but it is the opposite: Christ has been *publicly declared innocent*, the proofs presented against him were dismissed as worthless, he has not been judged and certainly *he has not been condemned*, but he has been repeatedly declared free of any wrongdoing.

In this setting, Pilate's behavior would today be typified as "prevarication" (Art. 446 of the present Penal Code), and since it caused the victim physical and moral wounds, it is also a conduct classified as harm (Penal Code, art. 147 and 148) and as imprudent homicide at the level of tending to that effect. (Penal Code, art. 142) since it imposed a scourging "ad libitum" (without limit) that in most cases caused death, either immediately after the scourging or some days later, because of the internal injuries that the punishment produced.

Not satisfied with this, Pilate tried to solve the problem by pitting Christ -already declared innocent- against somebody who has been tried, found guilty and condemned to death, Barabbas. Once more we find "prevarication": Jesus cannot be accused of anything, he has already been unjustly punished, he cannot be punished again for the same reason. This new "prevarication" adds the legal wrong of *punishing two times for the same reason*.

Finally Pilate cooperates with Jewish authorities in murdering Jesus by condemning him to death by crucifixion. *We have a homicide with premeditation, tortures and seeking personal gain*. Truly a shameful happening according to Roman Law and Penal process..

It is logical to suppose that if this damning verdict had been appealed to a higher authority at the proper time, it would have been rescinded. But the rush of an immediate execution made impossible any kind of legal step to save the victim from the death to which he was carried. The same could be said about the legal process before the Sanhedrin, where all kinds of irregular procedures can be found, and even the physical mistreatment of the accused took place during the "trial", adding to all the illegal aspects, previously mentioned, of the behavior of the Roman authorities.

We are thus presented with a violent death, a proper subject for a judicial inquiry, since it was not due to an accident nor a suicide (it is impossible for a person to nail himself to a cross without others being involved). We have therefore to deal with a **violent homicide**.

This brief introduction of a legal type is meant to underline that, in spite of all the irregular aspects already mentioned, the whole development of Christ's Passion so impressed those who witnessed it that it was preserved in the Gospel texts in such detail that we are amazed, and also able to compare this factual information with the data we obtain from the study of the Turin Shroud and the Oviedo Sudarium.

When the branch of Legal and Forensic Medicine was established, its aim was to provide the Justice Department with professional and trustworthy persons, highly qualified, capable of studying and discovering the circumstances involved in violent deaths where a suspicion of criminal activity was justified, such as is the case in our subject. This should lead to a proper presentation of facts, that would help justice when studying this kind of illicit activities while most judges, lawyers, and others dealing with them, would lack the necessary knowledge and scientific training. In due time other fields of research were added to Forensic Medicine, to deal with different types of wrongdoing.

Somebody outside this work might think that "If there is no corpse, there is no crime". Obviously, in the case of Jesus of Nazareth we don't have a corpse; this renders our study more difficult, but not impossible. We do have evident proofs of a murder, not only in documents and witnesses (the Gospels and Tradition) but also in two physical objects: the Turin Shroud and the Oviedo Sudarium. It is in this context where Legal and Forensic

Medicine must work, and if it is done correctly it should be accepted by judges and juries, as happens in our daily affairs, and also by scientists and researchers, and -of course- by the general public. Beyond any reasonable doubt, we have evidence that a murder took place, and also data about the circumstances of the event, including its time in history.

We must stress that even without a corpse, the two cloths previously mentioned do provide very detailed information regarding the ill treatment that the Person suffered up to the moment of his death on the cross, and also about his burial. This would not have occurred if the corpse had undergone the normal process of decomposition after biological death while wrapped with the Shroud, next to the Sudarium that had been upon the head.

Therefore we can argue that the reason we can now have a true and detailed knowledge of what happened to Jesus of Nazareth and also to his dead Body (through the study of the burial cloths) is precisely the unique event, naturally unexplainable, that we describe as the "disappearance" of the Body.

After considering all the circumstances, it should not be surprising that a Forensic Doctor, used to work with those professionals who interpret and apply the Law, will pay attention to the judicial process with its irregularities, involving an exceptional case where the way the corpse was involved did not follow expected practice. The corpse was not left on the cross until it became just a skeleton due to its own decay and the actions of animals eating any edible rests, the common destiny of those who were crucified. And it was not buried in a common pit, but it wasn't exactly entombed according to Jewish uses and customs.

The information regarding wounds and the way the body was handled from death until its final burial, obtained from the Turin Shroud and the Oviedo cloth, is not only consistent but also in agreement with the Gospel accounts. According to these sources, the Body was taken down from the cross by Joseph of Arimathea and Nicodemus, two Jews well versed on the uses and customs of proper burials as well as on the tight prescriptions regarding the norms for legal purity and the dealing with corpses and their blood. Joseph was a member of the Sanhedrin (equivalent to our highest Tribunal) and Nicodemus was known as a Pharisee scribe (Jn. 3, 7 and 19), both expert in the Law and clearly expected to follow it exactly. It seems, therefore, rather strange that, in spite of the Jewish verdict against Jesus (Dt 17, 6-7; 19,15-20; 21, 22-23), they would risk their privileged positions and even their lives, by asking for the body of a condemned man in order to handle it, prepare it for the tomb and finally bury it in a most careful process as is shown by the study of the burial cloths.

If all this were not sufficient to attract the attention of a Forensic Doctor. we still have to point the most surprising fact: the corpse was missing, while it is obvious (especially from the Turin Shroud) that being dead it could not disappear by itself, and by present scientific arguments it could not have been removed by other persons.

The final touch for the mystery is that before disappearing, or in the unknown process of disappearing, the body produced the **Image of the Syndon**, a true mystery that "defies human understanding", in the words of Pope John Paul II when he could examine the Turin cloth. There is no clear explanation for its formation, and still nobody can make a similar image, or copy of it, that will reproduce all its properties, in spite of all the technical means that we currently have available.

This information had remained hidden until just a few years ago, because the cloth had not been studied by recognized professionals, even if others did some work. Being unknown, and at the same time very complex and detailed, it was impossible to attribute it to fraud, since one cannot fake something unknown. But still today nothing can be made that will duplicate the image, still less could have been done in the past with less advanced means and very limited scientific knowledge.

SYNDONOLOGY: FROM THE VIEWPOINT OF A FORENSIC DOCTOR

Research on the Shroud up to now has been very similar to the methodology used in Legal and Forensic Medicine, both when in the field and in the laboratory. This is why researchers working with the Turin Shroud and the Oviedo Sudarium felt obliged to follow the usual forensic techniques for the obvious reason that they are known to be reliable and trustworthy. If they could furnish results that earned the complete acceptance by the most advanced judicial systems of our time, those results should also convince the scientific community and public opinion.

A description of how a hypothetical period of work would develop if a Forensic Doctor were to begin the study of both cloths might be as follows:

"At some point during the day, the phone of a Forensic doctor rings, and a competent authority informs him that in two unexpected places two unidentified pieces of cloth have been found, that are not like any known common garment, and that show stains that might be due to human blood, according to some persons involved in the discovery. It might be blood from the same person, who could be someone important, and the place where the cloths were found is not the primary -or even secondary- source, but they could have been moved many times. In other words, they are not found where some possible punishable events took place, but they rather changed place several times, to points rather far from each other. On top of this, they will have suffered serious contamination, since they were handled several times without following the customary laboratory procedures".

"Once the forensic Medical Doctor receives the cloths, he records them photographically with reference rulers, and begins a visual study of them, that shows visible stains that could be due to human blood. Therefore, at least, the possibility arises that they might constitute a proof of

some event involving wounds, perhaps a homicide. Without any delay, the cloths are adequately kept in a safe place to avoid any contamination or wear, and they are taken to a lab under precise controls to assure the unbroken chain of custody".

"When the items arrive at the lab, they are examined in detail at the macroscopic level, and a new series of photographs is produced under strictly controlled conditions. Everything is done in a way meant to avoid any unnecessary damage to the cloths, and no chemical reagents will be applied that might reveal the presence of blood (something that we have become used to expect from watching movies and TV programs). Rather, only a reflective microscope will be used to begin the detailed study of the cloths at that level".

"If a source of UV light is available, a quick check can be made with it, remembering that if it is used without proper care, it can damage the DNA that might be present, thus affecting possible future genetic research. A quick and superficial test can reveal dark stains that do not fluoresce under UV light and are compatible with blood, while others shining with a clear blue color would be a possible sign of blood serum, especially in areas near the dark stains and their surroundings."

"When the possible blood stains are reached, the microscope will show red cells, the most abundant type in the blood. They have no nucleus, and this fact immediately means that they are not from fish, amphibians, reptiles or birds, since all those do have a nucleus. It is also possible to see their round shape, meaning that they do not come from mammals related to camels (camels, dromedaries, llamas, alpacas, guanacos), whose red cells have an elliptical shape".

The Forensic Doctor, by now, knows that there is blood, but not -as yet- if it is human or from a non-human mammal, possibly not even a primate. If there was a punishable event, it might have been the mistreatment of an animal, something of a different ethical, moral and penal order. In that case, the study would not be expected from the Medical Doctor. Thus, in order to be sure that the blood is human, a minute sample will be obtained from a spot that, at first sight, seems to be significant and typical, without causing undue harm to the material.

"Depending upon the amount available in the sample, new tests can be made. Most times the samples presented to the Forensic Doctor are typically old, small, precious and unique and this is also the case here. Therefore, without dubious processes, the most efficient methods will be used to find if it is human blood".

"Surprisingly, the DNA test is disappointing. The first cloth shows no nuclear DNA, but only mitochondrial, and there is no proof that this comes from the victim: there is a high probability that it could be human DNA from later contamination"

"The second cloth is no better. It seems that in the lab they avoided the mitochondrial DNA and did find nuclear DNA, but it is so badly decayed and fragmented that the largest pieces have only 323 bases¹ making it impossible to compare the genomes of both cloths to know if they come from the same person. But, at least, it can be said that we have human blood".

"The presence of human blood can be confirmed with any of the analytical tests available for purchase, but each of them requires the destruction of a sample that might be most valuable for other future tests. It is clear that extreme prudence is required, not using the full set of tests now available, since some of them will not provide new significant information while using an excessive amount of material, that would be irreversibly lost".

"The blood group has been determined as being AB. Until recently the study of blood groups was basic to identify an unknown victim, but from the moment that DNA can be checked rather simply, blood groups have remained only as something useful in anthropological studies. In the future, as far as Legal and Forensic Medicine is concerned, they will likely be forgotten, something that has already happened with many techniques that were thought to be absolutely necessary and unique"

"Summing up: Our Forensic Doctor by now knows that the cloths contain blood, that it is human blood of type AB. To further dismiss any doubt, genetic studies show that there is human DNA in the blood of both cloths, but -as of now-, a comparison of both cannot be made."

"Faced with this dead end, our Doctor chooses to pursue the dynamic study of the blood stains, and he finds that the processes giving rise to each stain are extremely difficult to disentangle, requiring every effort to think in abstract terms, helped by common sense and past life-long experience. Thus, little by little, as a reward to his persistence, dedication, efforts and dreams, the stains end up revealing their secrets".

Every bit of information from those researches is coherent, meaning that the Forensic Doctor is sure that both cloths were used covering a corpse of a human male, middle aged, with a beard, moustache and long hair bunched upon the back of the neck, having a strong physical constitution with normal proportions, who was murdered in a terrible way. This is the verdict presented to his listeners".

At this point, he decides that the time has arrived to have both cloths dated, and when he sees the report of the laboratories, he is awestruck to find that, according to their tests, it is impossible that both cloths were applied to the same corpse, because -always trusting the techniques used- both cloths were in two time periods so far apart that it would be impossible for the two of them to had been applied to the same body"

"Still, statistically, it is practically impossible that two different bodies, even trying every possible way to make them show the same wounds in the same anatomical areas and with the same mutual distances, would leave similar stains in two different cloths, also dated at different times with an unacceptable time gap"

"Still more: neither cloth shows any hint of fraud or any sign of decomposition of a corpse".

