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A NEWSLETTER ABOUT THE HOLY SHROUD OF TURIN
edited by REX MORGAN
Author of PERPETUAL MIRACLE and SHROUD GUIDE



SEVENTH CENTURY GREEK ICON
(From the original 1939 edition of Paul Vignon, *Le Saint Suaire de Turin*)

EDITORIAL

So another year and decade of Shroud research and interest begins as we approach the centenary (in 1998) of the first published photograph of the Shroud's image taken on that momentous day in May 1898 by Secondo Pia in Turin cathedral. This photograph was to herald a century of scientific investigation, the nature and intensity of which has curved upwards exponentially since that time. Whatever else may happen to the Shroud itself in the next eight years I presume we can anticipate another public exposition in that year and the way things are it would not surprise me if it takes that length of time for permission to be granted for any further programme of tests to be carried out on the cloth itself. Apart from the possibility of running further C14 tests on the residual sample cut by Professor Giovanni Riggi di Numana and not used in October 1988, I also think it will be eight years before the dust settles on that exercise, certainly in terms of scientific and scholarly argument about the rights and wrongs of it, the use or abuse of the results apparently obtained and the balance between those results and all the other scientific and historical knowledge which has been amassed in the past century, most of which seems to conflict with a medieval context.

And in the climate of renewed vigour for Shroud studies there are researchers and analysts all over the world at this moment pursuing numerous lines of enquiry into this most fascinating and perplexing of objects. Much of this effort will see its way into print over the next few years for discussion and review as the twenty-first century generation of "Shroudies" takes over the quest for the truth and I expect *Shroud News* will play its small part in circulating some of that information. It is notable that the majority of contributions to this newsletter comes now from other researchers and, whilst the editorial policy (if there ever was one) has never really changed, there is a marked tendency towards more scholarly articles written by people of many nationalities to arrive on my desk.

This issue number 57 is no exception. We have articles by Fr Charles Foley of England and Remi Van Haelst of Belgium commenting on aspects of the C14 measurement and a report of the visit to Australia of Professor Luigi Gonella, Scientific Advisor to the Shroud's custodian in Turin. During 1990 there will be another Shroud conference sponsored by the Italian International Shroud Centre of Turin to be held at Cagliari in April.

Only two days ago I received a copy of the new book by Stevenson and Habermas of the United States, *The Shroud and the Controversy*, (Thomas Nelson, Nashville) which I hope to review in the next issue. There are other books being written as this inexhaustible subject continues to fire the enthusiasm of writers in all disciplines. And the number of regular journals and news-sheets continues to increase as well. I have recently received the first copy of *Linteum*, the journal of the Centro Espanol de Sindonologia, based in Valencia, Spain. It is

a very well produced A4 format magazine of 16 (un-numbered) pages containing articles and news. One continues to receive regular copies of Bro Joe Marino's *Source Sheet*, Fr Adam Otterbein's *Holy Shroud Guild News Letter*, the new series of *Sindon* from Turin, the French *Montre-Nous Ton Visage*, the Italian *Collegamento Pro Sindone*, the Italian *Emeroteca Sindonica*, Ian Wilson's *British Society for the Turin Shroud Newsletter*, and Dorothy Crispino's *Shroud Spectrum International*, to mention a few.

Amongst my plans for 1990 is to edit the first English version of Dr Jean Volckringer's classic work from 1942 describing his discovery of the similarity between images made by pressed plants on paper and the image on the Shroud. The Runciman Press has the rights to publish this first English edition and there are other publications in the Runciman Press pipeline as well.

A piece of information which arrived too late to be included in the relevant article in this issue (*Statistical Doubt about the C14 Dating of the Shroud* by Remi Van Haelst, p 20) is that Van Haelst reports the following:

"One of the moderators of the Paris Symposium [see SN 55 and 56] Mr de Carbon became very interested in my work. Why? He is a practising statistician and in *Science et Foi* (Science and Faith) he wrote an article about the statistical INSIGNIFICANCE of the C14 data. I asked myself why he did not stand and say so in Paris sitting next to Professor Evin and Dr Tite. His conclusions are the same as mine."

Also received too late for comment in the body of this issue is the latest *British Society for the Turin Shroud Newsletter*. Amongst the usual excellent material, there is, in this issue, a generous reference to *Shroud News* Nos 55 and 56: "the best available summary of all the papers at the Paris Symposium." We also note that Ian Wilson stepped down from his long chairmanship of the BSTS at its last AGM and was succeeded by Shroud author Rodney Hoare. Ian's decision was partly based on his efforts to establish a new Turin Shroud International Research Council, an eventuality which will surely be praised by all connected with the quest for Shroud knowledge.

Held over for a while but hopefully to be published in SN No 58 is a very interesting article by Ian Dickinson and the latest paper from Dr Alan Whanger. And finally, it is sometimes surprising where one finds obscure references to the Shroud. There is even one (I had better say I have been told) in the best-selling (but grossly over-rated) *The Satanic Verses* by Salman Rushdie

REX MORGAN



Paul Smith, organiser
Melbourne lecture



One of Australia's most significant political and religious
commentators, Mr B. A. Santamaria
interviews Prof Luigi Gonella in Melbourne



Gonella speaks in Melbourne



... and Sydney

PROFESSOR LUIGI GONELLA VISITS AUSTRALIA

During the third week of November 1989 Professor Luigi Gonella, scientific advisor to the Custodian of the Holy Shroud, visited Australia principally to speak in Adelaide, South Australia, at the Australasian Instrumentation and Measurement Conference. During this conference Professor Gonella spoke about the C14 measurement on the Shroud of Turin. For some time prior to this event Gonella and SEARCH had been planning to arrange public lectures in Sydney and Melbourne. This was eventually achieved against the backdrop of the disastrous pilots' strike which made movement between cities a very hazardous enterprise. Gonella was unable to fly direct to Adelaide and was entertained during a Sydney stopover by Victoria Harper who also generously arranged the publicity and media coverage of his Melbourne and Sydney appearances. The Melbourne lecture was arranged by Paul Smith with the help of Fr Kelly, Rod Pead, Brian, Maureen and Greg Schaefer and others. In Sydney we were extremely grateful to Revd Dr Gordon Moyes who made the Wesley Theatre's excellent facilities available free of charge and to several others, such as Virginia Haven and Richard Morgan who assisted in many ways.

