

## The Shroud of Jesus Christ: the "Scientific Gospel" to Renew the Faith in Resurrection

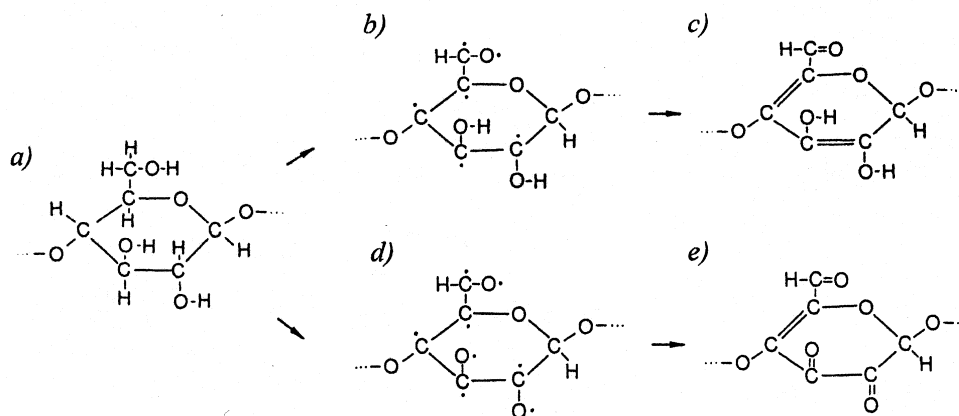
The Resurrection of Jesus Christ was a historic fact which happened, according to the Christian faith, with the Messiah, the "incarnated Word of God". But this event poses some scientific questions, for example, what happened with the atoms of the corpse? The Shroud of Jesus Christ is able to shed light upon this mystery, because it was present during that historic event in the grave of Jerusalem, and it is possible to study scientifically the traces in it, above all the body image, the abnormal radiocarbon content, and the traces of the hair.

### 1 The body Image

The body image consists of chemically degraded cellulose, i. e. *conjugated double bonds* and *carbonyl groups*, but mostly *conjugated carbonyl groups* [1]. Being a chemist, I have a comprehensive knowledge to say which reactions could produce these chemical groups in the linen. To form conjugated double bonds and carbonyl groups in cellulose (figure 1a), it is necessary for atoms to be split off (figure 1b and d). Afterwards the "chromophores" of the yellow colour of the body image (figure 1c and e) could be generated:

Figure 1: Formation of conjugated double bonds and carbonyl groups in cellulose

First, from the cellulose molecules (a) atoms are separated; the resulting free electrons (points in figure b or d) form conjugated double bonds ( $-C=C-C=C-$ ) or carbonyl groups ( $C=O$ ), shown in (c), or they form conjugated carbonyl groups ( $CO-CO$ ), as shown in (e).



It can be *excluded* that relatively high temperatures (like scorching with a hot flat iron) have produced this degradation, because this must be connected also with "pyrolytic compounds"; but these were found only on the spots burnt in 1532 [2], however, not in the body image.

The image of the body in the Shroud, however, could be caused by a *radiation* coming perpendicularly from the surface of the corpse, because this is very clear and undistorted depicted; this colouring is penetrating only at most 125 micrometres into the cellulose, but only on those free spots which were not covered, i. e. by blood stains or other threads [3].

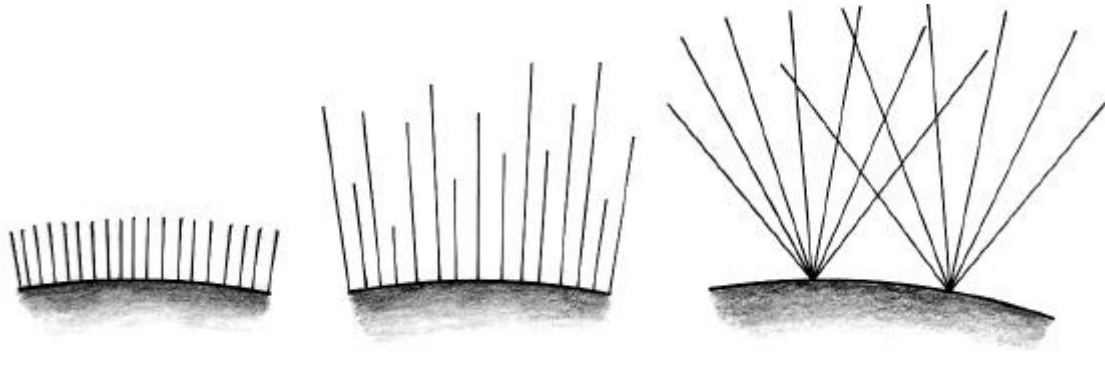
Figure 2 (page 2) shows the characteristic spreading and absorption in the air of all possible rays: i. e. alpha-, electron-, UV-, and X- rays. Only electron rays have characteristics which could cause such traces as found in the Shroud: in case of *great radiation densities* the spreading must be *parallel*, being *sufficiently absorbed* by the air. In figure 2c the spreading which goes in all directions is only marked for the origin of two points.

