SHROUD NEWS

A NEWSLETTER ABOUT THE HOLY SHROUD OF TURIN
edited by REX MORGAN, Author of several books on the Shroud
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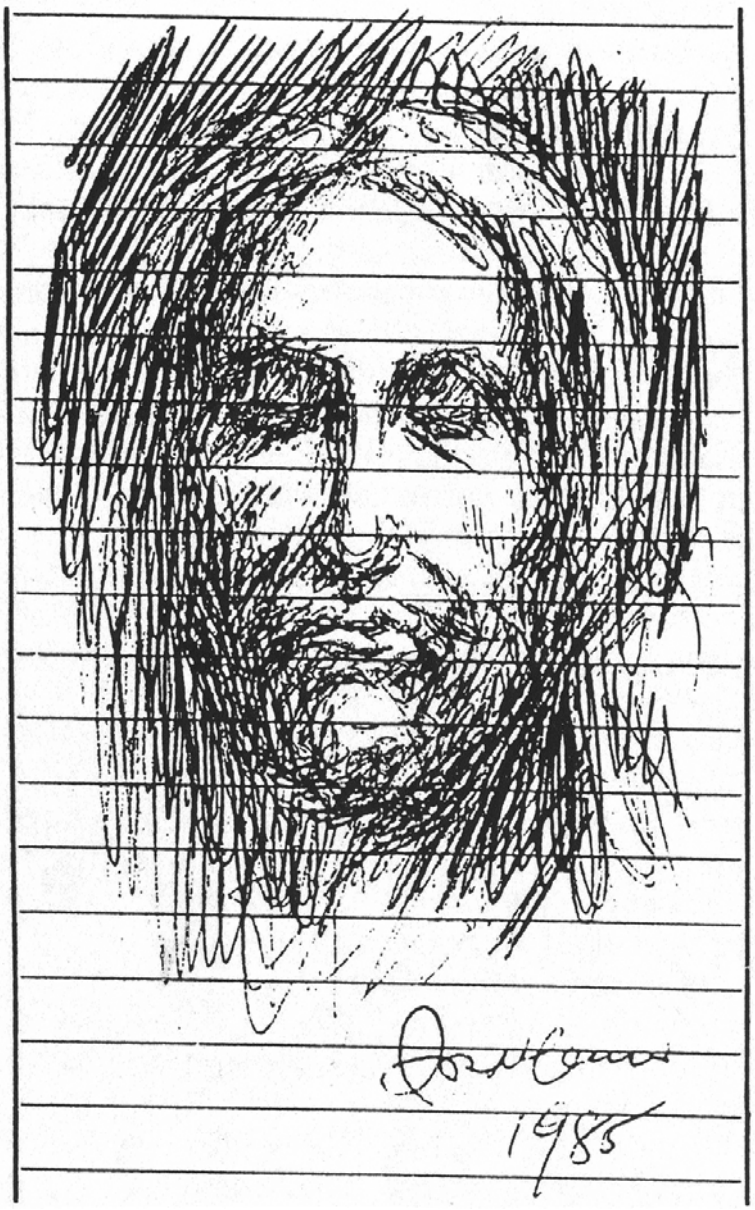

The Face of Christ based on the man in the Shroud sketched by
Maltese artist JOSEPH CASSAR on a notebook sheet
during a meeting of sindonologists in Malta in 1985.
Original supplied by Bro. Michael Buttigieg

EDITORIAL

The British Society for the Turin Shroud has been producing a fine Newsletter for many years. Some time ago its format changed to that of *Shroud News* with due acknowledgement from its editor Ian Wilson for having copied us despite, at the time, his expression of surprise that even an Australian might lead the way in something. The March/April 1994 edition of that *Newsletter* has now graduated to laser-printed typesetting as well and this is a great improvement on past issues. Our congratulations are extended to Ian and his Society for its advancement in twentieth century technology. Also, I am suitably impressed and not a little envious of the fact that they have a scanner which is an extremely expensive, sophisticated and very effective way of reproducing photographs in this computer data process we all use these days in desktop publishing.

Ian gives, in his editorial, a warning that we of the Shroud fraternity should avoid the confusion which he claims will be caused by "too many elaborate speculations on how the Shroud's image may have been created, along with too many theories of how the carbon dating may have been in error." His fears may be justified but I would rather rejoice in the fact that there is a renewed interest in the Shroud, no matter what its bias, especially in the world media, after an almost total silence brought about by the cavalier dismissal of its possible authenticity by the Cardinal Archbishop of Turin in 1988, aided and abetted by English C14 men Edward Hall of Oxford and Michael Tite who have, along with the laboratories in Zurich and Arizona, steadfastly refused to reveal the complete evidence of their tests for scrutiny and "peer review" so beloved of the scientific community, despite almost continuous and justified demands so to do from their scientific colleagues and others with an interest in the results who have poured scorn upon them, not so much for presuming to claim that the Shroud is a medieval fake but for failing to produce the data collected at the time to support what is a tenuous minority view in the light of all the other evidence and research.

BSTS Newsletter goes on to give us four new theories of image formation and a savage review of Kersten and Gruber's new book *The Jesus Conspiracy*. The book is so seriously libellous, says Wilson, that he sees it as easy for authenticity adherents to choose whether or not to ally themselves with "the likes of" the authors but difficult for worthy Tite to decide whether to sue them which will only bring more notoriety to them.

REX MORGAN

PROFESSOR JEROME LEJEUNE

One of France's great sindonologists, Professor Jerome Lejeune died on Easter Day, 3 April 1994. He was a member of the Administrative Council of the French *Centre International d'Etudes sur le Linceul de Turin* (CIELT) and of its Scientific Council. He was one of France's foremost research scientists as Professor of Medicine at the University of Paris and made numerous contributions to the study of human genetics and infant illnesses. Indeed he was described as France's "master of genetics". He was Vice President of the Pontifical Academy of Science and was nominated for a Nobel Prize. His ardent conviction that abortion was a crime led him to be appointed by the Pope to the Pontifical Academy of Life.

His work in Sindonology is widely known and he almost always contributed a paper to the international conferences held in recent years. At the Rome conference in June 1993 his paper described his proof, through the Hungarian "Pray" manuscript, that the Shroud was in existence at least in the 12th century and thus the C14 tests of 1988 could not have been correct. (See *SN* 80). He also made a major foray into the Turin scene in May 1992 where he questioned the arrangements for the preservation of the Shroud during the repairs to the Shroud Chapel in Turin Cathedral (see *SN* 74).

I remember Lejeune as a delightful, quietly spoken, considerate and intensely genteel man, an inspiration to the Shroud workers of France and, indeed, of the world. - **RM**

LETTERS TO THE EDITOR

The Australian, 3 May 1994, published an interview between *The Times* science editor and Dr Francis Crick who, with Dr James Watson, discovered the structure of DNA. Dr Crick is quoted:

"If the members of a church believe in a life after death, why don't they conduct experiments to establish it? They may not succeed, but they could try.,,

Jesus Christ said:
"I solemnly assure you, unless the grain of wheat falls to the earth and dies it remains just a grain of wheat. But if it dies, it produces much fruit." (John 12:24)

The germination of every seed is a sign of life after death. It especially requires water plus the effects of the sun. Christ, "the sun of justice with its healing rays" (Malachi 3.20) with water in the Sacrament of Baptism restores eternal life after the spiritual death of original sin (John 3:5). The biblical account of the Resurrection of Christ is empirical evidence - scientific evidence. The scientific investigation of the Shroud of Turin, "the piece of cloth which had covered the head" (John 20:7) satisfies the criticism of Dr Crick and therefore deserves every support.

- (Dr) Vaughan Davis, Sydney

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I am anxiously awaiting more news from your man in Spain. The Shroud was hidden (Ian Wilson) and sold by Baldwin to St Louis and went to Spain. It appears that Philip the Fair knew something about it and brought it back to France. A French author named Druon suggests that the Shroud was in a gold container and was sold in Paris in 1304. Every piece of information on Philip should be closely examined.