"Not being satisfied with the previous work, the Doctor begins an anthropological study based upon data obtained from the blood stains of both cloths. To his surprise, he finds an overwhelming set of data that are coherent, as -for example- that the mouth was practically closed and the nose flattened and bent towards the left as a result of the pressure of the burial cloth upon the face".

"Another surprising fact is that the person wrapped in the cloths had to be dead, since the processes leading to the formation of the blood stains required long time periods with the body totally motionless, even without breathing, something clearly incompatible with life".

"Therefore, if there was a corpse, how is it that we find no sign of decomposition in the cloths? The most likely hypothesis is that at some point, before seventy-two hours elapsed from death, the body, in some way, was set apart from the cloths".

The normal process for this series of studies requires them to be carried out within a maximum time of a few weeks. In other words, statistically, the Forensic study of a murder - for example- will be finished within four to twelve weeks, rarely more, and this only in cases where unusual analytical techniques are required.

This should be enough to realize the high level of complexity of the research required in Sydonology, in which hundreds of scientists have worked for over a century. And still, after all their efforts and their new findings, we don't have a satisfactory answer to all the questions that the Turin Shroud and the Oviedo Sudarium oblige us to address.

PRESENT STATE OF OUR SCIENTIFIC KNOWLEDGE

Both the Turin Shroud and the Oviedo Sudarium are linen cloths, with the Shroud showing a "sarga" structure while the Sudarium is "taffetta"². Under the microscope both agree in having almost the same number of threads per surface unit, and thus they also have about the same thickness. Up to now both cloths have been thoroughly studied by different researchers, but almost always each by itself. Very few people have had access to both, with the consequent difficulty if we want to get some definitive results comparing them.

To do research based only on photographs, even of the highest quality, necessarily increases the chances of error in measurements and judgments, some attributed to optical distortions (aberrations) that photographic lenses always suffer, some due to changes in the color rendition. These errors can be minimized, not totally avoided, if -instead of regular cameras- a high definition scanner is used. But it is always desirable to have direct access to the object of our study.

A new problem that researchers must face is that they have to work in a new field, where working protocols, analytical techniques and suitable equipment aren't well known and easily available. Existing methods, techniques and instruments must be adapted to the new needs or they might require a totally new design, necessarily implying the danger of errors when untried and non-calibrated processes can lead to wrong interpretations or hypotheses that are not realistic.

From the anthropological and historical viewpoints, according to present knowledge of Jewish funeral rites and customs of the first century of our calendar, there is nothing odd or out of place in the cloths we are studying. Just as it is now, at that time and place it was a shame and even a matter of a curse, to leave a corpse without burial, not only for the person whose body was left as prey to animals, but also for the family and close friends of the deceased. According to Jewish beliefs, there was an added reason for a burial: a corpse was a source of legal impurity and it made impure everything that came into contact with it, persons, animals or any object. No corpse could be left unburied (Lv 21,1; Ag 2,13), even those of people legally condemned to death: *"If a man, deserving death, has been killed hanging him from a tree, you will not allow the corpse to remain there during the night; you will bury him the same day, because a hanged man is cursed by God. Thus you will not defile the ground that Yahweh your God gives you as an inheritance"*(Dt 21, 23),

This applied even to the enemies killed in battle, to keep the ground from becoming impure. (Ez 39, 12-15). The Mishna agrees, saying that *"whoever allows a dead to remain unburied during the night, goes against a negative precept, unless the delay is due to the desire to honor the deceased by seeking a coffin or a suitable garment"*.

The hot desert climate of the Jerusalem area was also an obvious reason why bodies should be buried as soon as possible, as well as why there was an effort to delay their decay with perfumes and wrapping them with a white cloth also covered with aromatic powders.

In our case, the Gospels mention that Nicodemus provided a large amount of aloes and myrrh, about 100 pounds (close to 45 kilograms) according to John's Gospel (Jn 19, 39). But that didn't seem enough to the women, followers of Jesus, who went on Sunday to finish the embalming they considered incomplete, with spices they had previously bought. In fact, in the Oviedo Sudarium we find a large number of particles (originally described as "potatoes" by the researcher Felipe Montero Ortego, who studied them with the SEM microscope). Those

particles, after the suitable analysis, were found to be composed of Diterphenoids- Manoil oxide and esthers of the cynamic acid- whose origin could be attributed to aloes resin and storax balsams (*Liquidambar Orientale*) found mostly on top of the blood stains, meaning that in the Oviedo Sudarium they were added after the cloth received the stains¹ .

This is not a useless remark, but rather meaningful, since it points to the time flow of facts that are explained by the hypotheses proposed by EDICES.

Different researchers discuss whether the body of Jesus was washed as the custom would suggest, or not. The Forensic medical studies point to the second answer, something that appears strange, but that nevertheless could be in accordance with the exceptions found in the rites of purification called *Tahara*, still applicable today. The list of those exceptions is as follows:

- * When the person suffered a violent death or there was a flow of blood while alive, that still continued after death.
- * When the dead person suffered the death penalty for a crime of a religious type.
- * When the dead person had been excluded from the Jewish community
- * When the dead person was murdered by a non-Jew

In the case of Jesus of Nazareth, he died a violent death, his blood was flowing while still alive and continued after death: that was the reason why his head was covered by the Oviedo Sudarium. He was killed for religious reasons, he was expelled from the community by the religious Jewish authorities, he was killed by non-Jews. Four circumstances that excluded the body being washed before burial.

The importance of the Oviedo Sudarium was unknown until the EDICES researchers managed to unlock the information that, in a cryptic form, was there to be uncovered. It is most interesting to realize that this information is perfectly in agreement with what we find in the Gospels and also, from the viewpoint of anthropology, with what we could expect considering the customs and beliefs of the people and places where the events seem to have taken place.

In other places -Greece, for instance- the moment when the corpse was placed in the tomb was the point when the face of the dead person was covered with a cloth, a *sudarium*. But Jn. 20, 27¹ seems to suggest that Jesus had the Sudarium before the burial, not later. Probably only during the time involved in taking him down from the cross and carrying him to the tomb, something that would be normal in order to suppress the blood flow from the wounds of the thorns and from the nose, making this delicate process somehow easier. The cloth was less necessary once this complicated process was finished and the body remained horizontal and motionless.

On the other hand, it is obvious that the cloth had to be removed in order to proceed with the first purifying rites. But since the burial process was not carried through or finished on Friday,

as argued above, the Sudarium was simply put aside until the moment when such rites could be completed (possibly also with the intention of replacing it with a clean one) once the holy day was over. Jn. 11-44 says that Lazarus did have a sudarium on when he came out of the sepulcher. In the meantime, the Shroud, placed in a temporary fashion due to the time constraints, substituted for the Sudarium by covering the whole body.

Another fact to be considered is that the human body that was the source of the Shroud images as well as of the blood stains and others from body fluids, present in both cloths, is a 3-dimensional "object" while the images formed by it, upon a very flexible surface like a cloth, appear only in two dimensions, with the consequent loss of information. Add to it that we should expect distortions due to the motions of the body, changes in position, foldings, stretchings and other changes that both Shroud and Sudarium surely underwent when they were placed upon the body.

The study of both relics becomes easier when we compare areas where we easily see that they are similar, especially those that were in contact with the neck of the corpse, where blood stains are visible compatible with the hypothesis that they were due to pointed elements causing them before death, suggesting blood flows about an hour before the Oviedo Sudarium was placed upon the wounds¹.

Even so, the Shroud image cannot be expected to be identical to a possible one obtained from the information arising from the Oviedo Sudarium, for the simple reason that it is most unlikely that both images might coincide on a single surface even if they belong to the same corpse. But they should present the same elements due to the same body wounds caused in turn by the same processes.

Still, the following anatomical similarities did appear when comparing both face imprints¹:

1. The full nose area: 2,260 mm² in the Oviedo Sudarium and 2,000 mm² in the Shroud.
2. Superciliar arcs.
3. Lack of imprint of the right cheek corresponding to the blow that is inferred at that point in the image found in the Shroud.
4. A swelling, half way down on the right side of the nose, with an area of 100 and 90 mm² for the Oviedo Sudarium and the Shroud, respectively.
5. Tip of the nose, nose openings and sides.
6. Placement and size of the mouth, where we should remark the blood flow on the right side, already mentioned and first described by Ricci.
7. The chin.
8. The shape of the beard.

Basically, the full areas of the head, face, neck and part of the back that were covered by the Oviedo Sudarium were abundantly covered with blood before they were covered by this cloth.

The blood has the properties of flowing from a living body and most likely arose, almost exclusively, from wounds like those due to a crown of thorns.

The study of the Shroud face shows a clear blood stain with the shape of an "epsilon" that immediately attracts the attention of the observer and, as it should happen, that stain has its equivalent in the Oviedo Sudarium, just as we find stated in the following quote;

*"If we observe the right frontal area, we can verify that the drop of blood found over the left eyebrow is geometrically compatible with the stain found in exactly the same place on the Oviedo Sudarium. Both measure 80 mm² and their relative positions are practically the same in both cloths. It is worthwhile to underline that in the Oviedo Sudarium this stain appears in two positions, a clear indication that the cloth was **moved horizontally across the face**"¹*

The study of the face injuries that seem to be responsible for the Shroud images and the blood stains shows that they are also compatible, if we take into account the ways both cloths were used, just as stated in this literal quotation: *"Therefore we observe an adequate correspondence between the blood stains found in both cloths and the markings or traces present in both. This correspondence is found in the sizes of the stains, their relative positions in each cloth, and their origins. If we carefully examine the blood stains in the face of the Shroud, we can notice that they seem to have been softly "dragged" towards the right, something that perfectly fits the motion inferred and described in transporting the body of the Man of the Oviedo cloth, to which we earlier made reference"*



Another indication that the placing of the Oviedo Sudarium modified some of the features of the image of the corpse's head is found in the bloodstains called "point-like" that appear in the section of the cloth that covered the back area from head to neck.:

"A simple observation of the occipital area of both cloths raises the suspicion that this entire section showing point-like stains in the Oviedo Sudarium fits entirely within the occipital zone visible in the Turin Shroud. We also infer that in both cases we deal with vital blood" "Once we took into account the proper sizes, as we did with the face, we went on to place the stains properly. In a first try, a transparency of the Sudarium was superimposed upon the Shroud image, keeping the original orientation of the photographs. In this case, it was impossible to find an acceptable fit. After getting over the failure and trying again, we found that rotating the transparency by 19°, the fit could not be questioned. The inclination to retain the orientation of the photographs is a natural one, but nothing forbids that the Sudarium were rotated when covering the head, and it can be considered even more likely "¹



Before dying, the victim suffered an intense lung edema that left clear traces mostly in the Oviedo Sudarium¹

In order to better understand how the Oviedo Sudarium was used, the best source is the literal quotation of conclusions 10 through 14 of the *Communication* presented at the *3rd International Congress for the Study of the Shroud*, held in Turin in 1998. It was titled "A

Comparative Study of the Oviedo Sudarium and the Turin Shroud" with Guillermo Heras Moreno, José Delfín Villalain Blanco and Jorge Manuel Rodríguez Almenar as co-authors:

"10. - The Oviedo cloth was placed upon the head beginning at the sub-occipital area, attaching it to the hair with some pointed objects. From that starting point it went around the left side of the head until it arrived at the angle of the cheek on the right, where, for some unknown reason, it was folded upon itself, ending as a bellows at the level of the left maxillary angle. It might be suggested that the Sudarium was placed in this way because it was difficult to place the cloth fully around the head, and thus it was folded upon itself. As the cloth is thus arranged we see that two stained areas fit anatomically, one upon the ponytail and one upon the upper back.