I was surprised at the interest of the media in both cities and Gonella was interviewed by many radio stations and print representatives which generated a renewed interest in the subject of the Shroud which had, needless to say, been virtually dropped since the October 1988 announcement.

Somehow we managed to get Professor Gonella from Adelaide to Melbourne and Rex Morgan got from Sydney to Melbourne in time to oversee the arrangements for the lecture. A capacity crowd of five hundred people assembled at St Clare's Hall, North Box Hill, on Sunday 19th November. Gonella and Morgan were generously accommodated at reduced rates at the new Club One Hotel in Melbourne thus sponsored by the Greetings Group. In Sydney the lecture was given at the Wesley Theatre and although the crowd was not as big as Melbourne's the audience had come from as far away as Newcastle, Wollongong and even Wagga Wagga (500 miles). In Sydney special rates for Gonella again obtained at the Koala Oxford Greetings Hotel for which we were most grateful.

In both lectures, delivered without notes, Gonella pointed out that the Shroud is an "impossible object". Whether or not it is the burial shroud of Christ is not of scientific interest but what is of scientific interest is that we do not know its origin or what caused the image on it. With the aid of slides he then gave a comprehensive general history of the Shroud and the scientific work which has been done on it, commenting on the evidence for its being the burial cloth of a crucifixion victim. He pointed out that it is the only burial cloth in existence with an image on it. Amongst the demonstrations he showed many of the photographs

GONELLA VISITS AUSTRALIA (cont'd)

taken with different light sources by STURP in 1978 showing that the image, blood and water-stains are all quite separate procedures. He described his role in the 1978 tests as that of having to ensure firstly that the scientists involved were not crackpots and secondly whether their measurement proposals would be harmful to the cloth. He had been approached to pick up the "hot potato" of supervising the scientific work but was not aware that it would become as hot a potato as it subsequently did. Each test had to be assessed on the basis of the information it would obtain in relation to the risk to the cloth.

The brief in 1978 was to find a scientific description of what is on the cloth. He mentioned that the discovery of three-dimensional information encoded in the cloth led to speculation about radiation. It is true that it is a projection image, that it has the 3D information in it and the agent for making the image was limited in time. Thus the characteristics are such as IF they had been produced by a burst of radiation but no scientist has said that it WAS. He demonstrated with slides various methods of reproducing the image but all of them fail. Gonella does not believe the pollens on the cloth give any valuable information and there is even oxidisation of "smog" in the fibres. He talked of the problems of conservation mentioning that they had found "mites" all over the cloth (like any other piece of cloth) but the problem is that any kind of pesticide on the cloth may change the image.

He described how several years after 1978 a new round of tests was proposed including C14. "Then," he said, "after 1984 everything went wrong." Seven of the dozen or so C14 labs of the world showed interest and they decided they did not want any other scientists involved. Turin protested that a multidisciplinary approach was essential but the C14 labs insisted that they wanted nothing to do with the scientists of 1978 as they were "religious fanatics". Gonella pointed out that, for example, Heller (Baptist) and Adler (Jew) could hardly have been in the service of the Vatican. He was now in the difficult position that had he insisted on the participation of others then they would have been accused of introducing people in their own service so they did not press the issue. "So we were blackmailed," said Gonella, "into choosing between C14 and multidisciplinary research which is contrary to the freedom of science." Tite (of the British Museum) said that he would take all precautions to see that the Italians did not substitute some sample other than the Shroud! (A British friend had commented that the British trust only Anglo-Saxons).

"We were flabbergasted by the climate. The labs were suspicious of us. They insisted on being present at the sample-taking but none offered Turin authorities the opportunity of being present during their measurement of the samples, so we didn't ask. We arranged video-recording to document everything we did but none of the work of the labs was recorded in this way. Had we refused any of their

GONELLA VISITS AUSTRALIA (cont'd)

demands it would have been thought that we had something to hide. The scientists behaved very badly. The Archbishop of Turin, let alone his scientific advisor, was treated by Oxford, Arizona and Zurich in a way they would not have dared to treat the director of a provincial museum. No other organisation would have been treated in this way."

So the samples were cut and weighed, under the scrutiny of a textile expert, and placed in containers and distributed to the laboratories. At the Sydney lecture the facilities allowed the presentation of the short version of Professor Riggi's video of the actual cutting. The labs, explained Gonella, subsequently announced a medieval date and that "proves the Shroud to be medieval fake." This attitude showed a deep cultural bias because to say that it was a forgery is to say it was made with the intention of deceiving people. "We do not know if it was made by hand or not; the plain fact is that we do not know how it came into being. Even Tite has said he does not agree with the statement that it is a forgery. We do not know how it was made, why it was made, if it was made."

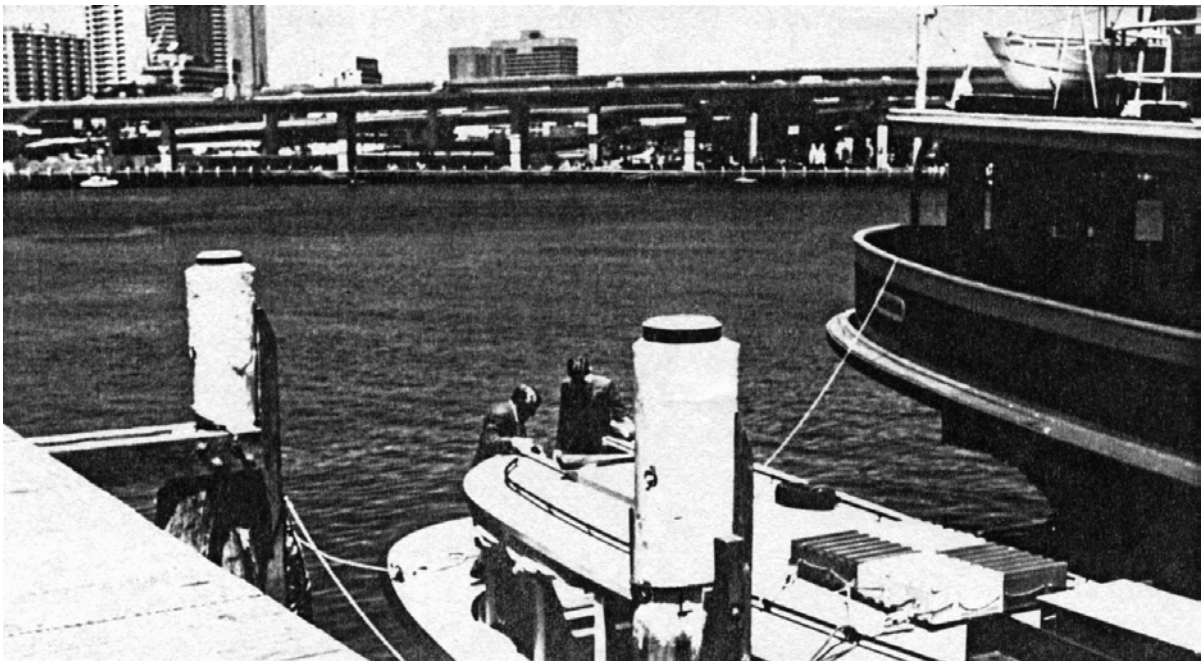
"It is," he concluded, "an impossible object. Whether dated to the 1st or 14th century the problem remains the same. So we are faced with an object which dates to the 14th century but is completely out of context with that time. The date does not change the context and the context is not medieval." Gonella, without once compromising his totally scientific approach, quietly left his audiences in no doubt about the possibility of authenticity. In answer to questions he said that it was difficult to evaluate Frei's work on the pollen because he never wrote a scientific paper. He was not impressed because Frei's work is not quantitative: we do not know how many of each pollen exists on the Shroud. Frei, for example, accused the American investigators of contaminating the Shroud with ragweed and yet ragweed has grown in Turin since 1930. "So I am sceptical about Frei as a scientist."

