

THE POLLEN GRAINS ON THE SHROUD OF TURIN

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Many important investigations have been made on the Shroud of Turin in recent years. Above all the scientists of the "Shroud of Turin Research Project" [STURP] have established that the Shroud is not a work of art nor a forgery fabricated in the Middle Ages, but that it must have originated from the body of a crucified man. By this they confirmed with greater exactness the conviction of scientists, physicians and other scholars of the past century by new arguments, by their admirable teamwork, and especially by the first direct examination of the Shroud (which previously was unthinkable.) (1) To mention but a few names: The anatomist Y. Delage, member of the French Academy and an agnostic (1902), the chemist R. Colson (1902), the biologist P. Vignon (1902), the physicians P. Barbet, then President of the Society of Surgeons of Paris (1933), Judica Cordiglia (1938), P. O'Gorman (1940), H. Moedder (1948), L. Gedda, Lerga Luna, Lopez Gomez (1950) and many others. (2) In particular the diagnosis, made by Barbet, who inspected the Shroud directly at a close distance in 1933, that the "blood" on the Shroud is blood, was confirmed. The attempts to explain the genesis of the body image still offer no convincing solution. It remains today a "mystery." (3)

At the final meeting of STURP at New London, Conn. (U.S.A.) in the Fall of 1981 the scientists conceded that they were unable to say who the crucified man is. This indeed is not a question of (natural) science. (4) However, the Shroud is not an object of science alone. It is an object of history also. The dimensions of historical problems about the Shroud are as vast as the scientific problems. Therefore the work of STURP is incomplete and must be complemented by the work of a broader team of experts.

On the other hand science has already established some data which qualifies to be elements of an argument from circumstantial evidence e.g.:

- a. the traces of a crown of thorns
- b. the wound in the side with "water and blood"
- c. the fact and the extraordinary manner of the burial which accords with the Jewish burial custom in the case of a bloody corpse
- d. in particular the fact that the body could not have been longer than two days in the Shroud since there are no signs of decomposition.

One such remarkable scientific finding seems not to be sufficiently regarded, especially in the U.S.A., namely, the finding of pollen grains on the Shroud by Max Frei.

WHO WAS DR. MAX FREI? Since Dr. Frei in Professor John H. Heller's REPORT ON THE SHROUD OF TURIN (Boston, 1983) appears to be an amateurish "criminologist" (in quotation marks), I feel

obliged to say something about him. Indeed he was a criminologist of international repute. He had founded and directed the esteemed scientific department of the police in Zurich for 25 years. He was a lecturer on criminology at the University of Zurich and guest professor at the Staff Academy of the German police at Munster. Having a doctorate in botany, he developed and introduced new microbiological methods into criminology, which are used today everywhere. After the death of Dag Hammarskjöld he was appointed president of the UN fact finding committee.

As a Zwinglian Protestant Dr. Frei was not a "fan" of Catholic relics. In 1973 he was invited, together with his friend Professor Ghio and Dr. Spigo (Tribunal of Turin), to observe and to examine the accuracy of new photographs made at that time, including UV and IR. While examining the Shroud with a microscope, he noticed some pollen grains. This excited his interest, since pollen analysis was his special field. He was allowed to take samples by 12 sticky tapes (240 cm) from the upper third part of the Shroud, out of the body image. The Shroud, at first an "interesting case", in the course of time became for him, as it did years later for the STURP scientists, a most personal matter. During the next nine years he devoted all his spare time and invested enormous personal finances in order to make seven expeditions to the Middle East to identify the pollens most of which were not yet registered with microphotographs in the botanical manuals or in herbariums. Dr. Frei published a short article on his investigations in Shroud Spectrum International in June 1982. About that time he became ill and he died on January 14, 1983, before he could perfect a final comprehensive work. Dr. Frei's competence and objectivity in the Shroud problems was recognized to such an extent in Europe, that he was nominated President of the Shroud Congress at Bologna in November 1981.

For many years I enjoyed a friendly relationship with Dr. Frei. Whenever I mentioned pollens in my publications, I consulted with him and sought his judgment. Shortly before his death, in his last letter, he approved a new manner of presentation of the botanical data that I had elaborated: A tabular survey instead of several lists which had to be compared. This new method of presentation, since perfected and in principle approved by some botanists, facilitates an appreciation of the importance of Dr. Frei's work. It is here published for the first time. All the botanical data in the following table is, of course, from Dr. Frei. The data was published in the dossiers of the Shroud Congress of Turin 1978 and the Shroud Congress of Bologna 1981.

