THE NEW CRUISER RALEIGH.

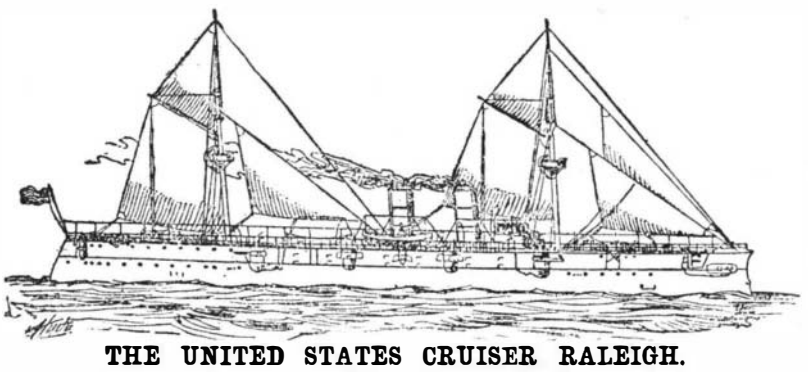
The cruiser Raleigh was launched at the Norfolk navy yard March 31, in the presence of many thousand spectators. Besides the great throng in the navy yard itself, the shores of the river were lined for a long distance, and dozens of steamers, tugs, and yachts were crowded with spectators.

We give an engraving of the launch, prepared from a photograph of the scene, for which we are indebted to Mr. J. H. Faber, photographer, Norfolk, Va.

Naval Constructor Bowles had charge of the work.

One circumstance which added to the interest was that the Raleigh was ready so much in advance of her sister ship, the Cincinnati, now under construction at the Brooklyn navy yard.

The signal was given at 11:36 A. M., and Mrs. Alfred W. Haywood, of Raleigh, N. C., daughter of Governor Holt, of North Carolina, standing between the Secretary of the Navy and Ensign Hilby P. Jones, broke the bottle of wine on the bow of the cruiser, which began to move off as easily as if under her own propeller. Just three-quarters of a minute from the time the bottle was broken the Raleigh was stopped by her anchors in midstream. Governor Holt and staff, the volunteer soldiery of this section, and many prominent people from a distance were present.



THE UNITED STATES CRUISER RALEIGH.

By act of Congress, approved September 7, 1888, the construction of two steel cruisers of about 3,000 tons displacement each, to cost not more than $1,100,000 each, exclusive of armament and any premiums that might be paid for increased speed, was authorized. The speed prescribed was 19 knots, with a premium of $50,000 for each quarter of a knot additional, and the same deduction for each quarter of a knot deficient. The act authorized the Secretary of the Navy to build the vessels in navy yards if unable to contract for them at reasonable prices.

Proposals were advertised for, but none within the limit of cost fixed by Congress was received. The Secretary, accordingly, directed that the vessels to be known as cruisers Nos. 7 and 8 should be built at the navy yards at New York and Norfolk, respectively. The chief constructor gave orders to begin work on No. 8 on September 26, 1889. The first keel plate was laid on December 19, 1889. Since then the work has been carried on as expeditiously as possible against the difficulties of training a new force of workmen and vexatious delays in the delivery of material. In pursuance of the plan of naming second class ships after cities, the President decided that cruiser No. 8 should be called the Raleigh.

The Raleigh has a length of 300 ft. on the load water line, and an extreme breadth of 42 ft. At her mean normal draught of 18 ft. of sea water her displacement is about 3,180 tons, the maximum draught then being about 19 ft. She will have two sets of engines working twin screws, and develop (estimated) 10,000 indicated horse power at full power with a steam pressure of 160 pounds. This will drive the ship at 20 knots. Her coal supply at normal draught will be 400 tons. The bunkers will hold 675 tons, and with this supply she can steam 1,500 miles at full power, or 10,500 at 10 knots, her most economical speed.

The engines are of the triple-expansion, vertical, inverted, direct-acting type, with two low-pressure cylinders. Her cylinders are 36, 53, 57 and 57 in. in diameter, with a common stroke of 33 in. Steam is supplied by four double-ended boilers and two single-ended ones, to be used as auxiliaries. The grate surface is 597 sq. ft. and the heating surface 19,382. The closed ash pit system of forced draught will be used. The condensers have each 7,000 sq. ft. of cooling surface. The revolutions at full power will be 164.

