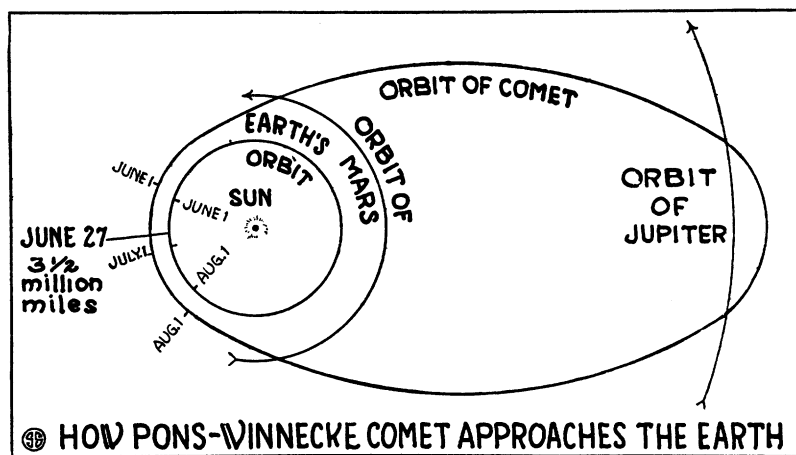


## Comet Close, But Won't Affect Earth



By JAMES STOKLEY

Closer to the earth than any comet, except one, is known to have come before, the Pons-Winnecke comet will be only 3,500,000 miles away from us on June 27, about fourteen and a half times as far as the moon, and far closer than any other astronomical body ordinarily comes.

But despite this neighborly visit, no empires will fall because of its proximity, no kings will pass away, or at least, if they do, their passing will have nothing to do with the comet. In fact, no signs at all are likely to appear in the sky, for it is quite doubtful even whether the comet will become visible to the unaided eye. If it does, it will just barely be visible on a dark night as a faint patch of light, quite different from the usual conception of a comet, for in the ten previous visits on which it has been observed by astronomers, it has never shown any trace of a tail.

The mere fact, however, that it is coming so close, makes it interesting to the astronomical profession, and for the next month or two it will be the cynosure of telescopes large and small. Only once, so far as astronomers know, has a comet come anywhere near as close as Pons-Winnecke. That was in 1770, when Lexell's comet approached to a mere stone's throw of 1,400,000 miles from the earth. Probably within a few years after that, many people thought that it had been a warning of the American Revolution, for until comparatively recent times superstition about comets has been rampant. They were supposed to be the heralds of wars and conquests.

### Foretold Norman Conquest?

Halley's comet, for instance, which visited the neighborhood of the earth last in 1910, was supposed to foretell

the Norman Conquest when it came in 1066. On the famous Bayeux Tapestry the comet is depicted as King Harold views it in alarm, possibly with some fear of the future work of William the Conqueror, which cost him his throne. And then, as Halley's comet appeared again in 1910, these early historians would probably have supposed that it foretold the Great War.

Halley's comet is one of respectable size, even though it is by no means the biggest. Pons-Winnecke, however, is rather a second-rate comet, as far as size is concerned. It is a periodic comet, and returns once in a little over six years to the neighborhood of the earth. A French astronomer at Marseilles, named Pons, discovered it in 1819, but it was not found on the next few visits. In 1858, however, a German astronomer, at the University of Bonn, Winnecke by name, discovered a comet. After a few observations of his comet had been made, it was found that it was the long-lost Pons comet, and in honor of his having rediscovered it, the German's name was attached, making it the Pons-Winnecke comet.

In the following years, constant track has been kept of it, though some of its returns have not been observed. It was seen in 1869, 1875, 1886, 1892, 1898, 1909, 1915 and 1921. It came back also in 1880 and 1904, but in those years it was not in a good position, and so it was missed. This year an American astronomer had the honor of being the first to find it, for Prof. George Van Biesbroeck, of the Yerkes Observatory of the University of Chicago, sighted it on March 3 with the observatory's reflecting telescope, in which a dish-shaped mirror two feet in diameter serves the

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## Relief Work Like War

Pestilence, riding the crest of the Mississippi Valley flood, is being battled by health and sanitation forces on a scale unparalleled in the peace-time history of this country. Reminiscent of measures instituted during the World War in army camps and refugee centers is the gigantic program being advanced by the American Red Cross and cooperating agencies.

Dispatches daily to national headquarters of the Red Cross here state that 95 per cent. of the total population of the flood area have had at least one injection of typhoid serum and that half a million will be immunized against smallpox and typhoid before the close of emergency relief work.

Dr. William R. Redden, Red Cross medical director, states that 8,000 are being vaccinated daily against smallpox and 10,000 against typhoid. Thousands have been given quinine doses as a precaution against malaria and between 6 and 7 tons of quinine will be administered for this purpose as mosquitoes begin to breed in the stagnant back-water.

Ninety-two nurses, 58 doctors and 30 sanitary engineers are on duty in the seven states affected, according to Dr. Redden, and as a result outbreaks of disease are being checked satisfactorily, with actually less disease, in Dr. Redden's opinion, than under normal conditions.

Following a recent meeting in Memphis, relief base, attended by health and sanitation experts of the Red Cross, American Medical Association, U. S. Public Health Service and other agencies, plans were announced to take care of sanitary conditions made acute by the recession of the flood in Arkansas and Mississippi.