Figure 2: Different types of rays which can split off atoms in cellulose

a) alpha rays,  
proton rays

b) electron rays

c) gamma rays,  
UV, X-rays



We have another indication for electron rays: the traces of coins on the eye lids. OSWALD SCHEUERMANN [4] could produce similar traces by electrical charging and subsequent discharging on a linen. Figure 3b shows the traces on the right eye (as a photographic negative) in the Shroud; the signs are shown in figure 3c; a corresponding coin can be seen in figure 3a; finally, 3d shows (positive) traces of a today's coin in linen reproduced by SCHEUERMANN.

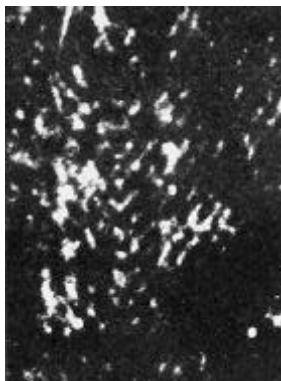
Figure 3: Traces of a coin from the year 29, but also of a recent one

a) Incomplete coin of the  
time of P. PILATE

b) Negative of the Shroud:  
traces on the right eye

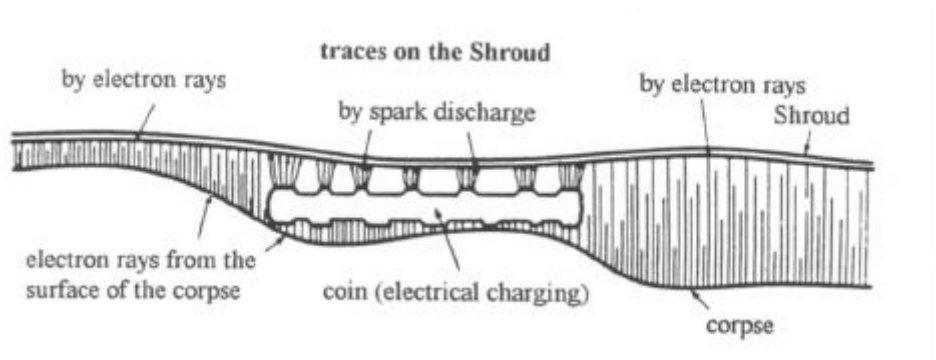
c) Lituus (Crosier)  
and some letters

d) Positive of today's coin re-  
produced by SCHEUERMANN



Thus, the body image and the traces of coins can be explained by the same cause, namely an electron radiation which emerged from the surface of the corpse. Figure 4 shows this schematically.

Figure 4: Origin of the body image and the traces of coins in the Shroud



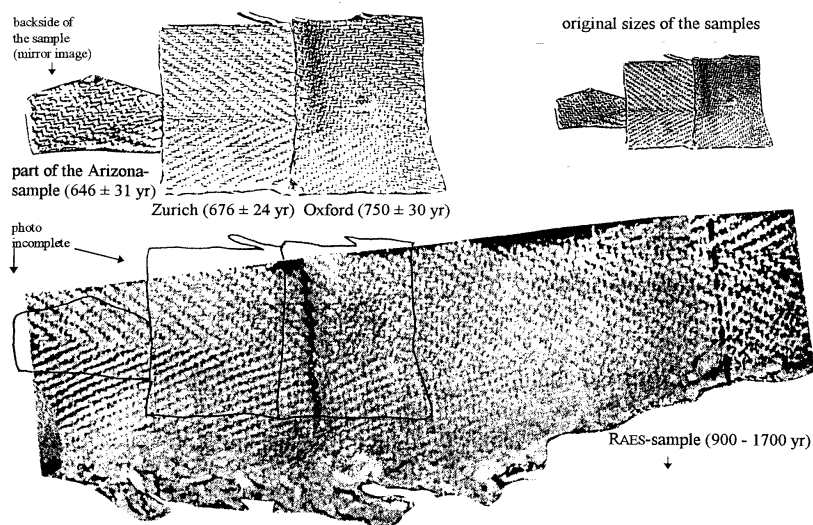
It is not possible to simulate the conditions of electron radiation that took place during the Resurrection of Jesus Christ. This has two reasons: the first problem is that the singularity must have caused very high rates of electron rays, and such high electron sources are not available. The second problem concerns the density of the electron radiation: the denser the electron radiation is, the more likely is dissociation of hydrogen-atoms from *vicinal* carbon-atoms, so that, then, conjugated double bonds and carbonyl groups could be formed. In the case of a lower density it may be possible that oxygen reacts with dangling bonds, so that fewer double bonds would be formed [5]. Therefore, one cannot expect that the same reactions in cellulose would occur by compensating for a *smaller* source of electrons with a *longer* irradiation time. Though it is not possible to simulate the events during the Resurrection with regard to the electron radiation by experiments, I have tried to test the effects of radiation of sufficient energy on flax fibres. I succeeded in producing a colour in linen like in the Shroud by means of a beta radiator [6].