After death occurred, the corpse remained in a vertical position for about one hour, and at least the right arm was raised and the head bent forward by 70°, and 20° towards the right, with reference to the vertical direction. What can we reasonably say about this vertical position? If we think that the Man of the Oviedo Sudarium was only hanging from the right arm, the rest of the body, particularly the head, would be rather far from that arm and leaning towards the left side. This is incompatible with the position of the head seen in the cloth. It is easy to infer that the body was hanging from both arms. But if the body were simply hanging without any support for the feet, death would have occurred in 15 to 20 minutes, not enough time to produce the amount of liquid required to form the stains visible in the cloth.

On the other hand, if both arms were together above the head, the head would have been tilted forward, not to the right. Therefore the only position compatible with the way the stains were formed in the Oviedo cloth is with the arms apart and raised above the head, with the feet in a position that renders breathing very difficult. It is a position that coincides with being crucified. Therefore we can say that the Man of the Oviedo Sudarium was first tortured (from the blood seen in the head, shoulders and back) and then crucified.¹

11. - Some time later, without changing the position of the arms, the Man was placed face down upon his right side, retaining the head turned 20° to the right and 115° with respect to the vertical, with the forehead resting upon a hard surface, remaining in this guise for about one more hour,

12.- Next, the corpse was moved while an external left hand, in different positions, tried to stop the flow of serum and blood through the nose and mouth, strongly pressing those parts of the anatomy. This might have taken about 5 minutes. During this time the cloth remained in two layers over the face of the corpse. Then, the cloth was unfolded and put fully around the head, so that the head was well covered by this kind of cap that was attached to the hair with some pointed holders. The cap allowed part of the cloth to fall upon the upper back while remaining at the top of the head as a kind of cone. With the head covered as described the

corpse rested upon a left fist with the palm upwards, and we can infer the sliding of the cloth along the face while in this position.

Thus, once the obstacle disappeared (possibly the hair matted with dry blood or simply the tilt of the head towards the right) the cloth was placed fully around the head while a last change in position occurred with the corpse resting, face down, upon a left fist, moving it to a different place. This movement caused the large triangular stain where one can see the imprint of spaces between fingers in the area contacting that hand, and also the curve due to the cheek where the cloth contacted the face. This process, like the previous one, might have taken about 5 minutes, at most.

13.-Finally, when the new location was reached, for some unknown reason the body was placed horizontally and this cloth taken from around the head.

14.- Possibly, the cloth was then sprinkled with aloes and myrrh.

Later exams revealed that the Oviedo Sudarium was placed on the head of the victim using some carefully laid stitches that anchored it firmly to the hair, beard and moustache¹. This careful placement of the Sudarium upon the head of the victim turns out to be a very useful fact for researchers, because it allows many coincidences to be explained, while attributing them to chance appears as very unlikely.

*"First, with some pointed tools, like bone needles or something similar, the cloth was attached to the head upon the occipital area and also to the ponytail we detect. The cloth fell largely upon the left shoulder and the upper part of the back of the subject, going around the left side of the face. The Oviedo cloth shows that the entire surface touched by it was covered with blood, **BEFORE ANY BLOOD CAME FROM THE CORPSE**. Here we find a remarkable coincidence between both cloths, because the stains of the occipital area of the Turin cloth correspond to those in the one of Oviedo in their size, relative positions and origin (both show vital blood) and both are covered with blood in the areas of the left cheek. The values obtained in both cases are, respectively, 2,455 mm² for the Shroud and 267 mm² for the Oviedo Sudarium, with this one being practically coincident with the corresponding stains of the Shroud. They fit the cranial paraboloid previously described in the previous chapter for the Oviedo Sudarium as adequately coinciding with what we see on the back side of the Shroud by following the blood stains, so that both cloths can almost be superimposed".*

"In addition, the blood stains upon the back in one cloth fit those in the other. In the cloth of Oviedo those stains are found in the two corners -right and left- of the lower side".

"It is worthwhile to remark that this comparison shows a practical absence of any change in position when we compare images of the backside imprint in the Shroud with the proper ones

of the Oviedo Sudarium, something that is consistent with Jackson's hypothesis regarding the formation of the image in the Shroud"

In view of the large number of coincidences between both cloths, it seems logical to accept one of the most interesting conclusions of the 1st International Congress on the Oviedo Sudarium, held in Oviedo (Spain) in 1994: the proposal for a full study of the Turin Shroud and the Oviedo Sudarium¹ together.

FORENSIC MEDICAL CONSIDERATIONS

The starting point for this research turns out to be extremely complex, especially when we totally lack any contemporaneous document referring what properties the burial cloths used in the burial of Jesus of Nazareth should have had. There is no description of them, at all, in the Gospel, even the apocryphal ones, or in Tradition. Their use is mentioned in the New Testament, where the word *Syndon* appears five times, while the word *Soudarion* is found four times, clearly implying that they refer to different cloths¹. Still, considering the data obtained from the corresponding studies, both the Oviedo Sudarium and the Turin Shroud furnish information that is in agreement with what we are told regarding those cloths in the Gospel texts. The only exception is the result of the C14 dating of both, which also gave dates quite divergent for them.¹

Throughout history, ever since we have documents about the Oviedo Sudarium, always and in every source we find that it was referred to Jesus of Nazareth. In old documents it is mentioned as the *Sudarium Domini*, *the Lord's Sudarium*, a clear reference to Jesus Christ and never, in any case as related to anybody else, historically known or not¹. The same can be said about the Turin Shroud. There is no alternative hypothesis suggesting the person who might have been buried with those cloths.

With current available research methods, it is practically impossible to commit a crime without leaving some trace or proof in the place where it happened, and, if there is a victim, also on its body, clothing and other personal objects. On the other hand, the person responsible for the crime will probably carry upon himself, or his clothing and personal belongings, some things that will establish a relationship with the place where the crime occurred, with the victim, or with whatever happened against the law.

From this certainty we should consider that the events related to the imprisonment, judgment, tortures and death of Jesus of Nazareth, must have left some traces upon the burial cloths. Some of these will be different in each cloth, but most of them will agree in both, and this is what happens. It is worth saying also that the agreement extends to the description of the Passion of Jesus as told in the New Testament¹ but with the added remarkable fact that the stains and markings frequently are found, not where traditional artistic works placed them, but

where they should be according to considerations of anatomy, physiology, anthropology, and common sense.

We should avoid the error of comparing in a rough way the findings of the Turin Shroud with whatever we might find in the Oviedo Sudarium: this simplistic approach can lead to very important errors. The proper approach is to study the data obtained from the Sudarium in relation to the wounds and uses reasonably attributed to it, considering what could have happened to the corpse it enveloped, and also to the cloth during the long historical process until we study it today. The next step should be to do the same with the Turin Shroud, to infer the wounds and happenings affecting the corpse it enveloped.

Once both these steps have been taken, we should be ready to ask if the corpse of the Oviedo Sudarium and the one of the Turin Shroud might be one and the same.

We should follow this reasoning process simply because in both cases the information is provided by a 3-dimensional corpse, while the imprints found in the Shroud and the Sudarium are obviously 2-dimensional. This, by itself, requires care in the study, since the stains and markings can never provide a faithful report of their causes. Even the same bleeding wound can give rise to blood stains of very different shapes. Therefore we might find no similarities between two stains that by common sense and experimental observation should be attributed to the same wound, but this doesn't automatically exclude a common hypothetical cause. On the other hand, stains that appear similar geometrically and to simple inspection, might be due to different wounds, even anatomically far apart.

Another problem we face is that, up to now, no multi-disciplinary group -including Forensic Medical Doctors- has had access to both cloths. The EDICES people had the chance to directly work only with the Oviedo Sudarium, but not with the Turin Shroud, so that we have had to rely upon reports of others -not related to our group- in order to reach some of the results that were made public. The same happens with those who could not gain access to the Oviedo Sudarium.

It seems reasonable to say that both cloths were in contact with a bloodied human head, and that, according to present scientific data, it seems certain that it was the same head in both cases, just as the following book quote expresses it:

"Having reached this point, we necessarily must restate the same question formulated by Ricci:

The Oviedo Sudarium and the Turin Shroud, were they related to the same corpse? Then we should add: What reasons make us identify it as the corpse of Jesus of Nazareth? From the archaeological viewpoint, the cloths of Turin and Oviedo show common details of the ways they were used that are worthy of being carefully considered:

1- From the viewpoint of the properties of both cloths, there is no reason to exclude the possibility of their existing simultaneously, excepting -of course- the data of the C14 dating applied to both: 13th -14th centuries for the Shroud and 7th century for the Oviedo Sudarium. Similar cloths existed long before those dates.

2 - From a medical-legal viewpoint, the Shroud enveloped the corpse of a man who was crucified after been scourged and crowned with thorns. By itself, the Oviedo Sudarium shows that it enveloped the corpse of a person whose death is perfectly compatible with the crucifixion and the tortures previously mentioned from the Shroud. We have two reasons to accept deaths from identical processes in both cases.

3 - The Shroud completely wrapped the corpse of a man, including his head. The Oviedo Sudarium enveloped entirely the head of a corpse, lightly resting upon the shoulders (the left one especially) and the back. The correspondence between the blood stains in both is practically two-sided, meaning that for each blood stain in one cloth there is a similar one - in size and blood type - in the other one, if we take into account (within error margins) that such correspondence seems to be found **FOR THE ENTIRE HEAD**. We must stress that the blood stains on the left frontal side clearly show the lateral displacement described by Jackson. The farther the stains appear from the central plane of the face, the greater is their displacement. We must also add that the blood stains in the head of the Man of the Shroud indicate that they were covered by another cloth.

The specific type of those stains and their relative positions in both cloths agree to such an extent that it should be checked in the Shroud to see if those coincidences are retained, for instance, in the reverse sides of both cloths. This would allow us to estimate the geometrical probability for both sets of stains referred to two planes. We might then ask: what is the probability for both groups of stains, if due to chance -with different subjects and at different times- will show this correspondence upon a flat surface? We don't have an answer as yet, but it is intuitively clear that this probability will be minimal. If we now add the physical factors (time and mode of formation of the stains) as well as the historical ones, practically we are left with just one answer: everything indicates that both cloths covered the same corpse, and that it was that of Jesus of Nazareth, a Jewish man crucified in Jerusalem during the rule of the Roman Governor Pontius Pilate, on April 3rd of the year 33 (or, perhaps, April 7 of the year 30) at 12 noon, local time, at a place called Golgotha (These are the two dates proposed as the most likely in specialized studies. We consider the first one as more probable).

In spite of the appeal of this answer, we should remind ourselves of what was said at the beginning of this geometrical analysis: this reasoning might be totally wrong and it should be judged correctly through the study of the Shroud itself).

1. Independently of the ideas presented above, we must call our attention to several other points that might be disregarded, such as: In a way that is not clearly explained the Oviedo Sudarium was detached from the head it had enveloped. This cloth was later kept as a subject of veneration. If we rely upon tradition, the mystery is solved by referring it to

the body of Jesus of Nazareth, since we know that He was wrapped in a sheet, and from the position described in the Gospel for the Sudarium with respect to the sheet enveloping the corpse, the Sudarium was removed before the full sheet was used.