- G.L.K. New York

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I have a fair idea of the work you do on *SN*, plus other beautiful publications such as *Byzantine Frescoes* and the Volckringer booklet, plus all the globetrotting you do. I just want you to know that I for one really appreciate the importance of your Shroud work and its very high quality, and the effort you must put into it. More specifically, I feel Isabel Piczek's response to the Craig-Bresee item (*SN* 83) is very important to preclude half-baked ideas getting too much circulation before they are slapped down. Also de

LETTERS (cont'd)

Vincenzo's C 14 rebuttal in *SN* 82 is an important reiteration, and for new readers, although we've known the truth of his points for nearly 15 years.

- F.T. U.S.A.

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Shroud News continues to grow in interest from issue to issue. Thank you! I wish to comment on 2 items in the April 1994 issue.

1. The lance thrust. Tradition says the name of the centurion was Longinus and he is honoured as Saint Longinus in the Catholic Church (although the Modernists have probably removed his feast from the calendar.) It was the centurion who opened the side of Christ with his lance and these soldiers were experts in anatomy and knew exactly where to pierce. He exclaimed, "Truly this Man was the Son of God." Why? Tradition says that he had been losing his sight and that as he thrust in the lance, some of the blood and water sprang out and touched his face and his sight was immediately restored. He was there with St John, Joseph of Arimathea and Nicodemus as a stretcher-bearer to carry the Body to Joseph's new tomb. No wonder he laid down his lance for he would fight no more but become a Christian disciple.

2. Carbonisation? Dr Roger Reuss is a Modernist with similar "advanced" ideas on the Resurrection which are not scientific at all as this is one of the old "missing body" theories in new guise. Saint Paul tells us that if Christ be not risen from the dead our religion is in vain. In other words Christ promised He would rise from the dead and being God, He did just what he said He would do. He wasn't a liar! St Thomas the Doubter was told to place his finger in the nail holes and his hand on the wound in the side, "and be not faithless but believing." And Christ ate with His disciples on more than one occasion to prove that He was indeed risen.

- M.E. Victoria, Australia

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I really do think you should raise your price! You are working for peanuts and the Shroud Crowd out here would most gladly give more for the year's collection ...

- C.B. Victoria, Australia

THE GREAT HOLY SHROUD DATING FRAUD OF 1988

- adapted by D. J. McDonnell

[Reprinted from *Catholic* May 1993]

The following is a digest from reports compiled by a team of investigators for a French traditionalist group who produce a journal titled The Catholic Counter-Reformation of the Twentieth Century. The reports were published in April 1991.

Is the Shroud of Turin genuine? In our opinion, absolutely, without the least shadow of doubt. The credibility of the British Museum, already suspect because of its 'acceptance' of the fraudulent Piltdown Man' and 'Peking Man' is even more besmirched by its handling of the investigation into the age of Shroud of Turin. Unfortunately however, the enemies of the Church will ensure that the debate continues as if the fraud has been proven. The enemies within the Church will ensure that this happens.

The Trouble with STURP...

Between 1974 and 1978, at the initiative of an American physicist, John Jackson, of the U.S. Air Force Academy at Colorado Springs, a group of some forty elite American research scientists formed a study project called STURP: the Shroud of Turin Research Project.

In 1978 the entire STURP team, with seven tons of equipment, journeyed to Turin where, from midnight of Sunday, October 8 to midnight of Friday, October 13, they spent a full 120 hours studying the Shroud, experimenting, photographing and compiling data which they studied over the next three years.

At a highly technical Symposium held at New London, Connecticut, on October 10 and 11, 1981, STURP published in detail their main conclusions. Not the least trace of paint had been detected on the Shroud, but instead the cloth had been stained with real human blood from a real human body which had suffered all the torments of Christ's Passion. Nor could they find any human method to explain how the markings composing the image came to be on the cloth in the first place. They concluded that the stains had been scorched onto the cloth in an instant of most intense heat from a body which was, temporarily at least, weightless!

These findings were already being publicised in the Academy Award winning 1978 documentary film *The Silent Witness*, and in popular articles such as that in the June 1980 edition of *National Geographic*. But if the Shroud is demonstrably miraculous, and is even a proof of the Resurrection and hence the divinity of our Lord Jesus Christ, what does this make of His Church? If scientific proof has been found for, the divinity of the Church's Founder, then this is bad news indeed for those who hate the Church!

"Saul, Saul, why persecutest thou Me?" (Acts 9:4) As we all know, every Christian population in the world today labours under anti-Christian governments and laws. So no reader need doubt that STURP's findings could only arouse an angry determination among the West's immensely powerful and wealthy anti-Christian forces that the Holy

THE GREAT HOLY SHROUD DATING FRAUD OF 1988 (cont'd)

Shroud of Turin, at any cost, must be discredited.

"Kill the Miracle!"

The trouble with STURP was that theirs was a healthy skepticism, i.e. a properly scientific disbelief which was reasonable and could be removed by sufficient evidence.' What the Church's enemies needed were scientists whose disbelief was rock-solid and unshakeable.

"What do we...? If we let him alone so, all will believe in Him... !" (Jn. 11:47,48). So just as "Kill the miracle-worker!" was the enemy's answer in 30 A.D., so "Kill the miracle!" became their answer after 1978.

But how? Europe did not seem to be quite "post-Christian" enough as yet to be ready to live happily with a simple sacking of the Chapel and a burning of the Shroud. Some alternative had to be found. Somehow the 'Shroud had to be discredited, and it was decided that this would best be done by giving it an "authoritative" Mediaeval radiocarbon dating. (Here, forget what Max Frei the Swiss forensic Professor had said. Professor Frei had told a Sindonology Conference that, on the basis of the 4,8 classes of pollen he had found on the Shroud, "I can affirm, without fear of being proven wrong, that this linen cloth dates back to Palestine 2,000 years ago.")

With an "authoritative" Mediaeval radiocarbon dating, the Shroud could be changed overnight from the glory of the Church into just another scandal. All debate thereafter, it could then be hoped, would be mere curiosity over "How did the Mediaeval forgers do it?"

The task then was twofold: first obtain the Church's consent to a radiocarbon dating project on the Shroud, and then get control of that project to ensure that it gave the desired result. In July 1982, the Trustees of the British Museum placed Dr., Michael Tite, Director of the Museum's Research Laboratory, in charge of their campaign to "get" the Shroud.

This meant the finish for STURP. Even in 1978, STURP's days were numbered. This had been decided at the Second International Congress of Sindonology, held at Turin on October 7 & 8, 1978 by another American scientist, Harry Gove of the laboratory at Rochester. As he himself wrote later, Gove had noticed in 1978 that "most of the STURP members were, and perhaps still are `true believers' in the identity of this remarkable piece of material with Christ's shroud. .. It was then, at this Congress, that I decided that STURP would not play the least role in the radiocarbon dating measurements if I could do anything to prevent it. •I am happy to say that in the end they played no role. (*Archaeometry*, 31,2 (1989), p.236.)

STURP meanwhile, had taken the first steps (in 1979) towards gaining authorisation for a radiocarbon dating of the Holy Shroud. (On March 18, 1983, the Shroud's owner,' Umberto H, the exiled King of Italy died, bequeathing the Shroud to the Holy See. Pope John Paul II appointed the Archbishop of Turin as the Shroud's Pontifical Custodian.)

On October 16, 1984, STURP presented their 177 page "Phase II" project to the Archbishop of Turin, Cardinal Ballestrero, in which they proposed a protocol for the radiocarbon dating of the Shroud. They never received any reply. From September 29 to October 1, 1986, Cardinal Ballestrero met representatives of seven laboratories, and an 800 page protocol was drawn up naming three controlling authorities: the Pontifical Academy of Sciences, the Institute "G. Colonetti" of Turin, and the British Museum.