The main and auxiliary engines occupy four watertight compartments, and the boilers four others. The watertight subdivision at the ends of the ship is very complete. The protective deck is 1 in. thick on the flat, 2 in. at the slopes at the ends, and 2½ in. on the slopes amidships. A cofferdam to be filled with woodite or cellulose extends around the ship in the wake of the water line, on the protective deck. The ship has poop and forecastle decks, with an open gun deck between, and bridges extending along the top of the hammock berthings connecting the poop and forecastle. The rig is that of a two-masted schooner, spreading 7,210 sq. ft. of sail. The boats are stowed on skid beams between the two fore-and-aft bridges.

The main armament consists of one 6 in. breech-loading rifle mounted on the forecastle and having an arc of train of 270 degrees from quarter to quarter, ten 5 in. rapid-fire guns, two mounted on the poop and the others on the gun deck in sponsons; those on the poop and the after two on the gun deck train from right astern to 60 degrees forward of the beam; the two forward ones on the gun deck train from right ahead to 60 degrees abaft the beam; the others train 72 degrees before and abaft the beam. The auxiliary armament consists of eight 6 pounder rapid-fire guns mounted, four over the forward and after sponsons on forecastle and poop, two on gun deck forward and two on gun deck amidships; four 1 pounders mounted, two on gun deck aft (in captain's after cabin) and two on bridges; two Gatlings mounted in the tops. The forward and after 5 in. guns on the gun deck are protected by 4 in. armor. The other sponsons have 1 in. armor plates. The conning tower will be 2 in. thick, as will the tube leading from it to the protective deck. There are six above-water torpedo tubes; fixed ones ahead and astern and training ones on each bow and quarter. The tubes are of the Howell pattern, using gunpowder to project the torpedo.

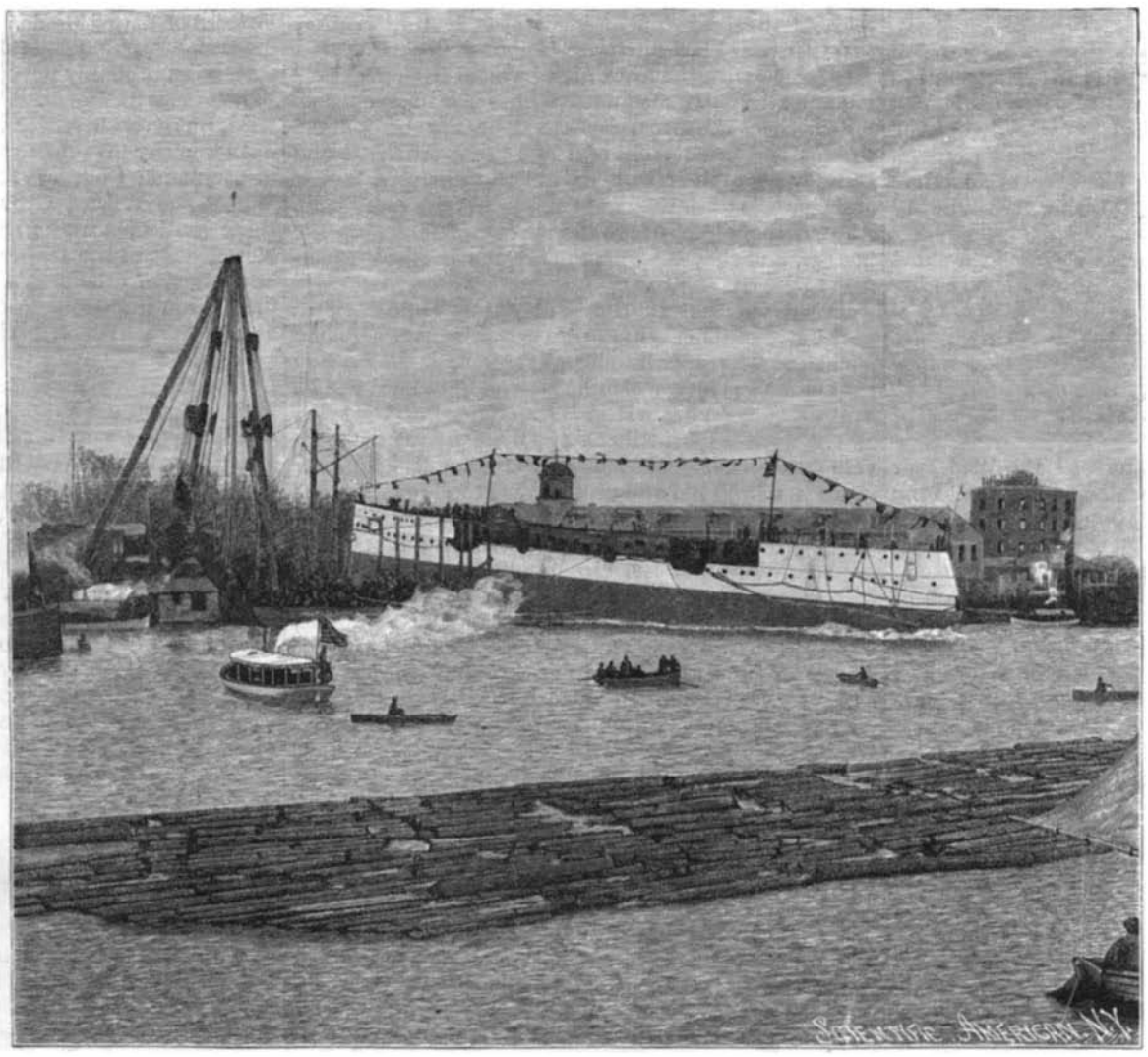
The ship will be lighted by electricity, the plant consisting of two engines and dynamos, each with an output of 200 amperes at a constant potential of 80 volts. In addition to all necessary lights for illumination and signaling, there will be three Mangin searchlight projectors. The lights will be arranged in sections, on independent conductors, all controlled by a switchboard in the dynamo room, so arranged that either of the dynamos can be put on any or all of the arc or incandescent circuits.

