

THE POLLEN GRAINS
ON THE SHROUD OF TURIN

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Many important investigations have been made on the Shroud of Turin in the last few years. Above all, the scientists of the "Shroud of Turin Research Project" (STURP) established that the Shroud is not any work of art nor a forgery fabricated in the Middle Ages, but that it must have originated from the body of a crucified man.¹ More exactly, by new arguments, by their admirable teamwork and especially by the first direct examination of the Shroud (formerly unthinkable), they confirmed the conviction expressed by scientists, physicians and other scholars for almost a century. To mention but a few names: the anatomist Yves Delage, member of the French Academy, an agnostic (1902); the chemist René Colson (1902); the biologist Paul Vignon (1902); the physicians Pierre Barbet, then, president of the Society of Surgeons of Paris (1933), Judica-Cordiglia (1938), O'Gorman (1904), Mödder (1948), Gedda, Lerga Luna, Lopez Gomez (1950), and many others.² One instance in particular should be noticed: Barbet inspected the Shroud at close range in 1933 and diagnosed the "blood" on the cloth as real blood, and new tests have shown that his diagnosis was correct. However, attempts to explain the genesis of the body image remain, even today, without a convincing solution. It is still a "mystery".³

At the STURP meeting in New London in the fall of 1981, the scientists did not identify that crucified man. Identification of the figure is, indeed, not a question of Natural Science.⁴ But the Shroud is not an object of science alone. It is also an object of history. And the dimensions of historical problems are quite as vast as the scientific problems. Therefore, the purely scientific research of STURP must be completed by a more extensive teamwork.

On the other hand, science has already established some data which are qualified to be elements for discussion by their circumstantial evidence:

- the traces of a crown of thorns;
- the side wound showing "water and blood";
- the fact of the burial and the extraordinary manner of the burial procedure, which was in accordance with Jewish burial custom in the case of the presence of blood as the result of a violent death.*
- and the fact that this body could not have lain for more than two days in the Shroud, for there are no signs of decomposition.

* See also: G. LAVOIE, "In Accordance with Jewish Burial Custom, the Body of Jesus was not Washed", *Spectrum*, June 1982, pg 8. (Ed.)

One of the recent remarkable findings is not, it seems, sufficiently regarded, particularly in the United States: the finding of pollen grains on the Shroud by Max Frei.

Who Was Dr. Frei?

Since Dr. John H. Heller, in his *Report on the Shroud of Turin* (Boston 1983) presents Dr. Frei as an amateurish "criminologist" (Heller's quotes) who intruded himself armed with a "Woolworth container" (pg 108), I feel obliged to say something about him. In fact, he was a criminologist of international repute. He founded the renowned scientific department of the Zurich Criminal Police and was its director for 25 years. He was lecturer in criminalistics at the University of Zurich and guest professor at the Staff Academy of the German Police at Munster. Doctor in botany, he developed and introduced new microbiological methods into criminalistics, methods which are now used everywhere. After the death of Dag Hammersköld, he was appointed president of the United Nations fact-finding committee.

As a Zwinglian Protestant, Dr. Frei was certainly not a "fan" of Catholic relics. In 1973, together with Prof. Ghio and Dr. Spigo (Turin Tribunal), he was invited to verify the accuracy of the 1969 photographs. Examining the Shroud by microscope, he detected some pollen grains. This excited his interest, since pollen analysis was his special field. He was allowed to take samples by twelve sticky tapes (240 cm²) from the upper third of the body image on the Shroud. At first only an interesting "case", in the course of time the Shroud became for him a most personal matter. For nine years he devoted all his spare time and enormous expenses for the seven expeditions to the Middle East to identify his pollens, most of which were not yet registered with microphotographs in the botanic manuals nor in the herbariums. Dr. Frei published a short original article on his investigations in the June 1982 issue of *Shroud Spectrum International*. About that time, he became ill and died January 1983, before he could accomplish a final comprehensive work. His competence and his objectivity in Shroud problems were so highly appreciated in Europe that he was appointed president of the Bologna Congress of Sindonology (Nov. 1981).

