

QUTN

On 24 November 1973, members of the Commission of Experts appointed by Cardinal Pellegrino to examine the Shroud cut a small sample for textile analysis from a margin to be given to Professor Gilbert Raes, who had not yet arrived to Turin. His subsequent analysis was published as Appendix B to the article by Professor Silvio Curto, Egyptologist, in the 1976 Report of the Commission:

It is to be noticed that in the warp as well as the weft of the fabric, traces of cotton fibers were observed. It seemed that the linen threads had been woven in places where cotton had also been woven. These cotton fibers ... correspond to the type *Herbaceum*. This kind of cotton existed in the Middle East.... At the beginning of our era, cotton and linen were both known in the Middle East.¹

Italian sindonologists lost little time in publishing rebuttal to the Commission's findings;² the Raes Analysis Report was commented thus: "...cotton was known in the Middle East.... This indicates that the ancients used cotton as well as linen, thus little cotton fibers remained from a previous weaving." There seemed to be no objection to this new information, on the contrary it was supported by Deuteronomy 22:11: *You will not wear garments woven with wool [lanai and linen [lino] mixed*. The Mosaic Law prohibited a mixture of animal and plant fibers, but a mixture of fibers from different plants was allowed. The cloth could be Jewish.

Evolving from this laconic Report came the blunt statement in 1978 (if not earlier) that "cotton was unknown in Europe". A welcome inference, it marched persistently into 1990, appearing in the latest book by a renowned sindonologist: "In the West, cotton [*Baumwolle*] was never cultivated nor was it ever manufactured there in the Middle Ages." Proof enough that the cotton was grown and the Shroud linen woven in the East, ergo the Shroud was a product of the East before the Middle Ages.

Several readers of *Spectrum* have questioned, even challenged, this categorical declaration, so confidently and repeatedly reported, that cotton, in medieval Europe, was "unknown". George Kurtz, of New York, was one whose perusal of histories led him to doubt the validity. In Massachusetts, Diana Martin, her 10-year-old son cooperating, went scouring the indices on an uncharted trail of books from the Interlibrary Loan. And as you have just read, Don Smith made a minute research, composing his findings into a well-knit argument.

Indeed, for a long time past, bits of ancient European cotton fluff had been floating into my Scrapbook. What I offer here is a loose catena of interesting snippets from Diana and George and the current contents of my Scrapbook: a ragbag of cotton references, randomly discovered in non-technical literature. One could go on for years, plucking linty specimens from the books we read; but already the collection convinces.

That cotton production was introduced to the West by the Arabs is shown by etymology: from the Arabic *quṭn*³ derives *cotone* (Italian), *coton* (French), *algodon* (Spanish), and the English *cotton*. In German an ancient form persists in *Baumwolle*, tree wool, found also in Classical Latin, *lana de ligno*.⁴ The Greek word is βαμβάς, but that refers also to silk. The Indian word *carbāsus* came from the Sanskrit *karpāsa*.

But our word cotton comes from the Arabic *quṭn*.

Cotton originated in India (one author specifies Pakistan⁶), where the plant had been cultivated and woven into cloth since before recorded history. Herodotus († between 430-420 B.C.) remarked: "In India ... there are trees growing wild which produce a kind of wool better than sheep's wool in beauty and quality, which the Indians use for making their clothes."⁷ Cotton was in use in Mediterranean countries by the VIth century B.C.;⁸ the Greeks became acquainted with it during Alexander the Great's expedition into India three hundred years before the Christian era. Later Greeks, like Cleopatra, would not deign to dress in anything but silk;⁹ peasants, of course, had to be satisfied with common stuff like woolens. In the glory of the Byzantine Empire, the raiment of aristocrats and fabulously rich merchants was fashioned of gold brocade, luxurious Venetian velvets, chatoyant silks, pearl-embroidered samite.... And that is why a length of plain unbleached linen could be described, as it was by Nicolas Mesarites in 1201, as cheap material.¹⁰

The secret of silk was jealously guarded by China: "In the second century A.D., the Han emperor Wu-ti agreed to export limited amounts of [silk] ... in return for glass, enamels, high-quality wool and cotton." The last-named was a product of India, imported into Greece.⁹ In the IXth century of our time, two Arabian travelers echoed Herodotus: "In this country [India] they make cotton garments of such extraordinary perfection ... wove to that degree of fineness that they may be drawn through a ring...."¹¹

Egypt was cultivating cotton in the dawn of time. The Egyptian king Amasis (r. 570-526 B.C.), Herodotus relates, had sent a corselet to Sparta as a present. The Spartans sent it to Croesus but in a raid the Samians took the corselet: "It was of linen, embroidered with gold thread and cotton".⁷ In the first century Anno Domini, Pliny wrote: In the upper part of Egypt ... a bush which some people call cotton (Pliny calls it *gossypium*).... No kinds of thread

are more brilliantly white or make a smoother fabric.... Garments made of it are very popular with the priests of Egypt."¹¹

In the warm climate of Rome, by 180 B.C., the fresh feel of cotton garments was appreciated; the fabric was also being used for tent curtains, ships' sails....⁵ An improvement over the sails of papyrus that Herodotus had seen on the Nile.

