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LETTER TO THE EDITOR: THE TURIN SHROUD

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In the issue of *Archaeometry*, **31**(1) (1989), Professor E. T. Hall of the Research Laboratory for Archaeology of Oxford University, one of the laboratories that participated in the recent highly successful carbon dating of the Turin Shroud by the method of accelerator mass spectrography (AMS), presented a somewhat misleading version of the events leading to the final result. As one who played a leading role in developing the AMS technique that permits precious artefacts like the shroud to be 'non-destructively' dated (which Professor Hall acknowledges), as the chief spokesman and coordinator for dating the shroud (Professor Hall states that I 'assumed leadership' of the project – I charitably assume he meant 'took on the leadership': it was a logical move on my part and one which was generally accepted), and as head of one laboratory rejected by Turin from participating in the enterprise (because, according to Professor Hall, my relationship with Professor Gonella, the Archbishop of Turin's science adviser on matters concerning the shroud, deteriorated following the meeting in Turin to establish a dating 'protocol' in September 1986 – for a variety of reasons my relationship with Professor Gonella and other 'true believers' that this was Christ's shroud was never overly warm and had 'deteriorated' long before the Turin workshop in 1986), I feel compelled to present a more accurate historical account than did Professor Hall. His role in the enterprise, except as head of one of the participating laboratories, was never the leadership one his account might lead readers to believe. Professor Hall's 'editorial postscript' adds more heat than light to the shroud dating endeavour and one wonders what his purpose was in writing it.

The genesis of the project was a letter dated 24 June 1977 I received from the Revd H. David Sox who at that time was Secretary General of the British Turin Shroud Society. He had read an article in *Time* magazine of June 1977 describing the new small sample dating technique developed at the University of Rochester in May 1977 and wondered whether it could be used to date the age of the cloth of the Turin Shroud. We replied that indeed it could but that the method was so new as to make the measurement of such a controversial object untimely. He persuaded me to attend a meeting on the Turin Shroud to be held in Turin in October 1978. By that time we were ready to take on the shroud and on my way to Turin I stopped off at Oxford and told Professor Hall that Rochester and Brookhaven National Laboratory would make an offer in Turin to date the shroud using a postage-size sample. Dr Garman Harbottle at Brookhaven had developed small proportional counters which used equivalently small samples as AMS but required much longer counting times. At that time Oxford did not have an AMS facility but planned to obtain one and Hall was very enthusiastic about the possibility of 'getting in on the act' to use the phrase he applied to others in his article. The slow and deliberate pace of the plans to date the shroud ensured that he would.

In Turin my offer to date the shroud was received coolly to put it mildly. Professor Hall's

second-hand account of the scientific tests on the shroud carried out by members of the Shroud of Turin Research Project (STURP) following this meeting are essentially correct. Most of the members of that organization were and maybe still are 'true believers' that this remarkable piece of cloth was Christ's shroud. It was during this meeting that I decided that STURP should play no role whatsoever in any carbon dating measurements if I could possibly prevent it. I am happy to say that, in the end, they did not. The increasingly deteriorating relationship between me and Professor Gonella, who was a warm supporter of STURP, dates from that time.

At the 12th International Radiocarbon Conference held in Trondheim in June 1985, at which the results of an interlaboratory comparison conducted by the British Museum were presented, I organized a meeting of the six laboratories participating in the intercomparison and the British Museum to decide what the next step should be to date the shroud if its owner (the Vatican) and its custodian (the Archbishop of Turin) were willing. I argued successfully that it would be valuable to get the Pontifical Academy of Science (PAS) involved and to continue the participation of the British Museum as coordinator of the project. Professor Hall was not present at this meeting nor at the meeting in Turin seven years earlier. I prepared a 'protocol' summarizing procedures to be followed in dating the shroud agreed to by the participants of this informal Trondheim shroud meeting and submitted it to Professor Carlos Chagas, President of the PAS.

In the subsequent months I, along with Dr Vittorio Canuto of the Goddard Space Centre in New York who had worked closely with Chagas on many PAS projects, assisted Professor Chagas in organizing a workshop which was held, after some inexplicable delays, in Turin in September 1986. Professor Hall's participation in the complex planning of this Turin Workshop was his agreement to attend. It was this workshop that produced the final procedures to be followed in dating the shroud. Although, at the insistence of Professor Gonella, members of the STURP organization attended the workshop the final protocol assigned no role for them to play. At the Turin Workshop Dr Harbottle expressed dismay and concern at the potential damage to the shroud which the ultra violet and X-ray irradiations carried out by STURP in 1978 could have caused. He suggested that further, even higher power, irradiations of this kind which STURP was pleading for should be postponed until after the shroud was dated. The final protocol for dating the shroud and agreed to by all the workshop participants was written by Dr Canuto, Professor D. J. Donahue, co-director of the University of Arizona AMS facility, and me. The Turin Workshop Protocol was delivered to both the Pope and the Cardinal of Turin shortly after the workshop concluded on 1 October 1986.

A year later in October 1987 (it would be fascinating to know the reason for this extended delay) the workshop participants were informed by Cardinal Ballestrero, Archbishop of Turin, acting on the advice of his science adviser Professor Gonella, that important provisions of the Turin Protocol were to be scrapped. These major changes involved preventing the PAS from playing any further role in the dating enterprise, rejecting the renowned textile expert from the Abegg-Stiftung, Berne, Switzerland, who had been selected by the workshop to supervise the sample removal and, finally, reducing the number of laboratories from seven to three. The real reasons for making these changes will probably never be known. I, and I think also Dr Harbottle, were amused and annoyed, but far from furious as Professor Hall charges, by this development and I did take the vigorous steps he described to get the decision changed and, failing that, to persuade the three laboratories

to refuse to accept the new conditions. The latter effort was pretty much *pro forma* on my part because I knew the publicity benefits would probably be irresistible to some or all of the 'chosen' laboratories. My main concern was that this highly public application of the AMS technique, which I had played a major role in inventing and developing, be successful. The new procedures seemed to me to be fraught with peril. If one of the three laboratories obtained an outlier result as one did in the British Museum interlaboratory comparisons it would be impossible statistically to identify it and the three measurements would all have to be included in the average thereby producing an incorrect result. The inclusion of the other laboratories would have obviated this potential risk.

As it turned out my fears were not realized. The three laboratories performed their measurements flawlessly and the final result is a public triumph for AMS if not for the 'true believers'. That the shroud's age is the historic one is the dullest result one could have wished for. But in science as in many other aspects of life one does not always get what one wishes.

Conference Announcements

1990 ARCHAEOMETRY SYMPOSIUM: 2–6 April, Heidelberg.

Details from G.A. Wagner, Max-Planck-Institut für Kernphysik, Postfach 103980, D-6900 Heidelberg.

1990: MATERIALS ISSUES IN ART AND ARCHAEOLOGY: 16–20 April, San Francisco.

Materials Research Society Spring Meeting covering ancient technology – processing evidence from workshops and industrial debris, analysis of properties to interpret function, materials degradation and characterization through compositional and structural analysis. Further details from Pamela Vandiver, Smithsonian Institute, Washington DC 20560, U.S.A.

1990: SURFACE COLOURING AND PLATING OF METALS: 14–16 June, British Museum, London.

A colloquium on the deliberate colouring and patination of metal surfaces, both by chemical means and by plating, from the earliest times. Details from Mrs S. La Niece, Research Laboratory, British Museum, Gt. Russell Street, London, WC1B 3DG, U.K.