I entertained friendly relations with Dr. Frei for many years. Whenever I made mention of the pollens in my publications, I asked his judgment. In his last letter, written shortly before his death, he approved a new manner of presentation of the botanic data which I had elaborated: a single tabular survey instead of the several lists which had to be compared. This new manner, in the meantime perfected and approved, in principle, by some botanists, facilitates our perception of the importance of Dr. Frei's work. It is published here for the first time. All the botanic data in the following table are, of course, from Dr. Frei and have been published in the Acts of Congress, Turin 1978, and the Acts of Congress, Bologna 1983.*

As I am not a botanist, I cannot evaluate the botanic data. Therefore, as I have been doing in such circumstances for more than thirty years, I have consulted experts: the Botanic Institute of the Technical University of Darmstadt, where I was lecturer for many years; the Geobotanic Institute of the University of Freiburg; the Biologic-Archeologic Institute of the University of Groningen (Netherlands) and the Haaretz Museum in Tel Aviv. The answers I have received so far have, in principle, been positive. More time will be needed for

* See RECENTLY PUBLISHED, pg. 39 of this issue. [Ed.]

POLLEN TABLE

Legend:

1) *The numbers of the alphabetic list:*

0 = Plants which grow (also) in France or (North-) Italy 17

□ = Plants which have been found in Jerusalem, except those
which also grow in Europe 38

2) *The signs in the tabulation:*

+ = Places where pollens have been found on the expeditions
of Dr. Frei.

● = Other areas where the various plants grow.

3) *The column "Jerusalem":*

+ = Plants whose pollens have been found in Jerusalem.

Total Number 45

Except the plants which grow in Europe too 38

⊕ = Plants typical or frequent in Jerusalem and its surrounding . . . 17

an accurate examination, because many of the pollens are not yet registered with microphotographs in the botanic manuals. I learned from the botanists that the identification of pollens is very difficult work. In some cases, perhaps, not the species (as in Dr. Frei's lists) but only the genus, i.e., the larger category in the botanic system, can be defined.

Dr. Frei was an exceptional expert in Mediterranean flora. He had made his doctoral thesis on the flora of Sicily. For more than forty years, he spent his vacations botanizing in Southern France and Southern Italy, in Corsica, Tunisia, etc., and the last ten years in the Middle East, especially Palestine. He had built up a Mediterranean herbarium. And he explored the flora with the eyes of a criminologist. I suggest that no one could match his extensive knowledge of pollens from Mediterranean plants. He identified all the pollens he had detected on the Shroud by comparing them with ripe pollens which he himself had gathered from plants in the regions of the Middle East. Therefore,

I am convinced that at least the general view presented in the following table is a solid basis that will not be depreciated even though some completions, corrections or queries should eventually be made. My own contribution is the new manner of presentation (in principle approved by Dr. Frei himself) and some historical and geographical aspects.

Statistics and Analysis

1) Pollens from 58 species of plants have been found on the Shroud. But only 17 of these, i.e., less than one-third, grow in France or Italy. It was to be expected that pollen from European plants would be found on the Shroud. But in view of the immense variety of European vegetation, the small representation of European species is astonishing. And all 17 except one (#4) were detected on the first twelve samples taken by Dr. Frei in 1973. From his samples taken in October 1978 and those he received from Profs. Baima Bollone and Riggi, he identified ten further species, but only one (#4) from a European plant.⁵ The small number of European species can be explained by the history of the Shroud in Europe, for, normally kept in a closed reliquary, the Shroud was protected from pollen contamination. Only on special occasions was it exposed in the open.

Perhaps the following is a good illustration: There are rice pollens on the Shroud; in 1494 and 1560, the relic was exposed on the balcony of the Castle of Vercelli,⁶ Europe's principle rice-growing center.

2) The spectrum of non-European species is highly astonishing. It is true that some of these plants grow in many regions of Africa and Western Asia, but only *some* of them. There is only one place where all these plants—with the exception of three, which need special consideration—grow in a very small radius: Jerusalem. Such an exceptionally wide spectrum of vegetation in such a small area is determined by the extraordinary geographical position of Jerusalem: on the mountain ridge of Juda, between the Mediterranean area and the steppes and deserts around the Dead Sea, all with very different soils, as one can see on the map of Palestine (Fig. 1).