On the question of interference with the carbon content which was measured he said that there may have been a big mistake somewhere in the dating but we have no evidence for such a mistake. Drawn further on this point in Sydney he said that if there was something which went wrong it would have to have been a common mode error in pre-treatment by which during the mechanics of the chemical treatment of the sample in preparation for being put into the accelerator for the mass spectrometry such treatment allowed a great quantity of modern carbon to enter it during the handling for the test itself and such contamination was not something which was on the cloth before.

All in all Gonella had given his audiences a rare first-hand description of his work and he was very well received in both Melbourne and Sydney. We managed to give him a short look at some of the attractions of New South Wales by taking him on Sydney Harbour in one of the Sydney Maritime Museum's prestige

GONELLA VISITS AUSTRALIA (cont'd)

vessels (courtesy Richard Morgan, Director), a little sightseeing in Sydney city, a trip west through the Blue Mountains with stops at the famous Three Sisters outcrops and lunch at the famous Victorian Hydro Majestic Hotel at Medlow Bath. He then stayed at Abercrombie House in Bathurst with the Morgan family and made an expedition to historic Hill End the site of the first gold discoveries in-New South Wales and a circuit of the Mount Panorama Grand Prix Motor Race Track.



Professor Luigi Conga and Mr Richard Morgan,
Director of the Sydney Maritime Museum,
board a private ferry to tour the Sydney Harbour

THE GENUINE HOLY SHROUD

Fr CHARLES FOLEY, DEVON, ENGLAND

How APPROPRIATE it is that Paris has been chosen for this international scientific congress. Other cities may have provided a resting place, a temporary home for the Shroud but here Physical Science made its first stand, its first defence of the heirloom of the centuries. Vignon, Herovard, Colson, my old master Barbet, and of course the agnostic scientist, the atheistic individual, Delage. Homo Justus.

How PECULIAR it is that a novel and as yet unproven experimental test method, which has blundered even in its preparations for this testing, should be considered acceptable and infallible, whereas the tried and scientifically proven FACTS accumulated over the last century, and by so many disciplines, have been swept off the table as of no account.

How ARROGANT for so few to claim reliability, and dismiss scholars who have given long years, careful years, to Shroud studies.

How UNNATURAL that a CARDINAL of the Church, the Guardian of the Shroud, should so easily agree, so quickly accept, so quaint a claim that the Shroud of Christ is a forgery. He was certainly badly advised. Equally he was clearly imprudent. Surely he has in Turin men who are solid and knowledgeable.

How ABNORMAL that scientists should have submitted so tamely, so abjectly, even though they knew that the rules which they had previously stipulated were ignored; when the number of laboratories was cut from seven to three; when only the AMS method was permitted ... and these things were done without consulting other and wiser authorities.

Ten years ago not a single laboratory existed which could have dated the Shroud, since the cyclotrons were dedicated to a different purpose, and once used could never be cleaned, and the "decay event" method was guilty of appalling errors. Not till 1983 did Harry Gove of America discover the AMS method, and that was followed by delays in constructing the Oxford machine. It has only been at work for five years, bedding down, and hardly out of the "NAPPY" phase, certainly not universally acceptable. Given these circumstances it is impertinent of the mechanics who run the thing to claim they alone know ... OXFORD LOCUTA EST, CAUSA FINITA EST has not yet become a byword.

So now we have the carbon date set between 1260 and 1390 neither more nor less. If then it is shown that the Holy Shroud existed long before that, the date must be false.

THE GENUINE HOLY SHROUD (cont'd)

It is now the autumn of 1989 and I have just attended the International Scientific Symposium on the Holy Shroud in Paris. Inevitably certain parts of the discussions were centred on the description by Prof. Hall of Oxford that the Holy Shroud is a FAKE.

For seventy years and more experts in many fields of science, scholars of high standing, heads of universities and departments within them, in Europe and the Americas, have established a vast array of coherent scientific data, with information from other sources, all pointing to the conclusion that the Holy Shroud is authentic. Is it reasonable to dismiss all this accumulated evidence and replace it with a single set of tests of doubtful probability? The AMS type of carbon date is a newish datum among many, its results as random as the radiocarbon which it is studying.

In an article for *Radiocarbon* journal in 1986 Oxford reported that a major source of error in their dating procedures was in the removal of contamination; that at least one in five dates were contrary to expectation. Dr Wolfli in 1987 said: "One single date is no date." To prepare for the Shroud test the British Museum in 1986 conducted a DRY RUN with six laboratories using an Egyptian sample cloth. The Zurich result was incorrect by 1,000 years. Dr Wolfli added: "the number of 64 investigative samples is too small to understand the disparity." Yet this expert dates the Shroud with a single 40 mg thread sample!

