

HE SAW TWO METEORS.

The Experience of a Ten-Year-Old Boy in San Joaquin Valley.

What Eminent Scientists Say About These Visitors From Space.

The Large Number That Fall Annually Upon the Earth—Observations All Over the World.

Professor Davidson credits the account of the 10-year-old Visalia boy, Otto E. Ensbore, of the startling spectacle which he witnessed near Visalia Aug. 19, says the San Francisco Bulletin. It was in broad daylight, about two o'clock in the afternoon, with the sun brightly shining. The lad was in his parents' house, when suddenly a loud report was heard. The house was filled with an intense light, which for a moment seemed to the lad brighter than sunlight. He ran out, thinking that the house was on fire, and saw two meteors a short distance overhead, traveling from the northeast in a southwesterly direction. They were blue, and behind them trailed a bluish smoke-like haze, like the tail of a comet. The two meteors had not gone far when a second explosion occurred. The smaller of the two broke into fragments, which were scattered all around. The mystery of the first explosion was now explained. The two meteors had originally been one, and had been split apart by explosive force. The larger meteor, so the lad says, continued on and fell some miles distant, its contact with the earth being marked by a cloud of dust, which rose into the air so that it was visible to him even at the distance mentioned. The total destruction of the smaller meteor was accompanied by striking phenomena. With the explosion came a burst of flame and the dwindling meteor was at once a mass of sparks. The pieces of the smaller meteor are reported to have been found. Prof. Davidson does not know personally anything about this occurrence. He read the newspaper account of it, of which the foregoing is a condensation. He says, however, that the phenomena are familiar to observers. The first explosion mentioned would have thrown off the smaller meteor, but it would still have shared in the forward movement, as it is reported to have done in this case. There may be inaccuracies in the boy's story, but the main facts are in line with scientific observation.

Around the globe meteors are continually falling. Mysterious in origin, darting with prodigious velocity into our elastic atmosphere, the great majority suffer fiery extinction before they have a chance to reach the ground. Prof. Newton, of Yale college, an enthusiastic mathematician, estimates the number of meteors annually shooting in at us from space at millions. The atmosphere is more than a net to catch these countless swarms of celestial fireflies. It yields to and obstructs at once their passage. Their enormous speed develops great friction which in itself is tant with the atmosphere. Many of them burn out at once. Prof. Davidson says that he once saw at the moment after, and at the point where a meteor burned out, the formation of a cloud like a small double cloud. This was the first material of the meteor. Not long since he was scanning the skies through a telescope, and a meteor appeared which looked as if it was coming directly toward him. An observer whose name he does not give saw an entirely red meteor, as it came Paul's Island, as did the lad at Visalia, the descent of a meteor by broad daylight. The meteor which fell near St. Paul's splashed into the water. It seemed to the observer to be the largest he had ever seen. The depth of the water prevented its recovery. Professor Davidson, while sailing to China, was also informed by one of the officers of the vessel, concerning the fall of a daylight meteor. This luminous visitor appeared while the sun was shining brightly toward along at a low altitude, about 1000 feet above the horizon, but did not strike the water in view of the officer. During the past month skilled and amateur observers all over the Pacific coast have been on the alert for meteors, and several have been here. Professor Davidson, incidentally to other scientific work, counted meteors for a limited time one night, and his son also counted. During the period the meteors averaged one in about two minutes.

A small army of amateur observers, who probably do not have access to all the astronomical publications, may be interested in a communication by W. W. Denning, of Bristol, England, to The Observatory, a monthly review of astronomy, published in this publication in May. He has a picture of a comet crossing a comet. The substance of Mr. Denning's communication is that while comet seeking on the evening of March 30th at nine o'clock, with a ten-inch reflector, he saw a bright, nebulous object in Andromeda. As he failed to identify it with any of the conspicuous nebulae which had become familiar to him during previous sweeps in this region, he concluded it to be a comet. A few minutes sufficed to reveal nothing. The new comet appeared round, with a bright central condensation. A second observation made the object very obvious, though the gibbous moon was up. The comet was subsequently observed twice, and on April 4, the atmosphere being unusually clear, the comet appeared much brighter than on previous occasions. Now here is the suggestive picture in the heavens which Mr. Denning describes in few words: "It (the comet) had a delicate tapering tail, so extending diagonally that it could only be caught in glimpses. It stretched over certainly more than half the field of 50 min. (power 60), which I was using, though its precise limits were indeterminate, perhaps owing to the faint twilight lingering in the quarter. At 8h. 30m. a telescopic meteor about 8th mag., crossed the comet just under the head." This transit is pictured in the publication, a black circle representing the comet, and the two luminous objects are seen crossing. Mr. Denning says "the effect produced for a moment was very interesting."