Dr. Redden wired headquarters that an exhaustive survey of the terrain was made during the week which showed that Arkansas has 15,000 head of dead livestock and Mississippi 25,000. To neutralize this menace, 50,000 pounds of chlorinated lime will be used in the two states and one carload of dehydrated lime per county in addition. One carload of crude oil per county will be spread over stagnant waters to prevent the maturing of mosquito larvae.

Emergency county health units are being established in the two states, through which the Red Cross will carry on a concentrated battle against

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## Relief Work Like War

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disease, lasting from 30 to 60 days.

Maneuvers of the health forces are often spectacular, involving the use of airplane and radio. A call for typhoid and smallpox serum from Winnsboro, La., brought into action a Coast Guard airplane which set out from Natchez. It was necessary for the pilot to transfer to a train at Clayton, getting as far as Sicily Island, where the flood blocked rail travel. The guardsman procured a second-hand car in which he proceeded within two miles of his objective. Forced to abandon this he advanced on foot through water always knee-deep, sometimes deeper, arriving after nightfall with the supplies.

"Serious epidemic dysentery; must have medicine immediately." Across 60 miles of ether this message was flashed to Red Cross headquarters at Memphis. Within half an hour a Navy seaplane, loaded with the medicine, headed for Bruin, Arkansas. An hour later doctors in the camp were administering it. Without a plane it would have taken several days of tedious travel and it is probable that many lives would have been lost.

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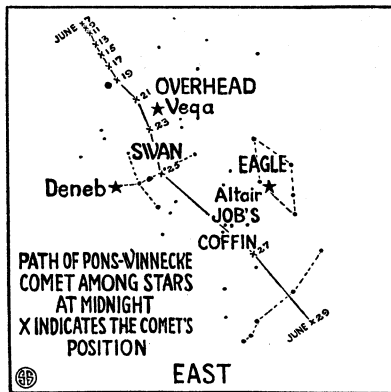
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### Pons-Winnecke Comet

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same function as the lens of the refracting telescope.

The accompanying diagram shows how the comet comes so close. Its path is an ellipse, one end of which is near the sun, the other out beyond the orbit of Jupiter, which is itself 483,000,000 miles from the sun. When closest to the sun, at what the astronomer calls perihelion, it is just a little farther away from that luminary than we are. The earth is about 93,000,000 miles from the sun, and the comet is about three and a half million miles farther. This year it happens that the comet comes to perihelion at about the same time that the earth is in the part of its orbit nearest the comet's orbit. If it were coming six months from now, then the earth would be on the opposite side of its orbit, and the comet would be about 190,000,000 miles away.

### Earth Has Little Effect

But the earth, as a matter of fact, has very little effect on a comet. Out in the part of its orbit farthest from the sun, even a large comet, like Halley's, is very faint and inconspicuous, entirely invisible to the best of our telescopes. And then, as it approaches the sun, it is excited to activity and may get very bright if it comes very close to the sun, though all this is at its own expense. The tail and all the stuff that is thrown off from the comet leaves it, never to return, so that comets are all gradually wasting away. Without doubt, the day will finally come when Halley's comet will be no more.

Pons-Winnecke, however, will not come any nearer to the sun than it has in past years, about 96,000,000 miles from it, and so it will not get particularly excited about the proximity of such a relatively unimportant planet as the earth. Even when it gets near Jupiter, largest member of the solar system, it is not excited to activity, though that big planet can,

by his gravitational attraction, pull the comet out of its old orbit and into a new one if it gets too close.

### How A Comet is Made

Just what a comet consists of is not definitely known, but whatever it is, the stuff is very sparsely scattered. It is really no denser than the vacuum obtainable with the best of our air pumps. Stars can be seen in undiminished brightness through even a comet's head, and even when a comet has passed between us and the sun, it has been entirely invisible. But the spectroscope often shows carbon monoxide, the same poisonous gas that is given off by automobile exhausts, in a comet's tail. Other gases, many of them poisonous, have been found in comets as well, but since they are so exceedingly rarefied, the people of the earth would probably not be poisoned even if we have a head-on collision with a comet. Perhaps the only effect would be a shower of meteors, or shooting stars, if the collision occurred at night!

The other diagram shows the path of Pons-Winnecke during June. Near the 27th it will be easy to see in the position shown with a small telescope or possibly even a pair of opera glasses and, perhaps, with the naked eye. The map indicates the sky for midnight of the 15th. Then the word "overhead" will mark that part of the sky. To locate the stars shown on the diagram, start off with Vega, almost overhead. The huge triangle this star forms with Deneb, to the northeast and Altair, to the southeast, is a convenient reference figure, and the comet passes right through it. The numbers next to the crosses show the dates on which the comet is in each of these positions. Notice that the crosses are farther apart as the comet gets near to the earth on June 27, even though the crosses are all at two-day intervals. This effect is the same as that of a locomotive, which seems to be moving much faster as it rushes past us than it did when we saw it a mile down the track.

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The parrot fish has a strong beak-like mouth.

The Sumerians who lived near the Tigris and Euphrates Rivers made wheels for their chariots as early as 3000 B. C.

A machine which projects extremely powerful rays to penetrate fog is designed to make navigation safer in bad weather.