

WHEN A COMET FELL ON EARTH

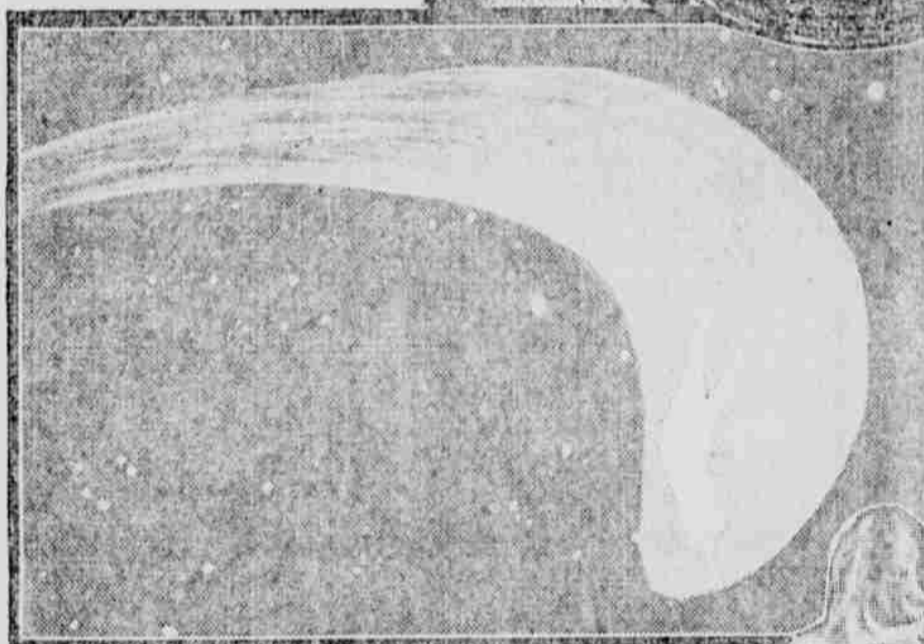
WHAT MIGHT TAKE PLACE IF HALLEY'S COMET WERE SHIPWRECKED AS BIELA'S WAS



THE astronomers announce that Halley's comet is approaching the earth at the rate of a million miles a day. As Halley's is the most splendidly attractive (otherwise the most alarming) of all our regular comets, they add that we need not fear that it will strike the earth, because it will not come closer to us than 13,000,000 miles.

This is the scientific schedule, but that does not keep any one who wishes to be inspired with proper awe on the approach of our most remarkable comet, from asking what might take place if, for any reason it leaves the scientific schedule, as Biela's comet did when it did the most remarkable thing thus far known in the history of the solar system since men have begun to watch the sky. That is, after coming back over and over on schedule time, until it was supposed to be as regular as the earth itself, it split in two, underwent final shipwreck somewhere in the heavens, and according to the last supposed to be known of it, fell on earth several hundred miles southeast of El Paso, Tex.

The probability that this was the last of that comet is conceded by such cautious astronomers as Prof. Young of Princeton. It is an authentic record, valued because it is about as near the history of Biela's comet as we will ever get. It is certainly lost, and it is thought that we have the last trace of it on earth now in a lump of nickel-iron which fell in Mexico, when supposed fragments of the lost comet (called "Biellids" after the astronomer, Biela, who discovered it) were being watched for and expected to fall in a shower somewhere on earth, if they were not burned to vapor by heat from friction as they were being whirled through the earth's atmosphere in falling. Although Halley's comet has been coming back regularly every 76 or 77 years since it is supposed to have appeared with its tail filling the