THE GREAT HOLY SHROUD DATING FRAUD OF 1988 (cont'd)

Now to eliminate the rivals. Too many supervising authorities and laboratories involved in such a project, of course, would only make it next to impossible to ensure that it obtained the desired result. But Cardinal Ratzinger had been assured that the Pontifical Academy of Sciences would not be excluded. Well, too bad about them!

Cardinal Ballestrero was advised in May 1987 by the Vatican Secretary of State, Cardinal Casaroli — who else for the job?! — that only the British Museum in the person of Dr. Michael Tite, was to be the sole supervising institute. Who else for the job, indeed!

Cardinal Ballestrero was also advised that only three laboratories were to be kept in the project: those of Oxford, Zurich and Tucson in Arizona. This order was passed on to these laboratories by Cardinal Ballestrero on October 10, 1987.

Finding a Suitable 14th Century Substitute Cloth.

Now that he was entirely freed from either supervision or "true believers", Dr. Tite could begin his search for a 14th century cloth of a weave similar to that of the Shroud. Since no-one denies that the Shroud of Turin was being venerated at Lirey in France in about 1355, however, Dr. Tite could not afford a Shroud dating too long after 1355. One Jacques Evin, of the Radiocarbon Laboratory at Villeurbanne in France, heard of Dr. Tite's search and wrote offering to help. He received the following reply dated February 12, 1988 from Dr. Tite:

Dear Dr. Evin,

Thank you very much for your most helpful and encouraging letter of February 8.

Certainly, limiting the number of laboratories involved in dating the Shroud makes my task somewhat easier.

I would certainly very much welcome any assistance that you can give in obtaining a mediaeval control sample, which is as similar as possible in terms of weave and colour as the Shroud, since at present, I am not certain whether the British Museum will be able to provide such a sample.

Firstly, therefore, to answer your specific questions:

1: The total sample would need to be 6 sq. cms, (i.e. about 120 mg)

2: The material of the sample should be linen. I enclose a photocopy of some photographs which give some indication of the weave of the Shroud.

3: We are looking for a sample which dates from the 13th or the 14th century AD., preferably the latter.

4: The historical precision should obviously be as good as possible, but one would certainly consider samples with an age range of fifty to a hundred years.

5: There is no need for the sample to come from a well known piece of textile.

6: I suppose that I could come to France to collect the sample. The idea certainly appeals to me. But I do not really think this would be necessary. It would probably be satisfactory to use the postal service.

7: I think that one would want to include the name of the museum that provided the sample in the final publication, if this was at all possible.

On the basis of these answers, it would seem that your third suggestion as a source of possible material, that is, the Cluny Museum in Paris, would be most suitable. I have therefore written a letter to Mme. Joubert-Caillet — copy enclosed — asking her if she would be able and willing to help in this matter.

Again, thank you very much indeed for your kind offer of assistance, which is very

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much appreciated. As you say, I hope that the project will give us an opportunity to meet again.

With best wishes,
Yours Sincerely,
Signed: M. S. Tite.

The Cluny Museum was contacted but refused to be involved. "*Ils ont eu la trouille*. — They got scared," as Evin remarked later. So he and one, Gabriel Vial, went along to the Basilica of Saint-Maximin at Var and pulled some tufts out of the cope known to have been worn by St. Louis d'Anjou (d. 1297). A postal strike intervened, so Vial had to hurry to Turin himself and hand his "control sample" to Tite himself on the very day of the cutting of the sample from the Shroud: April 21, 1988.

Meanwhile Dr. Tite had acquired from the Victoria and Albert Museum a 10mm by 70mm strip of 14th century cloth which he had cut into three equal pieces. These he placed into each "Sample 3" cylinder — to be switched later with each "Sample 1" cylinder containing the Shroud piece. ("Sample 3" was nominally from the mummy of an Egyptian child buried during the reign of the Emperor Hadrian who reigned 117 to 138 A.D.)

Turin, April 21, 1988.

On April 21, 1988 in the sacristy of Turin Cathedral "The shroud was separated from the backing cloth along its bottom left-hand edge and a strip (10mm by 70mm) was cut ... from a single site on the main body of the shroud away from any patches or charred areas." (Quoted from p. 2 of the 4 page report published in *Nature* magazine of February 16,1989, the sole official report of this whole project.)

Indeed, at Turin on April 21, Dr. Tite had ordered a strip of that size to be cut from the Shroud. But the cutter, Giovanni Riggi, had in fact cut a strip 16mm by 81mm, which he then cut into two pieces which were weighed by Prof. Franco Testore at 158.5 and 144.8 mg. The smaller piece was kept as a "reserve" by Riggi, while the larger was cut into four pieces, each weighing 14.1, 39.6, 52.8 and 52.0 mg.

(These details were provided by Prof. Testore at a Symposium held in Paris on September 7, 1989. Neither Testore nor Riggi were among the 21 official signatories of the official report published in *Nature* magazine.)

The two smallest pieces were placed together in the "Sample 1" cylinder for Tucson. A photograph of these pieces next to their cylinder, and with the Archbishop's official seal in the background, was later supplied by the Tucson laboratory's representatives who were present at the cutting in Turin: Profs. P.E. Damon and DJ. Donahue. This photograph verifies Riggi's contradiction of the official *Nature* report.

The Shroud pieces were wrapped in aluminium foil and placed in three small cylinders as "Sample 1" for the three laboratories. Each laboratory also received a small cylinder containing "Sample 2": a piece of Nubian tomb linen dated from the 11th century A.D.; and another small cylinder containing "Sample 3" — supposedly a piece of linen supplied by the British Museum from the mummy of an eleven year old named Cleopatra who had been buried in Thebes in Egypt during the reign of the Emperor Hadrian — but which was in fact Dr. Tite's 14th century cloth.

Confronted with the importunities of an excited Vial, the imperturbable Tite divided his offering into three parts which he placed, not in cylinders, but in envelopes for the three laboratories as an apparently unexpected but later very useful "Sample 4"— threads from the cope of St. Louis d'Anjou (d. 1297).

THE GREAT HOLY SHROUD DATING FRAUD OF 1988 (cont'd)

"Fixing" the Test Results.

In the Turin Cathedral sacristy all was conducted ceremoniously and before photographers and video cameras, but later in each laboratory, someone switched the "Sample 1" (the Shroud piece) with "Sample 3".

The Americans arrived back in Tucson on April 23, and officially opened their cylinders on April 25. All the standard cleaning and burning procedures according to the AMS (Accelerated Mass Spectrometry) method were followed and dating measurements got under way on May 6 and continued until they were completed on June 8. The results were then immediately forwarded to Dr. Tite.

The doctor however was not impressed. His substitute cloth was turning out to be too young! Tucson's datings for the new "Sample 1" had "peaked" twice: between 1267 and 1313, then between 1350 and 1407! Since no-one denied that the Shroud was in existence at Lirey in the 1350's the latter dates were simply impossible!

What to do? The Zurich laboratory's director, Dr. Woelfli, has refused to give the dates on which his laboratory's sample burning and tests were carried out. Anyway, he was able to come up with more "believable" datings for "Sample 1", although these too had "peaked" twice: 1271 to 1301, and 1363 to 1374.

At last Oxford could proceed, burning its samples on July 13, and hurriedly conducting all its tests in only two days, July 20 and 21 (!). Its dates for "Sample 1" were all safely in the 13th century, and in fact, and suspiciously, almost identical with those for "Sample 4", the threads from the Cope of St. Louis d'Anjou. Oxford dated "Sample 1" at 1229 to 1280, and "Sample 4" at 1227 to 1279.

Thus did Oxford locate safely in the 13th Century what Tucson had located in the 14th and 15th centuries! Never mind. None of the dates are anywhere near the dreaded First Century ... except those of "Cleopatra's mummy" (in fact the Shroud) which, as "Sample 3", was dated with good concordance of datings by the three laboratories, at 9 B.C. to 78 A.D.

"It's a Fake!" Dr. Tite's Triumph ... and Tribulations.