The source of both the Oxford and the Zurich confidence in the dating of the Shroud is yet another mystery in this business. Every scientist recognises that experimentally derived values are quite frequently anomalous. I see no reason to excuse the AMS carbon date. Quite the contrary. It is an inordinate presumption to affirm that a simple chemical analysis can refute so many verifications of authenticity. As examples I quote: the Arizona laboratory was asked to date a VIKING HORN and actually gave the answer "2006 AD". An aberrant result if ever there was one. Or again look to Manchester's Lindow Man (known as 'Pete Marsh!') He is a corpse found in a peat bed laid down during the Iron Age between 600 and 300 BC. Both Harwell and Oxford were asked to date it and while Oxford stated 50 AD Harwell said 400 AD. The discrepancy between Iron Age and Harwell/Oxford and between the two laboratories caused them to exchange samples and repeat the experiment and they still could not track the error. Wolfli was asked to date a piece of linen in 'run-up' to the Shroud testing and came up with a figure of 350 years of age, but the linen had as a fact been a corner of his mother's table cloth which was certainly not fifty years old.

The lab comment was that the article had been washed in detergent! In order to

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be even-handed I must also record that a thread from the Holy Shroud was cut in half and quite illegally processed in the AMS in California. The dates given were 200 AD and 1,000 AD and remember it was the identical thread for both! Carbon dating is not reliable and probably never will be for reasons which will be given later. Even if it were, it should not obliterate or outweigh or invalidate all other scientific facts until thorough examination has been completed.

In North America and in Italy one experiment ought to give thought to the carbon daters, namely that *the imprints on the Shroud have been reconstituted by COMPUTER in three dimensions ...* and that is strictly impossible for any other imprint, drawing, photograph, painting whatsoever because where these have height and width, they do not have depth. The Shroud imprints however have the 3D qualities encoded in them. That unique fact puts beyond denial any human agent in producing the imprints. I wish to add that the resultant picture is an anatomically correct representation in meticulous detail of crucifixion! As the report of the Medico-Legal Congress in 1931 puts it, "All the post mortem processes have come to an abrupt stop, and this has happened some time before any corruption has set in. These and other features of the imprints (on the Shroud) are the varying results of a very complicated process in which all the factors have worked together. Each bears the stamp of nature in an inimitable way: and the concurrence of circumstances which could not have been foreseen, planned or forged." The implications of those statements are of such a kind that we can say that the carbon date of 1260-1390 must be incorrect.

The decision to allow a carbon date experiment on the Shroud was taken in 1987 at a meeting in Turin from Sept 29 to Oct 1. The rules were laid down by the scientists themselves. Seven laboratories were selected: 3 American, 2 British, 1 French and 1 Swiss. ("Why so many?" "They can't all get it wrong ... so we'll average the results"!) The samples were to be supervised in removal, selection and sealing under British Museum scrutiny, and they were to be 'blind samples' i.e. unnamed but numbered only and known to the scrutineer. Both the older counting of 'decay events' method and the newer 'count of all the atoms present' in the sample were to be used. Easter of 1988 was the time when the results would be announced. Two of the laboratories (Zurich and Arizona) sent in their results to time but Oxford was 'too busy'! and not till October 13th, 1988 were the results officially released.

November 5, 1988 a meeting of the Holy Shroud Guild and its Italian members was held, ending with a press conference where the following conclusions were announced. Criticism was levelled at the incorrect behaviour of the three

THE GENUINE HOLY SHROUD (cont'd)

laboratories and those who distributed the samples at least in so far as the Shroud samples were not unravelled, were easily recognised and so any scientific value from the "blind procedure" was lost, and the guarantee of impartiality and reliability was gone. The laboratories had not respected "isolation" during their experiments. The cleaning techniques did not appear to be sufficient. On the positive side some alternative dating methods were considered (the evaluation of these is proceeding) e.g. research programmes along chemical, historical, photographic and electronic processes and the absolute necessity of developing an extensive and multi-disciplinary research programme gathering data for comparison and also for evaluation and rejection. It would seem that the carbon date fiasco has had one good effect: a new series of study will now begin. Attention was drawn to the peculiar fact that all three laboratories had accepted sample from the same spot on the Shroud whereas sample should have been taken from three different areas, a few snippets of thread would have been sufficient. Given the present circumstances genuine science and true scholarship demand that a sincere effort be made to solve the problem of the carbon date and its possible sources of error.

It would not be possible, or just, to attempt a synopsis of the range of sciences, Barbet, Vignon, Barnes, Wuenschel, Bulst each of them and many others are to be read and thought about. However an example or three will not come amiss, especially from the liturgical fields which have always been governed by strict rubrics as well as unbroken tradition and reverence. These latter have the additional advantage that they are all rooted in centuries old constitutions of one sort or another. Iconography requires pictures to attain its purpose, so this we must unwillingly put aside and set out several proofs each one of which because it is centuries older than the C14 quoted date is proof that the experiment is erroneous. Together they brook no denial.

HAEC LINTEAMINA

For the first three centuries the Church was a persecuted underground community. The year 313 AD saw the Emperor become a Christian and at the first Council of the Church Pope Sylvester decreed that "the Holy Mass be celebrated upon the KOINONA OTHONIA CRISTOU". Those of course are the exact words used by St John the eyewitness to describe the Shroud as he saw it in the tomb. Ever since, every Catholic Altar has been covered by the fourteen feet of linen which has a small cross sewn into each corner and a fifth cross at the centre, to symbolise the five wounds of Christ. Moreover the Russian and Greek Orthodox Churches also keep the same regulation with their "antemension".

THE GENUINE HOLY SHROUD (cont'd)

Liturgical rubric so carefully kept is stronger proof than any document can be. Daily proof in the replicas of the Shroud in the Sacrifice of Calvary.

THE MOZARABIC RITE IN SPAIN

In the Illatio (Preface) of the Mozarabic Rite of the Mass at one time universal in Spain, now preserved in Toledo, one reads "Peter ran with John to the Tomb, and saw the freshly made imprints of the dead and risen One on the linen." In the founding Constitution of the Carthusian Order of monks (date 1056) the liturgical rite states that when the priest or other minister carry the Blessed Sacrament they will wear a Sindon (a Shroud). We in the Roman Rite also wear the same vestment which is more commonly called a Humeral veil, a long oblong garment worn on the shoulders.