HALLEY'S COMET AS IT APPEARED IN 1835

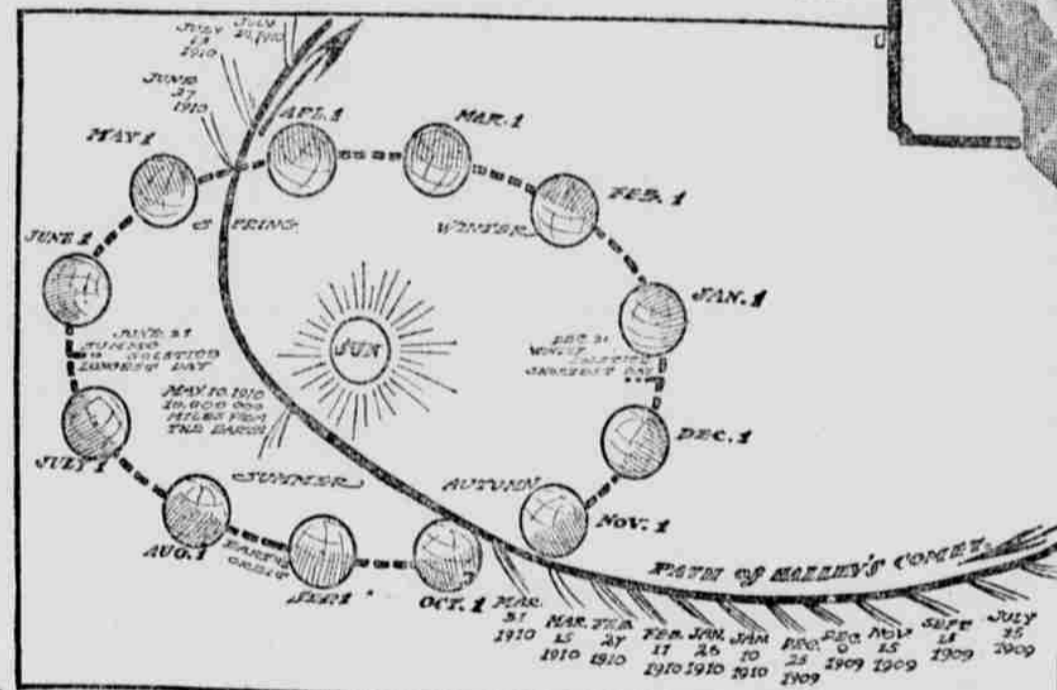


DIAGRAM SHOWING COURSE OF HALLEY'S COMET DURING 1909 AND 1910

sky before the fall of Jerusalem, it may end finally as Biela's comet did, falling in a star shower on earth, or on some other planet, or into the sun, or scattering through space around the sun in masses perhaps of nickel-iron, unseen on earth, unless the earth captures them out of space and sets them blazing through the sky as they fall.

Suppose we were to capture Halley's comet and it were really to fall, what would become of the earth or of the comet?

That is a fair question for all who wish to keep a proper scientific awe of our finest regular comet. It may offer something to take the place of the unscientific awe which used to send thousands to their knees, remembering their sins and praying for pardon as soon as Halley's comet began to spread its magnificent tail across the sky. In other words, it made them try to think, which was, no doubt, the best thing a comet could do for them.

Another important question is whether Halley's comet will bring its magnificent tail back with it, restored to its ancient and awful splendor. If it does not, the world, learned and unlearned, will be disappointed, for a comet without a tail is not awful or sublime enough to be worth growing either enthusiastic or repentant over. We cannot tell about the tail. It may come back with the comet, reduced 20 per cent., or it may finally be lost altogether or increased back to awful magnificence, streaming across the sky in such a spectacle as can be hoped for on earth only once in a lifetime.

If it recovers its tail in its full historic splendor, Halley's will be too magnificent a comet to be lost, according to our ways of looking at comets. It is not a third-rate as-

tronomer's comet, like Biela's, but a comet for everybody, with all mankind interested in it. It may set all the gongs in Asia beating while we are watching it through telescopes. Millions who do not know enough to be frightened at the idea of its striking the earth may find it awful enough to make them try hard to think, with results which, while they last, may seem to them the most awful they ever felt in their lives.

While all who are intelligently interested in comets will want Halley's back regularly, tail and all, as something to think about, there is a chance that it will lose its tail and also a chance, very remote now, that it may be shipwrecked finally and lost in space. It is a "chance" only until the law is learned. The chance is worth discussing only in the hope of learning more of the law. Can a comet lawfully get out of its regular path and be pulled down finally by the earth or some other planet? That is a question of law and as far as we have learned the law the answer is that it can.