On October 13, 1988 — in fact the tenth anniversary of the close of the five days of tests by STURP — Cardinal Ballestrero announced that the Shroud had been shown by radiocarbon dating to be Mediaeval, hence a forgery. Tut tut! On the following day, Dr. Tite gave a press conference at the British Museum to make the same triumphal announcement, doing this in front of a blackboard on which he had written "1260 -1390"!

Not a whisper of protest, or even of criticism has been heard from our "shepherds" in the face of this latest "scientific" mockery and anti-Christian farce. Remember, this latest lark comes from the proud home for 40 years of "Piltdown Man". Where once the Church Militant would have taken up cudgels, our new "Church Talking" has once again had nothing worthwhile to say. True to their form since Vatican II, our "shepherds" have remained, when it came to defending the faithful and their Faith, yet again dumbstruck.

As for the Shroud itself, ever since its Feast Day on May 4, 1990, it has been treated as a thing of shame, and its Holy Chapel in Turin has been closed to all access sine die, and is now falling into neglect.

THE GREAT HOLY SHROUD DATING FRAUD OF 1988 (cont'd)

Meanwhile the "True Unbelievers" could get to work. The Shroud Unmasked by David Sox was published in 1988. Then came a life-size photograph of the Shroud as the centre-piece of an exhibition held at the British Museum entitled "Fake? The Art of Deception" from March 9 to September 2, 1990. Such Museum exhibitions usually take two years to prepare. Lest anyone miss the special point of this exhibition, on the back cover of the Museum's official Catalogue for the exhibition came the questions:

"What is a fake, and why are they fabricated? Did the forgers of the Turin Shroud and of the Piltdown Man have the same motives?"

The Church's authorities were dumb, but scientists' and Christian protests came thick and fast. Finally the editor of the Catalogue, Dr. Mark Jones (Dr. Tite's successor as Director of the British Museum Research Laboratory) apologised for having written this "blurb". It disappeared from the Catalogue's second printing.

Even Dr. Tite was "feeling the heat". His letter expressing regret at having used the word "fake" in reference to the Holy Shroud of Turin appeared in the *Catholic Herald* of January 12, 1990.

Dr. Tite's unrepentance 'however, remained clear enough at a conference entitled "Fake", which he gave for the Museum Society of Haselmere, a small town in Surrey, on March 10, 1990. The following is a quote from a report of this conference by Mr. David Boyce: (Mr Boyce is the publisher of the English version of *The Catholic Counter Reformation.*

"In the course of his talk, he (Dr. Tite) admitted the mysterious nature of this image: the fact that not a trace of pigment is to be found on this cloth and that the image is coded to produce a three dimensional effect.

"He then completely disorientated us by projecting onto the screen the mathematical tables which figure in the *Nature* report, the value of which no one was able to judge, and launched into hare brained explanations for the origin of the image on the Holy Shroud, whilst those in the audience seemed to have suspended their critical faculties, bemused no doubt by this display of 'higher mathematics'. He began by quoting the "evidence" of Pierre d'Arcis, Bishop of Troyes, who claimed to have known the artist who painted the image on the cloth. Fortunately someone in the audience immediately remarked: `But you've already said there is no pigment on the cloth.'

"He then put forward the grotesque hypothesis of a Crusader crucified by the Saracens in the 14th century, whose decomposing body vapours would have left an imprint on the cloth in which it was buried. Either he knows nothing of the work of the American STURP team, who have proved the inanity of this hypothesis, or he holds their work in contempt. At this point, I intervened to say that the vapour theory is incompatible with the image we see, for a cloth wrapped round a body would inevitably distort any image produced; furthermore the light and dark shades of the Shroud are a function of the distance between cloth and body, which produces the three dimensional effect.

"He had to yield before both objections, and ended by saying that there remained a lot of research to be done into the formation of the image, but that he would never accept the hypothesis whereby the surface of the cloth was scorched by the flash of the Resurrection."

Carbon-14 and The Shroud of Turin

(Taken from the Italian/English journal *30 Days*, June, 1990)

On October 13, 1988, the most precious relic of Christendom, the Shroud of Turin, was pointed out by the Cardinal of Holy Mother Church charged with watching over it as being the greatest forgery in history. Archbishop Ballestrero of Turin announced to the world the damning judgement, issued by the three scientific labs which had been entrusted with the Carbon-14 dating of the linen, that it was a mere medieval curio.

Now, new evidence — in books by Br. Bruno Bonnet-Eymard of France and Dr Emanuela Marinelli of the International Centre for Documentation on the Shroud in Italy — present startling proof that there was a considerable lack of professionalism in the testing process, and thus they raise serious doubts about the validity of the results. These new books present us with mocking and dishonest scientists, with Shroud samples weighing twice as much in the labs as when cut from the Shroud itself, and with Carbon-14 tests which are full of holes.

The books both argue also for "a Jewish-Masonic conspiracy" to distort the truth of the shroud, so-much-so that the Vatican Secretariat of State has itself opened a dossier to examine the allegations of misconduct of what has been labelled "mafia" prejudice against the linen which held Our Lord until His Resurrection. The Carbon-14 test conducted on a tiny fragment of the cloth is extremely sensitive, and takes little to be rendered completely misleading.

The magazine *Science*, in its December 1988 issue, tested living snails, and found them to be 26,000 years old. The geographical journal, Antarctic, reported that a freshly-killed seal was judged to have been dead for 1,300 years by the Carbon test. *Radiocarbon* magazine wrote that the skin of a woolly mammoth, supposedly living 26,000 years ago, was really only 5,600 years old. And recently, the British Research Council gave 38 laboratories around the world objects of a known age for Carbon dating. Only 7 of the 38 gave correct results.

The Director of the laboratory in Zurich which tested the Shroud dated his own mother-in-law's handkerchief, about 50 years old, to be over 350 years old. The Tucson laboratory, which also dated the Shroud, succeeded in dating a Viking horn to the year 2,006 A.D.

In short, there are many unanswered questions. This has led some authorities to speak of an "anti-Catholic plot" aimed at making surviving traces of the visible presence of Christ disappear. Even though the new Archbishop of Turin, John Saldarini, has "no intention whatsoever" to reopen investigations into the age of the Shroud, that Vatican dossier is still being compiled — marked Top Secret.

A CAVEAT ABOUT THE SHROUD RADIOCARBON DATING

- Remi Van Haelst, Belgium

Belgian scientist and author Remi Van Haelst continues his relentless mission to persuade the British Museum, controller of the 1988 C14 tests, to publish the full results which they have steadfastly refused to do.

To judge measurements made in the laboratory one must give up any prejudice. Theoretically it should make no difference if the radiocarbon dating of the Shroud had been coordinated by the Papal Academy instead of the British Museum.

Any scholar, evaluating the results in a scientific manner, must reach the conclusion that the data noted in the semi-official report in *Nature* (16 Feb 1989, Vol 337 No 6200) are not consistent. Following the ethical scientific code the complete report of the experts with the raw data should have been published.

This means that the radiocarbon data for the Shroud should be examined in the same way that the experts of the British Museum evaluated the "Intercomparison test" in 1983 (*Radiocarbon* No 28 pp 571 -577, 1988, authors Burleigh, Tite and Leese). In this test, sample 2, a Peruvian cotton, historically dated 1200 AD, was dated by radiocarbon at only 362 ± 94 RCY. In spite of the fact that no outliers were reported the result was rejected.

The same scientists of the British Museum did not reject the radiocarbon data for the Shroud despite the fact that statistical analysis shows that the data for the Shroud are inconsistent. The statistical analysis of the data reported in *Nature* is based on a very small number of measurements presenting a wide scatter (Chi^2 7.13 which is larger than the *Nature* value 6.4, both above the critical value 5.99). Because of the limited number of data it was decided not to reject any result (letter, Dr Tite).

