

**THE MYSTERY OF THE 536 A.D. DUST VEIL EVENT: WAS IT A COMETARY OR METEORITE IMPACT.** A. A. Mardon, Antarctic Institute of Canada, #16, 10324 - 119 Street, Edmonton Alberta T5K 1Z6, Canada.

Near 536 A.D., famine, frost, and darkness were recorded both in the Irish and Chinese historical documents. The purpose of this article is to identify a possible cause of the dust veil: a cometary or meteoritical impact. The hypothesis of the 536 A.D. atmospheric changes can be examined through dendrochronology, Greenland ice cores, and history. Firstly, dendrochronology is the study of the growth of tree rings. It is useful because by measuring the growth rate we can deduce the atmospheric environment of a certain period in time. We will concentrate on the tree rings of the Irish oak because of the historical evidences. The dendrochronology of the Irish oak shows that the narrowest rings were in 540 A.D. to 542 A.D. The stunted growth probably was caused by poor temperature and environment. Secondly, we will examine the Greenland Dve-3 core to determine whether the poor growth was triggered by volcanic activities. The ice core shows that the acid layer of the volcanic activity. The acid layer from the volcanos in the Greenland core moved from 540 A.D.  $\pm$  10 to 516 A.D.  $\pm$  4 indicates that the hypothesis of volcanic activities on Earth that brought about the famine in 536 A.D. was not substantiated. Thirdly, the Irish history recorded that the "dust veil" and "running stars" were shining for 20 days, and there were many earthquakes. Both in China and Byzantium in 530 A.D., Halley's comet was recorded

that the comet continued to shine for 20 days. In both China and Europe, black clouds, earthquakes, crop failures, frost, and dust veil were recorded. In China, the dragons fought in the ponds and the trees were broken when "a dragon" passed by. Although the Chinese thought that the comet was connected with the fall of the dynasty, the power struggles between the states within China would rather be the main cause for the poor political conditions, economical conditions, and livelihood. On top of that, the poor atmospheric environment compounded the problem. Overall, the comet or bolide is a possible cause from the recorded documents. The most plausible hypothesis, up until now, is that a comet or a meteorite hit the Earth. It is because the hypothesis of volcanic dust veil contradicted with the evidence of the acid layer in the ice core. However, if a bolide struck the Earth, it would have brought about the reduced sunlight, atmospheric changes, failure of crops, plagues, and earthquakes. Thus, we may have a clue on the cause of the atmospheric changes. If a bolide hit the Earth at this point and caused global effects the current threat might be more than expected.

The explosion of Thera, a terrestrial event caused the downfall of several civilizations as would an meteorite impact of the extent hypothesized above to have occurred during the early middle ages.