- 2. Something similar can be argued when we speak of the Shroud. This points out a coincidence that is frequently overlooked: **the corpses wrapped in both cloths have always been missing. Only if they were used for the body of Jesus of Nazareth such coincidence makes sense.** Another possibility -illogical and remote- would be that somebody tried to produce a fake with the Oviedo Sudarium, going against the common ideas of the period and lacking all knowledge of the implied pathological processes.*

On the other hand the, chronological sequence of applying the cloths, first the Oviedo Sudarium and then, just after its removal, placing the Turin Shroud, had an unexpected consequence: a series of findings in the Shroud image are only explained by the previous placing of the Oviedo cloth. If that were not the case, the Shroud would not be as the fact it is and as we know it to be. We owe this remark to Giulio Ricc, whom we literally quote:

*"The large quantity of blood substances in the moustache (right and left) and in the beard below...(a residual blood substance in spite of the previous "cleaning" of the Sudarium) is evidenced by the strong fluorescence of the residual serum from the blood, mixed with sweat"
"In fact, the face of the Shroud Man (...) had undergone a strong absorption by the Sudarium, that explains the previous greater presence of blood at the moment of taking him down from the cross (...) that remained fresh due to the abundant sweat found in the moustache, the beard, the hair strands on the left side" ¹.*

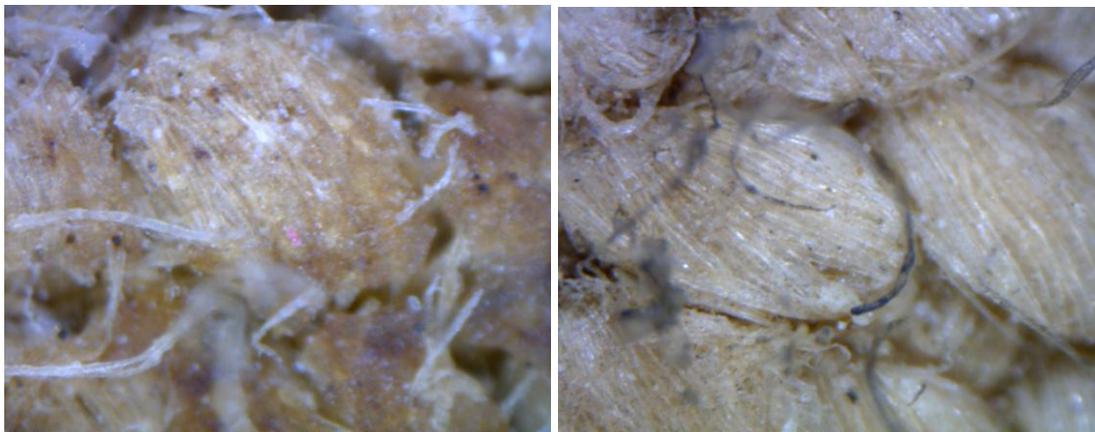
We must explain that the Oviedo Sudarium was never meant to wipe clean or even to dry the bloodied face of the victim, but it was used for totally different purposes. But it was impossible to avoid that some of the lost blood would soak into the Oviedo cloth.

We should now give a condensed description of the subject, in order to retain a full view without being overwhelmed by so much information, not always easy to understand. The hypothesis that both the Turin Shroud and the Oviedo Sudarium were applied to the same corpse must be considered as suitable, among other reasons, because the process that can be inferred from the research on both is coherent with the logical use of each. First, the Oviedo Sudarium was employed, and next, after removing it, the Turin Shroud. We should add that, because the face was covered with the Sudarium, the blood covering the skin could remain humid enough under that screen that retarded the natural evaporation process of water found in the blood. Thus it was possible for it to next stain the Shroud, while without the previous use of the Sudarium, the Shroud image of the face should be quite different from what we see, and certainly would have much less blood.

Another meaningful agreement is that in the Oviedo Sudarium a strong *rigor mortis* can be appreciated, because the neck position is not changed or rotated even when the left hand of one person handling the corpse was strongly pressing upon the head ¹. This fully agrees with evident signs of rigor mortis found in the Shroud image, mostly in the arms and legs.

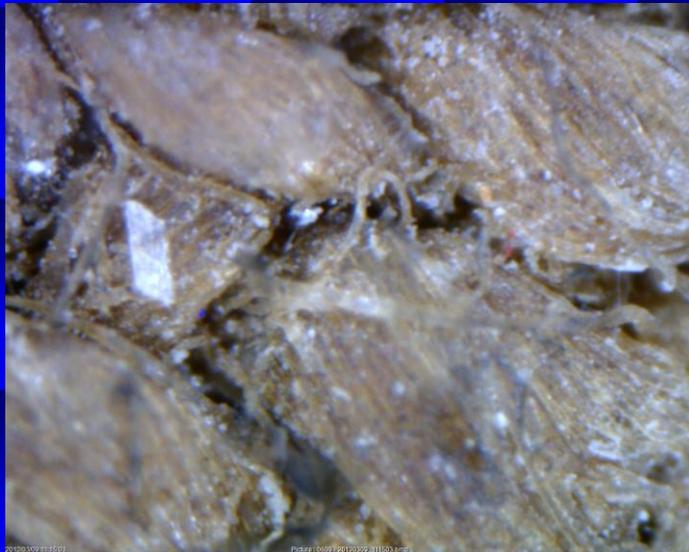
During the morning hours of March 9th, 2012, the examination of the Oviedo Sudarium with a reflecting microscope at 500 power allowed the following observations:

- It is very remarkable that at that high power very little blood appears as present. To the naked eye it seems that the blood stains have a high blood content, but at high power we see that it is not so, if we except some blood crusts, especially thick and also exhibiting a "cracking" as a consequence of the dehydration process as well as other physico-chemical changes they have undergone. In other stains, aging and unknown circumstances affecting the relic should be responsible for the loss of hematic material, perhaps 90% of the blood originally present there. The blood has remained reasonably well preserved at the bottom of spaces between threads, protected from mechanical wear of the cloth. But the presence of blood diminishes in direct proportion to the vicinity of the external surface, where its presence is merely seen and it is limited to a few dry drops tightly attached to the linen fibers.
- On the contrary, the microscopic exam of patterns of blood stains from a corpse, that were experimentally produced in a controlled process upon modern textiles, imitating in every case the circumstances believed to have been present when those stains were formed, show a much greater presence of blood on the threads, even if it is true that the natural tendency of the blood, acting as a liquid, leads to a greater amount being found at the bottom of the spaces between the threads. In those tests, large amounts of blood appear upon the more superficial and unraveled threads, but this is not the case with the Oviedo Sudarium, because the dried drops, being more directly exposed to external agents, were the first that disappeared.



- Upon the surface of the hematic features, mostly on the spaces previously mentioned, between the crossing threads, one can see large amounts of things that could be leftovers of aloes and storaque, that D. Felipe Montero Ortego described as "potatoes". Such remnants must have arrived to the cloth after the blood, since they appear on top of the blood stains, and never between the blood and the linen so that the presence of aloes and storaque is directly proportional to the amount of blood: where more blood is found, we also find a larger amount of aromatic powders, and where blood is not seen those powders are minimally present.
- We see a high level of externally originated contamination, due to textile fibers foreign to the cloth, some even modern synthetic fibers. There is also some lipstick material. Above all, there is a very high level of inorganic contaminants, where we find amorphous structures and also crystals, including some rhombohedral crystals, practically transparent; and metallic material with a clear excess of Iron Oxide and Silver salts. This inorganic contamination covers practically all the fibers and the blood stains, indicating that it arrived to the cloth after the other stains were formed...

HALLAZGOS SOBRE EL SUDARIO



- On the left reverse side (RI), approximately half way along the vertical in the cloth lost by a burn attributed to a candle, one can see two small stains having a color that is clearly different from the brownish tone that prevails in the other blood stains, The color is more reddish, with some tones one could describe as rosy. The first one is very close to the central stains, just below them, and the second, a bit lower, is

practically equidistant from the central stains and the free lower edge of the Sudarium. The microscopic image of those stains is compatible with the hypothesis that the organic fluid causing them was a mixture of human blood and saliva



- Also on the reverse side of the Oviedo cloth we find two structures compatible with skin remnants, specifically small fragments of the superficial horny layer of the human skin, in two different places, but always in the vicinity of blood stains, possibly caused by traumatic injuries. It is remarkable that similar features have not been found at other locations, and both epidermic particles are on the reverse side, meaning the side of the Oviedo cloth that was always in direct contact with the head, face and neck of the corpse according to the hypotheses of EDICES regarding the dynamical study of the origins of the large stains. The genetic study of these skin particles will probably give nothing valuable, since the human skin cells from the surface will be dead cells, with damaged nuclei and the minimal amount of the genome they might contain will be ruined even in persons who are still alive, the reason why in historical archaeology it is little less than impossible to find significant amounts of DNA in this kind of cells with the means presently available. Nor is there total assurance about the identity of the source of those skin samples, that might be contaminants added later.

- On the reverse side of the cloth, where the central stains appear, we find structures that are compatible with **dried blobs of fibrin**¹ lacking blood cells and that under UV light show no fluorescence. Blobs of fibrin of a size similar to those present there and in the absence of red cells cannot be formed within the circulatory system or in bleeding wound or even in the changes that blood from a corpse would undergo before putrefaction. The most likely hypothesis is that such blobs were formed within a body cavity, pleural and/or pericardiac, likely during the scourging or even during the physical injuries suffered at the imprisonment, trial and jailing..After at least a few hours -the time needed for those fibrin blobs to form- when the corpse was speared, that cavity, previously closed, was opened to the outside and when the corpse was moved the fibrin could flow out through the nose and the mouth, together with blood and the liquid of the edema of the lungs.

The presence of these fibrin blobs free from blood elements could be an indirect proof, in the Oviedo Sudarium, of the spear thrust after death, since without a penetrating wound in the thorax it is very unlikely that by themselves or by any other alternative means they could have ended at the Sudarium. It could also be an indirect proof of intense traumatic effects compatible with the scourging, because the formation of fibrin requires a previous injury.

That there is a pleural or pericardial flow, or both, can be considered a proven fact, since Jn 19, 34 literally states *"...but one of the soldiers opened his side with a spear, and immediately blood and water flowed out"*. This water mentioned by the Gospel author had to be the bulk of this flow, looking very similar to the color and texture of the Jordan river water. By its naked eye aspects it would be impossible to say if it originated in the lungs or from around the heart; this difference would require analytical techniques that would detect enzymes, or even microscopic, citological or histological elements, seeking cells and tissues that would exclusively belong to those body cavities. If elements were found coming from both anatomical sources, we could then infer the simultaneous presence of both pathologies, meaning the flows from around the heart and the lung cavity, likely due to a trauma.

If we cannot present a different and plausible hypothesis to form the fibrin elements we could consider this fact, together with other circumstances, as an indirect proof of the victim, still alive, suffering an extremely grave thoracic trauma, possibly several, and of the view that some hours after death the corpse received a blow from a penetrating weapon, opening the way from the pleural and pericardium cavities to the exterior, thus leading to their contents being lost through the mouth and nose.

It would be desirable to actively seek those fibrin blobs in the Turin Shroud, and specifically in the vicinity of the blood flow from the side wound attributed to a spear thrust, as well as in the areas surrounding mouth and nose. On the other hand, the

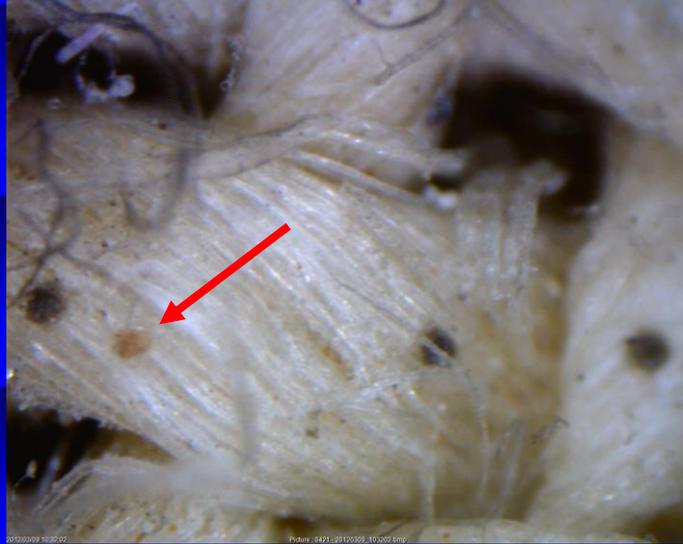
cavity flows mentioned above should not contain blood, because if they were sero-hematic in nature, the resulting blobs would contain blood cells and they would be practically indistinguishable from true blood with normal properties.