**Consequence: *The body image and the traces of coins are caused by an electron radiation of very great density.***

## 2 Heterogeneity of the Radiocarbon Content analysed in the Year 1988

The radiocarbon content of two spots separated only by several centimetres from each other differs in the analyses of 1988 significantly (with a probability of 95,7% according to the Pearson test [7]). This (already today recognizable) heterogeneity of the radiocarbon age in the Shroud should be considered a faint, but important clue to the real cause of the abnormal radiocarbon results of 1988, namely a neutron flux during the Resurrection. Fig. 5 shows the samples analysed in 1988. I could reconstruct their position with help of photos taken from a book of KARL HERBST [8]; one can see a certain systematic of the heterogeneity of the radiocarbon age in the Shroud (including the former *unofficial* radiocarbon analyses [9]). Experimental Simulations (made in the "Forschungszentrum Jülich", Germany [10]) could confirm that a flux of thermal neutrons rejuvenates the radiocarbon age of flax fibres [11].

Fig. 5: Samples for the radiocarbon analyses of the year 1988



We can sum up: ***The abnormal results of the radiocarbon analyses of 1988 were caused by a neutron flux during the Resurrection.***

It is possible to calculate the neutron flux from the results of the radiocarbon analyses of 1988, namely:  $10^{16}$  neutrons per square centimetres; the electron rays must have had also a density of the same order of magnitude [12]. These elementary particles must have had their origin in the matter of the surface of the corpse. A deliberation of such huge quantities of these elementary particles can be only the result of a **singularity** during the Resurrection of Jesus Christ. We have an important indication of the *simultaneous* release of neutrons and electrons: the traces of the hair. This seems to be only possible, if all the protons of the atoms on the surface of the corpse are fallen into nothingness, beyond the natural laws.

### 3 The Traces of the Hair

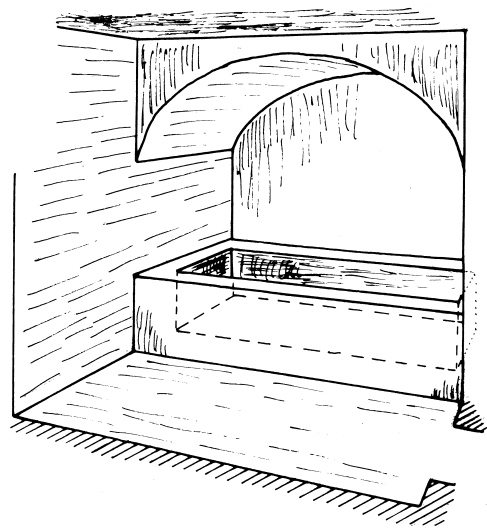
These traces must be caused also by electron rays. However the hair does not "stand on end" as *electrically charged* hair would. This is because, by annihilation the protons, the chemical bonds between the atoms also disappeared. Then, instead of hair, there existed only neutrons and electrons. Directed electron radiation (which formed the traces of the hair in the Shroud) could occur by the principle of recoil, because the mass of the electrons is about 1/2000 that of the mass of remaining neutrons. Thus the electrons could push themselves off from the neutrons to radiate against the Shroud. In account of the nature of the neutrons this problem is more complicated, but calculations can show that my explanation is in order to the laws of the elementary particles [13].

The image of the hair seems to be one of the most enigmatic traces in the Shroud, because it is hanging down from the apex, in spite of the horizontal position of the corpse in the grave, i. e. uninfluenced by gravity. I can give a convincing explanation for this enigma. According to the Gospel of St. John (John 19,39–40), JOSEPH OF ARIMATHEA and NICODEMUS "brought a mixture of myrrh and aloe, about a hundred pound weight. Then took they the body of Jesus, and wound it in linen clothes with the spices, as the manner of the Jews is to bury". Not having got enough time, because of the beginning of the Sabbath, they deposited, surely, these herbs inside the trough grave, in the free places right and left beside the corpse, above all beside the head, i. e. the most appreciate part of the corpse of Jesus, where there is also the greatest space to put down these herbs. Perhaps, the shoulders have been covered partly by these herbs; therefore, they are not visible in the traces of the Shroud. Then, one must have posed, lovingly, the frontal parts of the hair over these herbs, so that the face of Jesus was surrounded by the hair, just in that position which they knew from his appearance in life. In this manner, the frontal parts of the hair came to lie horizontally, near to the Shroud; therefore they could imprint in it the well known traces. Fig. 6 can show these facts by means of a model, made on the scale of 1: 5; i. e. the grave is illustrated according to the descriptions of ARCULPH with fig. 7 [14], the corpse modelled after the image in the Shroud, the linen imitated by a very fine silk (only about one fifth of the square metre weight of the Shroud's material, but it was hardly possible to fold this silk material corresponding to the original Shroud).

