

# Perfumes and Pollens on the Shroud Scientific and Religious Approach



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## Opinion

Man has always had a natural need to grasp on what is beyond his strength, his will, his understanding of the world surrounding him, pushing him to delve into the unknown, searching for truth and a place in this expanding universe. The Shroud of Turin is one of the many riddles scientists and technicians have eagerly faced, an enigma many await to be unraveled: is the linen a real burial sheet? Among scientists there is no uniformity, and it has been so for over 100 years. Therefore, it is necessary to know if burial ointments were sprinkled over the corpse.

Such an investigation is fundamental for two reasons:

i) it could close disputes between opposing factions of researchers, ii) it would allow to verify if the Linen of Turin is a real burial linen. To examine the presence of burial ointments on the Shroud, we analyzed the results produced in the last decades.

The above topic has been investigated in an interesting work carried out by a member of the Shroud of Turin Research Project (STURP), Pellicori SF [1]. The author affirms that the microscopic examination agrees with the absence of aromas. This conclusion is due to the fact that the afore mentioned organic substances are fragile when exposed to heat. In other words, they are thermally unstable and we must recall that the Shroud of Turin suffered the 1532 Chambery fire. The combustion took place in a limited oxygen environment and at elevated temperatures [2]. The consequences of this tragic event are scorched and burned areas and water marks [3].

Therefore, after the 1532 fire, it is evident that organic compounds could not be found on the Burial Linen of Turin. Consequently, we cannot state that aromas were originally present. However, we remind the reader that in the Exodus (Old Testament) it is the Lord himself who told Moses to use different aromas to obtain a perfume. Perfumes are pleasing to the Lord.

A year after the publication of Pellicori, a paper in scientific literature appears to be in disagreement with the conclusions made by the STURP researcher. The author of the publication mentioned earlier, Riggi di Numana, analyzed the samples aspirated from the space between the Shroud and the Holland cloth which was sewn, in 1534, along the perimeter of the Shroud as a support and protection. These dusts contain organic compounds and elements that could be the remains of Natron. The latter is a powder used in ancient Egypt (in a time ranging from 3500 BC to 700 AD) to dehydrate the corpse prior to embalming [4]. The problems regarding this aspect (analysis of the dusts) were discussed in another article written by Riggi di Numana et al. [5]. The above scholar completes his work with a Report of chronicles and comments on scientific research concerning the Shroud [6].

Successively, two Italian researchers (Baime Bollone and Gaglio) analyzed a piece of thread extracted from the Shroud during the November 1978 STURP tests, when the removal of fragments of thread was still granted. The scholars used an indirect immunofluorescence technique and they showed evidence of blood and burial ointments, like aloes and myrrh [7,8].

Their results in relation to the presence of ointments strongly disagree with the previously mentioned works for on the Turin Shroud there should not be any kind of anointing. In fact, the deductions of Pellicori are confirmed by the presence of pyrolytic products in the scorch areas and this means it was exposed to high temperatures. Moreover, there are black irregular specks that are due to the molten silver splatter at the time of the 1532 Chambery fire [9]. In this case, the influence of the Sacred Texts on the scientific results is evident. This is a problem that repeats itself over and over in both directions.

As regards to the differences that exist among the three points of view, we agree with organic chemistry and, consequently, with Pellicori who affirmed that there were no traces of ointments on the Shroud of Turin. So, with this state of affairs, we think that perhaps it is possible to seek them through the modifications produced during their presence, taking also into account the 2002 restoration [10].

One of us et al. have noted abrupt changes of the image intensity (or yellowed fibril density) in the areas to the base of the shoulders and buttocks [11,12]. These are areas of corpse-sheet contact where the blood and serum are naturally transferred to the sheet forming the blood image. There, the density of the yellowed fibrils reaches the maximum value because this is what is expected from the correlation between image intensity and corpse-sheet distance. Moreover, we know by fitting procedure, the value (37 mm) that represents the extreme limit of the transferring of energy from the corpse to the linen [13,14]. Beyond 37 mm from the body, the density of the yellowed fibrils on the sheet is zero, as is evident in the no-image region.

The corpse sprinkled with aromatic substances, as was typical in the Jewish funerary customs [15], according to the Torah, was placed in the sepulcher. There, the body wrapped in the burial sheet, was placed in a horizontal position. In this way, the gravity forces redistributed the aromas favoring, even if not uniformly, the linen region where the dorsal image lied. In fact, in this region there should be a larger quantity of ointment with respect to the frontal one. Thus, the abrupt changes that appear on the dorsal part of the Shroud Body Image have a simple explanation: the presence of burial ointments. In fact, in the above areas we see the traces of the blows of the Roman scourge (flagrum). These areas of contact have a density of yellowed fibrils that reaches the maximum value, while on the Shroud linen it is not as expected. Therefore, the aromas were present in origin without being able to say which ones.

