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COMETS D AND E 1882.

The fourth comet of the current year was discovered by Professor E. E. Barnard, of Nashville, Tenn., on the morning of Sept. 14, near the star Lambda, in the constellation of the Twins. As observed at the Dudley Observatory on the morning of Sept. 16, its position was right ascension 7 hours 21 minutes 17 seconds; declination north, 15° 16'.

This comet is not brilliant, and does not promise to be of special interest. As observed at the Naval Observatory, Washington, at 4 A.M. Sept. 19, its right ascension was 7 hours 27 minutes, and declination 12 degrees 41 minutes north. It presented the usual appearance of a telescopic comet with slight central condensation.

A more remarkable comet (E 1882) was discovered on the morning of Sept. 18. In the clear atmosphere of Colorado and Kansas it was plainly visible to the naked eye, from 3° to 5° southwest from the sun. On the same day this comet was observed in England, at Nice, Italy, and elsewhere.

A hazy sky prevented successful observations at our eastern observatories. On the afternoon of the 19th, as observed at the Naval Observatory at Washington, it was in right ascension 11 hours 19 minutes 30 seconds, and declination north 8 minutes 40 seconds.

The comet was easily seen with the naked eye, and exhibited a short tail with a bright head of considerable extent. In the telescope the nucleus showed as a confused mass of bright light, indicating a large comet with plenty of loose material.

Extending on both sides were seen bright arcs of light presenting the appearance of a bird with outstretched wings. The same afternoon a dispatch was received from the Observatory of Paris to the following effect:

"Thollon's comet observed at Nice about noon, September 18, 3° west of the sun. The nucleus gives a continuous spectrum, very brilliant and very much extended toward the violet. Both tail and nucleus give the sodium lines extremely brilliant, very sharply divided, and characteristic. They seem displaced toward the red."

This is the second comet that has shown a sodium spectrum. The displacement of the sodium lines would indicate a rapid movement of the comet toward the earth.

Further observations were made at the Naval Observatory on the morning of September 20, by Prof. Frisby, who describes the comet as a very prominent object, rising about half an hour before the sun and to the southward of it about ten degrees or twelve degrees. The tail, of about one degree length, was very plainly visible. The nucleus is very condensed and stellar in character, having wings which curve outward and downward, the whole presenting the appearance of a bird in flight. The nucleus is surrounded by an envelope of light of much less intensity.

The comet was very plainly seen with the naked eye after sunrise. When Professor Frisby made the second observation of its position, about 6 A.M., it was very easily followed with a telescope. Two more observations of its position were made by Professors Skinner, Boss, and Flint during the forenoon, thus furnishing a knowledge of the direction and rate of its apparent motion.

IMPROVED TRANSPORTATION OF BEEF AND BEEF CATTLE.

Two specially promising improvements in the transportation of beef and beef cattle from the West are now being developed—namely, the use of refrigerator cars for dead meat, and of improved cars and fast trains for live cattle.

In the first case the cattle are killed at Chicago, St. Louis, or other points near the source of supply; and the dressed meat is forwarded in cars kept cool by interior currents of cold dry air, or otherwise. By this method the cattle are spared the discomfort of the long journey; there is less loss; a larger amount of meat can be carried to the car-load; the meat is delivered ripe for immediate consumption and free from the injuries and disorders incident to long carriage alive; and the cost of refrigeration is said to be not greater than that of feeding and caring for live cattle in transit.

The Anderson Refrigerator Car Company and the Tiffany Refrigerator Car Company have taken the lead in this business.

Hitherto, owing to the opposition of local butchers and drovers, but little of the refrigerated meat has been brought to this city. Preparations are making in Washington Market, however, for a large extension of the trade here; and as soon as retail dealers can be sure of a sufficient regular supply, they will doubtless be ready enough to handle it.

The sale of such meat in Boston, Philadelphia, and Baltimore is already considerable, about 1,500 head of cattle being shipped daily from Chicago in this way. The refrigerated meat is not frozen, but merely kept at a temperature low enough to preserve and ripen it.

Recently a number of Texan capitalists, said to represent a combined live stock and banking interest of \$6,000,000, have been visiting north and east for the purpose of developing a scheme to refrigerate Texan beef for shipment to the larger centers of consumption.

The project contemplates the abandonment of the present practice of driving Texas cattle to Kansas to be transported thence alive by rail, for a system of home killing, the dead meat to be carried all the way in special cars constructed for the purpose.

If this plan is largely carried out, it is believed that everybody, except the drovers and local butchers, will be greatly benefited. The development of improved live stock transportation is likely to prevent any monopolizing of the meat trade by the butchers of the south and west. As yet this business is only beginning; but the success of experimental trains is such as to hold out a promise of its rapid extension.

One of the younger companies that have undertaken to solve the problem of cattle transportation is the Montgomery Palace Stock Car Company, whose first train-load of cattle to this city arrived from Chicago the forepart of September. The train consisted of twenty cars, carrying 361 steers, weighing when loaded 418,930 pounds. The average weight to the car-load was 20,946 pounds.

A Pullman car, carrying a number of persons interested in the improved transportation of cattle, was attached to the train. Two engines were placed in front of the train, and the distance from Chicago to Port Huron was made in a little less than thirteen hours, at an average running rate of twenty-seven miles an hour.

At Port Huron the cattle were fed for the first time, and not only did the apparatus work to perfection, but it was seen that the cattle could easily turn around in their compartments so as to reach the troughs. From Port Huron the train went to Ailsa Craig, Canada, where the watering-machine was used with equally gratifying success.

The average running time from Sarnia, Canada, to East Buffalo, a distance of 193 miles, was 28 miles an hour. From East Buffalo to Hornellsville, a distance of 91 miles, the average running time over the Erie road was only 16½ miles an hour. The cattle were fed again and watered at Addison. From Hornellsville to Susquehanna, a distance of 140 miles, the running time increased to an average of 25½ miles an hour.

From Hornellsville to Port Jervis, a distance of 104 miles, the average running time was 22½ miles an hour, and from Port Jervis to New York, a distance of 81 miles, the run was made in four hours.

During the entire trip, says the World's reporter, it was commented upon by the experts that none of the cattle gave evidences of leg-weariness, there was no "scouring," not a steer was bruised or trampled upon, no prods were used, and all the animals seemed contented.

Upon the arrival of the train at the stock-yards in Jersey City, the cars were unloaded with ease, and it was found that the steers all walked well, and were in good condition. Mr. Truax, the superintendent of the yards, remarked that it was the first load of cattle he had ever seen arrive without some of them being dead and wounded. These, he thought, were in a remarkably fine condition. When the cargo was weighed it was found that the aggregate weight was 409,670, showing an average loss of 24½ pounds per head.

The usual shrinkage for the journey is twice or three times this amount. The new cars are 38 feet and 7 inches in length outside and 36 feet inside. The width is 9 feet, and the height 7 feet and 6 inches. The interior is divided into compartments for four or five cattle each.

The promoters of this and other methods of improved transportation of live cattle claim that the greater expedition, the saving in the matter of shrinkage, and the more healthful condition of the cattle when delivered, make the improved methods as much superior to the old in point of economy as they are on the score of humanity. This being so, there is good reason to expect that before many years the barbarities now incident to cattle transportation will be abolished, and a wholesome quality of beef supplied to consumers.

The Sweetland Chuck.

The fire which occurred in the premises of Messrs. Sweetland & Co., New Haven, Conn., September 7, fortunately did not interfere with the manufacturing department. The business is in full operation, and customers can rely on having orders promptly executed. The "Sweetland chuck" was described and illustrated in our issue for January 7, 1882.