Fig. 6: The reason for the horizontal position of the hair

Fig. 7 The grave of Jesus

*The hair was surrounded by aloe and myrrh,  
The frontal parts of the hair lain over the herbs*

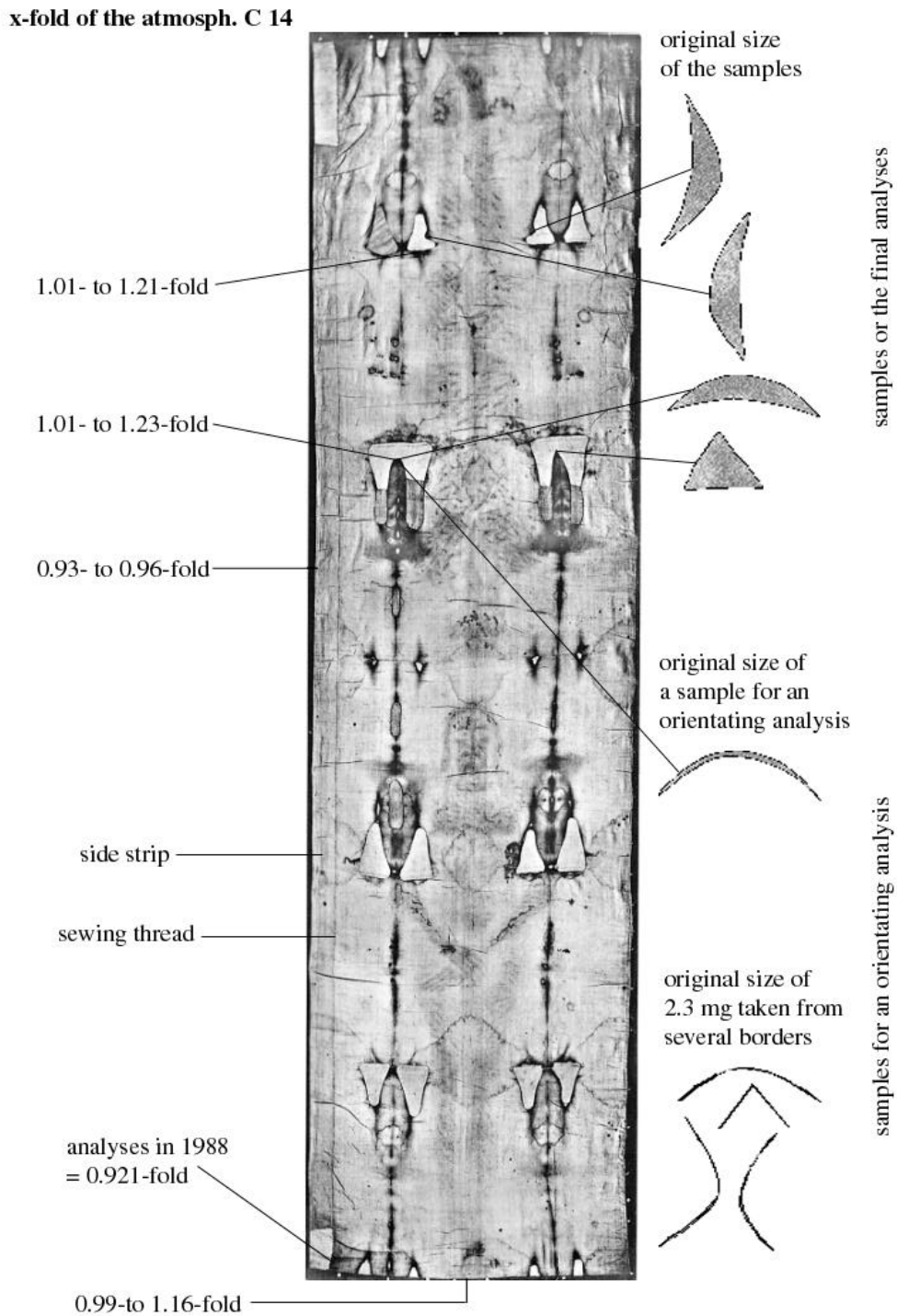


### 4 Possibility to verify my theory

My theory can explain the origin of the body image and the abnormal results of the radiocarbon dating of 1988, and the image of hair; i. e. by means of electron rays and a neutron flux emerging from the surface of the corps. All elementary particles left by this singularity must react as components of the material world according to the chemical and nuclear-physical laws of nature. Therefore, my theory can be confirmed by the analytical results of the Shroud, chemical and nuclear-physical mechanisms, and the experimental simulations.

The most important aspect, however, is that my theory can be verified by new radiocarbon analyses on the spots burnt in 1532, because radiocarbon values will be obtained there, which are expected to be higher than in nature possible, as shown in fig. 8.

Fig. 8: Results of calculation of the supposed radiocarbon content and samples proposed for new radiocarbon analyses

