

WORMWOOD

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And the name of the star is called Wormwood: and the third part of the waters became wormwood; and many men died of the waters, because they were made bitter.

—Revelation 8:11

What is Wormwood?

Noah Webster's 1828 *American Dictionary of the English Language* has this definition for wormwood:

Wormwood, *n.* [Sax. *wermod*; Ger. *wermuth*.] A plant, the *artemisia*. It has a bitter, nauseous taste; but it is stomachic and corroborant. *Tree-wormwood*, a species of *Artemisia* with woody stalks.

“Corroborant” is a term used in medicine to describe a substance that stimulates vigor and energy; “stomachic” describes a substance that strengthens or stimulates the stomach or aids digestion.

At this time, there are some 200-400 species of *Artemisia* known. The most recognizable type we find in North America is the daisy. Indeed, *artemisia* plants are members of the daisy family. Other recognizable members of the family are sagebrush, tarragon, lemon plant, and absinthe. Among all these plants, does the Holy Bible give enough information to identify which form of wormwood is referred to in Revelation 8:11?

Wormwood in Scripture

The word, wormwood, is found nine times in eight verses of Scripture.¹ The first is Deuteronomy 29:18, where Moses warns the nation that by joining itself with pagan nations “...there should be among you a root that beareth gall and wormwood.” Wormwood always occurs in connection with judgment and the result of sin.

The Hebrew translated wormwood is *la-anah* (H3939 in *Strong's Concordance*). It refers to any bitter, poisonous plant such as hemlock (Amos 6:12) and wormwood. The Hebrew word stems from a root meaning to *curse*. The Greek word for wormwood, used twice in

¹ Deu. 29:18; Prov. 5:4; Jer. 9:15; 23:15; Lam. 3:15, 19; Amos 5:7; and Rev. 8:11 (2×).

Revelation 8:11 is *apsinthos*, that is, absinthe wormwood (pictured on p. 22). Absinthe is native to Europe and yields a bitter extract used in making absinthe and in flavoring certain wines. We see then that in Scripture, wormwood refers to plants with a bitter taste, the ingestion of which can prove fatal, even as recorded in Revelation 8:11.



Wormwood (*Artemisia Vulgaris*). Inset shows its buds.

Apophis

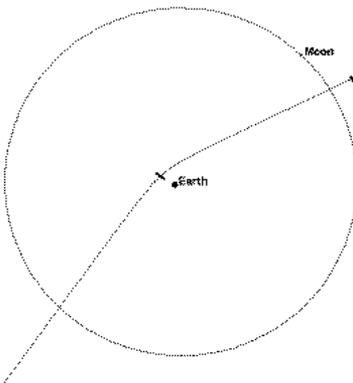
It was a clear night, June 18, 2004. Roy Tucker of Goodricke-Pigott Observatory along with Davis Tholen and Fabrizio Bernardi, both from the University of Hawaii were testing some new equipment on the 90-inch (2.3-meter) Bok telescope on Kitt Peak in Arizona. That night they discovered a faint asteroid with their equipment. Then the asteroid was lost.

On December 20, astronomers observed another object and realized that it was the same asteroid observed six months earlier. A preliminary orbit showed there was one chance in 200 that the object might hit earth on Friday the 13th of April 2029. Immediately, the highest priority was to determine the size of the asteroid, tentatively named 2004 MN₄. Initial measurements gave a diameter somewhere between 200 yards and one mile (200 meters and 1.5 kilometers). An asteroid of the former size could destroy a large city or cause a large tsunami. An asteroid a mile in diameter could have worldwide repercussions, particularly by sending enough dust into the atmosphere to

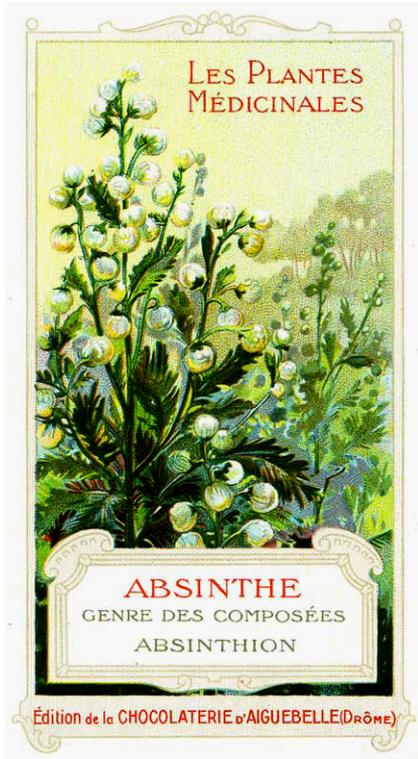
significantly cool the earth for several years, severely disrupting crop production.

Normally, as time goes on the odds of an impact go down, but not for 2004 MN₄. By December 23rd, the impact odds rose to 1 in 170. By Christmas day it was up to 1 in 40 and on the 27th it rose to 1 chance in 20. The story did not make the news for two reasons: first, the media also take a Christmas break, and on the 26th the Indonesian tsunami devastated Southeast Asia. As it happened, pre-discovery images of the asteroid were taken on March 15th of that year by the 36-inch (0.9 meter) Spacewatch telescope at Kitt Peak. The new images were enough to show that the asteroid would miss earth by about 5 earth diameters in 2029.

In January 2005, it was discovered that the asteroid is about 320 yards (meters) in size. After the world's largest radio telescope, Arecibo in Puerto Rico, pinged the asteroid its orbit was accurately determined and it was found that in 2029 the asteroid will pass about as far from earth as the geosynchronous satellites.