Not being a botanist, I cannot judge the botanical data. Therefore, as I have done in such matters for more than thirty years, I have consulted experts: the Botanical Institute of the Technical university of Darmstadt, where I was lecturer for many years; the Biological-Archaeological Institute of the University of Groningen (Netherlands); and the museum Haaretz at Tel Aviv.

The examination will require a longer time, since many of the pollens of the Middle East vegetation are not yet registered with microphotographs in botanical manuals. (Hence it was that Dr. Frei had to undertake so many expeditions.)

Perhaps one or the other point in statements of Dr. Frei needs to be completed, corrected, or more carefully defined. I learned from the botanists whom I consulted, that the determination or identification of pollens is a very difficult task. In some cases it is not possible to determine the species but only the genus i.e. the larger group in the botanical system (as in Dr. Frei's list). On the other hand, by his investigations at the places where the various plants grow, Dr. Frei had acquired a more concrete knowledge than was possible merely from botanical manuals. The general view which is presented in the following table seems to be so extensive and clear that its value is not depreciated even if some additions, corrections, or queries should be made. My contribution is the manner of presentation and some historical, geographical, and iconographical aspects.

STATISTICS, ANALYSIS, CONCLUSIONS.

1. There are 58 species of plants whose pollens have been found on the Shroud. However, only 17 of them i.e. less than a third of these grow in France or Italy. That pollens from European plants are on the Shroud was to be expected according to the long criminalological experience of Dr. Frei. However, the small number of European species is astonishing in view of the immense manifoldness of the European vegetation. All of these, except one (Nr.4) was detected on the first 12 samples (240 cm) taken by Dr. Frei in 1973. On the samples which Dr. Frei took in October 1978 and which he received from Professor Baima Bollone and Professor Riggi he detected 10 more species, but only one more from a European plant (Nr.4). (7) The small number of European species can be explained by the history of the Shroud in Europe. Only on certain occasions was the Shroud exposed in the open for a few days. Normally it was protected from a contamination by pollens in the shrine where it was concealed. Perhaps we can give one concrete example. There are pollens of rice on the Shroud. In 1494 and in 1560 the Shroud was exposed on the balcony of the castle of Vercelli, center of the principle rice area in Europe. (8)

2. The spectrum of the non-European species is highly astonishing. It is true that these species grow in many regions of Africa and western Asia, but not all of them grow in one region. There is only one place where all these plants (except for three which need special consideration) grow in a very small radius: Jerusalem. The explanation of such an exceptionally wide spectrum of vegetation in such a small area is the extraordinary geographical position of Jerusalem on the ridge of the mountains of Juda precisely between the Mediterranean area and the steppes and the deserts around the Dead Sea with very different soils. The map of Palestine illustrates this. Certainly some pollens could be on the Shroud by accident e.g. during the investigation of the Shroud in October 1978 just such an accident occurred. As Dr. Frei prepared to take samples by sticky tapes, one of the STURP scientists, fearing contamination of the Shroud, helpfully gave him a pair of cotton gloves. However they were not sterile and thus a pollen grain from an American plant (*Ambrosia coronopifolia*) got on the tape. Dr. Frei registered it, but it is obviously without any significance for the history of the Shroud.

Even if some pollens came on the Shroud by accident, the clarity of the general view is even more striking: All the non-European plants whose pollens are on the Shroud (with the exception of the three mentioned above) grow in Jerusalem. The number of these species exceeds by far the number of European species. This cannot be an accident. The only obvious explanation for such a plethora of pollens from plants which grow in the area of Jerusalem, seems to be that the Shroud was in Jerusalem before it came to Europe.

3. An objection: Against this argumentation an apparently weighty objection has been made:

It is possible that the pollens were transported by winds to Europe. Indeed under certain conditions pollens can be transported over thousands of kilometers e.g. from Florida to the region of New York. However such a transport of pollens from Palestine to France or Italy can be excluded for several reasons:

a. The geographic and climatic conditions in the Mediterranean and European areas differ totally from the relatively uniform Atlantic zone of the U.S.A. The area between the Middle East and Italy and France - more than 2500 kilometers - is manifoldly differentiated by the various basins of the Mediterranean Sea and by several high mountains. Therefore the typical Mediterranean wind system is very complicated, as can be seen on the map of the Mediterranean area. During the summer half of the year in the east basin of the Mediterranean Sea the Etesian winds which blow from the north, prevent a transport of pollens from Palestine to Europe. The constancy of these winds was a stable factor for ancient navigation, and the climate in the eastern part of the Mediterranean area is called simply the Etesian climate. Occasionally the dreaded scirocco brings dust and pollens from the Sahara to Europe, but a transport of pollens from the Middle East is highly improbable.

b. An even more weighty argument against this objection is the simple historical fact: Pollen grains can come onto the Shroud only when it is exposed in the open air. It would have been a stupendous miracle if precisely on the few days when the Shroud was exposed, storms brought pollens over a distance of 2500 kilometers, and moreover, many more pollens than from the European environs.

c. Furthermore, the plants whose pollens are on the Shroud are in bloom in different seasons of the year. Therefore the same improbable accident must have happened repeatedly.