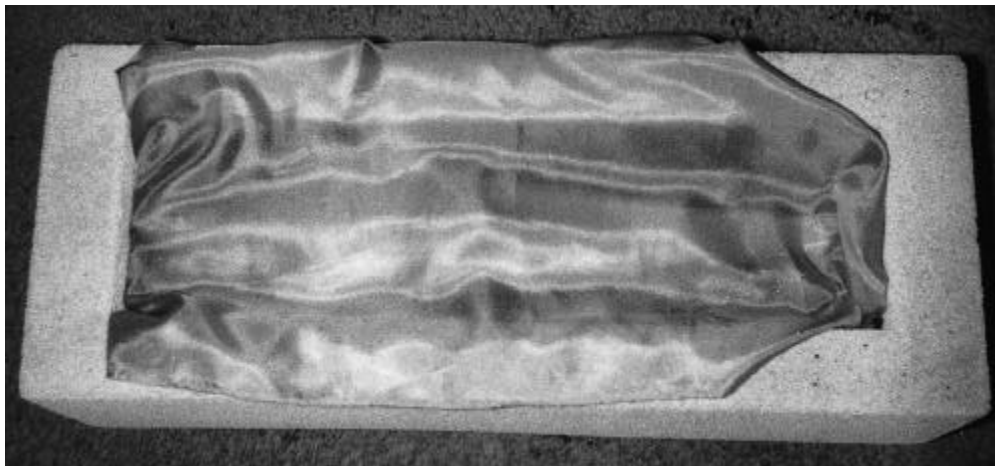


**Important remark:** taking samples from the spots where the fire of 1532 has burned holes in the material of the Shroud is possible: the results are significant, because it is proved that by scorching **no isotope shifting occurs**. That is proved by experiments of the “Institute für Mittelenergiephysik” of Zurich (where the 1988 radiocarbon analyses were executed) in behalf of the “Abegg-Stiftung”; with these experiments it could be confirmed that **no** enrichment occurs by a charring (i. e. a certain carbonizing) of cellulose (personal communication of Dr. BONANI, Zurich, who undertook these investigations).

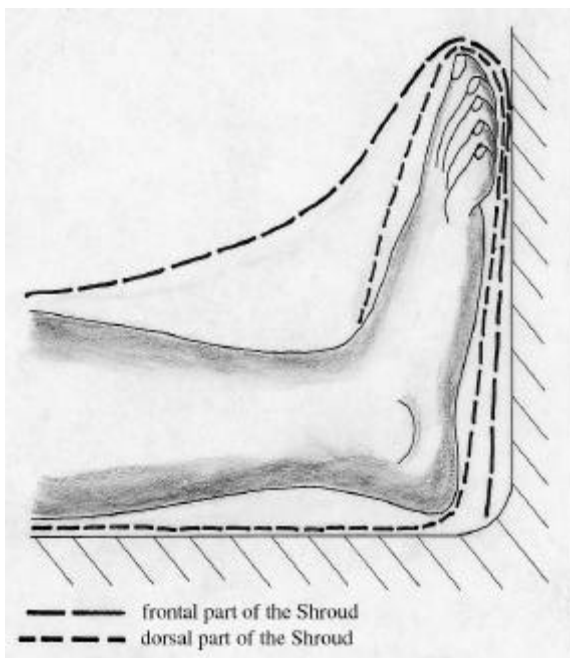
These calculations were made under the assumption that the edge of the Shroud analysed in 1988 was still inside the trough (see fig. 9), which can be concluded from the position of the linen around the feet (see fig. 10) and the blood stains beside the traces of the feet (see fig. 11).

*Fig. 9 The provisional wrapping in of the corpse in the Shroud in the trough grave*

*Because of the blood stains around the feet (see fig. 10 and 11), one can assume that the edge analysed in 1988 was still inside the trough and irradiated with **direct** neutrons*



*Fig. 10 The position of the Shroud around the feet*  
*The dorsal part of the Shroud was lain round the feet; then the frontal part was met between the sole and the wall of the grave.*



*Fig. 11 The blood stains around the feet*  
*On the right side of fig. 11, a mirror-image of some blood stains is visible lying beyond the (dorsal) image of the feet. Therefore, the Shroud was put in folds there. Fig. 11 shows about a third of the total breadth of the Shroud*



If the edge of the Shroud, analysed in 1988, was still inside the trough (fig. 9), the Shroud was irradiated on this spot with *direct* neutrons (i. e. which came directly from the surface of the corpse), in addition to neutrons *reflected* by the stone of the grave. Also if the edge analysed in 1988 was *outside* the trough, the amount of electrons and neutrons must have been high enough to produce the image of the hair [15]. For this case the radiocarbon content on the spots proposed for new analyses, however, would be much higher than calculated; i. e. the values in fig. 8 show the at least expected results of new radiocarbon analyses.

Each sample (of 12–15 mg) is sufficient for a double analysis (two parallel analyses) [16]. But if the authorities are afraid to cut off these proposed samples, or if they have no confidence in my theory, they would have the possibility to make first an orientating analysis with a *unwashed* sample of only ca. 2.3 mg [17] on these spots (the original size of such a sample is depicted in fig. 8, too): the expected radiocarbon values of this *unwashed* sample, there, must be higher than possible in nature; this never could be caused or influenced by any contamination. It may also be possible to take off several small parts (of all together 2.3 mg) from several easily accessible borders of these burnt spots of the fire in 1532, but they all must be situated near the back-image, near the corpse.

## 5 Conclusions

Science aims to understand reality, but this is only possible with appropriate methods. The Shroud is a material object, and therefore, it is a challenge to the natural sciences. But, according to the Christian dogmas, Jesus Christ is God in the unity of the Trinitarian God who exists forever; about 2000 years ago, He took on human nature and so it would be a *serious scientific and methodological fault*, if one was to ignore this. Then, as a result, the way to truth is blocked; but this really is most *unscientific* behaviour. One may be influenced by the prevailing materialism, but *unqualified* for solving these problems with the Shroud.