We do not know much yet about the law. All we are beginning to find out dates from the night in January, 1846, when Prof. Challis looked through his telescope at the Cambridge observatory and could not believe his eyes. The spectacle he saw in the heavens was too astonishing to believe. It was Biela's comet split into two distinct comets. Such a thing had never been heard of or imagined as possible. But in some way it had actually occurred. Had the comet exploded by its own forces? Had it come in reach of the attraction of one of the planets and been pulled apart? What must become of a comet after being thus split in pieces? Could it come

within range of the earth and be captured and pulled down to the surface? If so, would it jar the earth in its orbit or set the planet on fire?

All we will ever have in the way of a final answer to these questions as they belong to the complete and final loss of Biela's comet is given officially now in the records of Mexico in the statement recorded by Senor Jose A. y Bonilla, director of the astronomical observatory in the state of Zacatecas. In November, 1885, it was supposed that between the twenty-fourth and twenty-ninth of the month the earth would pass in space through or near the fragments left by Biela's comet. As they were then called "Biellids," it had been concluded that they were a swarm of hundreds of thousands or perhaps of millions of small masses of meteoric matter, perhaps weighing from an ounce up to a ton or more. It was feared that if the earth passed through them and drew them to the surface in daylight they would not be seen at all, but would either burn up in gas or else fall in a few scattering stones on distant parts of the earth. This may have occurred in other places, but on a ranch near Mazapil, in the state of Zacatecas, one of them (or a mass of nickel-iron belonging to some group of the same kind) was seen to fall and recovered at once by the owner of the ranch, who made the deposition taken down in Spanish by Senor Bonilla and translated by William Earl Hidden, to close the last chapter in the story of Biela's lost comet:

"It was about 7 o'clock on the night of November 27 (1885)," said the ranchman in his deposition, "when I went out to the corral to feed the horses. Suddenly I heard a loud, sizzling noise, exactly as though something red hot was being plunged into cold water and almost instantly there followed a somewhat loud thud. At once the corral was covered with a phosphorescent light, while suspended in the air were small, luminous sparks, as though from a rocket. I had not recovered from my surprise before I saw this luminous air disappear and there remained on the ground only such a light as is made when a match is rubbed. A number of people came

running towards me from the neighboring houses and they helped me to quiet the horses, which had become much excited. We were afraid of being burned. We all asked what could be the matter. In a few moments, when we had recovered from our fear, we saw the light disappear. Bringing lanterns, we found a hole in the ground and in it a ball of light. We retired to a little distance, fearing it would explode and harm us. Looking up to the sky, we saw exhalations or stars which went out without noise. We returned after a little and found in the hole a hot stone we could barely handle. This, on the next day, we saw looked like a piece of iron. All night it rained stars. We saw none fall to the ground, as they all seemed to be extinguished while yet high up."

If this stone, the only one known to have reached the earth out of the "rain of stars," is all that is left of Biela's comet, there is 10½ pounds left of it in the shape of a mass of iron ore, showing such "pits" from contraction after great



EDMUND HALLEY

heat as the telescope shows in a much larger way on the face of the moon.

As this was considered the most distinguished visitor that had ever reached the earth from infinite space, it was presented as a mark of his distinguished consideration by Prof. Bonilla to William Earl Hidden, as one of the most distinguished American mineralogists, who was also an authority on meteors and meteoric minerals. Analysis showed that it was 91.26 per cent. iron, 7.84 per cent. nickel, 65-100 per cent. cobalt, 20-100 per cent. phosphorus, with traces of sulphur, carbon and chlorine. Mr. Hidden wrote its history in the American Journal of Science. In the century Magazine of August, 1885, he answered the question, "Is it a piece of a comet?" by summing up the evidence in connection with the known history of Biela's lost comet, since it split in 1846 and returned as two comets in 1852, to disappear finally in what were supposed to be a swarm of "Biellids."

"At the time of the fall of this meteorite" (in Mexico), Hidden writes, "it was 10 hours after the maximum number of meteors was observed. The earth was meeting with only the stragglers of the train. It cannot be doubted that the comical dust proceeding from the disintegration of Biela's comet wholly enveloped the earth and was seen as meteors from every part of it. Such was the magnificence of the celestial phenomena in some parts of the eastern continent that some people believed there would be no more stars left in the sky."