The Gospel description from John does not imply a serum and blood flow, but rather a liquid totally free of blood and thus due exclusively to an inflammatory process. The chest wound must have occurred undoubtedly upon a cadaver, otherwise the resulting hemorrhage would have been tremendous, producing a blood stain still larger than the one we see in the Turin Shroud, and -in the Oviedo cloth- it would have totally filled the cloth, so that instead of describing its "bloodstains" we would refer to just "the bloodstain", as a singular.

On the other hand, the blood stains present in the Oviedo cloth, in parts that were in contact with areas around the mouth and nose, show properties compatible with blood from a corpse, without sure signs of life.



LOS COÁGULOS DE FIBRINA



LOS COÁGULOS DE FIBRINA



Drastically changing the subject, the disappearance of the corpse leads to a setting where, without a proper anatomical reference, the corpse, we must use the Oviedo Sudarium as a reference for the findings obtained from the Turin Shroud, and also the reverse process.

The data gathered from both cloths, about the anthropometric properties of the corpse they enveloped, are so numerous and so precise that it became possible to produce several reconstructions. The most perfect are due to the Sevilla based sculptor Juan Manuel Miñarro López, who -besides his own work as a sculptor- has also discovered the imprint of the right ear in the Oviedo Sudarium, a very interesting finding especially in view of the fact that in the Turin Shroud no images are found for anatomical structures on the sides of the body ¹.

In the historical process of scientific investigation, every now and then new research techniques appear that become almost "sacred", not only for the researchers themselves, but also for public opinion. In Medicine, for instance, when at the end of the 19th century X-rays became part of the daily medical activity, this constituted a drastic change, establishing a "before" and "after", but we now know that it isn't a universal solution for a diagnosis. Now we find a similar attitude towards Genetics, that was supposed would solve all the unknowns of Biology and Medicine through the study of DNA. We now begin to realize that this is not the case. In any case, why don't we check the DNA in both cloths and we get some sure answers? If both enveloped the same corpse, they must have identical DNA.

This is true, but things are not that easy. DNA is a very large and complex molecule, so big that, if we were to unravel the multiple turns superposed in it, we would get a filament about two meters long. And we cannot expect that after two thousand years in adverse conditions it would still be intact when it is a very fragile molecule, damaged by heat, light, radiation, the ph of the medium, humidity, dehydration and micro-organism activity. To compound the problem, we must remember that all living beings contain DNA, and contamination should be normally expected ¹.

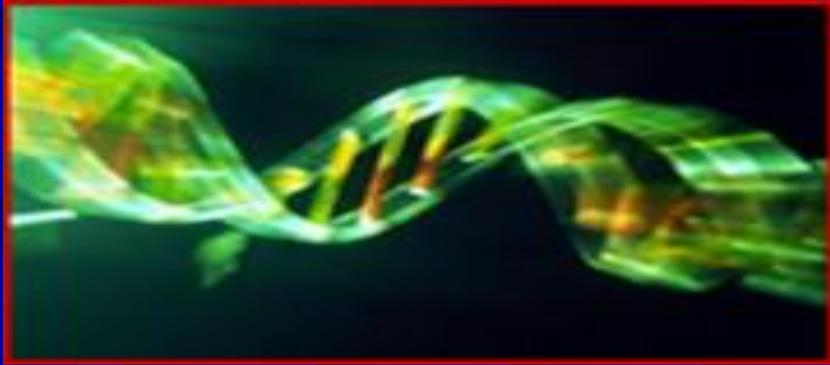
**EL ADN DE CADA CÉLULA
HUMANA MIDE ALREDEDOR
DE DOS METROS**



Today we know that the minimal DNA found in both cloths is extensively damaged, decayed and also contaminated. Even so we can hope that in the future a comparative genetic study might be possible, while today, with our present means, it has not proved useful. But without being pessimistic it can be said that such study will never be fully satisfactory, due to the fact that the DNA segments present there are so few, so small and fragmented, so insufficiently representative and without a real chance to find more, that the equivalent task would be to try to obtain the image of a puzzle with 3.000,000.000 (three thousand million) pieces, the approximate number of nucleotides contained in the complete genome of a single human cell, when we only have a few hundred. Statistically, the task is impossible



ES DECIR, HEMOS PERDIDO DE
FORMA IRRECUPERABLE LA
MAYOR PARTE DEL GENOMA
ORIGINAL



Y EL QUE NOS QUEDA
DISPONIBLE, ESTÁ MUY
FRAGMENTADO Y DAÑADO



**A FECHA DE HOY SÓLO SE
CONSERVA UN MÍNIMA PARTE
DEL GENOMA ORIGINAL**



CONCLUSION

**CON EL ADN
QUE CONTIENEN
ESTAS DOS RELIQUIAS
NUNCA PODRÁ CLONARSE
A JESUCRISTO**

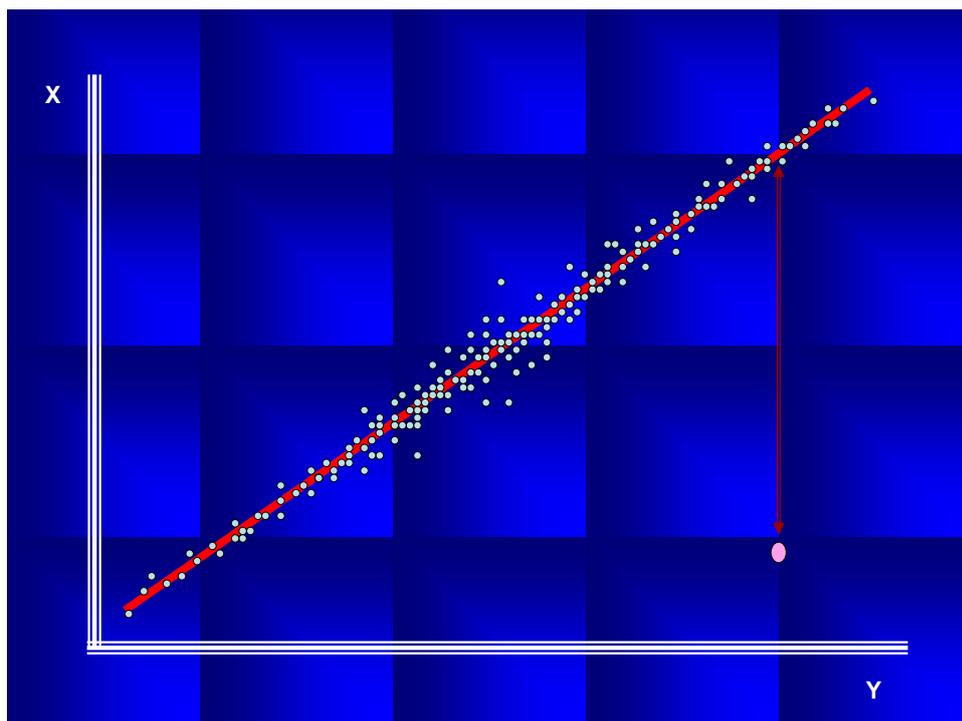
CONCLUSION

**PERO SI ES POSIBLE
HACER UN ESTUDIO
COMPARATIVO ENTRE
AMBOS GENOMAS**

As we can see, the number of data favoring the authenticity of each cloth by itself is overwhelming and, if we now compare the findings from both, the totality of coincidences provides an ever growing list without finding significant discrepancies. One only test seems to be incompatible with the hypothesis that both cloths covered the same corpse, the C14 results. But we should not forget what is the presently accepted scientific methodology:

1. First, based upon present scientific knowledge and after consulting the pertinent literature regarding a given subject, a hypothesis is advanced.
2. Next, a series of scientific experiments is proposed to find out if the hypothesis is correct or not. Then, under controlled conditions, those experiments are performed so that they might be reproduced if it becomes necessary, either by the same research group or by others.
3. The results of those experiments are properly interpreted.
4. If the development of this research advises new experiments to be performed, they will be carried out before considering the research as completed.
5. Finally, a reasoned scientific report is presented and available to other researchers for their information, critical appraisal and general knowledge of those results, either in favor or against the hypothesis originally formulated. Obviously, the experiments should be reproducible as a proof of their correctness.

If the entire process was properly followed there will be nothing surprising in most cases, the majority of the results will be as expected, and if a graph is drawn they will provide a "cloud of points" that frequently can respond to a mathematical formula.



It is common in research processes to find some points that fall outside the graph, as an exception. Nobody will feel that the outlying point negates the experiment or the initial hypothesis. But it should not be simply ignored: instead one seeks the reason why it occurred, looking for the causes that produced it.

Obviously, this should be the attitude of the scientific community. The discordant C14 results, against the overwhelming abundance of data favoring the authenticity, does not nullify the hypothesis that both cloths covered the same cadaver.

Forensic Medicine works the same way, as it should. Faced with the great majority of confirmed data favoring the hypothesis of authenticity for both relics, juridical criteria will accept it as the most logical one. The inference would reach the level of proof if the Forensic Medical Doctors of EDICES could obtain access to the front and reverse sides of the Turin Shroud in order to test this hypothesis. After that study and comparing the data from the Shroud with those we already have from the Oviedo Sudarium, a hypothetical expert report that could be presented to a judge. Using juridical language and to seek effects at that level we could then say that **It can be accepted as proven that both the Oviedo Sudarium and the Turin Shroud enveloped the same cadaver.** We evidently need a new study of the Turin Shroud, not only of the front surface, relatively well known, but also of the reverse side, that is still unknown to the researchers.

For this very reason, the hypothesis that data obtained through C14 gave correct results is not believable. The corpse that was covered by the Oviedo Sudarium and the Turin Shroud could

not have been both in the 1st and the 7th centuries: that is obvious. This statement is not meant to question the scientific and technical quality of the studies carried out so far, but just the opposite: it seems evident that, for different reasons, in this particular instance exceptional conditions were involved, that caused a distorted result, increasing the C14 content of the samples, that were not taken into account and that finally led to confusion due to an effect of "isotopic renewal" of both cloths. This should be considered by experts in the field, not by Forensic Medical Doctors.

In any case, it is still interesting to note that in spite of the fact that everything points to the simultaneous presence of both cloths in Jerusalem during the 1st century, the radiocarbon dating gave dates drastically different for the Oviedo Sudarium and the Turin Shroud. The isotopic method separates them by no less than seven centuries. But in order to have covered the same corpse they must have coincided in a very restricted time period, not of some weeks or even days, but a few hours at most between the use first of the Oviedo Sudarium and next of the Turin Shroud.

If we accept as valid the C14 dating, both cloths must have been together at some time between the 13th and the 14th centuries, but this is not acceptable because, as far as we know, the Oviedo Sudarium was in Oviedo after arriving there in the 7th century and was never moved from there, thus making clear that it never left Spain up to the present time.

On the contrary, we don't know where the Turin Shroud was at some times in its history, but from the moment it shows up in France about the year 1355 we do know its travels through several cities, but it never reached Spain from that time to the present.

We are left with only one reasonable hypothesis: they were together before the 13th century, and for that to be true, we must consider as wrong the radiocarbon dating of the Turin Shroud, and their coincidence must have occurred before the 7th century. But the historical research takes us again to Jerusalem during the 1st century of our calendar, the only time where history, tradition and the Gospels place both cloths together. From then on, they followed different paths and, as far as we know, they were never together again, no matter what the C-14 might say, even if we don't deny its merits.

These determinations, once we know the circumstances that influenced the isotopic dating, and the strength of their respective effects, will acquire their correct value. Very likely the information obtained will be most important, but in the meantime we have just a couple of numbers and little more.

On this particular point, in this same Congress we have persons more qualified to speak about radiocarbon than a Forensic Medical Doctor, among them D. Felipe Montero Ortego.

The short history of Syndonology should make us more humble and restrained, not only those involved in research and reporting, but also those in the general public, because many times

research has uncovered data that seemed incompatible with the hypothesis of its authenticity, but that after some time, through new research, turned out to be not only certainly valid, but even most important to understand concrete features and that added an extra proof for that authenticity. Most probably, something like that will happen to the C-14.