FIRE BRANDED

In Chambery the major damage to the Shroud from fire occurred in 1532. The Shroud was involved in a previous fire at Besancon in 1348 and carries the evidence of that also. The proof of those statements is reinforced by a drawing of the Shroud attributed to Durer, date marked 1516, which is now preserved in Lierre in Belgium. In other words this is the same Shroud which was at Chambery, at Besancon, and ergo the same one which had been looted from Constantinople in 1204 and previous centuries.

A CLOUD OF WITNESSES

Callistus writing his Ecclesiastical History in 1350, and quoting previous authorities gives us the names and dates and places when the Holy Shroud was brought to Constantinople. The year was 438 AD the sister and the wife of the Emperor (their names being Eudochia and Pulcheria) went down to Jerusalem seeking relics of the Passio Christi for the new basilica Church of St Mary Blachernae. They were given the Shroud to their great joy and brought it back where they placed it in the basilica, and where it remained until 1204 AD.

Bishop William of Tyre was in the retinue of King Amaury during a state visit to Constantinople, and records that to his surprise they were even permitted to enter the sanctum where the Shroud was kept in reverential silence. That was in 1171 AD.

Mesarites making his inventory of relics for the Emperor in 1201 mentions the "entaphia spargana Christou" (the burial wrapping of Christ) which he adds was still redolent of myrrh.

In Rome there is a renowned VERONICA (vera icon?) which was used as a cover for a square of linen which legend reports as being the actual piece of linen with which a woman from the crowd wiped the face of Christ as he walked to

THE GENUINE HOLY SHROUD (cont'd)

Calvary. This linen was powdering in decay and to preserve it as much as possible the Veronica was used to cover it. The Veronica was of course far older than the 12th century. The photograph of the Veronica and the photograph of the Shroud face when projected together exactly match. Photometric identity of that category is not the effect of accident.

The Shroud was the model from which the Veronica was meticulously drawn. The same argument holds for the hundreds of icons produced in Constantinople over the centuries. They are copies which "REPRODUCE A VARIETY OF PECULIAR SHROUD DETAILS. SO UNIQUE, SO EXACT, AND IN SO MINUTE A FASHION THAT THEY COULD NOT HAVE BEEN DERIVED FROM ANY OTHER SOURCE.' As such they are more effective proof of the Shroud than any documents can be.

THE EDESSA ICON (now in Genoa)

This famous icon was presented to General Montaldo in 1362 by the Emperor at Constantinople as a thank-offering because the general and his troops had cleared the Turkish invaders from the area and had restored the throne to the Emperor. It was regarded as one of the most precious "acheiropoieton" (portraits-not-made-with-hands). After his death the icon was donated to the Barnabite monks in Genoa who have it still on their care.

From other sources we know quite a number of facts about its history. It was brought back to Constantinople in 944 AD but it was in a very poor state and the features almost undecipherable. It was "restored" by being repainted in tempera, ochre coloured and set within a filigree frame isolating the face. It was nailed evenly all round the edges and on the front are ten small beautifully executed enamel plaques telling the story of its journey back to Constantinople in 944; and these are proof of the restoration and the timing.

In 1974 Prof. Colette Dufour Bozzo obtained permission to examine and to photograph by x-rays (tomography). This enabled her to focus at different levels through the paint layers, and beneath the top layer of paint she found a drawing with the top half of the face covered with a linen strip. The original drawing was seen to have been drawn with the eyes CLOSED just as they are on the Shroud. The original drawing was, as is customary with these icons, glued to the base, and the art experts have been able to date it to the early sixth century.

LANGUE D'OIL

Robert de Clari, native of Picardy, wrote a personal account of the 4th crusade. It is a single manuscript and preserved in the Royal Library in Copenhagen. It is written in Old French original prose. He (Clari) died about 1216. I quote: "UN

THE GENUINE HOLY SHROUD (cont'd)

AUTRE DES MOUSTIERS QUE ON APPELOIT MEDAME SAINTE MAERIE DE BLACKERNE, OU LI SYDOINES, LA OU NOSTRES SIRES FU ENVELOPES, I ESTOIT, QUI CASCUNS DES VENRES SE DRECHOIT TOUR DROIS, SI QUE ON I POOIT BIEN VEIR LE FIGURE NOSTRE SEIGNEUR.' (...there was another of the churches which was called my lady Saint Mary Blacherne where there was the sydoines where Our Lord had been wrapped, which every Friday raised itself upright so that one could see the form of Our Lord there).

PROF MAX FREI-SULZER AND THE POLLEN

On some relatively few and small adhesive pads which he had pressed on the surface of the Shroud in 1972, Prof Frei identified 58 plant specimens of which 38 grow only in one place, namely the environs of Jerusalem. It follows that the Shroud must have been in that area at some time, and from other sources we know that it remained in Jerusalem until 438 AD.

Attempts have been made to contradict the evidence. For instance it is said that the pollen could have been blown the two thousand mile length of the Mediterranean on winds which deposited them in quantity on the linen during the times of its exposition. Maritime science denies that this is possible since the Etesian Trade winds blow across the eastern face of Palestine and from north to south. There is also another complaint that there are far too many Palestinian pollen. The answer is that the Dead Sea is two thousand feet below sea level and during the year the sun caused enormous convection currents drawing the pollen with it and dropping it within the Jerusalem radius.

SUMMARY

From all this evidence it is quite clear that the Carbon date MUST be incorrect. Can any explanation be offered for the error?

We will have to be certain that the operators were honest, and that their methods were without fault. Some doubts are expressed already on both counts. We will put those to one side.

If the sample of the investigation is at fault then so also will be the result. The sample was taken from the frontal aspect of the Shroud very near to the side strip which has been added to the whole length of the linen on the left hand side of the Imprint. It is three and a half inches wide. One thing is certain and that is the Byzantine Emperors would never have allowed anyone to add or interfere with the sacred linen while it was in their care. Nor was there any need for such an addition. When however the Shroud was brought to Europe conditions changed. Now there would be processions and expositions etc and in various parts of

THE GENUINE HOLY SHROUD (cont'd)

Europe. To prevent harm to the linen from sweating hands, as also to give the individuals who held the Shroud something to grip, the side strip was added. In all the engravings and drawings of the time one sees the Shroud held in such a fashion. Not only did those who held the corners of the Shroud have to hold it up but they also had to hold it taut and this clearly has caused extra wear and tear at those two parts and again cloth patches have been added there as one sees from present day photographs. This handling of the Shroud continued for at least three centuries.

