

RADIATION THEORY - A NEW EXPONENT

In the same issue of *Nature* that carried the carbon dating report, a letter was published from Dr. Thomas Phillips of Harvard University's High Energy physics Laboratory arguing for a similar "radiation theory" to that put forward in the last BSTS Newsletter. According to Dr. Phillips:

If the shroud of Turin is in fact the burial cloth of Christ, contrary to its recent carbon-dated age of about 670 years, then according to the Bible it was present at a unique physical event: the resurrection of a dead body. Unfortunately this event is not accessible to direct scientific scrutiny, but the image on the shroud, which still cannot be duplicated, appears to be a scorch, indicating that the body radiated light and/or heat. It may also have radiated neutrons, which would have irradiated the shroud and changed some of the nuclei to different isotopes by neutron capture. In particular some carbon 14 could have been generated from carbon 13. If we assume that the shroud is 1,950 years old and that the neutrons were emitted thermally, then an integrated flux of 2×10^{16} neutrons cm^{-2} would have converted enough carbon 13 to carbon 14 to give an apparent carbon-dated age of 670 years.

This flux of neutrons should have other measurable consequences. The neutron irradiation would probably not have been uniform, for example, so the carbon 14 to carbon 13 ratio should vary in different parts of the shroud. In addition, other unstable isotopes should have been formed. Several of these isotopes have half-lives long enough that they would still be present, yet short enough that they are not found naturally.

The unstable isotopes most likely to be found in the shroud are ^{36}Cl and ^{41}Ca . The presence of either would confirm that the shroud had been irradiated with neutrons. An accurate measurement of the ratio of either ^{36}Cl to ^{35}Cl or ^{41}Ca to ^{40}Ca would test the prediction of an integrated neutron flux of 2×10^{16} neutrons cm^{-2} . This may not be possible, however, because contamination with new isotopes of chlorine or calcium may have occurred from washings or other sources since the irradiation took place.

In the same issue Dr. Robert Hedges of the Oxford laboratory replied with a long, technical letter, arguing in the main "If a supernatural explanation is to be proposed, it seems pointless to make any scientific measurement on the shroud at all." Regrettably Dr. Hedges ignores that the very linch-pin of the Christian faith is the idea that something quite extraordinary happened to Jesus' dead body after the crucifixion.