The engine power of the Raleigh is relatively greater than that of any other vessel of the United States navy, except the Vesuvius and the torpedo boats, occurring, as it does, in conjunction with a larger battery power, necessitating a larger crew. The complement will be about 320; 24 officers, 34 marines, and a crew of 266. The rudder is partly balanced. Its weight is about 7·5 tons. The ordinary right and left steering gear is used, actuated by a powerful steam steering engine below the protective deck.

It is estimated that her cost completed, including armament and equipment, will be $1,642,915.74.

The actual weight of the ship when launched was 1,140 tons.

The Raleigh is the first vessel of the new navy to be built complete by the government, as the machinery and boilers are under construction and now nearly completed at the navy yard at New York.



LAUNCH OF THE NEW WAR SHIP RALEIGH, AT NORFOLK, VA.

Census of the Carrier Pigeons at Paris.

The enumeration of the carrier pigeons at Paris prescribed by a law of 1877 shows that the number of pigeons and owners is yearly increasing in a very sensible proportion. In 1890, the census gave the following figures:

Owners, 608; trained pigeons, 6,619; untrained, 6,658; say a total of 12,277.

In 1891, the census gave:

Owners, 697; trained pigeons, 7,012; untrained, 6,977; say a total of 13,989.

These figures, put in comparison with those of the preceding year, represent an increase of 89 owners and 1,712 pigeons. The census of carrier pigeons does not concern itself solely, as for horses, with the gross number of the birds, but is completed by a serious inquiry into the subject of mortality, and the military situation of each owner of carrier pigeons, and into the direction in which his pigeons are trained, so that at the moment of a declaration of war, the military authorities, on taking possession of the cotes, may be able to utilize the pigeons at once. This inquiry permits also of detecting owners who are in contravention for false declarations or for want of authorization.

The great majority of the breeders are of French nationality. There are, however, a certain number of foreigners among them, say twenty-seven Belgians, one Russian, one Spaniard, one Swiss, one Austrian, and four Germans.

The arrondissement of Paris that contains the largest number of owners of pigeons is the twentieth; after this come the eleventh, nineteenth and thirteenth. The arrondissement containing the smallest number is the third, in which there are but three owners, who possess, in all, twenty-four pigeons. — *Colombiers Militaires en Europe.*

The Sampson Well at Waco, Texas.