To give an example: when a fingerprint is found in a place where some illegal activity took place, and that fingerprint shows twelve points of coincidence ("significant points" in the language of dactyloscopy) the police will consider that fact a sufficient proof that a suspect has physically been present at the place of the activity: that is clear from the presence of that personal and unique fingerprint. For a judicial proof, eight "significant points" are enough, and in the case of the Shroud and the Sudarium those "significant points" number hundreds, if not thousands, of coincidences.

Therefore, the hypothesis that both cloths enveloped different corpses is totally without any scientific value.

The information available to historians does not conflict with our working hypothesis either even if it is true that we lack documental proof about them for some periods, but the absence of information does not mean that the relics disappeared (destroyed) to re-appear some time later. This subject will not be further developed here, because historical information does not belong within the limits of Forensic Medicine.

Logically, not every bit of information provided by scientific research will fully belong to the area of Forensic Medicine, but it is also true that nothing in other researches contradicts the hypothesis that the Turin Shroud and the Oviedo Sudarium enveloped the same cadaver; on the contrary this idea is supported.

It shouldn't be necessary to recall that in scientific research absolute truth is not the result of a piece of work, and that all the knowledge obtained is subjected to a constant re-evaluation as hypotheses that are accepted while other tests either reinforce or contradict them.

The same happens in a judicial investigation: nothing is considered an absolute truth; rather with the available scientific knowledge and the criteria commonly accepted for certainty, a "**juridical truth**" would be assigned to the statement that both cloths covered the cadaver of Jesus of Nazareth.

TRAUMATIC INJURIES, WOUNDS AND PATHOLOGICAL EVENTS THAT MIGHT HAVE LEFT THEIR IMPRINT ON THE OVIEDO SUDARIUM AND THE TURIN SHROUD

With the purpose of rounding up the Forensic Medical study of both cloths, it would be advisable to perform an active and complete exam of a long series of possible facts that we will now specify. In view of their relationships we will soon realize that, up to now, due to different circumstances -not necessarily attributable to the researchers- the study has not been adequately carried out. What is certain and true is that such study, cannot be considered as finished, especially concerning the Turin Shroud, upon which many scientific tests and observations were not performed, while they were applied to the Oviedo Sudarium. This is particularly true for the reverse side of the Turin cloth, that was simply observed with the naked eye, with a very superficial exam.

In the Oviedo Sudarium, as well as the Turin Shroud, not only bleeding wounds could have left their trace, but also non-bleeding traumatic contusions and many other pathologies, be they related or not to physical ill-treatment, tortures and death on a cross. All this without forgetting the circumstances under which the events took place, that, finally, could have led to the transfer of organic or inorganic materials to the cloths.

Traumatic events that could have left traces would be the following:

* - Pulling the hair, with or without it being detached. In a totalitarian state, with limited or non-existing concern for human rights, it frequently happens that when a person is led to judgment, even without resisting that deprivation of liberty, the accused will be violently grabbed by the hair, both to make his retention easier and to keep him from biting. This process can imply hair being pulled off, with resulting injuries that might be accompanied by blood losses, depending upon whether only the hair is pulled to its roots or also part of the skin is lost, with a greater blood flow. It can also happen that the skin might carry with it tissues deeper on the skull, causing sub-cutaneous injuries, varying in size, that do not bleed at first, but will do it later if there is an opening in the skin of the same affected area: it is then possible to have an abundance of blood that can include blobs more or less compact. All this can be part of an effort to force the will of the accused, even during the interrogatory process. Thus it is possible to find these injuries from different times, mostly when the accused has been a long time in prison instead of being released immediately, just as actually happened in the case we describe.

* - Pullings of the beard and moustache, with the same meaning as those on the hair.

* - Non-bleeding contusions on the face and skull: the so called "bumps", that should be actively sought in the occipital region and the skull vertex. There is the possibility of new non-bleeding injuries being found not only on the face, but also in the entire body surface,

that up to the present have not been described. We should not assume that we already know all of them.

The bleeding injuries that we can expect would show up in the Oviedo Sudarium and the Turin Shroud are:

- The crowning with thorns. We should expect not only holes of various depths, but we should also consider the possibility of some injuries affecting extensive and irregular tears of the skin, through its several layers, reaching even to the skull bones, where the thorns, unable to get through but possibly still capable of going deeper, would slide between the bone and the soft tissues causing deep breaks under the skin, strongly bleeding. These could have formed "blood pools" that, not drying completely, could bleed abundantly at a later time, when the corpse was moved, when the crown of thorns was detached or when the hair was rearranged.
- Lymphatic crusts. Facial lesions, besides bleeding abundantly as we know, involve skin and deeper tissues that are rich in lymphatic vessels that, when cut, release the lymphatic liquid, frequently confused with the plasma of the blood, since their naked-eye appearance is very similar. But under the microscope, observing the cells it contains, we do not find red cells, only white globules, mostly lymphocytes, unless there is some contamination with blood from nearby blood vessels. It doesn't gell exactly like blood or serum, but dries forming amber-colored crusts.
- Puncture injuries. It is possible that during the capture and imprisonment the victim might have suffered some kind of torture involving pointed objects that could have produced deep wounds still not identified.
- Injuries indicating punctures and blows. An object lacking a point or a cutting edge still can cause an open wound if a blow occurs where there is very little skin depth, directly over some bone, as happens around the eyes, the cheeks, around the nose, the chin, the skull, the clavicles, near the tibia, among other areas. It is probable true that we don't know the forensic-medical cause of many of the observed wounds and also that others are present as well. In some cases it has been considered possible that the scourging involved not only the *flagrum taxillatum* but also some type of sticks,
- Wounds due to the scourging: it is possible that it might have left blood marks that could indicate the type of scourge tips used and how they could have torn the skin, the deeper layers and the muscles attached to the skeleton. Some remnants of cells or tissues might still be found in the Oviedo Sudarium, as well as in the Turin Shroud, as we suggest with regard to possible cellular and tissue findings.
- Injuries due to the spear thrust: it might be possible to find the exit point of the spear if it went through the body, and if that part of the anatomy at some moment was in contact with the Oviedo Sudarium. But it might be possible also to observe some indirect signs, also interesting, as would be the presence of fibrin blobs without blood elements, due to possible pleural or pericardial flows previously due to the scourging and other torments, that could have been cut through by the spear and thus became

opened to the surrounding air thus appearing in the Oviedo Sudarium and the Turin Shroud. Tissue parts and cells could also have been dragged along, as will be suggested in the proper later section, meaning lung cells, respiratory tissues, cartilaginous and muscle cells and fiber-blast cells.

- Epistaxis: As a consequence of evident lesions in the nose area, of its lateral distortion and that of the nose tip, and the contusion and incision on the back of it, we should consider likely that some strong trauma affected the nose, causing not only those external injuries but also a hemorrhage (epistaxis) that could have been partially swallowed (and later, partially digested, expelled by a vomit, that could possibly be sought and detected) or partially lost through one or both nasal openings. In this case, blood might be found in the surrounding area, including the beard and the moustache. This blood could be mixed with nasal fluids, that should be also carefully sought.
- In the lips we might find proofs of injuries due to the ill-treatment suffered during the imprisonment, interrogation and captivity.
- Skin injuries possibly due to ropes: it seems likely that the victim could have been controlled by using ropes or leather strips around the neck, causing skin lesions that would not be easily seen in the Turin Shroud, that offers very limited detail regarding this anatomical area, while it is possible that they might appear in the Sudarium. The search for the effects of such bonds would also apply to other anatomical areas: wrists, forearms, ankles and legs..

Pathological conditions that might have left some kind of evidence in the Oviedo Sudarium as well as in the Turing Shroud, would be the following:

- Hemato-hydrosis: the blood sweat mentioned in the Gospels could have left some mark in both cloths, but especially in the Oviedo Sudarium, since it was used earlier than the Shroud.
- Lung edema: already proved earlier by Prof. Jose Delfin Villalain for the Oviedo Sudarium, it should be confirmed under a microscopic exam.¹ The same search should be applied to the Turin Shroud.
- Hemolysis: the destruction of cellular membranes of the red cells in the blood could be due to several causes, including the scourging, that would have had an important role in the process. The hemoglobin thus released could be present in the blood plasma in fairly large quantities without being due to post-mortem processes, since the injuries causing it were inflicted before death. In any case we must realize that it will be difficult to distinguish red cells affected before death from those after death.
- Evidence for vomits: during physical ill treatment it frequently occurs and this is mostly the case in an agony that lasts a long time. Thus we could find effects of vomit near the mouth and nose, as well as in the cloth applied to the beard and moustache.

¹ J.D. VILLALAIN BLANCO. *Estudio Hematológico Forense realizado sobre el Santo Sudario de Oviedo, Sudario del Señor, Actas del I Congreso Internacional sobre el Sudario de Oviedo*, Oviedo, 29, 30 y 31 de octubre de 199, pp. 131-176.

Attention should be paid to the possible presence of food particles, gastric and bowel fluids, or bile.

- Presence of partially digested blood: it is possible that, due to the physical ill treatment of the victim, bleeding through the mouth and nose, some of the blood might have been swallowed, and, if its presence in the digestive tract was long enough, a vomit would show blood partially or totally digested. In that case, its properties, both macroscopically and microscopically, would be different from other types of blood.
- Dehydration: the lack of water during the imprisonment as well as the blood loss from the wounds and the sweat due to multiple efforts, as well as the asphyxia carried to the point of agony and death, caused a dehydration that might have left possible traces in the Oviedo Sudarium and the Turin Shroud, like the drying of mucous membranes.
- Dry lips, directly related to the dehydration already mentioned.
- Hypovolemia: the loss of blood and dehydration could result in a reduced volume of blood in the circulatory system, thus leading to the paradoxical result that extensive and serious wounds apparently bled in a limited quantity. This must be taken into account when we try to estimate the seriousness of the wounds we observe.
- Hemo-dilution. Once hypovolemia is set, if it doesn't cause immediate death and there is a short or longer period of survival, the body compensates for it through several processes. One of them, in case of not having a possibility of ingesting liquids, as was the case in what we describe, involves getting the necessary water and dissolved elements from non-vital bodily structures. This applies to extra-cellular water present everywhere in the organism, some of which can be temporally used in order for the organism to survive, without grave immediate consequences. This water with dissolved elements can be added to the blood, diluting it, thus causing blood stains of a weaker color, with fewer cells per unit of volume. It would be desirable to actively seek stains of this type.
- Otorrhage: The physical ill-treatment could have caused bleeding injuries in the external structures of the ear, as well as the rupture of the eardrum caused by blows upon the ear region. All those bleeding wounds could have left their mark upon the Oviedo Sudarium. It is also possible that those parts of the head, even without suffering direct injuries, could retain blood due to wounds inflicted somewhere else; if that blood was a liquid or became liquid again before using the burial cloths, it could have soaked into them, and a search for it would be advisable.
- Large amounts of bilirubin in body fluids, due to the changes in the hemoglobin as a result of strong trauma, besides other possible causes, like toxic reasons.
- Degraded hemoglobin. due to the same causes.
- Presence of myoglobin from extensive and deep muscle injuries due to scourging since the destruction of muscle cells frees their hematic fluids that contain the myoglobin as well as creatinin and other muscle enzymes.
- Cardiac enzymes: it is unlikely that they could be detected, since even if their presence might have been reasonably well preserved in the Oviedo Sudarium and the Turin

Shroud, it is to be expected that their 3-dimensional structure should have been altered with time and the many circumstances affecting those cloths. With means presently available it is very likely that they cannot be found, even if their presence remains possible.

- Hormones related to stress: cortisol, epinephrin and norepinephrin, due to their small size, might have remained unaffected in their 3-dimensional structure, that might allow their detection. They are quite likely to be found after the intense and prolonged physical ill-treatment suffered by the victim..
- Presence of sweat from the secondary effects of physical efforts, as well as from the process of asphyxia leading to death, normally accompanied by abundant sweating.