Amateur observers will also be interested in extracts from a paper read before the Geographical Society of Berlin, by Professor Forster, recently, on "The Upper Strata of the Atmosphere." The paper is reported in the July number of the "Proceedings of the Royal Geographical Society." He said that the discovery of a means of determining the existence of extremely thin strata beyond a height of 10 miles dates back from the end of the eighteenth century, when attempts were first made, according to Gladin's principles, to ascertain the heights at which the first illumination of falling stars takes place. A specially comprehensive investigation with reference to these heights was carried out at the instance of the Berlin observatory in August, 1867, by means of simultaneous observations in the neighborhood of Berlin, with the result that not one of the altitudes which illumination commences, and which was measured with sufficient accuracy, was found to exceed practically 100 miles. The results, however, possess only a relative value, being valid only for the falling stars of the month of August, the so-called "Perseids." For the meteor which Professor Forster, "is evident that illumination will arise earlier or later, and at different altitudes, according to the varying velocities with which the small heavenly bodies penetrate the atmosphere. Illumination will take place the more in the case of those falling stars which move in a directly opposite direction to the movement of the earth, which travels at about nineteen miles per second. These heavenly bodies, possessing a velocity of their own of about twenty-six miles per second, consequently enter the earth's atmosphere at a velocity

of forty-five miles; while in the case of those bodies which tend to be overtaken by the earth in their movements around the sun, the velocity of the meteor, in the extreme case, only be equal to the difference between the two velocities mentioned, viz., seven miles. Touching another interesting phase of the question, Professor Forster says that "the altitudes at which extinction, that is to say, the almost complete dissolution of these heavenly bodies, commences, vary very much, because the rapidity of extinction is dependent upon the size and composition of the bodies themselves. The Berlin observations of 1867 gave for this an average height of about fifty miles. From these observations as to falling stars it is supposed that the boundary between the strata which participate in the meteoric dust, and those which resist it should be fixed at least at some miles higher than 100 miles. It is here that the bodies become heated prior to their illumination." Farther along in his paper Prof. Forster speaks of the space which he called the "Himmelsluft," which he described as extending "beyond the strata belonging to the earth into the strata of extremely rarefied gases, which in all probability fill up the spaces between the planets and the sun. He then says that "indications of the counter influence of the relatively quiet 'Himmelsluft' as compared with the earth, which rushes through it with a velocity of nineteen miles per second, can be recognized in the highest strata in the case of the luminous tails and fireballs leave behind them their flying course; that is, when these remain visible for some minutes. The changes of position and form, which proceed apparently very slowly in those luminous forms, due regard being paid to their great height and distance from the observer, are supposed to be executed with a velocity of sixty yards a second. The movements which take place in these meteoric tails are, according to all appearances, not so simple as they are often supposed to be, but the result of the highest strata being left behind in consequence of the velocity with which the observer on the earth's surface is being whirled along at a speed which at the quoted altitudes is to be reckoned in minutes. The very considerable alterations of form which these tails undergo in shifting their position point to very complicated conditions of movement.

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NOTICE OF APPLICATION TO OBTAIN RIGHTS IN THE PATENT RIGHTS AND REGULATIONS provided by the honorable secretary of the Interior, on May 18th, at the office of the undersigned, Charles W. Toole, whose post-office address is Wallace, Blaine county, Idaho, and who is the holder of the patent rights in the above mentioned timber for merchandise and sale from the public lands of the United States situated in Blaine county, Montana, and designated as follows: Tract No. 1, beginning at a point on the north bank of the Kootenai river one-half (1/2) mile below the "Big Bend" of the same, and the same distance west along the said north bank following the bends and curves of same for about four miles to the point where the river crosses the boundary line of Blaine county, thence east along the top of the first hills or bluffs four miles, thence north (N) one-half (1/2) mile (500 feet) to a point on the north bank of the Kootenai river, comprising about twelve hundred (1,200) acres, and containing five hundred (500) feet of pine timber, and one hundred (100) feet of spruce, fir and hemlock timber. The land in this tract is rough and broken, the soil rocky and sandy, unfit for cultivation or grazing purposes.

Tract No. 2, beginning at a point on the north bank of the Kootenai river one-half (1/2) mile below the "Big Bend" of the same, and the same distance west along the said north bank following the bends and curves of the same for a distance of eight miles to the head of or east of the Kootenai falls, thence north one-quarter (1/4) of a mile, thence east eight miles on a line parallel with the Kootenai river, and one-quarter (1/4) of a mile north of the same to the northeast corner, thence east one-quarter (1/4) of a mile to the southeast corner, the place of bearing corresponding to the bearing of the line containing about one million (1,000,000) feet of pine timber, five hundred (500) feet of spruce, fir and hemlock timber. The land in this tract is rocky, broken and mountainous, the soil rocky and sandy, and unfit for cultivation or grazing purposes.

Reference is hereby made to plat filed in the United States land office, Missoula, Montana, identifying and showing a more particular description of the locality of the land upon which this privilege is sought to be obtained. The total area of the above described tracts is about 4,500 acres, and it is estimated that there is growing thereon about 5,500,000 feet of pine timber, about 1,500,000 feet of spruce, fir and hemlock timber, and it is desired to cut.

The character of the lands upon which all of the above named timber is growing is rough, broken and mountainous; the soil is rocky, sandy and broken, unfit for cultivation or grazing purposes, and non-productive in character. The purpose for which the timber is to be cut and used is for the manufacture of lumber, shingles and other merchandise, and to be used for mining, building and other usual and beneficial purposes. C. W. TOOLE.

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