The Shroud was present during the Resurrection; the traces in it can only be explained by the singularity. Therefore, the Shroud of Jesus can be regarded to be the "Scientific Gospel" which God Himself has "written" into the material, destined for our time. This message can renew a theistic belief, that means that God has knowledge of all elementary particles of the world and exercises His mighty power over them, being able to annihilate elementary particles into nothingness, beyond all natural laws. The problems with the Shroud, however, can never be solved with an deistic or even materialistic outlook, i. e. God is thought to act in the world only according to the natural laws, or it is meant God does not exist at all.

The Shroud of Jesus Christ is of great importance for Christianity. It is the "Scientific Gospel" which allow to transform the message of the Resurrection and of the Deity of Jesus Christ from the biblical view of the world into the cosmic one. The "Resurrection" of Jesus Christ could have happened also without the described reactions on the surface of the corpse which have caused the image of the body and the hair, feigning a younger radiocarbon age of the linen. Therefore, these peculiarities must be of great importance for us. Perhaps God was written these traces in the Shroud in His wisdom looking ahead to give the Christian people effective help to overcome the present difficulties. In my well-founded opinion which I have published [18] several times, it is not possible to renew Christian faith without this "Scientific Gospel".

## Notes

- [1] ERIC J. JUMPER, ALAN D. ADLER, JOHN P. JACKSON, SAMUEL F. PELLICORI, JOHN H. HELLER, JAMES R. DRUZIK: "A Comprehensive Examination of the Various Stains and Images on the Shroud of Turin", Advances in Chemistry Series 205: Archaeological Chemistry-III (American Chemical Society, Washington), 1984.
- [2] Loc. cit., p. 456: *"The absence of products expected from a high-temperature cellulose degradation, however, suggests that the process that formed the final chemistry took place at lower temperatures (less than 200 °C), because no pyrolytic compounds were found. The fluorescence of the scorch image areas, however, demonstrates the presence of high-temperature pyrolytic products in these areas."*
- [3]: Loc. cit., pages 450 f.: *"With few exceptions, we find that the yellow coloration of the fibrils is interrupted as the thread goes beneath a crossing thread in the weave pattern. Those few exceptions where the yellowing appears to pass under the crossing thread seem due to mechanical stretching of the cloth, because these are usually accompanied by a region of uncoloured fibrils at the opposite end of the exposed thread where it comes up from beneath a crossing thread. The yellowed fibrils are not yellowed continuously over their entire length. We observed a fibril that was yellow only on the part that was on the uppermost portion of the thread but lost its colouring as it left the upper portion of the thread in its normal course of following the twist to the lower portion of the thread. In examining the cause of the differing integrated densities of the body-only image as seen by the eye, we found that the darker portions of the image were not due to a variation of the degree of the yellowing of the fibrils, but rather to the presence of more yellowed fibrils per unit area."*
- [4] OSWALD SCHEUEREMANN: "Das Tuch", Verlag Fr. Pustet, Regensburg, Veritas, Wien, 1982. Figure 5 was taken from the book of O. SCHEUEREMANN, pages 27 and 81.
- [5] The favoured forming of conjugated double bonds and carbonyl groups is understandable by the following reaction mechanisms: In the flax the cellulose molecules are tied together with intermolecular forces to the very great unities of the cellulose-fibres, and therefore, "fixed" in their position. The chemical bonds within the cellulose molecular chains (see the formula a of the figure 1) are stronger than that which go to the hydrogen atoms, because of these facts: The chains of cellulose are formed by rings of 6 atoms which are connected with each other by oxygen atoms. The bonding between the oxygen atom and the rings is about two and a half times stronger than between the other atoms; in addition to this the atoms of the ring are stabilized: If a C–C bond is dissolved by radiation, it can be reformed immediately, because the ring is without tension, so that the damage of the irradiation would be "repaired". Very delicate is

the bonding between hydrogen and the carbon atoms: after the bond is broken, the hydrogen atoms fly away, so that a regeneration is no more possible. If the radiation is very dense, a double bond can be tightened after the elimination of the hydrogen atoms from vicinal carbon atoms; in the same manner the radiation can separate hydrogen atoms from oxygen, so that carbonyl groups can be formed (see the formulas in figure 1).

- [6] A beta radiator (Ni 63) was available in the "Strahlenzentrum" of the Justus-Liebig-Universität Gießen which emits electron radiation from the nuclei (without additional gamma radiation). In addition to this, a sample of linen was also exposed to a gamma ray source (Co 60). The required dose could not nearly be reached with this irradiation over 39 days. The gamma ray source yellowed the flax material visibly; but (because of the high energy = 1.7 MeV) the resistance to tearing of the linen was already diminished; certainly because the chains of cellulose were partly destroyed. The beta source, however, neither did show this yellowing nor a diminishing of the resistance to tearing. The reason is obvious: the beta source was of very low average energy and had not the necessary average transmittance range; therefore, (after splitting off hydrogen atoms) probably an oxidation with air oxygen was induced. Though one could not see any yellowing, the linen was nevertheless changed by the beta radiation. This could be shown by subsequent treatment with a hot flat iron: then, on the irradiated spot yellowing was visible, whereas the other spots had not changed. O. SCHEUERMANN has gained similar results by sparking discharges to a linen, because he also could achieve a yellowing only with help of subsequent heat treatment. This can be understood by considering that the chemical reactions have taken place in presence of oxygen (e. g. forming of OH-groups), so that afterwards by heating (comparable with the conditions of an "aldol condensation") double bonds could be formed, which caused the yellowing like in the Turin Shroud.