AIR POLLUTION

One must not overlook that the Shroud will have collected atmospheric pollution for nigh on two thousand years. Then too, many times, replicas of the Shroud imprints have been "incubated" with the Shroud itself, sometimes stretched out over, sometimes enrolled in it. During its time in Constantinople some privileged artists were permitted to copy the imprints for icons. The Savoy family allowed the same privilege so that members of their family might have replicas. In *1532 the Shroud was subjected to heat from the chapel fire of more than 900 degrees C (the melting point of silver) and the pollutants, perspiration, skin greases, iron, all will not only have chemically reacted with the molecular fibres of the flax but also have been "baked" to a homogeneous mass.* No cleansing will be effective at that level.

Professor Riggi who cut out the sample unravelled the stitching of the side strip, then cut with scissors to a depth of 7 centimetres at a width of 3.5 centimetres away. He had doubts whether there might be contamination at that early stage.

That that was the most badly contaminated area of the whole Shroud needs no further proof. Prof Riggi wanted the sample to be taken elsewhere but was over-ruled.

There is also unease about the method in itself. A carbon atom is about 20 millionths of an attogram ($2 \cdot 10^{23}$ g), moreover its concentration is very low (only one atom of carbon 14 for every million million of carbon 12 in living tissue). Secondly the decay rate of C14 is a very low energy process, difficult to detect or monitor with accuracy. To all this must be added the accumulation of "calibrations" to offset the natural fluctuations of C14 in the atmosphere. Even the scale of calibrations (by checking the tree rings of ancient trees) differs slightly, depending on the sample wood.

More formidable unreliability rises from the fact that the sun does not radiate energy uniformly. Solar flares display the explosive force and release of high energy radiation and particles. Sunspots show the same variability in waxing and

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THE GENUINE HOLY SHROUD (cont'd)

waning in eight and fifteen random cycles of years. Dr Maunder of the Royal Greenwich Observatory has drawn attention to the almost total absence of sunspots from 1645 - 1715 and the consequent violent see-sawing of carbon 14 in the atmosphere. Further investigations have proved that there have been at least five long term periods, each varying between 100-200 years with similar characteristics. In 1976 Dr Eddy of the American Atmospheric Research Centre pinpointed twelve major variations in sunspot activity in the past 5,000 years including a SUNSPOT MAXIMUM PERIOD WHICH BEGAN AT ABOUT THE TIME OF OUR LORD'S BIRTH.

The solar magnetic fields which cause the fluctuations are now known to reverse their polarity from cycle to cycle each being remarkably irregular. To all that must be added that our earth's magnetic field, from time to time, goes into total reverse, at times attracting and at other times repelling the incoming particles. What are we to think of the quantitative degree of global pollution of the biosphere from tritium and radiocarbon as the result of thermonuclear testing ... 80 degrees above normal in the northern hemisphere a few years ago!

Until these matters are all sorted out and examined it will be wise to set aside the present C14 test until further tests have been made. Testing the test!

SUPPRESSIO VERI

For the scientist who offers impartiality as the trademark of his profession, it is a serious accusation to be told that in order to buttress an insecure, unreliable exegesis, or maybe an even lesser motive, the truth has been suppressed in part, or in whole.

Prof Riggi di Numana in cutting the sample from the Holy Shroud of Turin for the carbon 14 test has recorded that he had to reduce it to seven centimetres "due to contamination of the cloth with threads of different origin, which even in small quantities could cause variation in the dating due to their being of later addition." In Oxford the microscopes found occasional fibres of cotton spun into the yarn; these were isolated and *sent to PH SMITH of Derby* (Precision Processes (textiles) Ltd) for examination and identification. Prof Gilbert Raes of Ghent Textile Institute was given a sample of the Shroud linen in 1970 from the same area, and has established that the cotton is 'eight-reversal-per-centimetre' *Gossypium herbaceum*. *Because cotton is a tropical plant it is not and has never been grown in Europe*. It was and is being grown in the Near East, and during the lifetime of Christ.

Because it is found in minute quantities in the Shroud linen, the loom which wove that linen must have previously been used to weave cotton. Since *the Shroud* has

THE GENUINE HOLY SHROUD (cont'd)

been in Europe since 1356, *it can only have been woven before that date and in the Middle East.*

The gentlemen at Oxford had *the evidence of the cotton* in their hands.

1. They knew their sample was contaminated with that
2. They knew the origin of the cotton in the Middle East, and ergo the origin of the Shroud linen
3. They knew the contaminants from many centuries were present
4. Specifically air pollution, calcium, strontium and iron from the 'retting' processing of the flax
5. They knew their sample had been taken from a worn and repaired corner of the Shroud, handled by many hands for over three hundred years in processions, expositions, etc in every part of Europe
6. They also knew the effects of heat and steam in the Chambery fire (1532) which at the melting point for silver (over 900 degrees C) would have dissolved any contaminants and forced them into the yarn construction, chemically reacting with the molecular construction. No cleaning moves that.

ANY ONE OF THOSE ACCUSATIONS INVALIDATES THE C14 TEST AND TOGETHER DEMONSTRATE THAT THE TRUTH WAS SUPPRESSED BY ALL THREE LABORATORIES. THE TEST WAS A FARCE ... AND THEY KNEW IT.

REPORT OF THE AMERICAN SCIENTIFIC GROUP 1980

1. No pigments, paints, dyes or stains have been found on the fibrils of the Shroud threads. X-ray fluorescence and microchemistry on the fibrils preclude the possibility of paint being used as a method of creating the images. UV and IR evaluation confirm these studies.
2. Computer image enhancement and analysis by a device called a VP8 image analyser show that the images have a unique, 3 dimensional information encoded in them.

HOW WERE THE IMAGES FORMED?

Microchemical evaluation has indicated no evidence of any spices, oils, or any biochemicals known to be produced by the body, in life or in death.

For an adequate explanation of the images on the Shroud one must have an explanation which is scientifically sound from a physical, chemical, biological and medical viewpoint. At present this type of solution does not appear to be obtainable by the best efforts of the Shroud team. There are no chemical or physical methods known which can account for the totality of the images, nor can any combination of physical, chemical, biological or medical circumstances explain the images adequately.

