

The Coming of Halley's Comet.

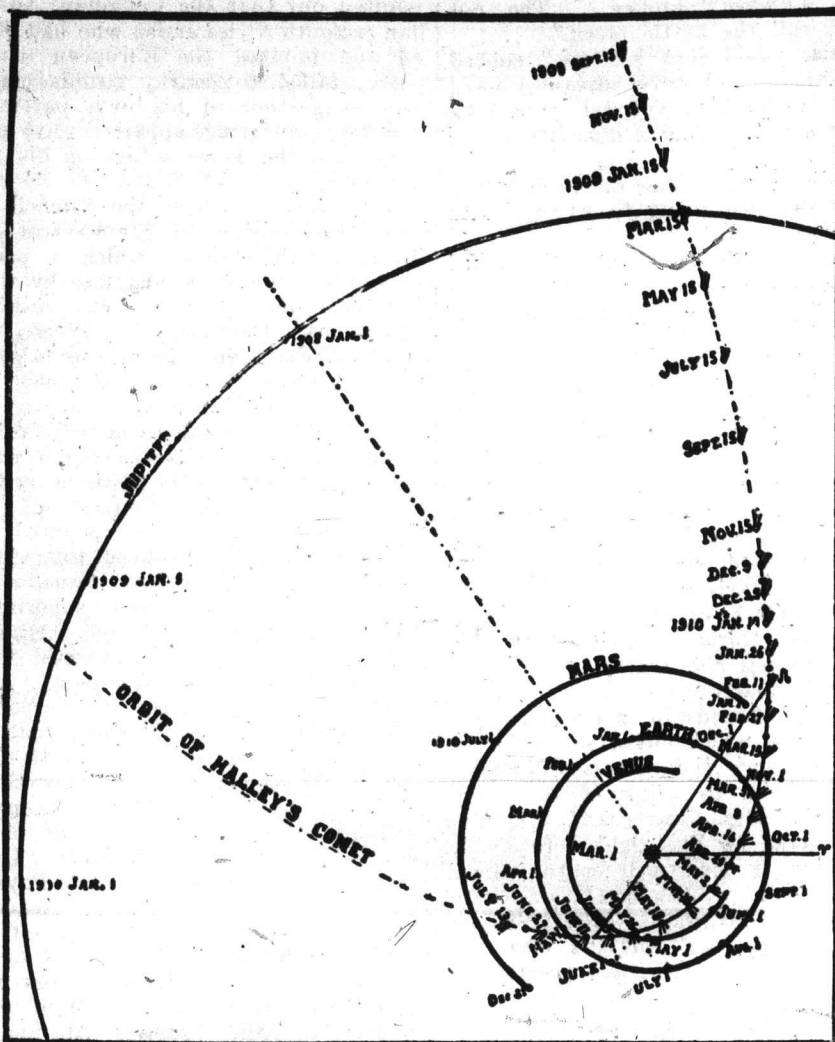
In which is shown its Course and Progress.

By FREDERIC CAMPBELL, Sc. D.

COMING from a distance 500,000,000 miles greater than that of the most remote planet, and returning from an absence of 75 years, it now devolves upon us to trace the movements of that great comet, already discovered in our sky, and soon to be seen for months by everyone who has eyes. It is true that the comet's motions are followed only in our immediate vicinity. But the curve which it makes while within our view, proves the curves it must make when beyond, so that we are able to track the monster as if we saw it every day.

We need first to understand the arrangement of the members of the solar system, to which both the comet and the earth belong. At the centre is the sun; round about this body, in concentric paths, revolve eight planets. These, in the order of their distance from the sun, are as follows: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Between Mars and Jupiter there is a swarm of little worlds, known as asteroids, not less than 500 in number.

The first four planets named are small. The other four are large. Those nearest the sun travel most swiftly; those farthest the most slowly. Mercury is seldom seen, because so close to the sun as usually to be lost in its bright rays. Venus is the largest star in the heavens, and the nearest to the earth. Mars is the world suspected of being inhabited, because of its "canals." Jupiter is our largest planet. Saturn is the wonderful world girdled with rings.



The comet's path from February 12 to June 3, as indicated by the short, unbroken, elliptical line, is above the plane of the earth's orbit; the rest, indicated by the long, elliptical broken line in the upper part of the picture, is below the same.

Uranus and Neptune are not seen except with the telescope. These planets shine only with the sun's reflected light. All other stars are suns.

The planets travel not perfect circles, but ellipses, a little longer one way than the other; and, not in the centre, but at

one of the two foci of each ellipse, nearer one end than the other, the sun is found. A periodical comet also travels an ellipse, but much more flattened, or eccentric, so that its path may run nearer the sun in one direction, and farther back into space in the other, than that of any planet.

As Halley's comet is usually about 75 years in making its complete orbit, it is 37½ years traveling back to the sun from its most distant point, known as "aphelion." Though it comes from a much greater distance than Neptune, it makes no approach to that planet, its path bearing off by quite an angle. Hence, as it draws near, we do not need to think of it as passing any planet before Jupiter. But, as it approaches the sun, it also rises to that general plane on which all the planets travel, so that when calculations show that it crossed Jupiter's path about March 15, 1909, we are interested to know it. The two bodies were then distant from the sun about 480,000,000 miles. There was then a wide space to cover, and an immense number of asteroids to pass; but, as an ocean liner avoids the fishing fleet off the coast of Newfoundland, so the comet steers to one side and runs no risk of collision.

And now the comet is in sight, far beyond the orbit of Mars, having been detected on Sept. 11 by Professor Wolf of Heidelberg, Germany. It will not cross Mars' path till about Feb. 27, 1910, more than two months after we have begun to see it with the naked eye. Steadily increasing in speed, by March 31 it is due to cross the path of the Earth. It dashes across the orbit of Venus about April 20, and on May 10 is a "perihelion," its nearest to the sun, swinging about that body at a distance of 66,000,000 miles therefrom, and moving at top speed.

Now begins its retreat back into space. About May 30 it is again crossing Venus' path, and the 16th of June the Earth's. Mars' orbit is recrossed about the middle of July, and Jupiter's

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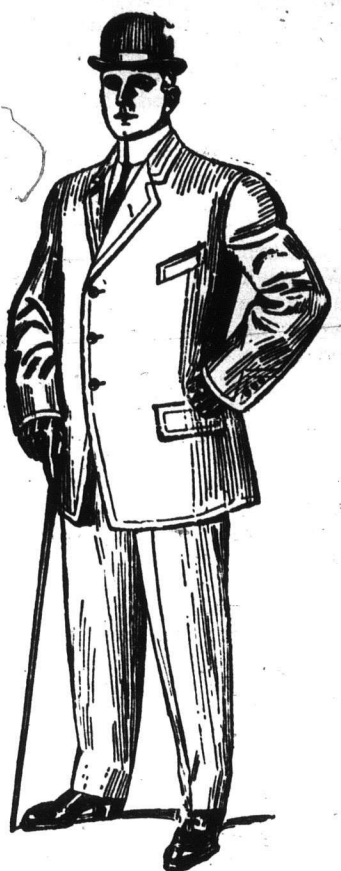
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