Biela's comet had returned regularly in a period of a little less than seven years until it underwent complete shipwreck in the heavens. No one ever expects to see it again. The end, as far as is known, is this star shower in the night the Bonilla biellid was picked up in Mazapil, to give us the best knowledge we have of what may be expected when a comet falls. Biela's lost comet does not compare with Halley's, which must have billions of stones or small and large masses of matter, probably nickel-iron, in its magnificent head. If it were shipwrecked by Jupiter, by the earth or by any other planet, these, if they were drawn close enough by the planet to break the hold the sun has on them, may do a number of interesting things.

They might revolve around the earth at a distance, collecting in such a ring as that of Saturn, which is supposed to be composed of an infinite number of such stones, or they might whirl closer and closer in revolving around it until finally the largest of them, which do not burn up in the atmosphere by friction, must fall as this biellid fell in Mexico. The hope of getting a beautiful earth ring, such as that of Saturn's, by capturing comets, is very small, if only because comets have not matter enough in them to make it

THE ONLOOKER

A Surprise Party



Um! Yo' mighty big an' nasty an' so' arrod erlong de street. Wid de pater' lathin' twinkle' any time yo' moves yo' feet. But I wants ter tell yo', dinneh, dis one day yo'll hev ter talk 'bout de whines an' why an' whakfa' ab de different ways yo' walk. En yo' betch be n-thinkin' what yo' goin' fer ter say. Fer dey got yo' on de program an de Judgment Day!

In de watch an' pray In de narrow way— (Amen! Sit so!) Fer dey got yo' on de program an de Judgment Day.

Dey's er heap o' things yo's goin' dat see chittin' up wid doubt. En yo' prokch mighty mean'ness what yo' think yo' ain't found out. Dey's a lot o' low-down meanness an' wretched unchivvity yo' hid. But yo' wish yo' stan' up collab an so' watch-on-chin wid pride. But de scales down' hold no y'akness when de Lawd finds what yo' weigh. En dey got yo' on de program fer de Judgment Day.

O, yo' sheep dat stray! Find de narrow way— Hit 'em hard, itrothly! Fer dey got yo' on de program an de Judgment Day.

Dey'll be singin', dey'll be speakin', dey'll be lots o' keepin' still. But dey won't be no disciplin', fer yo' gotta pay yo' bill. En yo' can't be big an' sassy when dey strip yo' to yo' soul. En dey pint yo' to de number dat dey give yo' on de scroll. So yo' betch be n-thinkin' what yo' goin' fer ter say. Fer dey got yo' on de program fer de Judgment Day.

En yo' betch stay In de narrow way— (Amen! Say on!) Fer dey got yo' on de program fer de Judgment Day!



He Got It.

"And so Halley's comet has been traveling, as you see, for the past 20 years or more, in the outer void, and is now within the field of observation of the largest telescope," says the professor. "It is 350,000,000 miles from the earth, but next spring it will be much closer, and we anticipate some interesting discoveries as to the attraction of gravity."

"As to what, professor?" asks the beauteous damsel, sleepily.

"The attraction of gravity."

"Why, has gravity any attraction?"

"Oh, yes. You see, Miss Imogene—"

"It hasn't any attraction for me."

Soon the professor bids her good-bye, mentally deciding to make her calls hereafter upon Miss Odette, the teacher of psychology.

Fiendish Revenge.

With a cold, calculating smile the brutal husband enters his wife's boudoir in response to her summons.

"So you want me to hook your dress for you, do you? Listen, woman!"

and his face takes on a strangely sinister expression. "You've said a good many things about me that have rankled in my bosom, and you have rankled me with a rod of iron, but now time has come at last. Know what I'm going to do? I'm going out by myself this evening, and I'm going to leave you here to hook your dress—if you can!"

With a demonic peal of laughter she is gone, leaving a shuddering, cowed, helpless woman crumpled in a heap beside her dressing table.

No Fatalities.

"Although he knew I was working," says our friend with the long hair and thick eyeglasses, "he burst right upon me and my ideas went to smithereens."

"Too bad," we commiserate.

"Yes, I told him he had wrecked my train of thought, and he callously said I needn't worry as the train carried no passengers."

Accommodating.

"Have you any mosquitoes?" asks the guest of the clerk at the summer hotel.

"No!" calls the clerk, absent-mindedly. "Take some mosquitoes up to Mr. Glimpton's room at once. Sorry 'on have been to any inconvenience, fr."

W. D. Nesbit