Also, experiments with sparking discharges were made, because, during the singularity, electrical tensions higher than  $10^6$  V/m which are necessary for sparking flashes could appear. By these experiments (which were made under argon atmosphere to avoid an oxidation with the air) a yellowing of the linen could be seen. From the analyses of the body image in 1978, we can conclude that sparking discharge even was the prevailing reaction to produce these traces in the Shroud. (see [2]: "*the darker portions of the image were not due to a variation of the degree of the yellowing of the fibrils, but rather to the presence of more yellowed fibrils per unit area.*"). Altogether one can say that electron radiation and sparking discharges cause the same reaction in cellulose.

- [7] PHILIPPE B. DE CARBON: "Remarques sur l'article intitulé: 'Radiocarbon dating of the Shroud of Turin', nature, vol. 337 . . ."; in: La Lettre Mensuelle du C.I.E.L.T., Paris, March, 1990.

- [8] I have taken these photos from the book "Kriminalfall Golgatha" of KARL HERBST, Econ Verlag, Düsseldorf, Wien, New York, Moskau, 1992, appendix. There is not the slightest doubt that the photos are authentic, since also the three laboratories have published identical photos of the samples analysed by them. KARL HERBST writes in the photo credits (according to p. 4 "lying in the hands of the author") on p. 260 (translated into English): "*The publisher has tried to get the copyright of these photos. But the 'owner' of these photos (...) has not responded. (...) It is natural that all those who make a request of usual copyright fees, would be served correctly. (...) It is important and necessary that I declare formally: These Photos (...) are authentic and were not manipulated. This I know, and can prove it.*"

The positions in my figure 5 correspond exactly to the sketch of RIGGI DIE NUMANA (published by KARL HERBST on page 148). Dr TITE (who in 1988 encoded the samples for the three laboratories) has written (British Society for the Turin Shroud, 36, Dec. 1993 / Jan. 1994, p. 20), that this reconstruction "*is consistent with what I [i. e. Dr TITE] remember*". With this optical evidence and all concluded facts it can be proved that in 1988 the samples of the Turin Shroud were really analysed.

It was impossible for me to get from Turin another photo; it was said that, certainly, there were many video recordings and photos, but these were *not* delivered to the office of the Archbishop nor to the "Centro Internazionale di Sindonologia"; on the contrary, they remain in private hands. These persons, however, refuse to place these documents at my disposal, because, in the past, they were hostilely treated by many other persons.

- [9] The textile historian of the University of Gent, Belgium, GILBERT RAES, in 1973, received samples of the Shroud, therewith a greater piece just beside the spot where in 1988 was taken from the sample for the radiocarbon analyses, furthermore another one from the side strip. BAIMA BOLLONE (director of the "Centro Internazionale di Sindonologia", Turin) has written in his book "Sindone o no" (Società Editrice Internazionale, Torino, 1990, p. 291) that the American archaeologist WILLIAM MEACHAM (who had experience with radiocarbon analyses with the new "accelerator mass spectrometer") received from REAS a sample of the Shroud. He found by means of these unofficial analyses in the University of California radiocarbon ages of AD 200 and AD 1000. I wished to know from Professor RAES which samples were analysed, but my letter (1992) was not answered. It may be possible that the first result of 200 AD comes from the side strip, and the second one from the spot marked in figure 5; it could be also that an object was put upon this spot of the Shroud, so that it was not exposed to the neutron flux. Though there are many puzzles about these strange results, nevertheless, the values are interesting, because they lie between the true age and the 1988 result.

Very interesting is a particularity which was published by Prof WILLY WÖFLI of the Zürich Institute which has made the radiocarbon analyses of 1988 (ETH Zürich: "10 Jahre Beschleunigermassenspektroskopie in der Schweiz", Symposium Institut für Mittelenegiephysik der ETHZ, Zürich, Schweiz, 27.9.91, p. 38): "*The only 'runaway' was just with the Shroud, a value which was distant more than 1s but less than 2s from the average; this has caused many discussions*".

- [10] I would thank the Forschungszentrum Jülich, especially Dipl.-Phys. HÜRTLEN for the radiation experiments with neutrons, further Dr. STEFFEN for the radiocarbonanalyses (with the "gas-counter-method").
- [11] These experiments could confirm that, indeed, C 14 emerges from C 13 (as expected), but also from N 14 (in a amount about two orders of magnitude greater than that from C 13, because of the greater "capture cross section"). However, the C 14 which emerged from N 14 disappeared from the flax (above all because of the influence of water vapour). The conclusion therefore – according to the results of my investigations – is that the additional C 14 (analysed in 1988 in the Shroud material) originated *only from C 13*. Nevertheless it cannot be excluded that in the *unwashed* linen of the Shroud C 14 which had come from N 14 remained; but (because of its chemical nature) this was surely washed out during the cleaning processes of the analyses in 1988.
- [12] The main components of human skin are: ca. 80% protein, 20 % water; the relationship of neutrons to electrons are ca. 6,5: 7,0, i. e. nearly 1:1, taking into account the content of the chemical elements of these components with their elementary particles.