The "Sampson" is the largest well in the United States, and has few rivals in the world. It is bored with a diameter of 10 inches to the depth of 1,850 feet—all the artesian wells of Waco finding their supply at from 1,825 to 1,850 feet deep. The "Sampson" throws up about 1,500,000 gallons daily of hot but perfectly pure and crystalline water, at a temperature of 103°—which is the highest temperature of any artesian water yet discovered—with a pressure of 60 lb. to the inch. It will rise in the standpipe to the height of 120 feet from the ground. The supply appears to be inexhaustible, no diminution of pressure having so far been felt at the other wells. Besides the "Sampson" there are two other standpipes, respectively 80 by 20 feet and 88 by 20 feet, which not only supply Waco with pure artesian water for domestic and manufacturing purposes, but also for hot, swimming, and other baths. More important still, indeed, for the future of the city, these supply it, in addition, with a motive power which can be applied to all kinds of manufacturing purposes.

Natural History Notes.

Cats in Egypt.—The first people known to have domesticated cats were the ancient Egyptians, on whose monuments representations of these animals are found as early as 1600 B. C. It is on a tomb erected about 1300 B. C. that the cat first appears unmistakably as a domesticated creature, being shown seated beneath a chair. In ancient Egypt, the cat was an object of religious worship, and was even an inmate of the temples. There was actually a cat goddess, named Bubastis, who was always depicted as having a cat's head. Behind the temple dedicated to her at Beni Hassan, great pits have been found containing multitudes of mummies of cats.

The cat was also regarded as an emblem of the sun, its eyes being supposed to vary in color with the progress of that luminary through the heavens. Likewise its eyes were believed to undergo a change each lunar month, and for this reason the animal was also sacred to the moon.

The Mudfish (*Protopterus*).—Travelers in Central Africa, during the hot season, often follow the dry beds of rivers and creeks for miles to obviate the necessity of cutting their way through the heavy jungles which everywhere abound. Africa is well known to be the native land of many extraordinary things, animate as well as inanimate. This being the case, the first explorers paid no attention to the thousands of balls of hardened mud which were strewed about in profusion in the beds of these dried-up streams. One day, however, when a detachment of the Cameron expedition was exploring what in the wet season would have been a tributary of the Nile, a woodman cracked one of the balls and was surprised beyond measure to see a live fish-like animal fall out of the center of the ball and flounder in the sand.

This curious discovery led the explorers to make an investigation, whereupon every hardened ball of earth was found to contain a specimen of the same animal. These spherical mud dwellings, which, on account of their likeness to the cases made by several species of insects and worms, have been called cocoons, are perforated with many small holes and lined with a mucus from the animal's body, the mucus keeping the dried ball damp upon the inside, and the holes being used for breathing purposes. For want of a more euphonious name, this queer animal has been dubbed the "mudfish," which is expressive of the creature's curious habits.

The remarkable instinct which causes the mudfish to roll itself in a ball of mud when the dry season approaches is a wonderful provision of nature intended solely, it would seem, to prevent the extinction of the species. The most interesting fact about this animal is that it breathes by means of gills when in its native element, and by means of lungs during its voluntary imprisonment in the mud cocoon.

The Dinornis.—Mr. H. O. Forbes states, in a short note in *Nature*, that he has been able to assure himself from some particularly well preserved bones discovered in New Zealand that the *Dinornis* really possessed a rudimentary wing. The coracoido-scapular, in fact, has a rounded cavity that could only have been a glenoid cavity that received a humerus of some size.

Some Curious Lobsters.—Visitors to Portland Pier who happened one day not long since to drop into the lobster house of Mr. Lewis McDonald were favored with a view of a bright blue lobster which was caught off Cape Elizabeth by a Peak's Island fisherman. The color was decidedly different from the green of the ordinary lobster. On the back the blue was of that deep variety that belongs to indigo, and toward the extremities and under parts shaded off to a fainter but still unmistakable tint, and thence into a pure white. The under part of one of the claws is almost a pure white. The lobster is about eleven inches long. One claw is of full size, while the other is very small. It is said that one other blue lobster has been caught off the Cape this season. Mr. McDonald thinks of preserving the specimen.

He has also a pure white lobster caught about five years ago and preserved in alcohol. Mr. McDonald thinks it is the only pure white lobster ever caught.

Some of those who viewed the blue lobster recalled other queer lobsters that have been seen in Portland. Not long ago Mr. W. S. Trefethen had a lobster that was half green and half red. A straight, perfectly distinct line ran from head to tail along the back of the crustacean. Upon one side of the line the color was a vivid green and upon the other a bright red. The lobster was sent to Professor Spencer Baird, and is now in the Smithsonian.