Certainly, some pollens could have been deposited on the Shroud by accident. During the tests of October 1978, such an accident occurred. When Dr. Frei was ready to take samples by sticky tapes, one

of the STURP scientists, fearing contamination of the Linen, helpfully gave him a pair of cotton gloves brought from America for the express purpose of handling the Shroud. And so a pollen grain from an American plant (*Ambrosia coronopifolia*) was picked up on the tape. Dr. Frei registered it, but it is obviously without any significance in the history of the Shroud.

Even though some pollens could have been deposited on the Shroud by accident, the clearness of the *overall* view is striking: all non-European plants whose pollens are on the Shroud, except the three mentioned above, grow in Jerusalem. And the number of these species far outnumbers those of European species. This cannot be an accident. The only logical explanation for such an abundance of pollens from plants which grow in Jerusalem seems to be that the Shroud was there before it came to Europe.

An Objection

Against this argument, an apparently weighty objection has been raised: The pollens could have been carried to Europe on winds. Indeed, under certain conditions, pollen can be transported over hundreds of kilometers, e.g., from Florida to New York. However, several reasons exclude a transport of pollens from Palestine to France or Italy:

a) The geographic and climatic conditions in the Mediterranean and European areas differ totally from the relatively uniform Atlantic coastline of the United States. The area between the Middle East and Italy and France, ca. 2500 kms., is manifoldly differentiated by the various Mediterranean basins and by several high mountain ranges. The Mediterranean wind system is, consequently, very complicated, as can be seen on the map of the Mediterranean area (Fig. 2). During the six summer months, the eastern basin of the Mediterranean Sea is swept by the Etesian winds which, blowing from the North, prevent a transport of pollens from Palestine to Europe. The constancy of these winds was a determinant in ancient navigation, and the climate in the eastern part of the Mediterranean area is, in fact, named the Etesian Climate. The dreaded Scirocco of the Sahara sometimes, though very rarely, brings dust and pollens to Europe. But a transport of pollens from the Middle East is highly improbable.

b) The objection is further weakened by a simple historical fact. Pollen grains can come upon the Shroud only when it is exposed in the open. It would have been a stupendous miracle if, precisely in the few days when the Shroud was being exposed, storms would have brought pollens over a distance of 2500 kms. and—even more miraculous—if those winds were carrying many more pollens from the East than from the European environment.

c) Moreover, the pollens on the Shroud are from plants which bloom in different seasons of the year. Therefore, the same improbable "accident" must have happened repeatedly.

The only sound explanation of the botanic data seems to be that the

Shroud really was in the only region where all the plants grow: in Jerusalem. Notwithstanding some questions, the pollen spectrum is an overwhelming argument.

Concerning the three non-European species not found in Jerusalem, two (#8 & #45) were found by Dr. Frei in Urfa, South Anatolia, the ancient Edessa; and one (#18) in Constantinople. This seems to accord with the Shroud's historical itinerary and with iconographical evidence. But I think one or two species of pollen are not enough to constitute a proof.

The number of species which would be qualified to prove that the Shroud was in Edessa and Constantinople is relatively small, but this is easily explained: If today's Turin Shroud is identical with the famous Edessa image of Christ venerated as "not made by hands" (what I consider to be likely), it was never exposed in the open. Byzantine documents attest that in Edessa the Image, folded in eight layers, was concealed in a golden shrine. Twice a year, the Edessan Metropolitan—and no one but he—was allowed to remove the white or purple cloth which covered the shrine.⁷

Some Overstatements

The authors of some popular publications try to prove too much by the pollens found on the Shroud.⁸ There are on the Shroud no pollens from any plant which grows exclusively in Jerusalem or in South Anatolia. Only from the purview of the entire pollen-spectrum does it follow that the Shroud was in the region of Jerusalem before it came to Europe. Nor can we date the Shroud from pollens alone. For this, one must consult historical documents. Contrary to what has been claimed, no pollen, found and identified on the Shroud, comes from a plant which is today extinct. Many varieties have been found by Israeli scientists embedded as microfossils in the mud at the bottom of the Dead Sea and the Sea of Galilee, but these plants still grow in Palestine. In fact, the only way that it was possible to identify the previously-unknown pollens was to compare them with ripe pollens which Dr. Frei collected from plants growing nowadays in the several regions.

Final Reflections

As a conclusion of this article, I invite the scientists of STURP to fill the gap in their admirable work by examining the pollen research. I do not doubt but what there are many pollens on the samples that were the basis of STURP investigations.