Scientifically one should have been more cautious than to declare the results to be "conclusive evidence" for the mediaeval age of the Shroud. In *Nature* one will find how the radiocarbon data for the Shroud are biased in order to obtain the claimed 95% confidence and 5% significance. During the CIELT Shroud Symposium in Rome 1993 I showed this on the basis of a computer programme. Any statistician will come to the same conclusion. Even Dr Leese of the British Museum agreed that my calculations are correct but she refuses any public acknowledgement.

A CAVEAT ABOUT THE RADIOCARBON DATING (cont'd)

Being a chemist I verified each step of the radiocarbon dating following the standard procedures (ASTM and API) to ensure good sampling and compatibility of results between different laboratories. There is clearly a contradiction between the descriptions of the samples in *Nature* and in the Riggi-Testore reports. Even Oxford agrees with this. The excuse: "The *Nature* report has been written from memory ...." This means that the radiocarbon dating has been performed on non-certified samples which is scientifically unacceptable.

Some three years ago Oxford dated an artefact found in Natal, South Africa, to be about 750 RCY old. In the report Oxford noted that this could only be regarded as dating the painting if one knew the composition of the pigments and so could relate the radiocarbon date to the sources of carbon in the pigment. The Natal Museum published the date without taking into account the caveat of the Oxford experts.

Later it became known that the artefact was made recently by an elderly woman from whom it had been stolen and later dumped in the bush. This was a matter of considerable irritation to Oxford. Since the pigments were derived from petrochemicals for which the radiocarbon age is at least 40,000 years a mixture of these with modern oils and varnish will give a radiocarbon date anywhere you like. If one recalculates the Natal radiocarbon date then one will find that about 8% of "old" pigments are mixed in modern oil or varnish. Oxford learnt from this embarrassing episode to give more emphasis when communicating a date to point out the possible problems linking a radiocarbon measurement, especially on unknown material, to the "actual date". This is the spirit of true science.

One may wonder, then, why Oxford does not publish such a caveat for the Shroud dating but continues to claim that this dating is absolutely accurate.

(Note: The story of Mrs Joan Ahrens appeared in the *Oxford Star* of 11 April 1991. Dr Hedges commented, "We dated the material on the rock. It is all a bit unfortunate." Dr Tite commented, "We warned the submitter that the date had no meaning until this material had been identified." According to the Oxford experts the pigments used were 40,000 years old. According to the *BSTS Newsletter* No 28 (1991) the paint used by the 72 year old woman was wheat paint. The wheat was certainly not harvested 40,000 years ago.)

A 'MIRACLE' DIAGNOSIS

- Luigi Garlaschelli, Franco Ramaccini and Sergio Della Sala

[Reprinted from *Chemistry in Britain* Feb 1994]

Several times each year, a large crowd of people gathers in the cathedral in Naples to witness the miraculous liquefaction of the 'blood' of St Januarius. A team of Italian researchers has now arrived at a more scientific explanation for this phenomenon ...

Since 1389, when the small phial containing this dark unknown 'blood' substance first mysteriously appeared, this miracle liquefaction ceremony has enthralled and puzzled thousands of spectators. Even today believers and sceptics still regard the phenomenon as unexplained.[1-3]

The eminent parapsychologist Hans Bender defines it as the paranormal phenomenon with the longest and best historical documentation.[4] Although the archbishop himself performs the rite in the Cathedral of Napoli, it has never officially beep declared a miracle by the Catholic Church. This leaves scientists free to express their opinions since it is one of the few recurrent non-medical physical miracles that we can study scientifically.[5]

St Januarius

Tradition has it that St Januarius was bishop of the Italian town of Benevento near Naples, and that he was beheaded as a Christian martyr (*Fig. 1*) at the order of the Emperor Diocletianus in 305 AD at Pozzuoli.

In 1337 Archbishop Orsini of Naples instituted ceremonies in his honour.[1] No mention of the liquefying blood was made however, until 17 August 1389. A chronicle of Naples written in 1382 describes the Januarian cult but does not mention either the miracle or the phia1.[6]

It is likely that the phial containing 'the blood of Januarius' is one of many relics to materialise during the Middle Ages.[7]

The phial is half-filled with an estimated 30 ml of this unknown substance. Together with an empty smaller phial, it is encased between the two rounded glass walls of a portable silver reliquary.

During the ceremony the reliquary is repeatedly picked up, moved around and upturned to check whether liquefaction has occurred. If it has, the dark mass flows freely into the phial. Liquefaction sometimes occurs almost immediately; at other times it can take hours, or even days.

Some observers claim that other phenomena occur in the reliquary: the liquid mass boils or froths, the colour changes from dark to reddish brown, and the volume and even the weight increases.[8] Part of the mass (the *globo*) sometimes remains solid and floats in the liquid.

A rational approach

When blood is drawn from a living body and poured into a container, the soluble serum protein fibrinogen forms a network of insoluble fibrin, which binds the erythrocytes, resulting in a jelly-like clot. This clot can be mechanically broken down, but once this is done clotting cannot

A 'MIRACLE' DIAGNOSIS (cont'd)

reoccur. Thus, the resolidification of a blood sample would be even more surprising than its first liquefaction. The substance in the reliquary generally re-clots when it is safely locked in the vault.

A number of totally unproven explanations, other than the intervention of a supernatural power, have been put forward over the years: magnetic forces from nearby Mount Vesuvius, psychokinesis from the crowd, poltergeist and spiritualistic effects, to name just a few. Some other hypotheses are simply provocations or pseudoscience:[1]

- The miracle is a magic trick — a hoax consciously performed by the church. This hypothesis does not explain how the trick is done, or how it could be kept a secret for six centuries.

- The contents of the vial are photosensitive, changing from solid to liquid under the influence of light. An example of such a material was never proposed.

- Liquefaction and resolidification result from a periodical growth of microorganisms. No particular species has been suggested to be responsible, and such periodical growth is unlikely in a sealed container.

- The substance is a hygroscopic deliquescent solid, becoming liquid when it absorbs moisture from the air. This hypothesis would account for the alleged weight variation, but would require an open phial. Furthermore, temperature rises needed to return the hydrated material to the anhydrous form would probably be outside the range of those to which the reliquary is ever exposed.

A few simulations were also tried: In 1890 Albini used mixtures of powdered chocolate and sugar in water, or casein and salt in milk serum.[9] These murky suspensions separate to form a thick crust at the surface, which acts like a plug, stopping the heavier liquid below from flowing freely — making it appear solid. When shaken, the two components mix, simulating a change of state. Albeit

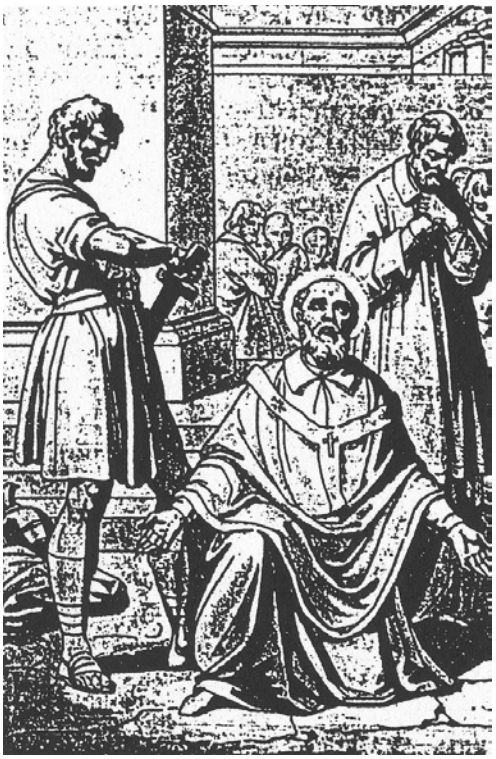

Fig. 1. The execution of St Januarius.

interesting, this attempt was rather crude and failed to impress observers who were familiar with the reliquary.