Feeding Habits of the Elephant.—An elephant's digestive functions are very rapid, and the animal, therefore, requires daily a large amount of fodder—600 pounds at least. In its wild state the elephant feeds heartily, but wastefully. It is careful in selecting the few forest trees which it likes for their bark or foliage. But it will tear down branches and leave half of them untouched. It will strip off the bark from other trees and throw away a large portion.

As it is a nocturnal animal, it selects its trees by the senses of touch and smell. Its sense of smell is so delicate that a wild elephant can wind an enemy at a distance of 1,000 yards, and the nerves of its trunk are so sensitive that the smallest substance can be discovered and picked up by its tiny proboscis.

An elephant's palate is very delicate and the animal is whimsical in selecting or rejecting morsels of food. Sir Samuel W. Baker, in his "Wild Beasts and their Ways," tells an anecdote illustrative of the whims of a tame elephant belonging to the police of Dhubri.

This elephant was fed with rice and plantains. The stems of the plantains were split and cut into transverse sections two feet in length. Three-quarters of a pound of rice was placed within each tube of plantain stem. One day, while the elephant was being fed, a lady offered the animal a small sweet biscuit. It was taken in the trunk and almost immediately thrown on the ground.

The mahout, or driver, thinking that the elephant had behaved rudely, picked up the biscuit and inserted it in a parcel of rice within a plantain stem. This was placed in the elephant's mouth, and at the very first crunch it showed its disgust by spitting out the whole mess. The small biscuit had disgusted the animal, and for several minutes it tried by its inserted trunk to rake out every atom from its tongue and throat.

Fire Horses.

A very interesting story may be told about the horses selected for fire duty in this city. Any one, says *Fire and Water*, who has watched one of the crack engine companies tearing through the street in response to an alarm cannot have failed to notice how the horses strained every muscle to cover the distance as quickly as possible, with scarcely a touch from the driver's whip. Some of the horses show an almost human intelligence.

Nowhere can that be seen better than in the house of engine No. 7, at Chambers and Center Streets, where two horses, Jo and Charley, hold the record for the quickest time in getting into harness. Horses and men have to show off frequently for the benefit of visitors. The foreman sounds the gong in one of these exhibitions, but does not release the horses at once, as the regular alarm does by electrical apparatus. The two big horses, whose stalls are on either side of the engine, strain at their halters and jump in their eagerness to get to their places. The moment the foreman releases them by touching an electric button they spring forward and duck their heads under the collars suspended with the rest of the harness from the ceiling and ready to be fastened about their necks.

Sometimes the foreman snaps the collar beforehand to test the intelligence of the horses. Then Jo and Charley poke their heads through the closed collars and struggle until they get their heads through them. At an actual alarm of fire the horses will start on the instant, and they vie with the firemen in their eagerness to get to the fire.

It is plain that the horse plays just as necessary a part in the autonomy of the fire department as a human member. The more intelligent the horse is the quicker the engine or truck which he is helping to haul will be at the scene of a fire. Horses that enter into the spirit of the work as heartily as the firemen are almost invaluable, for every moment saved frequently counts for much in saving life and property. It follows that the training of the horses which are added every year to the department is as important as the training of the firemen, who must learn to handle the hose, ax, and scaling ladder with expertness. Although that branch of the service is heard of seldom by the general public, Chief Bonner gives it the strictest attention, and the recruits in horseflesh have to go through an ordeal just as severe as that which their human allies must undergo.

The training stables in West Ninety-ninth Street are in a quiet neighborhood, and the new building is used also as the department's horse hospital. Foreman Joseph Shea, who is also Dr. Shea, has charge of the stables. He was graduated as a veterinary surgeon, and has been connected with the department for eleven years. His position is one of the most important in the department. He looks after all the sick horses in the engine houses, and is kept busy at the hospital with the horses laid up there. He buys the green horses for the department, accepting them only after they have shown their ability to do the work required.

The commissioners allow $300 for the purchase of each horse, and Dr. Shea makes his selection from the big bunches of Western horses in the Bull's Head market. He always selects a horse of good size, generally blocky, with plenty of muscle. The horse that has speed and strength in good proportion is the horse that Dr. Shea is looking for constantly.