- [13] Neutrons consist of three "quarks", which can be regarded to be like internal points of the neutrons, as the nuclei are only tiny parts in the atoms. Therefore, electrons can also fly through the neutrons, because only a "weak interaction" exists between them. As a consequence, one can argue that several orders of magnitude greater quantities of electrons than on the other spots of the corpse are necessary to produce an image of the hair in the Shroud. Calculations can show that these circumstances were really present in the grave of Jerusalem. This will now be explained in more detail: The results of the radiocarbon analyses of 1988 allow calculation of the neutron flux on the spots where the samples were taken off, as I have published (Collegamento pro Sindone, Roma, March/Apr. 91, p. 25–37): This flux must be at least about  $10^{16}$  neutrons per square cm, liberated in a single moment. One can also calculate from these results, according to my theory, the amount of electron radiation: it must be, as a consequence of the elements in human skin, in the same order of magnitude as the neutron flux density, i. e. also about  $10^{16}$  electrons per  $\text{cm}^2$ . These particles could be liberated from a layer of only about one nanometer thickness. A single hair, however, has a thickness of about 100 micrometers. *All the protons* in the hair must have disappeared, so that the hair not "stand on end", due to an electrical charge. Therefore, about 5 orders of magnitude greater amounts of electrons (and neutrons) must be liberated on the spots of the hair than on the surface of the corpse.
- [14] WERNER BULST and HEINRICH PFEIFFER: "Das Turiner Grabtuch und das Christusbild", Vol. 1 "Das Grabtuch: Forschungsberichte und Untersuchungen", Verlag Joseph Knecht, Frankfurt/Main, 1987, p. 71.
- [15] If the part of the Shroud (which was analysed in 1988) was already *outside* of the trough (however, this is not very probable), these samples were irradiated *only* by reflected neutrons, but not by neutrons coming direct from the source; there, outside the trough, the neutron flux must have been significantly (perhaps one order of magnitude) lower than internal of the trough. If the lower neutron flux already rejuvenates the Shroud on the spots analysed in 1988 to an age of only 600–700 years, then the spots suggested for new radiocarbon analyses must even be higher than the calculated values, because the spots on the borders of the burnt spots (of the fire in 1532), however, must definitely be situated *inside* the trough and also irradiated also with *direct* neutrons. My calculations were made under the supposition that the spot analysed in 1988 was still inside the trough. Therefore, the values indicated in fig. 8 represent the at least obtainable results for further radiocarbon analyses; therefore, they are able to confirm the singularity during the Resurrection.
- [16] For a double analysis one needs  $2 \times 1 = 2$  mg carbon, i. e.  $2 \times 2.3 = 4.6$  mg cellulose. To wash out impurities, rinsing operations are necessary. Because of the extreme losses during the usual cleaning operations, it must be calculated with about the double to the threefold quantity; therefore for one double analysis the cut off was calculated as 10–15 mg.
- [17] The radiocarbon values on these spots are expected to be much higher than possible in nature. Therefore, a possible contamination can only *diminish* these values, but they would be even higher than the present C 14 in the air. This means, result of this orientating analysis must give a reliable indication for a neutron flux during the Resurrection, and therefore, a hint that no risk is existing to dare the proposed analyses which are indispensable to decipher the "Scientific Gospel".
- [18] **German**, e.g.:
1. "Evolution – Weltende - Freiheit", M. Lindner Verlag, Karlsruhe, already in spring (!) 1988, p. 110 ff.
  2. "Auferstehungsglaube heute", MUT, September 1989, p. 44–60.
  3. booklet "Wahrheit und Wirklichkeit", M. Lindner Verlag, D - 76133 Karlsruhe, Jahnstr. 22, 1997.
  4. "Das Turiner Grabtuch und die Auferstehung", M. Lindner Verlag, Karlsruhe, 1997.
- English**, e.g.:
1. Atti del Congresso di Cagliari, 1990, p. 149–166.
  2. booklet "Facing Reality", M. Lindner Verlag, D – 76133 Karlsruhe, Jahnstr. 22, 1997.
- Italian**, e.g.:
1. "La Datatione della Sindone" (Atti del Congresso di Cagliari, 1990), p. 167–181.
  2. Collegamento pro Sindone, Roma, Jan./Febr. 91, p. 29-47; March/Apr. 91, p. 25–37.
  3. Collegamento pro Sindone, Roma, Sept./Oct. 93, p. 25-44; Nov./Dez. 93, p. 30–44.
  4. booklet "La Santa Sindone e la Risurrezione", M. Lindner Verlag, D – 76133 Karlsruhe, Jahnstr. 22, 1997.