The asteroid is now called Apophis, after the Greek name for the Egyptian god Apep, the destroyer. The best estimate of its size is now 250 meters. During its pass by earth in 2029, it will be seen sailing across Europe as a bright, third magnitude star, moving about



one degree per minute. Tides induced in the asteroid will likely change its spin and the earth's gravity will deflect it 28 degrees from its original path. If sensors were planted on its surface as it approaches earth, its structure could be studied and any flaws in it could be detected. These could be used to break the asteroid apart, if that should be deemed necessary in the future.

Pictured at the bottom of page 22 is the path predicted for Apophis at its 2029 passage by earth. The bar across its path is the error in the prediction. The asteroid will pass somewhere within that bar. However, there is a 300-yard (300 m) slot in that bar where, if Apophis passes through it, it will hit the earth in 2036.

2036

As it stands at this writing, there is one chance in 220,000 that Apophis will pass through the slot and hit earth in 2036. That may seem safe, but the odds of winning a state lottery are some 200 times smaller. On the other hand, the odds of being killed in a traffic accident in any year are ten times greater than Apophis hitting the earth.

What would it be like if Apophis does hit earth in 2036? First, its impact would amount to an explosion equivalent to 402 million tons of TNT (402 megatons or MT).² The largest nuclear explosion ever set off was 100 MT, exploded by the Russians in Siberia circa 1960. The Indonesian earthquake that created the December 2005 tsunami was equivalent to 250 MT. If it hits deep ocean water, it will create a tsunami with almost four times the energy of the 2005 one. Being only 250 yards in diameter, it may not actually hit the basaltic crust under the ocean. That means that it may not kick up an excessive amount of dust, meaning there may not be much in the way of cold winters after that. If it hits land, it will create a boiling cauldron of lava and kick up much debris that will radiate from the impact site for hundreds to thousands of miles.

What Can Be Done About It?

The asteroid has a mass of 26 billion tons. That is not the kind of thing you could simply “blow out of the sky.” It will take more than sending up all our nuclear-tipped missiles to stop it. On the other hand, if we act quickly enough, it takes much less.

Though I would not worry about such small odds, those who do may want to send tractors to Apophis at its close approach in 2013. These tractors are ion engines that would run under nuclear power and

² <http://neo.jpl.nasa.gov/risk/a99942.html>.

use gravitation to draw the asteroid to the side, away from impact. Each engine would be in the asteroid's gravitational field, but would emit just enough ion force to hold it a constant distance from the asteroid. This works even if the asteroid tumbles and rotates. Over time, the effect of the force builds up and deflects the asteroid away from the collision-possible area. Remember, the "keyhole," as the slot is called, is only three football fields wide.

If nothing is done, and the asteroid misses the keyhole as now predicted, there is another possible chance that it will hit earth a year later, 13 April 2037. As it stands now, the odds of it hitting the earth that year are one chance in 810 million.

Wormwood of Revelation

I am not suggesting that Apophis is the star, Wormwood, mentioned in Revelation 8. An asteroid seems a highly unlikely suspect to inflict the kind of damage attributed to Wormwood. The Bible says this about Wormwood in Rev. 8:10-11:

¹⁰ And the third angel sounded, and there fell a great star from heaven, burning as it were a lamp, and it fell upon the third part of the rivers, and upon the fountains of waters;

¹¹ And the name of the star is called Wormwood: and the third part of the waters became wormwood; and many men died of the waters, because they were made bitter.

We can readily ascertain from the description that Apophis is not a candidate for the fulfillment of this prophecy. Of all the natural phenomena, a comet appears most likely. First, it is not as solid as an asteroid. Second, it has volatile materials embedded throughout it, material that may react to the heat of hitting the earth's atmosphere in such a way as to make a bitterly, rather poisonous, alkaline substance akin to absinthe or Belladonna.

Third, in order to fall on deep sources of water and rivers, the object cannot be in one piece when it arrives in the atmosphere. The earth's gravitational field, or the bombs of men, for that matter, could disrupt and scatter its pieces enough to spread the plague, as it were. Thus it would affect a third of what appears to be all fresh water.

Scripturally speaking, the star fulfills directly the prophecy of Jeremiah 9:15.³

³ Therefore thus saith the LORD of hosts, the God of Israel; Behold, I will feed them, *even* this people, with wormwood, and give them water of gall to drink.

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Why Are These Signs Surfacing Now?

The stars were given for signs and for seasons. For the first 5600 years of human history, man could only view the heaven with the naked eye. The signs were comets, meteors, planets, sun, moon, and the constellations of stars. With the invention of the telescope, we saw more heavenly bodies and learned more about the heaven, even the firmament. As a result, signs hidden from our eyes before can now be discerned.

It should, therefore, not be surprising that we can understand today that a comet might fulfill Revelation 8:11. Before, men may have guessed that Wormwood might be a comet, but it would be just that, a guess. Men had no reason to suppose it true because they did not know the chemical composition of a comet. We know from Daniel 12:8-9 that:

⁸ And I heard, but I understood not: then said I, O my Lord, what *shall be* the end of these *things*?

⁹ And he said, Go thy way, Daniel: for the words *are* closed up and sealed till the time of the end.

The passage teaches that at the time of the end, as it approaches, the seals will be opened, and then men will understand them then.

Conclusion

Increasingly, man is becoming aware of threats from the sky. Where the sky was once thought of as perfect and immutable, men now see it as a threat. Only those whose faith and trust is in the Lord know that an asteroid or planetary collision is not the fate of earth. The stars have their places, but they do not dictate the affairs of earth. Likewise, they do not dictate the death of mankind. Wormwood will kill a third of the population, but it will not create a “nuclear winter,” nor will it dissuade men from their wicked and rebellious ways in the last days of this dispensation of grace.