The circumstances likely to explain some kind of imprint or transfer of organic or inorganic materials to the Oviedo Sudarium and the Turin Shroud would be:

* Dust and/or dirt: possibly aragonite, besides other possible minerals, both in those areas of the cloth that were in contact with protruding sections of the corpse's anatomy, as would have been in the case of the bloodstains. Such materials could be intimately mixed with the blood and other organic fluids, and it might have arrived there in the several falls that the victim likely suffered, but they could also be carried by the wind.

* Presence of spit: the Gospels mention that the soldiers spit on Christ, something likely from the anthropological viewpoint. They might have left some kind of mark and even some rests of their chemical, cellular and tissue elements. It might be possible to even identify spit from the corpse itself, even when mixed with blood during the processes that together led to agony and death. They might appear in parts of the cloth that were in contact with zones around the nose and mouth, as well as the front part of the neck.

- Sweat not related to the corpse, but left by the owner of the Sudarium (which might have had previous use not related to burials) or by those who took part in handling the corpse when taken down, carrying it, wrapping and burying it. All those processes involve human labor, thus allowing sweat to appear, not only in the Oviedo cloth but also in the Turin Shroud, where it might have accidentally fallen while the cadaver was being readied for burial.
- Vinegar. Historically and anthropologically we know that sometimes vinegar was offered to those condemned to the cross, when they were thirsty. If that was the custom, it is possible -but very unlikely- that vinegar leftovers could appear in the Sudarium, but we might detect its effects upon the bloodstains and other body fluids. This would also apply to the Turin Shroud.
- Insects partially found in blood crusts. At the time of the year and in the place where the crucifixion took place, the environment was suitable for insects to be abundant, and they would surely be attracted by the blood, sweat and other body fluids of the victim. Under those circumstances it is frequent to find full insects or their parts

caught in blood crusts, an argument to consider reasonable their presence in the Oviedo Sudarium and the Turin Shroud.

- Hairs from the head and body, in blood crusts: they could be from the victim or other persons. They would not be very suitable for genetic studies, because they contain little DNA, but, at least, it would be possible to perform a macroscopic and microscopic study of it.
- Textile fibers. Not only those imbedded in blood crusts of the Sudarium and the Shroud, but also coming from the garments of the victim and of those persons who handled him from the imprisonment to the burial. They could be found attached to the blood.
- Direct and indirect evidences of persons handling the corpse and the cloths, as imprints of bloodstained hands, suggesting burial processes according, or not, with the anthropological knowledge about Hebrew customs in the early first century, including the disputed possibility of washing more or less thoroughly the corpse.
- An active search for indications of the Oviedo Sudarium being attached to the corpse, not only with stitches to the hair, beard and moustache, but possibly also with some kind of bandages exterior to the Sudarium itself. The same study should be carried out upon the Turin Shroud.
- A detailed study of the foldings that left a mark on the cloths and that could be reasonably attributed to their use in a burial, but without omitting others that "a priori" might appear as not related to the process of burying a corpse.
- A macroscopic and microscopic morphological study, as well as a chemical one of the substances that were possibly used when the corpse was prepared for burial. In such study, besides the known ones -aloes, myrrh and storaque- one might find balsams, oils, ointments, perfumes that might have been used but not detected up to now. The findings from both cloths should be compared.

An active search would be important to find cells and tissues not part of the blood. It seems reasonable that some of the following might be found:

- Neumocites: cells from the lungs that might have arrived to the Oviedo Sudarium and the Turin Shroud as a consequence of lung injuries due to the spear thrust.
- Cells from the outer skin of the respiratory channel, arriving there similarly as the neumocites.
- Cartilage cells, also coming from possible injuries by the spear upon the air tract, the bronchi.
- Fiberblasts, from any body source with conjunctive tissues, but especially from pericardiac or pleural injuries.
- Muscle cells from the skeleton, torn by the scourging, as found in the Turin Shroud.
- Skin cells. due to any superficial injury, not only to the scourging, as happens in the Turin Shroud.

- Cell elements, tissues and fluids from the eyes, considering the possibility that the crown of thorns might have affected one or both eyes, possibly even puncturing them and releasing their fluids, vitreous and aqueous humors. This does not seem likely, but such effects should be sought explicitly in both cloths.

Other points to be studied in the Oviedo Sudarium and the Turin Shroud would include::

- An analytical hematologic study, as comprehensive as possible, of all the stains that seem to contain blood, including biochemical, toxicological and genetic aspects besides distinguishing those that belong to "post mortem" blood or to vital flows. In other words, try to establish what wounds bled only before death occurred, or only after, or possibly at both times. (Evidently it will be almost impossible to do this for every stain, but at least we should make an effort to do it upon those that "a priori" appear as more suitable and interesting).
- A hematologic study specifically aimed at seeking blood that has decayed, or its leftovers, as well as any other sign of decay of the corpse. Even if, up to now, nothing has been found in that regard, a specific search in that direction has not been carried out. The absence of such signs after an exhaustive search, would be one more reason to establish the authenticity of both cloths.
- A complete cytological study of possible blood cells and their remnants, as well as their genetic content (It would imply a direct study with a reflecting microscope and obtaining samples of the material observed for future study).
- A similar study of non blood-related cells for comparison with the information gathered from possible genetic results from the analysis of bloodstains..Areas of special interest for this search would be the bloodstains themselves and adjacent to them, as well as parts of the Oviedo Sudarium and the Turin shroud near natural body openings of the corpse, as well as near to possible wounds, bleeding or not, that might be present.
- A micro-biological study of possible microbes that might be found in both cloths, as well as in those places and objects where they are presently kept and those with which they were in contact in the past. The search should aim to find not only living but also latent or dead micro-organisms (This should be very important towards the conservation of both cloths in the future).
- A complete pollen search, going further than the chance samples used up to now..
- A full study of the anthropometric data that could be obtained from the images and/or bloodstains present in both cloths, not only of the skull, face and neck, but also of the rest of the victim's body.
- A direct anthropometric study of the Oviedo Sudarium and the Turin Shroud to avoid measurement errors that can't be absent if we only measure photographs or scanning images.
- A complete static and dynamic study, suitable for a crime, of every bloodstain and those of other body fluids, with special attention given to those that might have resulted from the same bleeding injuries of the corpse that could have produced many

bloodstains. Their number, possible processes causing them, chronology and properties should be determined, as well as the possible loss of blood and other organic fluids through the natural openings of the corpse, including remnants of fluid due to a lung edema, bile and vomit. (Behavior of biological fluids staining wrinkles, openings, defects and irregular structures of the cloths)

- A complete genetic study of all the biological findings, blood-related or not, and not only those that might be due to the Man of the Sudarium, but also to the contamination by DNA of other persons, especially those who could have taken part in readying the corpse for the tomb. Results should be checked against possible similar genetic findings that might be obtained from the Turin Shroud.
- A complete geometric study of the bloodstains and those of other bodily fluids, both on the front side of the cloth and on the back.
- Analytical and metric properties regarding the formation of the stains and images in the Oviedo Sudarium and the Turin Shroud.
- A study of the possibility that using the Sudarium before the Turin Shroud might have influenced the way the images and bloodstains appear in the second cloth.
- Checking for the possible presence of other body fluids. not blood-related, in both cloths, especially in the bloodstains and in areas that can be expected to have been close to the natural body openings of the corpse. (As well as pleural fluid and/or from around the heart).
- A comparative study of whatever contaminant or added substance might be present in both cloths, especially where both could have covered the same anatomical part of the cadaver..

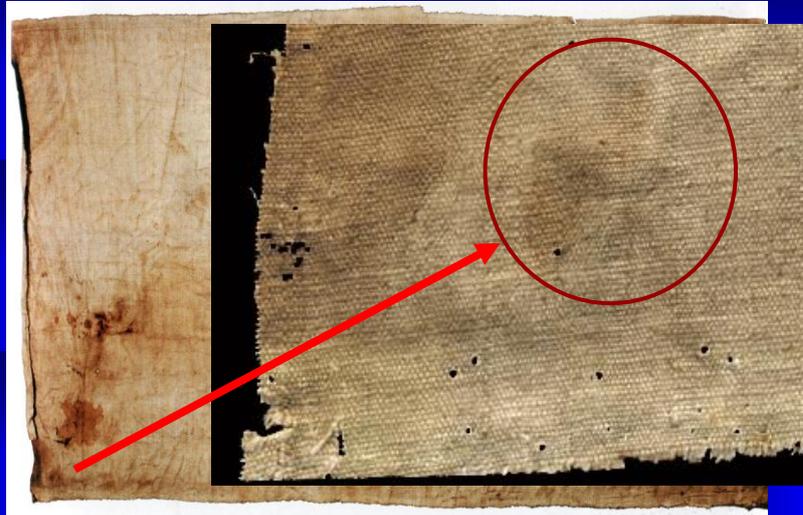
PRESENCE IN THE OVIEDO SUDARIUM OF BLOODSTAINS COMPATIBLE WITH THE SCOURGING

The EDICES research upon the Oviedo Sudarium has determined the way it was used and it found that the left reverse surface was the section of the cloth that remained always in direct contact with the corpse, specifically with the head, face, neck and upper chest ².

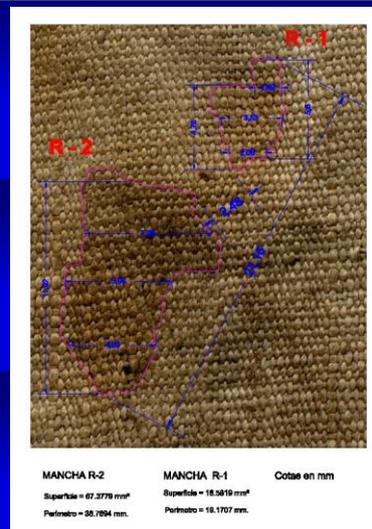
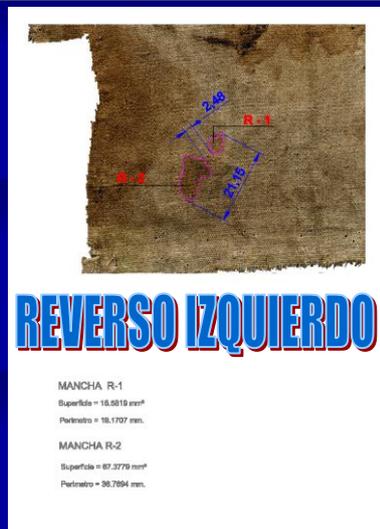
The detailed study of the area near the bloodstains that our group has called the "butterfly wings stain" and the "corner stain", shows two small bloodstains that were not noticed up to now, most probably due to their small size, and that seem unrelated to any other stain studied up to the present ².

When observed from the left reverse side of the cloth, they appear as two small stains, irregular in shape, with the smaller one, higher than the other, measuring 5.6 mm in diameter and the larger one 11.92 mm. The distance between them is 2.48 mm, and the distance between the extreme points of both together is 21.15 mm.

