



Comment and Reply

Comment on "Meteor storm evidence against the recent formation of lunar crater Giordano Bruno" by Paul Withers

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Whilst rejecting Hartung's lunar impact hypothesis Withers (2001) admits the possibility of Nininger and Huss's meteor transit hypothesis. In view of the problems relating to the date of the phenomenon he also admits the possibility of unreliability in the source. There are in fact substantial historical reasons for questioning the reliability of the source.

A wider reading of the chronicle might lead the modern reader to suspect that Gervase does not meet all the criteria of scientific reliability. He reports several instances of miracles (e.g., A.D. 1171, 1181) and visions (A.D. 1186) and reports what is apparently an aurora borealis as three people in the sky, two of whom wear bishops' mitres (1188 October 12). He describes atmospheric phenomena visible across England on 1177 November 29 and links these to the victory of Christians over Moslems at Ramleh in Palestine which took place four days earlier (Runciman, 1965).

Withers acknowledges that the Moon was not visible on the particular night with which he is concerned. However it would have been visible both Palestine and through most of the Arab world (Ahmed, 1999). This new Moon marked the beginning of the Moslem year A.H. 574. (An online date converter gives 1178 June 18 (Julian) as 29 Thw al-Hijjah, the last day of A.H. 573 (admitting a small possibility of a one-day error). Given that the Islamic day starts at sunset, the description pertains to 1 Muharram A.H. 574, the first day of the New Islamic Year.) The supposed event took place during the time of the Crusades. The Moon is a well-known symbol of Islam. (The crescent Moon currently appears on the flags of certain Islamic countries. At time of writing I had not found any specific reference to the use of this symbol in relation to Islam in twelfth century; however, the use of a lunar, as opposed to luni-solar, calendar in Islam makes it extremely likely that the Moon was used as a symbol for Islam at this time.) The Qu'ran contains a reference to the splitting of the Moon (Surah 54:1). The phenomenon described by Gervase could be interpreted as portending the defeat of Islam.

The day in question was also the twenty-third anniversary of the coronation of Frederick Barbarossa as Holy Roman Emperor (*Encyclopaedia Britannica*, s.v., Barbarossa, Frederick). Accession days of monarchs are widely celebrated

as a "feast-day" for the monarch in question. (Regnal years of English monarchs are reckoned from their date of accession. Accession days have certainly been marked by special prayers from eighteenth century onwards and there is no reason to believe that the practice is confined to the United Kingdom or to the centuries in question.) As Frederick was elected to this office the coronation marks the beginning of his reign. At that time the Christian kingdom of Jerusalem was under threat. Ambassadors from the kingdom were seeking help from Christian rulers in Europe (Runciman, 1965). Frederick had fought in the unsuccessful Second Crusade of 1145–1149 and according to Runciman (1965) "longed to do battle again with the infidel".

Gervase's interests were cosmopolitan: he describes European events such as the treaty between the Pope and Barbarossa in 1177 in some detail. Gervase has already related atmospheric phenomena of the previous year to the defeat of Moslem armies. The lunar phenomenon described for 1178 June 18 could then be a piece of propaganda, holding the prospect of the defeat of Islam if Barbarossa would intervene.

Stubbs, who edited the most recent edition of the chronicle (Stubbs, 1879, 1880), considers that Gervase began to assemble his chronicle in 1188 (Stubbs, 1879, 1880). The report would certainly be apposite at this time. Jerusalem fell to the Moslems in 1187 and in the following year Barbarossa set out at the head of a fresh crusade (Runciman, 1965).

If this is propaganda it is not clear whether Gervase knowingly played a part in inventing it or whether he passed on the reports of others in good faith. Likewise it might not be clear if it was fabricated in 1179 or subsequently. However there is certainly good reason to suspect that it may be propaganda.

If this is propaganda then no astronomical explanations of this report are required. Astronomers who use historical chronicles as sources of scientific data may wish to consider such possibilities of distortion.

I would add that if it can be shown that Gervase used the term *Die Dominica* to refer to feast days other than Sundays then such an explanation may not be required. Such a reading is contrary to the general understanding of this term, and to carry conviction would need to be supported by other textual examples.

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Author's Reply

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I have concluded that the lunar impact hypothesis is an unlikely interpretation of the observation reported in Gervase, and Nockolds strengthens this point by suggesting that the observation itself may have been made up as "propaganda" associated with the crusades (Withers, 2001). I am not fluent in classical or medieval Latin and have seen nothing of Gervase's chronicle beyond the quotation in Hartung (1976). I would be delighted to see a fuller discussion of this issue which goes beyond Nockolds's short comment. Perhaps such a discussion already exists in the historical astronomy literature or the works of historians.

Nockolds also mentions the unfortunate problem of the (in)visibility of the Moon from Canterbury on the night in question. Meeus (1990) and Schaefer (1990) noted that the Moon would not be visible in Canterbury on the date usually associated with Gervase's dramatic account. Hartung (1993) reconciled this seemingly devastating observation with his favoured interpretation of Gervase's chronicle by stating: "Waddington (pers. comm.) has analysed the original Latin version of the Canterbury report and found that the correct date of the event may have been June 19, not June 18". After the publication of Withers (2001), I discussed this with Graeme Waddington, who, in a posting to the Cambridge Conference Network elaborated on this interesting point. The crux of his argument is the translation of *Die Dominica* by Hathorn in Hartung (1976). According to Waddington, "[h]ere we note that Hathorn has followed Stubbs in the usual assumption that "die Dominica" refers to a Sunday, whereas in mediaeval (not medieval!) monastic tradition the phrase should more correctly be rendered as the Lord's day and as such may refer either

specifically to a Sunday or, generically, to any ecclesiastical feast day (which included all Sundays) in a monastery's liturgical calendar". Waddington identifies an ecclesiastical feast day on June 19 and also notes that a reference, *luna prima*, to the first day of the lunar month, implying June 19 again, was translated by Hathorn as "when the moon had first become visible," implying moonrise on any day (Waddington, pers. comm.).

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