From time immemorial, around the shores and on the islands of the Mediterranean, cotton was not only known and widely used, but already from Roman times cotton goods were being manufactured in Malta.⁵

In 711, Arabs and Berbers, crossing from Africa, invaded Spain; within two years they had subjected the Visigoths to Muslim rule. They may have found cotton already there, as one source⁵ believes it had been introduced by the Phoenicians. In 827, the Muslims began infiltrating Sicily, with intent to stay; planting lemons, oranges, sugar cane.... "So far as we know, they introduced the first cotton seeds, mulberries, silkworms, date palm, sumac, papyrus, melons ..."^{12,13}

The cotton the Arabs planted was *Gossypium herbaceum*, the most widely cultivated species; and the type found by Prof. Raes in the Shroud linen. *Gossypium herbaceum* was cultivated in Sicily and southern Italy, and became a crop of major importance in the 1940s.¹⁴ The fibers are not strong enough to use alone as warp on a loom, so the warps were usually strengthened by wool or linen in Europe and by silk in China, India and the Middle East,^{6,11} further evidence, perhaps, that the Shroud linen was woven on a loom on which cotton threads had previously been strung. Perhaps in Sicily cotton was woven on a local scale for family use, but by the XIVth century it had become a profitable business in Spain: Isaac Chilo, pilgrim to Jerusalem in 1334, wrote: "We next pass Ramleh.... Among [the Jews] there I found a man from Cordova, and another from Toledo: both of them men of wealth and position. They have cotton factories."¹⁵

And there were busy markets: on 8 September 1253, the *Stella* leaves Genoa for a trading voyage. Before sailing, the mate has to "enquire diligently into the equipment...."; four to seven sails, one of them new and made of canvas, the rest of cotton. The *Stella* calls at Malaga, sells some spices and cotton, then proceeds to Ceuta for buying and selling.¹⁶

By that time, cotton goods were in general use in continental Europe. A biography of King Saint Louis imparts this bit of information, that Adam of Meulan was purchaser of materials for the king's "capas and tunics ... and caps of peacock feathers as well as cotton and felt."¹⁷ In 1296, strict regulations specified that a surcoat, worn over armor, must be of new cloth (usually linen or canvas) "with cotton inside".¹⁸ The same source insists, in 1311,

that there must be in the quilted surcoats, "three livres of *new* cotton". At Canterbury, one can still see the surcoat of the Black Prince wadded with cotton.

This was no innovation of medieval times; raw cotton had already served for stuffing pillows, saddles, etc., since early Rome.⁵

Specific references to Palestine or Syria, where it has been conjectured the Shroud fabric might have been woven, were not found in the books we happened to read. Raes remarked that cotton grew "in the Middle East"; Curto remarks, "in the Near East". Webster defines: *Middle East*: the countries of SW Asia and N Africa. *Near East*: countries of SW Asia and NE Africa. More helpful was an *Herball* of 1633: "The Cotton bush ... groweth in India, Arabia, Egypt, in certaine Islands of the Mediterranean sea, as Cyprus, Candy, Malta, Sicilia, and other provinces of the continent adjacent."¹¹

But the Hebrews of Biblical times wore an inner garment, the *me-il*, of cotton or linen, and it is conjectured that when the Bible mentions "fine linen", the fabric's true name could often be cotton.¹⁹

An ambassador to the Holy Land in 1432, Bertrandon de la Brocquière wrote: "To the west of Mount Tabor ... an extensive plain, filled with date palm trees, and small tufts of trees planted like vines, on which grows the cotton. At sun-rise these last have a singular effect, and seeing their green leaves covered with cotton, the traveler would suppose it had snowed on them." The editor of this text opines that de la Brocquière is mistaken, for although its leaves closely resemble those of the grape, cotton is formed in capsules and not on the leaves.²⁰

Henry Maundrell likewise observed in 1697: "April 15 — we set out ... lodged the first night at Khan Leban.... The country people were now at plough in the fields, in order to sow cotton".²⁰

With these notes, the cotton quest rests its case, thanks to Donald Smith, who was not willing to abide a misconception when he could offer more accurate information; and to Diana Martin and George Kurtz and others who had expressed concern. If by our combined contributions we have shown that cotton was indeed no stranger to Europeans even in remote antiquity, that it was cultivated in Europe before the IXth century and that the making of cotton goods soon became a thriving industry on the continent, then surely, and not without courage, we will have helped the cause of the Shroud, a cause that, even in small details, demands our allegiance to truth. And so doing, we will have saved future authors from innocently perpetuating another flimsy whimsy.