A sounder suggestion is that the unknown substance is simply a low-melting point mixture. Solid when stored in a cool place, it would melt when taken to the warmer altar, near burning candles, and amidst a fervent crowd. This hypothesis was first recorded[10] as early as 1826, and was quickly supported by numerous recipes, mostly based on waxes, fats or gelatines plus suitable dyes.[11] Practical recipes were recently suggested by Nickell and Fischer;[12] for example, olive oil with melted beeswax (or simply coconut ,oil) plus a suitable dye. However, mixtures such as these have a constant melting point, whereas the blood liquefaction ceremony can be performed in May, September and

A 'MIRACLE' DIAGNOSIS (cont'd)

December, at different room temperatures. Another limitation of this hypothesis is that the miracle still occurs despite the fact that candles are no longer brought near the reliquary.

The thixotropic hypothesis

Thixotropy may be a good hypothesis to explain this miracle.[13-15] Thixotropy denotes the property of certain gels to become more fluid — even changing from solid to liquid when stirred, vibrated, or otherwise mechanically disturbed — and to resolidify when left to stand. Common examples of such substances are ketchup, mayonnaise and some types of paints and toothpastes.

Thus the act of handling the reliquary, repeatedly turning it upside down to check its state, might provide the necessary mechanical stress to induce liquefaction. A successful performance of the rite, therefore, does not prove that the demonstrator is cheating, although gentle or sharp movements could control the timing of the liquefaction.

Indeed, over the centuries, unexpected liquefactions have often been observed while handling the reliquary case for repairs.

In support of the thixotropic hypothesis, our research at the University of Pavia involved making up samples with properties that resembled those of the substance in the reliquary. We used substances that would also have been available in the 14th century. After testing some bentonite clays — which produce a thixotropic, but unpleasant mud-like gel[16] — we settled for using a reddish-brown FeO(OH) colloidal solution[17] (see Box).

This gel is the right shade of brown without adding a dye; it liquifies perfectly when shaken (*Figs 2a and 2b*) and, like the relic, it can produce the *globo* and bubbles on its shiny surface. Even a volatile liquid could not really boil in a closed vessel under these conditions.

All of the compounds that we used in this concoction would have been readily available to a 14th century Neapolitan artist or alchemist: $CaCO_3$ from chalk, limestone, or crushed eggshells, formed the basis of many white pictorial pigments. K_2CO_3, available from wood ashes, was also well known, and can be used instead of $CaCO_3$.

Making a thixotropic mixture

Powdered $CaCO_3$ (10 g) is slowly added to a stirred solution of $FeCl_3$.6H2O. (25 g) in 100 ml H_20. The resulting dark brown solution is placed into a dialysis cellophane tube, suspended in a container with distilled water. The water is changed at 24h intervals for four days. The dialysis can be performed with parchment, by attaching it to the end of a bottomless tube, or with animal guts — obtained from a butcher, or sold as prophylactics.

(1) Concentrate the solution to its original volume by evaporation from a large dish at room temperature, or by using a hairdryer.

(2) Pour some of the solution into a small round bottle flattened on the sides, add a tiny amount of NaCl and shake well.

(3) Leave the mixture untouched and see if it forms a gel. If not, add more salt.

The setting quality of the gel can be adjusted by varying the solution concentration and the amount of salt added. Thixotropic sols equilibrate after one or more months, and may gel incompletely. Adding a small amount of NaCl should restore their original behaviour. The use of a K_2CO_3 solution instead of solid $CaCO_3$ also seems to improve their stability. Stabilisers such as fish glue are also being investigated.

A 'MIRACLE' DIAGNOSIS (cont'd)

The only source of $FeCl_3$ at that time was a mineral called molysite, which occurs naturally only near active volcanoes. Notably, Naples is near Mount Vesuvius. Moreover, after the blood of Januarius miraculously liquefied in 1389, a number of similar miracles occurred in and around Naples, but most of them seem to have stopped after some time. These coincidences might have arisen simply from imitations, or because of the presence of molysite in this area.

The only questionable step in our simulation is the use of dialysis, given that the earliest record—brine passing through a bladder—dates back to the early 1600s.[18] However, in the Middle Ages, dyes were stored in gut bags or bladders—sometimes underwater, to retail oxidation. This practice went on until the introduction of metal tubes, around 1840. These materials, as well as parchment, were used as typical dialysis membranes before the advent of polymers. A common practice was to precipitate lakes by adding alum ($AlK(SO_4)_2$) or basic compounds to dyes, and filtering them through a felt tube known as Hippocrates' sleeve. A medieval artist experimenting with pigments might well have stumbled across our method.

In 1389 the Cathedral of Naples was under construction and artists from all over Italy were present. At that time the King of Naples was Robert of Anjou, a pious person, who would certainly have been pleased by a 'holy blood relic'. In those days the need for relics was widespread as were the attempts to counterfeit them. The shroud of Turin has been carbon-dated back to that time.

Thixotropy was first tentatively reported in 1863 and named in 1927. As far as we now know, the earliest mention of thioxotropy in connection with Januarius is a personal communication from E. Newton Harvey to Henry Green and Ruth N. Weltmann, contributors to a 1946 book, who reported it in a footnote:

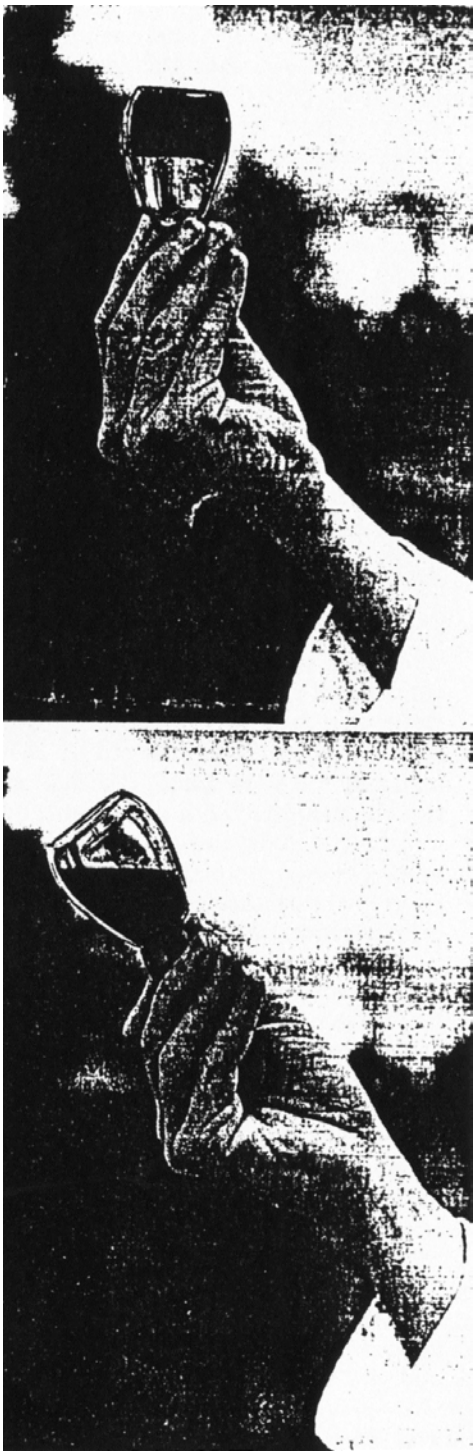

Fig. 2. Thixotropic iron hydroxide gel. (top) in the solid; and (above) in the liquid state.

A 'MIRACLE' DIAGNOSIS (cont'd)

> the dried blood is now perhaps a thixotropic suspension of iron oxide. The authors feel that the above idea is not so impossible when it is realized that blood contains iron and that almost any change could have taken place in it since the time in which St. Janarius lived, that is, during the third century.[19]

This interesting quotation, overlooked in all literature concerning the miracle,[11, 20] was reappraised by fellow sceptical chemists about a year after our communication in *Nature*.[13]

Tests and analyses

Strangely, the possibility of investigating a recurrent unexplained phenomenon has instigated very little scientific experimentation. Because the Catholic Church has always forbidden the opening of the sealed phials, the first spectroscopic analysis was not performed until 1902.[21] A prism spectroscope was used; the light source was a candle, with grains of salt on the wick providing the sodium D-lines. Light was shone through a thin layer of the fluid 'blood' and four layers of glass: the two walls of the phial plus the two of the relic case. The analysts reported that they were able to detect the characteristic absorption bands of haemoglobin.