Marzia Boi, examined both the images present in literature and the modern pollen grains under light- and scanning electron-microscopy discovering that the pollen grains extracted from the Shroud were different from those known in scientific literature. She verified that the more abundant pollen grains are the *Helichrysum* of the Asteraceae family. Plants used as basis to obtaining burial ointments and aromatic oils. The latter were used

for anointing the corpse before the embalming in order to delay decomposition and to make the smell of the burial acceptable [16,17]. Other pollen grains on the Shroud of Turin (present in minor quantity) derive from aromatic resins such as those of the genus *Cistus* (*ladanum*) and *Ferula* (*galbanum*), plants that bloom in spring. Pollens easily remain attached to fiber for a long time especially when there are greasy botanical substances [18].

It is historically known that, in ancient times, a mixture of balms and ointments was used in the preparation for the burial. However, on the Shroud the presence of botanical substances means traces of anointing and embalming. The above scientist overturns the knowledge obtained in various decades showing that the pollen grains belong to the plants producing oils for burial. Therefore, the Shroud man received a treatment with great honor according to the Hebrew tradition. The same also happened when Joseph of Arimathea [19] brought a linen cloth of the finest quality that was to be used to wrap the corpse of Jesus Christ. This happened because both groups are aware that the man of the Shroud was the Messiah, the Anointed of the Almighty God.

Boi's article was a revolution just like it was for those who had in mind, like us, the old knowledge of the presence of pollens and plants (e.g. *Gundelia tournefortii*). Therefore, the affirmations of Pellicori [1], our observations on the presence of burial ointments [11,12] and the recognition of the pollen grains extracted from the Shroud (using the photos in scientific literature) and the modern pollen grains [16,17] are in line with a burial linen full of traces left by the ointments.

The religious approach was achieved through the analysis of Sacred Texts. In fact, we have investigated the chroniclers of the time (that is, the four Evangelists) when they wrote about the burial of Jesus Christ: Matthew [27,57-61] wrote in his Gospel: "When it was evening, there came a rich man from Arimathea named Joseph, who was himself a disciple of Jesus. He went to Pilate and asked for the body of Jesus, then Pilate ordered it to be handed over. Taking the body, Joseph wrapped it in clean linen and laid it in his new tomb that he had hewn in the rock. Then he rolled a huge stone across the entrance to the tomb and departed. But Mary Magdalene and the other Mary remained sitting there, facing the tomb."

Mark [16,1] wrote: "When the Sabbath was over, Mary Magdalene, the mother of James, and Salome bought spices so that they might go and anoint him." Luke [23,55-56] wrote: "The women who had come from the Galilee with him followed behind, and when they had seen the tomb and the way in which the body was laid in it, they returned and prepared spices and perfumes oils. Then they rested on the sabbath according to the commandment." He introduces the anointing and embalming observing the women go back to prepare aromas and burial ointments for the Saturday. It was late afternoon on Sabbath's day.

John, among the Apostles, was the only present with the Madonna, the women, Nicodemus and Joseph of Arimathea [19].

The other Apostles, fearing the Sanhedrin guards and the Roman ones, remained in hiding. John [19,39] wrote: "Nicodemus, the one who had first come to him a night, also came bringing a mixture of myrrh and aloes weighing about one hundred pounds."

The quantity of aromas that Nicodemus (important member of the Sanhedrin and, in secret, a follower of Jesus Christ) brought was excessive. So, what was it for? John [19,40] continues: "They took the body of Jesus and bound it with burial cloths along with the spices, according to the Jewish burial custom". Evidently, in the utter confusion of those tragic hours, both the women and Nicodemus had brought burial ointments. However, a big doubt remains on the quantity of myrrh and aloes mixtures.

Reading the Gospels (Synoptics and of John), it is easy to understand that Jesus Christ was sprinkled, even if not completely, with aromas according to Jewish burial custom. Therefore, the Religious Approach highlights a Jesus Christ who was anointed and embalmed with burial oils of high quality and wrapped in a clean linen. We believe that it is not impossible to harmonize the whole knowledge, examining the results that come from the scientific world and those of the chronicles of the time (Evangelists). So, we can affirm that the Shroud, with great probability, is a real burial linen with traces of anointing and embalming in line with the Jewish burial custom. Moreover, the research on the pollen grains [16,17] showed that the plants that have furnished the pollens to the Shroud are widespread in a large part of southern Mediterranean Europe.

Asserting that the Shroud is a counterfeit made by a European forger/artist is a big mistake. On the contrary, there are two irrefutable realities: the Turin Shroud is a real funerary sheet (a "Sindon") and its origin is Middle Eastern. However, investigating the possible presence of burial ointments on the Shroud may seem a trivial exercise compared to the unresolved problems like the mechanism which formed the Body Image (the goal of the Turin Linen research) or the age of the Shroud. In reality, it is not so because with the certainty of the origin of the Linen we have not a fake (as it would have been if the linen had had a European origin) but a real burial sheet.

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## Conflict of Interest

The authors have no conflicts of interest.

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