Thus the answer to the question of how the images were produced, or what produced the images,

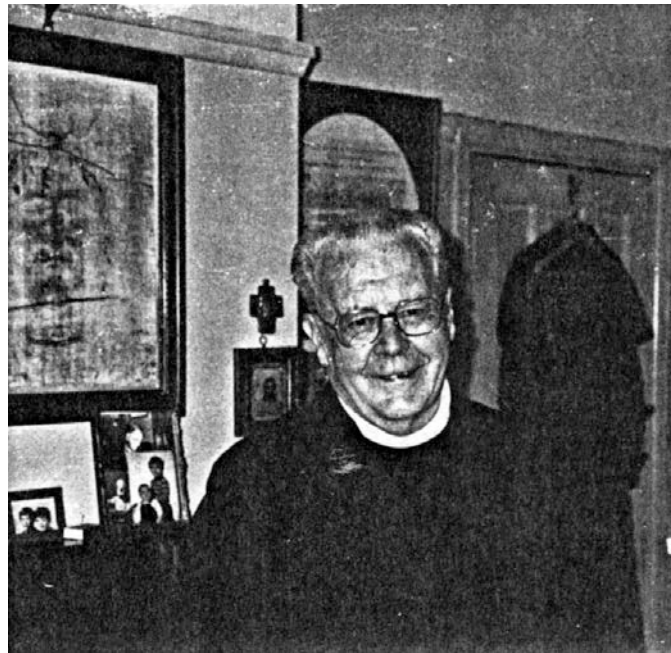
THE GENUINE HOLY SHROUD (cont'd)

remains now, as it has been in the past, a mystery.

SUMMARY

We can conclude for now that the Shroud images are that of a real human form of a scourged, crucified man. The Shroud is not the product of an artist.

The bloodstains are composed of haemoglobin and also give a positive test for serum albumin. The images are an ongoing mystery and until further chemical studies are made, perhaps by this group of scientists, or perhaps by some group of scientists in the future, the problem remains unsolved.



Fr Charles Foley, Devon, England

STATISTICAL DOUBT ABOUT THE C 14 DATING OF THE SHROUD

REMI VAN HAELST, Antwerp (edited by Rex Morgan)

The main stipulation for any statistical analysis is the fact that all data must be published in order to allow anyone to verify the calculations and the results given.

This has certainly not been the case for the C 14 dating of the Shroud. First of all the only source of information is the non official report published in *Nature* Vol 337, No 6208, Feb 16, 1989. (See *Shroud News* No 52). Until now no official report has been published.

The *Nature* report is headed with the names of 21 esteemed scientists, verified by Professor Bray of Turin. Before its publication it had been judged by the *Nature* referees. So why should a non-statistics expert doubt?

1. The basic data given in table 1 are not individual measurements but the averages of several measurements. A run is normally composed of 10 to 20 graphite targets, measured scientifically, the sequence being repeated several times. The maximum and minimum values should be given. "Averaged data should not be compared in more than one test." This difficulty is overcome by the use of the F-test of significance (Perry, *Chemical Engineering Handbook, Comparison of Means* pp 2- 72.)

2. Because Arizona includes the $\delta^{13}\text{C}$ error in a later stage this makes any verification of data impossible. The errors quoted in Table 1 do not match the error given in Table 2. If one compares both data then the $\delta^{13}\text{C}$ error can be calculated as 26 rc years more than the combined statistical (counting) error and the scatter of results as stated in the *Nature* report. One should not forget that AMS measurements are based on a fixed value of ^{13}C .

3. Arizona gives only 4 data on the Shroud and 5 for the 3 control samples. Zurich gives 3 data on the Cleopatra sample and 5 on the others. For Arizona, no reason is given while Zurich states: "disintegration". Oxford made only 3 measurements. Professor Bray comments on this: "Probably, also the scatter concerning sample 1 could have been reduced by establishing: (a) a common testing procedure and sample treatment and cleaning to determine unequivocally the state of the measurement, (b) testing conditions, (c) the condition of the measurement means on the basis of reference values to be chosen with equal spacing, (d) the methods for evaluating measurement data and the associated uncertainty."

Maybe it is useful to know that this part of Bray's comments was not published in *Nature*. Even the part published does not conform with the text of Prof Bray.

Compare: *Nature*: "the results of the 3 laboratories were mutually compatible and that, on the evidence submitted, none of the mean results WAS questionable."

STATISTICAL DOUBT (cont'd)

Bray: "the results of the 3 laboratories are mutually compatible. On the evidence submitted no average result APPEARS questionable."

There is great difference between WAS and APPEARS but why was the exact wording of Bray not used?

4. The χ^2 test was applied in accordance with the recommended procedure of Wilson and Ward. The results of this test given in Table 2 (6.4) show that it is UNLIKELY that the errors quoted by the laboratories fully reflect the overall scatter. Let us see what Prof Hoel (University of California) writes in his book *Introduction to Mathematical Statistics*. As if by coincidence Hoel gives on pp 256 - 257 an example comparable to the Shroud C14 dating in which an infection problem is examined.

For 11 df and a 95% confidence level the critical χ^2 value is 19.7. The calculated value is 18, thus normally acceptable. But Hoel writes: "Since $\chi^2 = 18$ is so close to the critical value and since the sample is so small, one would be tempted to suspend judgement here until more data becomes available. For data of this type, it often happens that the infection is localized and gradually spreads from such localized spots. If such is the case, one would expect the hypothesis of homogeneity to be rejected." Hoel's book (6th edition) is dated 1966. I do not believe that he wrote his text to be first used in 1989 so how is it possible that a man like Dr Tite from the British Museum, together with 20 other scientists dare to claim "These results therefore provide conclusive evidence that the linen of the Shroud is mediaeval ... with at least 95% confidence..."

I have made a complete statistical analysis following the classic method. The results are quite different:

	Oxford	Arizona	Zurich	Mean 3	Mean 12
Ar. Mean	757	646	691	695	689
Variation	1588	3194	2072		
St. Deviation	34	57	46	56	45
St. Error	20	28	21	32	13

χ^2 based on the average of the 3 averages.

$$\frac{(757-695)^2}{20^2} + \frac{(646-695)^2}{28^2} + \frac{(681-695)^2}{21^2} = 13.1$$

χ^2 based on 12 results

Because of the long calculations only the result is given: 14.1. Following the classic method there is no doubt that the results are not mutually compatible.