This analysis was repeated in 1989 by using the same type of prism spectroscope.[20] On this occasion the light source and the D-lines were provided by electric lamps, and the spectra were recorded photographically. Again, the detection of haemoglobin was reported. This test is always referred to as the 'scientific proof' of the presence of blood in the phial. However, the following points should be considered:

(1) The results were not submitted to a refereed journal, but printed privately by the Neapolitan church authorities. The booklet is on sale at the cathedral bookstall,

(2) It is not clear why an old-fashioned prism spectroscope was used instead of a more reliable modern electronic spectrophotometer.

3) No colourless compounds and/or suspension of opaque solids will show up in a visible spectrum.

(4) The authors themselves acknowledge that other red dyes could be mistaken for haemoglobin.

(5) Measurements were made on similar old glass to rule out deformations or anomalous absorption bands. The correct method would have been to make measurements at two different liquid thicknesses and to determine the spectrum of the reliquary contents by difference; old glass sometimes contains impurities in the region of interest.

(6) During the test, bands from the degradation products haematin and haemochromogen bands were said to appear (after 3 and 9 min) and overlap the haemoglobin bands, as if recording a 'miracle in progress'. It is worth noting that, at the time of testing, the mass had already been liquefied for hours.

(7) If visual measurements (having a limit at ca 400 nm) are adopted, the diagnostic maximum of the Soret band of blood at 410 nm cannot be detected; recent investigations[22] demonstrate that under these conditions the spectra of our FeO(OH) gel are similar to those of old blood, since in the latter the characteristic

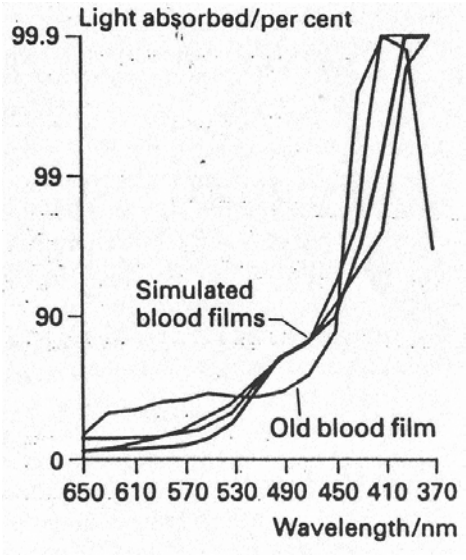

Fig. 3. The absorbance of old blood compared with simulated blood.

A 'MIRACLE' DIAGNOSIS cont'd)

bands of oxyhaemoglobin at 545 and 575 nm are lacking owing to the decomposition of oxyhaemoglobin into methaemoglobin and other derivatives (*Fig. 3*).

(8) The spectra show no wavelength calibration, and are of poor quality, exhibiting some unusual abnormalities, such as sharp colour contrast and distorted spectral distribution. No clear absorption band can be identified in the printed reproduction.

In summary, we surmise that the 'scientific' claim that the reliquary contains blood is based on very flimsy evidence.

Volume variations of the 'blood' are simply anecdotal claims: no records — for example of the relic held level against a scale — are available to substantiate them. They could be due to the viscous mass sticking to the walls, or asymmetries in the phial shape.

Colour variations are also undocumented. A dark mass does show different colour hues when seen by transparency (*ie* as a liquid film on the glass) or by reflection (*ie* as a solid); this is also visible in our own FeO(OH) gel.

Erratic weight variations were recorded in 1900 and 1904 — with an increase of up to 28 g on an estimated 30 ml of 'blood',[23] but corresponding to only a 3 per cent increase in the total weight of the relic case.[12] Again, these data were published only in a religious magazine; no experimental conditions or balance model were reported. Moreover, a booklet published by church authorities and available at the Duomo bookstall[24] reads 'Tests performed during the last five years by using electric balances failed to confirm any weight variation'.

Conclusion

Further tests to investigate the nature of the holy 'blood' without opening the phial come readily to mind: for example, molecular absorptions and fluorescence spectroscopy, and Raman scattering measurements, made with modern electronic instruments by qualified spectroscopists. Controlled temperature increments or vibration tests also represent non-destructive analytical methods by which our or alternative hypotheses might be verified or disproved. Whether these simple tests will be allowed to go ahead depends on the Catholic Church. At present however, given that the phenomenon has been replicated, it would be naive to consider it irreproducible or unexplainable.

Acknowledgements; We thank Professor Steno Ferluga for his encouragement at the start of this project and Ms Gillian Jarvis for her help in editing this article.

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A timely diagnosis

From Professor H. J. A. Dartnall

I read with interest "A 'miracle' diagnosis" (*Chem. Br*., 1994, 2, 123). The authors remark that the earliest mention known to them of thixotropy in connection with the phenomenon of the liquefaction of the 'blood' of St Januarius is a footnote in a book published in 1946. I can state from my own experience that the connection was suspected at least 15 years earlier.

At this time (1931) I was a chemistry student at University College London and attended the lectures on .organic chemistry by the late Raymond J. W. LeFevre. LeFevre's interests, to quote his own expression, ranged from 'the sacramental to the excremental'. When, as frequently happened, he got ahead of his syllabus, he marked time by regaling us with learned accounts of ecclesiastical matters of interest such as the chemical interpretation of the markings on the Turin shroud — and the liquefying of St Januarius' blood. He was non-committal as to whether the phial really contained blood, but quite positive that its contents were a thixotropic gel whose liquefaction depended on how palsied the priest was!

There was much interest at that time in thixotropy and rheopexy at University College.

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CHEMISTRY IN BRITAIN APRIL 1994

Qui nimis probat ...

From P. R. Smith

In their article *A miracle diagnosis* (*Chem. Br.*, 1994, 30, 123-25) Garlaschelli, Ramaccini and Della Sala should be congratulated on the ingenious way they have stretched their claim to have found the explanation of the liquefaction of the blood of St Januarius. However, as good scientists, they must know that for such a claim to be acceptable, it must fit with all the observed phenomena relating to this event. The question is, do the facts really fit?

Since Garlaschelli *et al* seem to have-carefully researched the facts and dates concerning this relic, it is strange that they should describe it as mysteriously appearing in this century. In fact, the phial of blood was removed, along with other relics, from the Cubiculo of St Januarius early in the 14th century in order to make way for the building of a modern duomo. That there should be such a phial or ampoule was not considered extraordinary, as it was the custom of the faithful, in the early history the Church, to collect the blood of martyrs in ampoules.

As has been shown on film and records by those who have witnessed the event, liquefaction has occurred with the relic resting on the altar.

Liquefaction time has varied from a few minutes to an hour or more. On a few occasions, liquefaction has failed to occur. How can this be explained if the substance in the phial is thixotropic?

A 'MIRACLE' DIAGNOSIS (cont'd)

As the authors would well know, balances made at the turn of the century were incapable of measuring the changes in mass reported. It is also possible in this day and age, to select an electronic balance that would not record a change of 25g.

Further, one should note that volume changes have been clearly noted. There has also been vigorous repair work carried out on the reliquary without liquefaction occurring.

As for the spectroscopic work, it may not be as conclusive as some may think. The results do not rule out the possibility of the Blood of St Januarius actually being blood.

Perhaps the clue to the reason for the remarkable zeal on the part of Garlaschelli et al in their desire to 'expose' the blood miracle, is given in their aside about the Shroud of Turin being carbon dated to the 14th century. Whatever the origin of that piece of cloth in Turin, Dmitri Kouznetsov, Russian scientist and Lenin prize winner recently demonstrated where the western laboratories went wrong in that carbon dating exercise. This event was well covered the Italian press last year.

