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Estimating a new date for the Wabar meteorite impact

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Abstract–The Wabar meteorite craters were discovered in the desert of Al-Rub Al-Khali, Saudi Arabia by Philby (1933) who was the first to identify them as created in a meteorite impact. The age of these ctarers is still a subject of debate. The first approximate date was 1863, based on a reported meteorite fall at an unidentified site in the Al-Rub Al Khali. Recently conducted luminescence dating suggests an age of 289 ± 46 years (Prescott et al. 2002). It is the aim of this article to present evidence contained in historical poems, which substantiates this dating. The texts quoted indicate that nearly 300 years ago, i.e., in 1704, a great fireball in the skies was seen from Tarim, Yemen, southwest of the Wabar site. This dating seems to roughly coincide with the results of recent scientific investigations.

INTRODUCTION

The Wabar meteorite is considered one of the most important meteors that have been discovered at Al-Rub Al-Khali, Saudi Arabia. It was found at the following location: 21°29′59″N and 50°28′20″E. In the first approximate dating of this event, Philby (1933) records that a meteorite had been seen to fall at an unidentified site in the Al-Rub Al-Khali in 1863. A sample, now known to be from the Wabar site, was offered for sale in 1885 (Philby 1933). The age must certainly be greater than this. Luminescence dating of the impactite and quartz-sand samples collected from the site suggest an age of 289 ± 46 years (Prescott et al. 2002). At a time that fits into this period, a huge fireball was seen from Tarim's suburb (Yemen 16°5′N and 48°98′E), which is about 600 km south-west of the Wabar location.

Here, I analyze parts of two poems which suggest that the observations described therein coincide with the events responsible for the Wabar meteorite impact. Furthermore, in one of the poems, reference is made to a date in the Islamic calendar, known as Hijra, which is based on the lunar cycle. Thus, the Islamic year is 11.25 days shorter than the solar year. The first day of the Hijra calendar was Friday, July 16, 622 AD (Freeman-Grenville 1977).

THE HISTORICAL POEMS

We have two parts of historical poems which indicate that a great fireball had been seen from Tarim on Saturday 29/4/1116H, corresponding to 1/9/1704 AD (Al-Sagaf 1940). The first poem is by O. A. Al-Shebame, who mentions the name of the location of the sighting and the date of the event as day (Saturday, 29), month (RABI' AL-AKHIR, 4), and year (1116H, according to abjad (Arabic alphabetic) letters: bi-Rabi'Al-Akhir, 1116H). In this poem, one can read:

There appeared a fire
a warning for any observer

Those who saw it crouched
down with a heart flying over

On Saturday night was seen
while it was quite dark

On the twenty-ninth of
RABI' AL-AKHIR

In Tarim they witnessed it
with really clear evidence.

The year, my friend, dated
by: bi-Rabi'Al-Akhir

The second passage is by A. H. Jaml-Allael, in which he provides a clear description of the falling of a huge meteor on a Saturday night. Also, he mentions the location of the sighting as the city called "Tarim". He refers to it as "Madinah," the Prophet's Holy City. The poet suggests that Madinah and Tarim are comparable to an "oven" or melting furnace, where "bad" is separated from "good" (as precious metals are refined from inferior ones). He writes:

On a Saturday night there appeared a wind
blown forth with fire,which made us afraid

They said, “Why?” I said, “It has come
to separate evil from good.”

Tarim is like Madinah, both as oven
that by the prophet meaning is given

A sign of fear as a secret from God
for those ignorant unbelievers.

DISCUSSION

There have been different estimates concerning the dating of the impact forming the Wabar meteorite craters. As mentioned above, the first ones were described by Philby (1933). Another age was estimated at 6400 years by Storzer (1991) who used fission track dating. This is believed to be inconsistent with geological evidence collected by Wynn and Shoemaker (1997) or Shoemaker and Wynn (1997).

A recent study eprovided a new age based on luminescence dating of the sand under the crater and impactites from the crater itself. This age gives a range between 235 and 416 years (Prescott et al. 2002). They found the mean of several estimates of the impact age to be 289 ± 46 years.

With the quotations of the poems in mind, a date of the Wabar meteorite impact can be suggested that the event occurred in 1704, i.e., 298 years ago. This roughly corresponds to the age suggested by the Prescott study and lies within the error limits of that study.

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