The same applies to the result of the F - test made up by a table of variance,. This procedure is also long. The critical value F (2-9) 95% is 4.26. The calculated F value is 4.7. The values are not mutually compatible.

STATISTICAL DOUBT (cont'd)

I also calculated the degrees of freedom, given $(6-1) = 5$ in *Nature*. From the values in *Nature* I find:

$$\left[\frac{[8943/3 + 961/4 + 564/5]^2}{\frac{943/3)^2}{4} + \frac{961/4)^2}{5} + \frac{(564/5)^2}{6}} \right] - 3 = 9$$

I hope all scientists involved in the statistical analysis will correct me where I am wrong for I am no statistical expert, only a searcher for the truth. I know very well that these remarks will not change the fact of the C 14 dating results, but they certainly change the claim for 95% confidence and in any case my confidence in the *Nature* report. In spite of a doubtful χ^2 test someone tried to arrange a result instead of following the wise advice of Prof Hoel: "Wait for more data and facts...."

I had the opportunity of meeting Dr Tite and Prof Evin at the Paris Symposium. They rejected my calculations but they did not correct me. By correspondence I asked the same of Dr Hedges, Prof Hall and Prof Wolfli, all of whom refused to give me any information. Before I knew how to use the Wilson and Ward method I had to write to the Australian scientists because none of the scientists involved were prepared to help me in any way to clarify their statements. Americans Prof Damon and Prof Donahue did not reply.

Before the results were known Prof Gove of Rochester had warned of the situation created by the publication of non-conclusive tests because of a non-foolproof procedure!

It is no wonder that the impeachment brought forward by Fr Bruno Bonnet-Eymard is gaining more and more attention. No scientist will ever accept a preconceived fraud but it cannot be denied that there are several deviations from protocol. I am sure that with such "deviations from the protocol" Ben Johnson would not have lost his Olympic gold medal.

Remember: all these operations, except for the wrapping of the sample, were fully documented by video film (*Nature*). Why was there a fourth sample? Why was the blind test cancelled? I asked Dr Tite these questions. His answers are not convincing and are even in contradiction with other parties. One example: "Why did Arizona not give some explanation about the missing 5th Shroud data?" The answer: "Probably because they chose 4 of the measurements."

(POST SCRIPT, 10 December 1989)

TO ALL SHROUD SCHOLARS

Since the day the radiocarbon dating report was published in *Nature* I have made great efforts to show that these results were in no way conclusive evidence with

STATISTICAL DOUBT (cont'd)

95% confidence that the Shroud is a mediaeval artifact. I made contact with all scientists involved except the Americans who did not answer my letters. I cannot say that any of the scientists involved gave me much help.

To understand the statistical methods of Wilson-Ward I had to contact the Australian authors who showed me how to use their method which was, until now, not part of the "classical statistical analysis methods". At least I could not find it in the many books I went through to freshen up my long forgotten school knowledge.

In Paris I had long and agitated talks with Dr Tite and Prof Evin in the presence of Prof Gonella during the Shroud Symposium. I presented my calculations to the scholars present and in particular, in the absence of Prof Hall, to Dr Tite. Many scientists present in Paris reviewed my calculations and some congratulated me but, because it is a very complicated matter, only specialists will notice the small but significant differences between my results and those published in *Nature*.

Dr Tite, who is neither statistician nor radiocarbon specialist, asked the statistician who made the statistical analysis of the Shroud testing for advice. He said: "The differences are due to the use of different weighing systems. In general the conclusions are the same: the scatter of results is larger than predicted by the errors quoted." This means that the way I used the "classical methods" is approved by the same persons who made the statistical analyses of the radiocarbon dating results of the Shroud. Prof Bray of Turin was not prepared to do so; he wrote to me: "I do not like to overstep the limits of my work. This is the responsibility of Dr Tite."

Prof Evin did it in another way. He told me boldly: "You are playing on the extremities. Theoretically you are right but this will not change the fact that the Shroud has been dated 12 times to the 13th century." Indeed this is a fact but it is also a fact that following the classical methods of statistical analysis, at least 3 of the 12 results are out of range which is certainly not a sound basis to claim 95% confidence and conclusive evidence. In fact statistician Prof Hoel has stated: "In the case of a value of the chi-square test close to the critical value and with such a small number of samples it is better to suspend judgement until more data becomes available."

Therefore one should rewrite the *Nature* statement as follows: "The results of the radiocarbon measurements did not give conclusive evidence because of a scatter larger than predicted by the errors quoted. The reason for this particular fact should be the goal of a new interdisciplinary scientific examination."

* * * * *

SHROUD NEWS began in 1980 when Rex Morgan, author of three books on the subject of the Holy Shroud (PERPETUAL MIRACLE -SECRETS OF THE HOLY SHROUD OF TURIN, SHROUD GUIDE and THE HOLY SHROUD AND THE EARLIEST PAINTINGS OF CHRIST) started putting together a few notes about current developments in sindonology (the study of the Shroud of Turin) for a small circle of interested people in his home country of Australia. He didn't expect it to go beyond a few issues.

The bulletin now reaches subscribers all over the world and because of its relatively simple method of production it can be written and produced and the information disseminated more quickly than most news-sheets of a similar kind or the more prestigious journals. It contains information, news, articles and illustrations gathered from sources of Shroud study worldwide through Rex Morgan's extensive personal connections with what has been described as the "Shroud Crowd".

Rex Morgan is a frequent traveller overseas and thus has the opportunity to keep abreast of latest developments in Shroud study and research. He was present at the world media preview of the Shroud itself in August 1978 in Turin, Italy and has met with numerous Shroud researchers in many countries. His quest for information about the Shroud has become, as he describes it, a "passionate hobby". He brought the world-famous Photographic Exhibition created by Brooks Institute, California, to Australia, New Zealand, Hong Kong and Macau and during its tour it attracted more than half a million visitors. The exhibit has now been given to the non-profit making organisation, The South East Asia Research Centre for the Holy Shroud (SEARCH) of which Morgan is President. He is also a member of the Board of Directors of the USA based Association of Scientists and Scholars International for the Shroud of Turin (ASSIST) and was a member of the scientific team which conducted environmental experiments in a Jerusalem tomb in 1986 (The Environmental Study of the Shroud in Jerusalem).

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