It appears, too, that the carbon dating scientists had felt they must be correct as their results seemed to fit in with a memorandum of the Bishop of Troyes (ca 138 What they did not realise was that they were working from a mistranslation of the original Latin (a document, incidentally, still in existence).

Perhaps the old Latin saying, *Qui nimis probat, nihil probat* (those who prove too much, prove nothing) would best sum up this article in *Chemistry in Britain*.

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Iceman unlikely to be hoax, DNA tests show.

Sydney Morning Herald 18 June 1994

By TERESA RIORDAN

WASHINGTON, Friday: Genetic analyses bolster evidence that "'Frozen Fritz", a mummy found in 1991 in the Tyrolean Alps, is a legitimate archaeological find and not an elaborate hoax as some suspected, scientists said yesterday.

Research teams from the Oxford University and the University of Munich have come to the same conclusion: genetic material scraped from the 5,000-year-old mummy's bone and skin is most closely related to that found in contemporary people from central and northern Europe.

The scientists isolated pieces of genetic material passed from generation to generation on the maternal side — called mitochondrial sequences — from the Iceman and compared them with sequences found in genetic material from current generations.

"The sequence is clearly from a European and not a South

The Iceman ... perfectly preserved within a glacier.

American," said an Oxford geneticist, Mr Bryan Sykes. "Not only that, but there are relatives of the Iceman all over northern Europe — very distant relatives, but relatives. Two hundred generations back, these people are related to the Iceman."

Both teams identified an identical sequence which matched sequence samples from contemporary people in Wales, England and northern Germany.

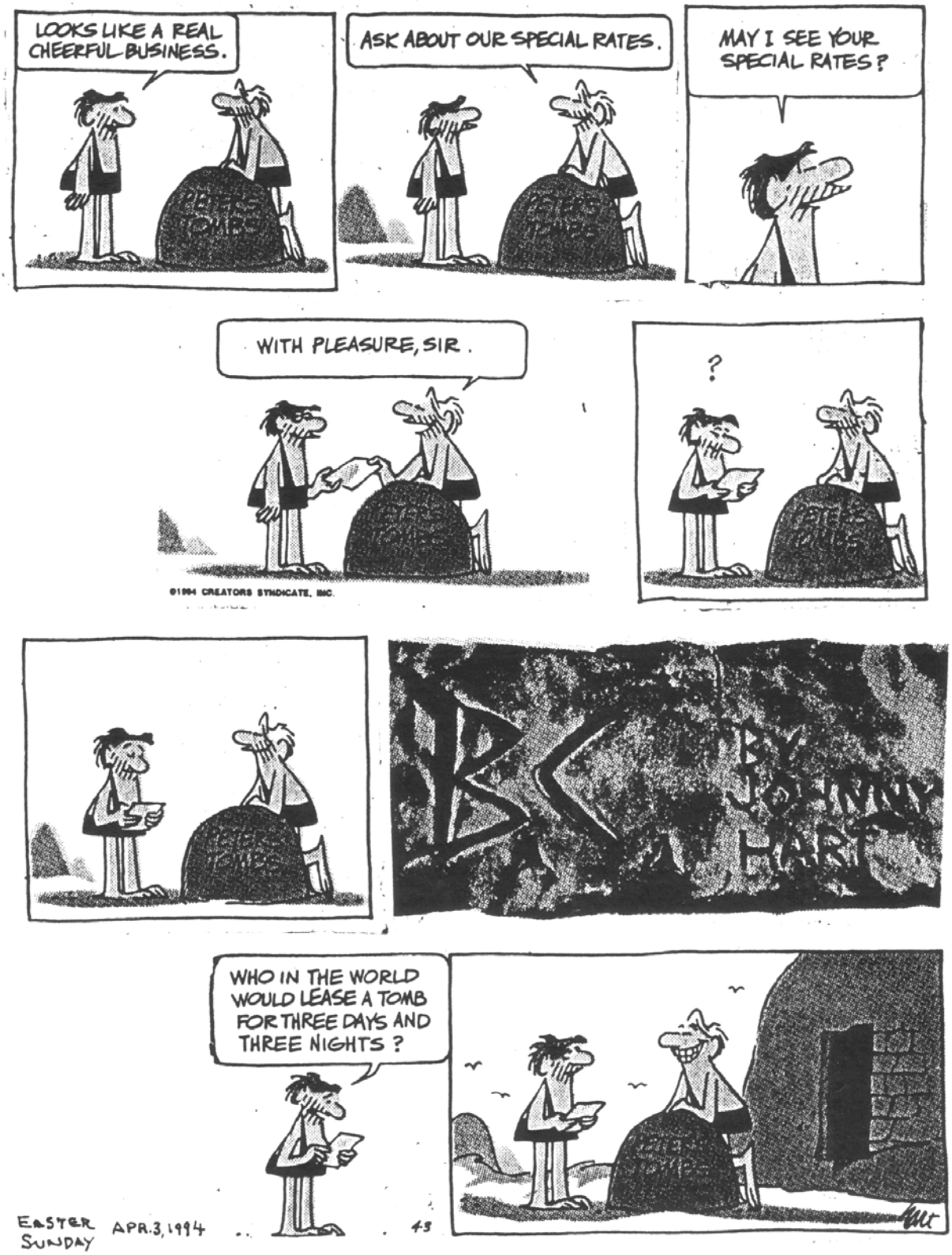
The two teams report on their findings in tomorrow's issue of the journal *Science*.

The Iceman, apparently perfectly preserved within a glacier for thousands of years, was discovered by hikers in 1991 along the Italian-Austrian border. Its approximate age is not in dispute. Radio-carbon dating established early on that the mummy and the berries, sewing gear and fire flints found with it were about 5,000 years old.

But the sceptics suggested that the black-haired, blue-eyed man might have been found elsewhere and moved to the Alpine location as part of a hoax.

In a footnote to the *Science* paper, the researchers conclude that their DNA analyses made the possibility of fraud "highly unlikely".

Reuters



BC by Johnny Hart

Shroud News began in 1980 when Rex Morgan, author of three books on the subject of the Holy Shroud (*Perpetual Miracle*, *Shroud Guide* and *The Holy Shroud and the Earliest Paintings of Christ*) and editor of several others, began sending a few notes about current developments in the study of the Shroud of Turin (Sindonology) for a small circle of interested people in his home country of Australia. He didn't expect it to go beyond a few issues.

Today, the bulletin, now highly acclaimed, reaches subscribers all over the world and is written, produced and disseminated more quickly than any other Shroud publication in the English language. It contains information, news, articles and illustrations gathered from sources of Shroud study worldwide through Rex Morgan's extensive network of personal connections with what has been described as the "Shroud Crowd".

Rex Morgan is a frequent traveller overseas which gives him the opportunity to keep abreast of latest developments in Shroud study and research at first hand. He was present at the world media preview of the Shroud itself in August 1978 in Turin, Italy and has met and knows numerous Shroud researchers in many countries. His quest for Shroud information became, as he described it, "a passionate hobby". He took the world famous Photographic Exhibition created by Brooks Institute, California, to Australia, New Zealand, Hong Kong, Macau, and Canada and during those tours it attracted more than 600,000 visitors. The exhibition was subsequently donated by Brooks 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 Board member of the US 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 (ESSJ). He has made a number of original contributions to Shroud research has presented major papers at international Shroud conferences has written numerous articles and has given hundreds of broadcasts and telecasts on the subject in many countries.

The list of *Shroud News* subscribers continues to increase internationally and it has been described many times as one of the best available. *Shroud News* comes out six times a year. Its production is obviously privately subsidised as we request a subscription in Australia of only $6 for six issues posted. The USA subscription is $12 (posted airmail - there is no longer any surface mail from Australia). Postage to other countries varies. ALL back issues are available for $1 (US or Aust) each plus postage. The famous 50th issue is $3 plus post. Customers should note that as it costs us $8 to negotiate each foreign cheque we request all payments be made in currency banknotes of your country or charge to
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