And in closing, permit me to make a concrete suggestion. The collaboration and the meetings of experts in the same field are useful and necessary. Great congresses with many reports given in the space of a few days are important and impressive. But I believe that in today's circumstances, it would be more advantageous to hold a symposium of experts, not too many, who excel in their own fields and are, furthermore, willing to see and to hear beyond the bounds of their own

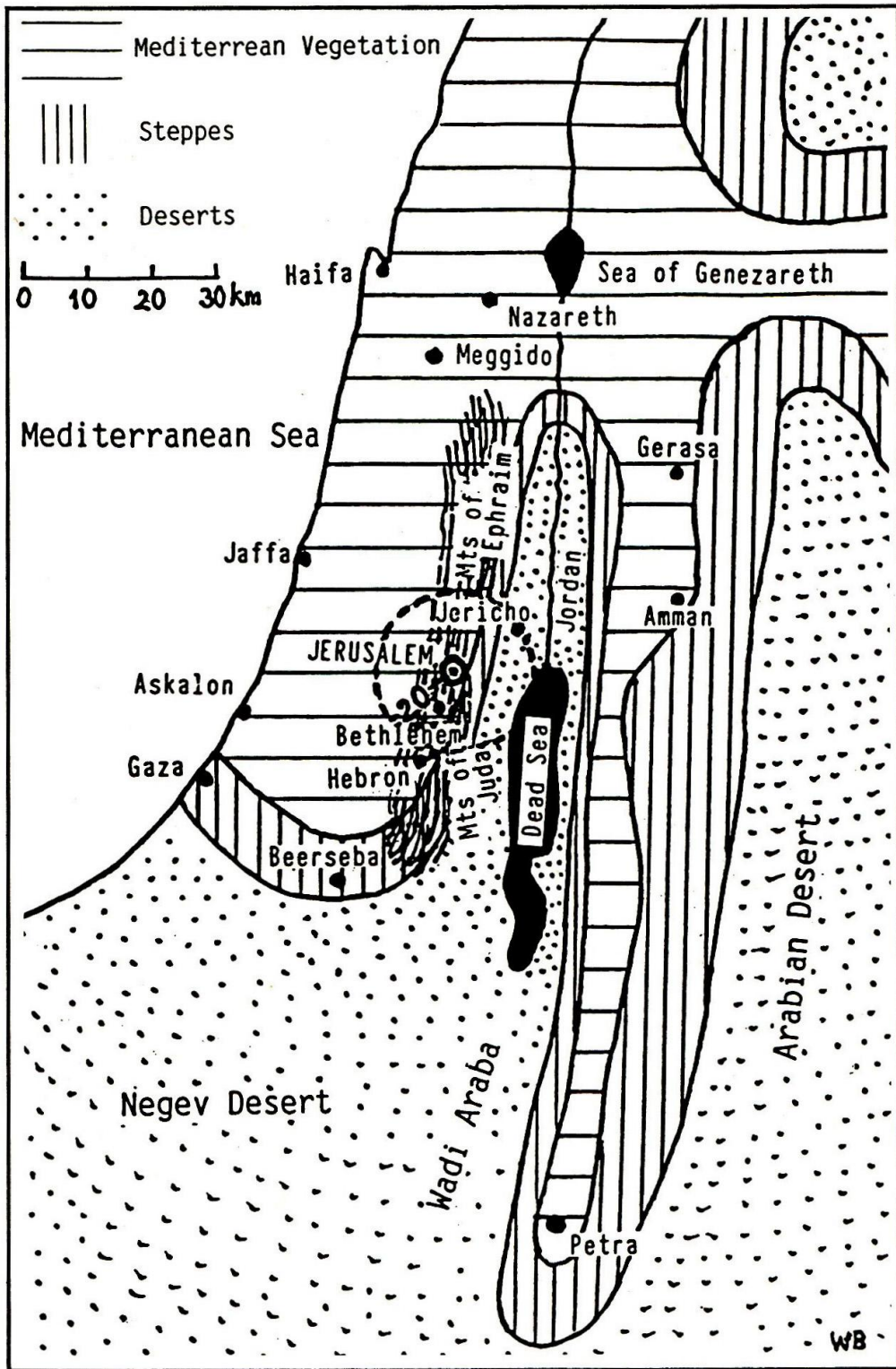


Fig. 1: Vegetation Map of Palestine (simplified)

Jerusalem is situated on the ridge of the mountains of Juda, exactly on the climatic and water divide between the Mediterranean area on the west and the steppes and deserts around the Dead Sea, the lowest part of the earth's surface. The great variety of the soils cannot be depicted on such a small map. There are sandy, stony, limy and salty soils in the nearest environs of Jerusalem.

