

## THE SHROUD AND CARBON DATING - NOW A MAJOR STORM...

Last January our *Newsletter* no. 15 reported on the Conference held in Turin in the autumn of 1986 to discuss the exact procedures for radiocarbon dating the Shroud. It was anticipated that the seven radiocarbon dating laboratories invited to that meeting would each receive tiny samples of the Shroud, that each laboratory's datings would be assessed by the British Museum Research Laboratory and Italy's G. Colonetti Institute of Metrology, and that the results would be released from the Vatican by Easter of this year.

Since that time there have been delays because of dissension between the Vatican's Professor Chagas and the Cardinal of Turin's scientific adviser, Professor Gonella. Then, on October 10 Cardinal Ballestrero of Turin sent a letter to all participants of the radiocarbon dating Conference announcing that he had been instructed by the Vatican to limit the number of samples removed from the Shroud to just three. After "long deliberation and careful consultations", the three laboratories selected to receive these were those of Professor Paul Damon at the Isotope Geochemistry Laboratory, University of Arizona, U.S.A., Professor Edward Hall at the Oxford University Research Laboratory for Archaeology here in England, and Professor Willy Wölfli of the Institut für Mittelenergiephysik, Zurich, Switzerland.

As might be expected, those who were not selected have been somewhat aggrieved at this rejection, particularly Professor Harry Gove at the University of Rochester (U.S.A.), and Dr. Garman Harbottle of the Brookhaven Laboratory, New York, whose laboratories were among the very first to be able to offer the small sample method.

Here in England there has also been disappointment from similarly rejected Dr. Bob Otlet at the Low Level Measurements Laboratory, Harwell.

But scientifically, also, the decision is open to serious question. Of the two available methods of radiocarbon dating, the new and fast AMS (accelerated mass spectrometer) method; and the older, slower but more tried and tested proportional counter method, the chosen laboratories are only of the AMS variety. Arguably they do not have the same experience in the pre-treatment of samples that has been built up by the older proportional counter laboratories such as Harwell and Brookhaven. Another advantage of the proportional counter method is that nothing is lost in it; the gas obtained can be independently re-checked even decades later.

There is also a statistical advantage in using the original seven laboratories. If one or two happened to be out of line, there could nonetheless be reasonable confidence in whatever result had been obtained by the other five, whereas there needs only to be one so-called outlier among the three as currently chosen for the whole test to need to be repeated. This is particularly valid in view of the fact that the Swiss laboratory, which happens to be among the chosen, was the one seriously out of line with the rest during the British Museum's special inter-comparison experiment.

Regrettably such passions over these issues have been aroused that without even replying to the Cardinal's letter, Professors Gove and Harbottle have been forcefully expressing their views to the American press, Professor Paul Damon, although chosen, has similarly voiced his unhappiness with the cut-back, and from Turin Professor Gonella has riposted that he could be prepared to use Italian carbon dating laboratories such as Pisa and Udine if the chosen ones decline to co-operate.

Professor Gonella, with some justice, points out that he knows of no other archaeological dating for which more than two laboratories have been used, and that three is therefore more than adequate. He contends that the original plan for the involvement of seven laboratories was never an agreement, merely a recommendation, and further asks why, since the Shroud is not an article of faith for the Roman Catholic Church, there should be such fuss about it? As owners of one of the world's largest archaeological collections, surely the Vatican should be given credit for knowing what it is doing.

But such a view neglects to appreciate the extent to which whatever radiocarbon dating result might be achieved on the Shroud is bound to be vastly more controversial than that of any other object in history. A well-founded carbon dating of the Shroud to the first century AD might not prove it to be genuine, but it would present a formidable challenge to sceptics' unbelief. To be properly respected the methods used on the Shroud accordingly need not only to be, but to be seen to be, whiter than white. Hopefully, if the project goes ahead despite the current storm, the role of our own British Museum will provide some independent guarantor that all procedures are carried out in the fairest possible manner. But there seems a very good case for the Shroud's custodians, justified as they are to minimise damage to the cloth, learning something of the spirit of glasnost...