Perhaps our peregrination has been an utterly empty enterprise inspired by the hasty supposition that the cotton fragments found by Gilbert Raes were as ancient as the Shroud, being present on the loom at the time the linen threads were woven. But these cotton fibers have never been examined beyond simple identification. No

proof has been shown that the cotton was "inside" the flax fibers. And since many reparations with cotton thread were made at different epochs, and since on the surface of the Shroud fabric one finds other traces of cotton, as well as silk, wool, polyester, nylon....

As Prof. Gabriel Vial points out: "... there is no reason to invoke the Mishnah to solve the problem of the presence of cotton, which could very well be accidental".

NOTES & REFERENCES

1. *La S. Sindone; Ricerche e Studi della Commissione di Esperti ...* 1969, Turin 1976. Prof. Curto's article, "La Sindone di Torino; Osservazioni Archeologiche circa il Tessuto e l'Immagine" includes Prof. Raes's "Rapporto e Analisi" as an Appendix.
2. *Osservazioni alle Perizie Ufficiali sulla Santa Sindone*, 1969-1976, pub. by the Centro Internazionale di Sindonologia, 1977.
3. AZIZ S. ATIYA: *Crusade, Commerce and Culture*, Indiana University Press, 1962.
4. *Vocabolario Latino-Italiano*, Campanini-Carboni, 1961. See also PIETRO SAVIO: *Ricerche sul Tessuto della Santa Sindone*, 1973. In this monograph, Savio examines the words *othonio* and *sindone*. He writes that in India, *othoni* were made of tree-wool, *lana d'albero*; but translates it *λίνον ξύλινον*, tree-linen; adding that Greek merchants referred to a fabric made of "tree-wool" as *othonion Indicon*, *othonion* of India. Most sources understand tree-wool to refer to cotton.
5. *Harpers Dictionary of Classical Literature and Antiquities*, 1896.
6. HENRY HOBHOUSE: *Seeds of Change*, Harper & Row, 1985.
7. HERODOTUS: *The Histories*, Penguin edition.
8. SILVIO CURTO: "Lungo silenzio in Oriente, poi ...", in *Gazzetta del Popolo*, Sept. 1978.
9. TAMARA TALBOT RICE: *Everyday Life in Byzantium*, Dorset 1987, first pub. 1967.
10. Nicolas Mesarites is quoted in *Annals of Alexius Comnenos*, Bk. III, available in the Heisenberg edition, Würzburg 1907; *Die Palastrevolution des Johannes Komnenos*.
11. BERTHA DODGE: *Cotton*, Texas University Press, 1984.
12. DENIS MACK SMITH: *A History of Sicily*, Vol. I. Dorset Press 1988, first pub. 1968.
13. JOHN JULIUS NORWICH: *The Normans in the South: 1016-1130*, Longmans, London 1967.
14. *Dizionario Enciclopedico Moderno*, 1947, s.v. "Cotone".
15. *Jewish Travellers in the Middle Ages*, Dover 1987, first pub. 1930.

16. MARJORIE ROWLING: *Everyday Life of Medieval Travellers*, Dorset 1989, first pub. 1971.

17. MARGARET WADE LABARGE: *Saint Louis*, Boston 1968.

18. CHARLES FFOULKES: *The Armorer and his Craft*, Dover 1988, first pub. 1912.

19. *A Dictionary of the Holy Bible*, Cadman & Campbell, 1864. This could well be. Instructions for the vestments to be worn by Aaron and the priests were laid down in Exodus 28. Verse 5 specifies that the holy robes be made of "fine linen" (*byssum*) while verse 6 says that the ephod must be made of "twisted linen". Transferring the Ark to Jerusalem, David was "girt with a linen ephod", given as *ephod lineo* in Latin. Again in Exodus 39, the ephod and its girdle are to be made of "twisted linen" (*byssus retorta*). "Fine linen" occurs countless times throughout Scripture. Virginio Timossi ("Analisi del Tessuto della S. Sindone", in the *Acts of the Congress of 1939*, p. 109) observed: "We don't know exactly what the writers of antiquity referred to when they spoke of cotton and linen, since for example, *byssus*, mentioned frequently in the Holy Books, could be linen/cotton according to some authors, or cotton/linen according to others." *Harper's Classical Dict.* says *byssus* is derived from the Hebrew *britz* and is sometimes applied to fine cotton, sometimes to linen. Larousse only hazards that *byssus* is a vegetal plant fiber from which very fine cloth is made.

20. *Early Travels in Palestine*, KTAV Publishing, 1968. "The Travels of Bertrandon de la Brocquière (1432); and Henry Maundrell's "The Journey from Aleppo to Jerusalem" (1697).

NOTA BENE

Some early issues of *Shroud Spectrum International* are now depleted and others are in low supply. (Good xerox copies can be provided.) If your collection is not complete, the issues you lack might well be requested at this time.