The unique sound explanation of the botanical data seems to be that the Shroud really was in the only region where all these plants grow: Jerusalem. The spectrum of pollens, notwithstanding some questions, is an overwhelming argument.

4. Concerning the three non-European species missing in Jerusalem: Two of these (Nr. 8 and 45) were found by Dr. Frei in Urfa. The third, south Anatolia (the ancient Edessa Nr. 18) was found in Constantinople. He believed that by this evidence the probable historical route of the Shroud is confirmed. I agree that it agrees with the route which I believe to be highly probable for historical and iconographical reasons which are impossible to demonstrate here. However, I think that one or two species of pollens are not enough to establish the fact.

The relatively small number of pollens from plants which would qualify to prove that the Shroud was once in Edessa and Constantinople, and that for a millenium, is easily explained: If the present day Shroud of Turin is identical with the famous Christ image of Edessa, which was venerated as the image "not made by hands" (and I think this to be probable) then it was never exposed in the open. That is attested to by Byzantine documents, which I have studied in the original text. Folded in eight layers, it was concealed in a golden shrine. In Edessa the metropolitan alone was allowed twice a year to remove the white or purple cloth by which the shrine was covered. In

Constantinople, where that image has been preserved since 944 in the Pharos chapel of the imperial palace, it was named the "Holy Mandyllion."

5. Some overstatements. In some popular publications the authors tend to claim "too much" based on the presence of the pollens on the Shroud. (9) There is no plant whose pollens are on the Shroud, which grows exclusively in either Jerusalem or in south Anatolia. Rather the presence of the Shroud in Jerusalem prior to its appearance in Europe is based on the entire spectrum of the pollens on the Shroud. From the pollens alone nothing can be proven about the age of the Shroud. Dating requires historical evidence. Contrary to some statements it must be admitted that all the plants whose pollens are on the Shroud, can still be found growing today. Thus Dr. Frei was able to develop his unique method of identification of unknown pollens. He collected ripe pollens from plants in various regions and compared them with the unidentified pollens on the Shroud.

FINAL REFLECTIONS.

1. In conclusion I suggest that the STURP scientists fill a lacuna in their admirable work by examining the investigation of the pollens on the Shroud. No doubt on the samples (tapes) which were the basis of the STURP investigations, there were many pollens.

2. Collaboration and meetings of experts in the same field are both useful and necessary. A Congress with numerous reports in a few days is both important and impressive. However, in our present day circumstances, I think that a small symposium of top experts in their own field who are interested and willing to listen to experts in other fields, would be more practical and beneficial. Such a symposium should include not only plenary sessions but also small group discussions. In sindonology all of us - scientists, physicians, historians, iconographers, exegetes, etc. - are both experts and laymen.
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FOOTNOTES.

1. John H. Heller, REPORT ON THE SHROUD, Boston 1983, especially: pg. 200 ff.: "Gedankenexperiment"; 213 ff.
2. Cf. the specified bibliography in W. Bulst, DAS GRABTUCH VON TURIN, Frankfurt, 1959, pg. 132 ff. English translation: THE SHROUD OF TURIN, Milwaukee 1957, pg. 147 ff.; L. Fossati, Breve saggio critico di bibliografia e di informazione sulla S. Sindone, Turin 1978.
3. Heller, REPORT, pg. 218.
4. Heller, Report, pg. 213 ff.
5. The basis of this map is taken from the "Biblisches-Historisches Handwoeterbuch", vol. III, Goettingen 1964.
6. The basis of this map is taken from the dtv-Perthes-Weltatlas, Vol. VIII, 1976.
7. Shroud Spectrum International, I, n.3, pg. 3.
8. Cf. chronological table in Wilson, TURIN SHROUD, London 1978, pg. 224 ff.
9. Cf. Frank Tribbe, PORTRAIT OF JESUS?, New York 1983, pg. 114 f.