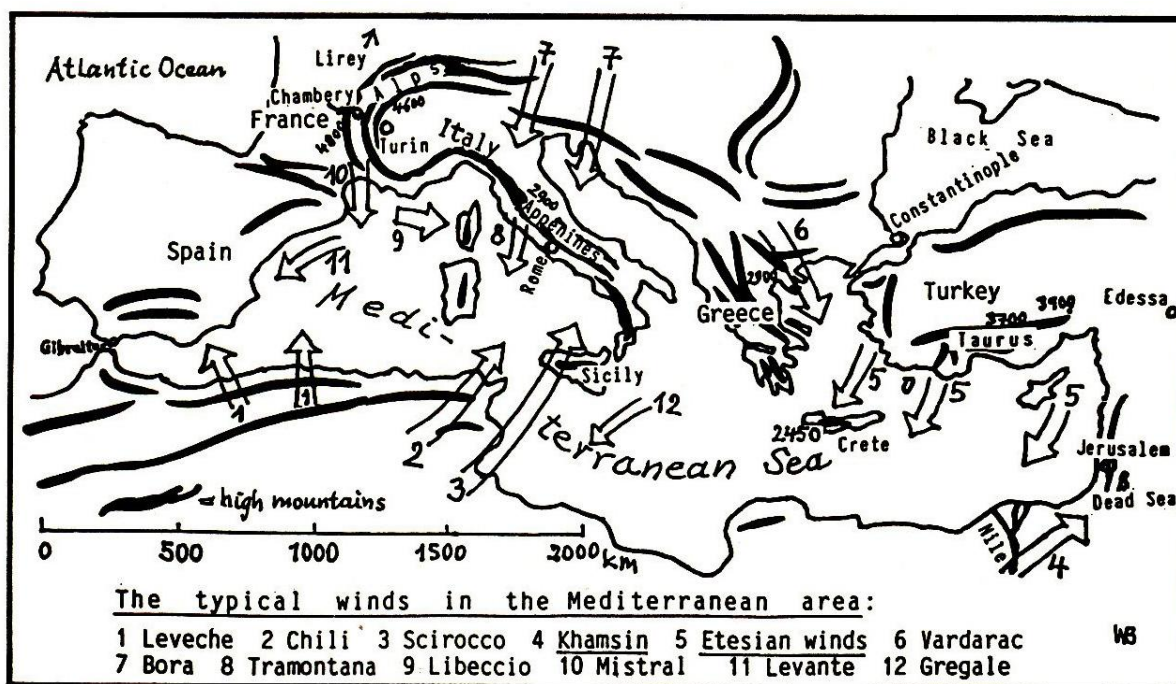


Fig. 2: The typical winds in the Mediterranean area.

Winds from the west, from the east and southeast change direction, sometimes in the course of one day. Especially the southeasterly Khamsin, which blows at Easter-time and in October, brings dust and pollens from the steppes and deserts to the Jerusalem area.

specializations. For such a symposium, there should be time enough, not only for reports in the plenum, but also for mixed study groups. In the study of the Shroud, all of us—scientists, historians, iconographers, exegetes, etc., — are at the same time experts and laymen.

REFERENCES

1. JOHN H. HELLER, *Report on the Shroud of Turin*, Boston 1983, especially: pg. 200 ff.: "Gedankenexperiment"; 213 ff.
2. Cf. the specified bibliography in W. BULST, *Das Grabtuch von Turin*², Francfort 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.
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6. Cf. the chronological table in I. WILSON, *The Turin Shroud*, London, 1978 pg. 224.
7. E.v. DOBSCHÜTZ: *Christusbilder*, Leipzig 1899, pg 163; documents: pg. 182*, 29**ff., 204** ff.
8. Cf. FRANK C. TRIBBE, *Portrait of Jesus?* New York 1983, pg. 114 f.