POSIBLES HUELLAS DE FLAGELACIÓN EN EL SUDARIO DE OVIEDO

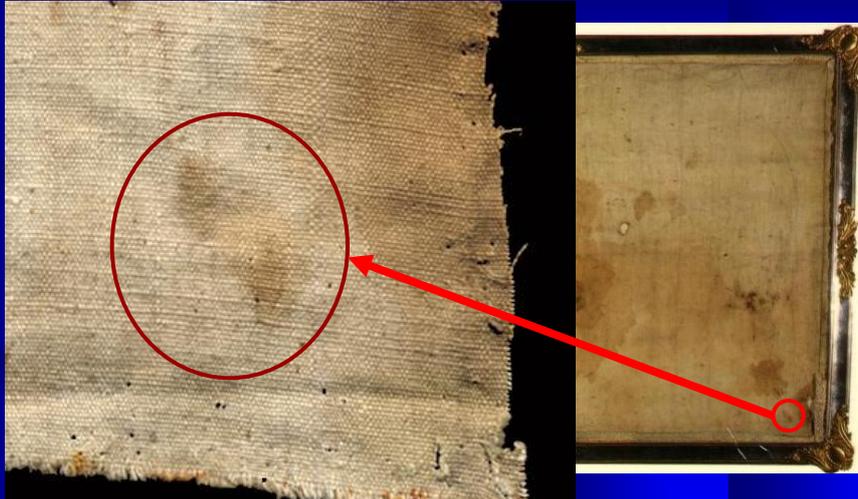


POSIBLES HUELLAS DE FLAGELACIÓN EN EL SUDARIO DE OVIEDO

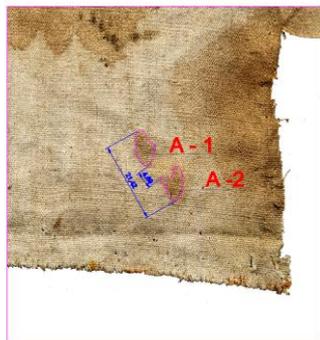


If they are examined from the right front side, they still appear as two small irregular stains, but the one that previously seemed smaller (the one above) now appears as larger (9.4 mm) than the one below (that measures 9.22 mm). The space between them is 4.69 mm, and taken together their farthest points are 21.42 mm apart.

POSIBLES HUELLAS DE FLAGELACIÓN EN EL SUDARIO DE OVIEDO



POSIBLES HUELLAS DE FLAGELACIÓN EN EL SUDARIO DE OVIEDO



MANCHA A-1
Superficie = 33.5400 mm²
Perímetro = 25.2916 mm.

MANCHA A-2
Superficie = 31.8783 mm²
Perímetro = 29.9124 mm.

ANVERSO
DERECHO



MANCHA A-1
Superficie = 33.5400 mm²
Perímetro = 25.2916 mm.

MANCHA A-2
Superficie = 31.8783 mm²
Perímetro = 29.9124 mm.

Cálcul en mm.

If we consider certain the hypothesis from EDICES that the left reverse side of the cloth was always in contact with the body, the blood had to soak that side of the cloth and then, through diffusion, slowly reach the Right Front side, where we can more easily see the stains as

compatible with those seen in the Turin Shroud that are attributed to the *Flagrum Taxilatum* being used in the scourging of Jesus of Nazareth before his death.



We can't find similar stains in the Right Reverse side or in the Left Front side, for the simple reason that, not being folded along the center line, the full cloth did not physically get into contact with the area we are describing, and thus there was no transfer of blood from the stains already described to other new places.

After the dynamic study of what the EDICES group has called "Central Stains", Prof. Jose Delfin Villalain came to this conclusion: *"We must take into account that the stains are progressively larger in area as they appear in successive layers from the original out and this cannot happen unless gravity is acting together with the diffusion of a liquid that slowly soaks the cloth. If the cloths were in a position opposing gravity, the image would occur the other way around, meaning that the stains would diminish in area farther out, and if the cloths were sideways we would see lateral flows, incompatible with what we actually see. Therefore, the face of the Man of the Sudarium must have been tilted forward ²"*

When the Oviedo Sudarium was placed upon the corpse, the body was still nailed to the cross, in a vertical position, with the head tilted forward, and this means that the stain, in order to reach the Right Front layer starting at the Left Back surface had to do it by going against gravity, in agreement with Prof. Villalain's observations, and thus the stains would be smaller in size in the front than in the reverse side.

Under exam using a reflecting microscope the bloodstains showed more blood in the front than in the reverse side, thus making more probable the hypothesis that the injury causing those stains acted first on the Right Front layer and from there, by soaking through reached the Left Reverse side. This fact makes them into something exceptional with respect to the other bloodstains already studied, because their origin seems to have been not in the Reverse side, but in the front. We should still take into account that they appear at the edge of the cloth, even an edge that could have been placed upon the corpse first of all.

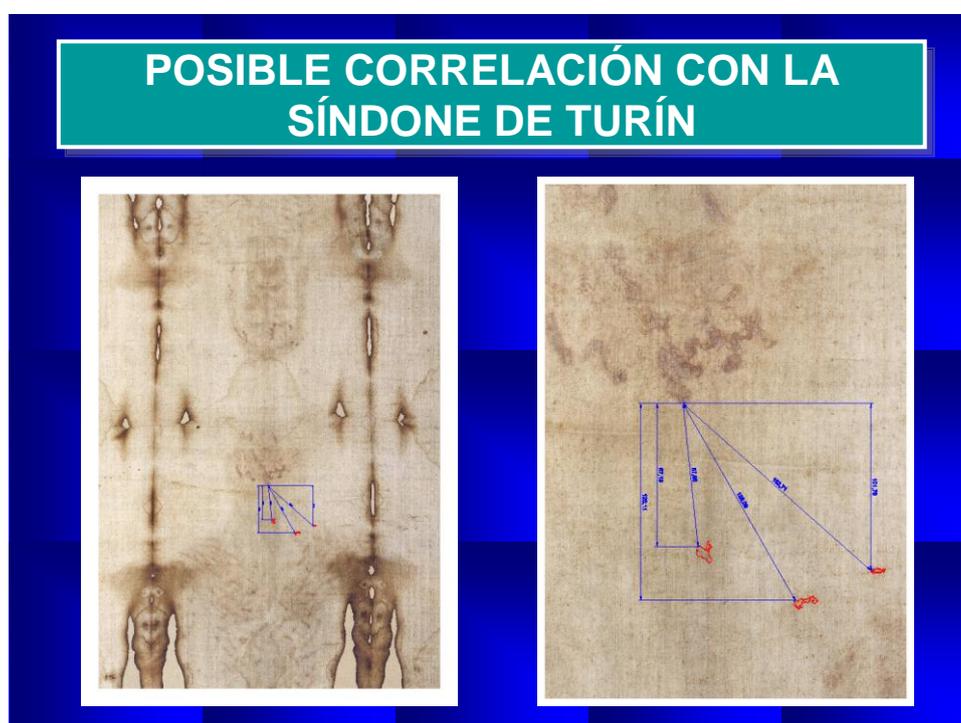
This circumstance sets them in an exceptional position with respect to other bloodstains already discussed, because they seem to arise not from the reverse but from the front side of the cloth. But we must appreciate the fact that they are found on the edge of the cloth and that this edge might have been laid upon the corpse first of all, so that their origin in the front side instead of the reverse -as we could have expected- does not deny the hypothesis of their source being a wound from the scourging and not something else, since the very special circumstances under which the Oviedo Sudarium was used allow this hypothesis. To that effect we can simply remember that this cloth, after being placed upon the head while still on the cross, was folded upon itself several times, giving rise to the "accordion folds".

During the restoration of the Turin Shroud in 2002, besides other findings, fragments of striated muscle were identified in the part that was in contact with the back of the cadaver. This prompted the EDICES group to look for similar tissue fragments in the areas near those bloodstains; unfortunately, using a reflecting microscope, both at low and high power, the muscle fibers could not be found. Still, given the limited ability of those tissue structures to adhere to the linen fibers, even if they were originally present, it is most probable that they would have been irrevocably lost a long time ago due to the mechanical abrasion already described when mentioning the limited presence of blood-related material in bloodstains.

These stains arose in the right side transition zone between the neck and thorax, upon the right trapeze muscle, but very near the central line. In fact, in the Turin Shroud, at this same point, a very similar stain is found, and we don't deny the possibility of another stain under the hair due to the same wounds, because we should remember that the hair of the Man of the Sudarium was displaced towards the left referred to the central line and, after removing the Oviedo cloth, the hair could have returned to its anatomical place according to physical laws and the effect of gravitation, causing that a possible bleeding injury in that position might be invisible in the Shroud image because the hair covered it. In any case, the exam of the Shroud cloth in the section that covered this part of the anatomy, does show the presence of three bloodstains that could be due to the same scourging injury. Unfortunately up to now, the lack of direct access to the Turin Shroud or to a high resolution scanning of it renders impossible a more precise study of those promising stains.

Measurements performed upon the best quality photographs available of the Turin Shroud

give the positions of the previously mentioned bloodstains approximately as 87,66 mm, 138,09 mm, and 152,71 mm below the "punctiform stains", while in the Oviedo Sudarium the distance is 148.30 mm in the Front and 146,59 mm in the Back. The differences do not imply a problem for a common Forensic Medical cause, since they appear in cloths that could have been folded and stretched when they were used, besides the fact that the neck is a flexible part of the anatomy and, in spite of the "rigor mortis" during the burial process its rigidity could have been overcome totally or in part by the person or persons taking part in the funeral rites, thus allowing for the differences in distance between the stains in both cloths, that are not outside the range of what we could reasonably expect. On the other hand, the statistical probability of their mutual distances being exactly equal is minimal.



CONCLUSIONS

We deal with two cloths, rather old and with a high external contamination level after they were used in a burial. The information they contain and that has been discovered up to now, is coherent with the utilization attributed to them, as well as with the present scientific, historical and anthropological knowledge we possess.

From the Forensic Medical viewpoint, according to present scientific knowledge and even if the research work is unfinished, there would be no problem to convince a Court of Justice regarding the assertion that the Turin Shroud and the Oviedo Sudarium enveloped the corpse of the same person, Jesus of Nazareth.

In a synthetic presentation, the following coincidences can be mentioned regarding the bloodstains, having their origin in the face, that soaked both cloths ²:

1. The stains are geometrically compatible in size and relative positions, very similar in both cloths.
2. The stains are due to human blood, type AB, in both cloths.
3. Stains **from a living body** are the same in both cloths.
4. The stains are in those places that could be expected when we describe the process of image formation in the Shroud, where we find the lateral displacement that Lavoie discovered and that Jackson accepted.
5. In the Oviedo Sudarium we can even find evidences compatible with the victim being scourged with a Roman punishment, using the *Flagrum Taxilatium* and also receiving a puncture wound in the chest, compatible with the spear thrust mentioned in the Gospels. That blow should have taken place after death, as inferred from the shape and properties of the bloodstains due to a penetrating wound in the thorax.

Neither cloth indicates that there was any decay of a cadaver, but the body they enveloped was certainly dead, since the blood stains present in the Oviedo Sudarium, in areas in contact with the mouth and nose, have properties compatible with post-mortem blood while lacking any sign of life. Even if the body were still alive, the blood there present would certainly cause death by asphyxiation, impeding the victim's breathing. Therefore we should admit that something happened that stopped the biological process of decomposition of the corpse, thus explaining that its effects are not present as signs of cadaveric decay in the burial cloths.

From the scientific viewpoint, at the present level of research, against the overwhelming majority of data that favor the previous hypothesis, only one fact appears as odd. This is the C-14 dating of both cloths. But still, if both enveloped the same corpse, it seems impossible that the cadaver might have left an imprint in the 7th century, be perfectly preserved afterwards, and then -seven centuries later- would produce identical imprints upon a different cloth. Neither embalming methods nor even freezing the corpse would explain the perfect conservation of the cadaver during such a long period of time, to the point of giving two imprints totally similar upon different cloths several centuries later.

Undoubtedly, according to present scientific knowledge, a third cloth is excluded that might have been placed between the Sudarium and the Shroud, because it would have either the full image or part of it, something that did not happen ².

During the 3rd International Congress on the Shroud, held in Turin in 1998, there was a Communication (authored by Guillermo Heras Moreno, Jose Delfin Villalain Blanco and Jorge Manuel Rodriguez Almenar) that concluded with the following statement:

"The Oviedo Sudarium and the Turin Shroud are two cloths that must be studied together, without forgetting the value of each by itself, but simultaneously without ignoring the information obtained from one of them that might help to better interpret the other one". We can add here that **the Oviedo Sudarium has a definite value by itself.**

The Forensic Medical research on both cloths, already started, should be carried to completion, especially using non-destructive and minimally invasive techniques.

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