There are 800 horses in active service in the department, and about fifty recruits have to be added each year. They usually go up to the Ninety-ninth Street stable on trial, half a dozen at a time, and Dr. Shea has a month in which to accept or reject any one or all of the lot. In that time he can tell whether the horse is likely to be of any value.

As soon as the green horses arrive they are housed comfortably in the third story of the stable. Three roomy box stalls are there, too, and their doors indicate hard usage. "Some of these green horses," one of the stablemen said, "don't seem to know anything else but how to kick, and they do that with a vengeance." All of the new recruits do not take kindly to their new quarters, and still less to the training. In the ground story the green horse gets his first lesson. He is usually four or five years old, and barely broken to harness. A part of the story is partitioned off for a tender or hose cart. The customary big fire gong is on the wall, and all of the alarms, from Morrisania to the Battery, are sounded. In stalls beside the tenders the raw recruits are broken in, two at a time. At first they must become accustomed to the sound of the big gong. Most horses are so confused by the clanging that they are absolutely intractable for awhile. Some never get accustomed to the noise, and these are rejected. In the course of a day or two the average recruit begins to understand that it bears a very close relation to his movements.

Wealth in Inventions.

It is an opinion of many that inventors are always poor, but such is by no means the fact. There are poor farmers, poor merchants, poor real estate speculators, poor stock brokers and poor bankers, but by no means are all these operators poor. It may probably be correct that as large or probably a larger proportion of inventors are poor than of any one single class.

One reason probably for this is that gentlemen of wealth are as a class not inventors, specially of those who inherited wealth or a competency. Statesmen and politicians, as a class, are not inventors of useful articles or methods.

Inventors, as a class, are poor men who are desirous of acquiring a competence for support. Very few of them are ambitious for fame. Lawyers are probably the most ambitious of any one class to become distinguished statesmen. But few of them ever become inventors. Nearly every President of the United States went there from his law office. The practice of law qualifies a man for public speaking. We have had a few war presidents like "Old Hickory" Jackson, who defeated Pakenham at New Orleans, and Gen. Grant and Gen. Harrison; but none of these were lawyers, I believe, and I confess were what we might term second or third class presidents. Abraham Lincoln was a self-made lawyer and a self-made statesman, and as a statesman probably never had an equal except possibly Thomas Jefferson. He tried invention of a steamboat, but as an inventor was a pettifogger.

As wealthy inventors we might name Mr. Bessemer, of England; Colt, of the revolver; Howe, Singer, Wheeler & Wilson, Grover & Baker. I think all of these gentlemen were part inventors in their machines. McCormick, of the reaper; and now comes Mr. Edison and a host of others in electric lighting and electric motors too numerous to mention. Most of these are among the millionaires of to-day, while many thousands of others have either a competence or an income from their genius ample to their support.

To manage a meritorious invention to a financial success requires as much skill as to produce it, and many inventors are very poor judges of honest business managers and allow themselves to be swindled out of what they ought to have.

Some years ago a man in Washington told me that he had no brains to invent, but that he watched every invention that came out, and used his skill to make money by other men's brains. The country is always full of this class, and no sooner is a patent issued, whether for a real, meritorious invention or a gimcrack of no value, than the poor inventor is flooded with a lot of literature that pretends to direct him for $10 or $15 to make a fortune out of his wonderful invention. The proper place for all this printed stuff is the fire or waste basket.

If an inventor has a good invention of merit and desires means, the safe way is to go to some acquaintance of means, and he will have no trouble in securing enough to develop it and place it on the market. And I am quite sure that nearly all successful inventors have taken in partners with capital. Occasionally one can be sold out and out for a considerable sum, but these are extreme exceptions. J. E. EMERSON.

The Many-tailed Comet.

Prof. Lewis Swift, of Warner Observatory, reports a dispatch dated San Francisco, quoting Prof. Barnard as saying that his recent observations of the new comet reveal a remarkable state of affairs. Spreading out from the head is a complicated system of tails. At least a dozen distinct branches can be counted on the photograph, some of which present remarkable curvatures.

One telescopic view exhibited the fact that in less than twenty-four hours the third tail had formed to the extent of about 10,000,000 miles, while the northern tail had entirely disappeared. Portions of the tail were seen to form an abrupt angle with their original source.