

NEW COMETS.

THE two Comets, of which illustrations are annexed, have appeared during the past year.

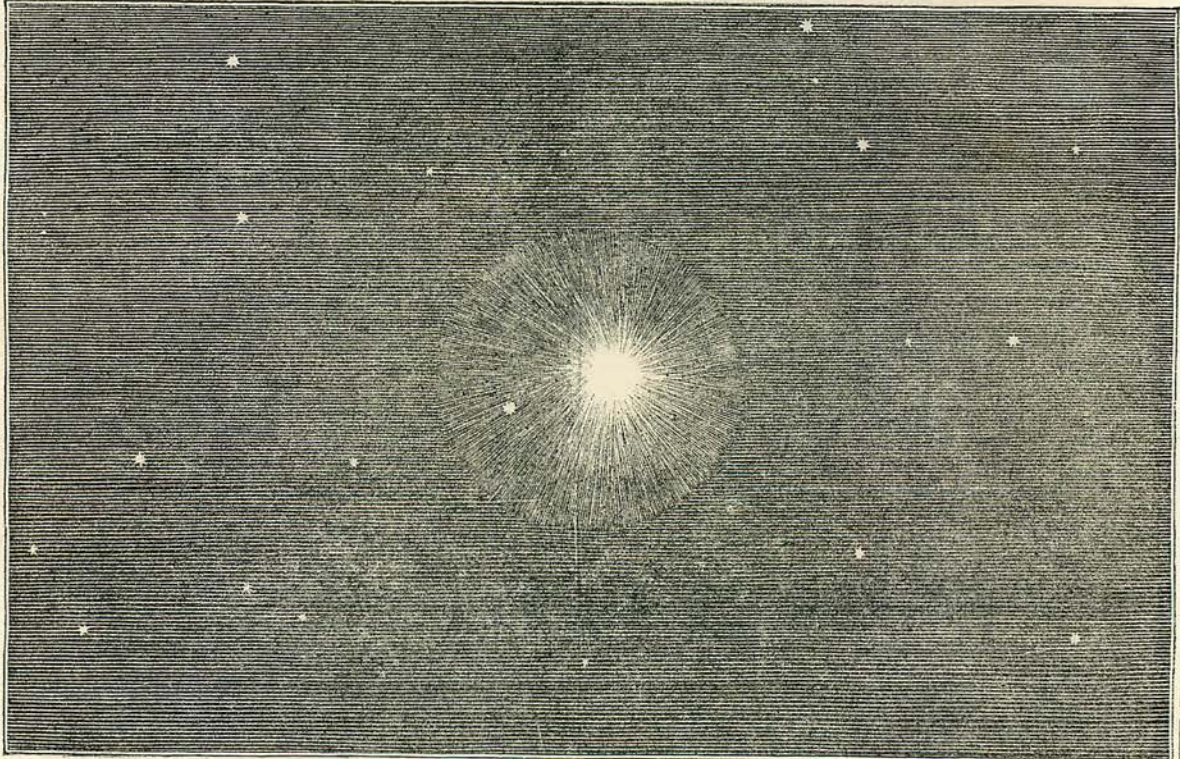
A beautiful comet has recently appeared in our northern heavens, but whether it be a new one—that is, one that has previously escaped the observation of astronomers—can only be determined by further observations on its orbit. It has passed ϕ Bootis, μ Corona Borealis, and on the night of July 23, when our drawing was made, it was not far from μ Bootis. Its daily change in R. A. = -4 m. 30 s.; ditto in N. E. D. = -4 44 m. In its course towards the sun, it rapidly approached the earth, a circumstance which caused timid and visionary people some alarm. The fever of apprehension was not, however, so great as that which disturbed the Parisian population in 1773, when a similar phenomenon occurred. On that occasion, many persons are said to have died of fright; while numbers prepared for the worst by purchasing—what were offered at high premiums—places in paradise. To relieve the fear of such a catastrophe, we may inform the public of the result of some very curious and elaborate calculations made by Arago to show the extremely small probability of a contact between ourselves and any comet whatever. "Let us suppose," says that great man, "a comet, of which we only know that at its perihelion it is nearer the sun than we are, and that its diameter is one-fourth of that of the earth, the calculation of probabilities shows that of 281,000,000 of chances, there is only one unfavourable, there exists but one which can produce a collision between the two

bodies. As for the *nebulosity*, in its most general dimensions, the unfavourable chances will be from ten to twenty in the same number of two hundred and eighty one millions. Admitting then, for a moment, that the comets which may strike the earth with their *nuclei*, would annihilate the whole human race, then the danger of death to each individual, resulting from the appearance of an *unknown* comet, would be exactly equal to the risk he would run if in an urn there was only one single white ball, of a total number of 281,000,000 balls, and that his condemnation to death would be the inevitable consequence of the white ball being produced at the first drawing."

The comet is of a bright white colour, with its tail turned from the earth. Stars of small magnitude are seen through its body. Its luminosity was so intense that it was easily detected during the bright sunsets of July.

We are indebted to the Astronomer Royal, for permitting our artist to make the drawing from which our cut is engraved.

The second "mysterious stranger" was introduced to the English public by Sir James South, who, in a letter which he received from his friend, Professor Schumacher, was informed that a comet had been discovered on the 6th of September, by Mr. Melhop, of Hamburg. Owing to unfavourable weather, Sir James South (at the Observatory, Kensington,) was not able to see this comet till the evening of Sept. 15, when the clouds having cleared off for a few minutes, Sir James found it with an ordinary night-glass, without difficulty, and got an observation of it with his five-feet equatorial, by which its approximate place was, at 52 minutes past 10 o'clock, on the night of the 15th



THE NEW COMET, DISCOVERED IN JULY, 1844. DRAWN AT THE ROYAL OBSERVATORY, GREENWICH.

—right ascension, about 0 hours, 44 minutes, and 9 seconds; and its southern declination about 12 degrees and 56 minutes.

By the following positions of it, there was no difficulty in finding it on any clear night during the ensuing week:—

Comet's altitude.			Comet's Altitude.		
Hour.	Deg.	Bearing.	Hour.	Deg.	Bearing.
Monday 9	7	S.E. δ E.	Thursday 9	8	S.E. δ E.
10	14	S.E.	10	16	S.E.
11	20	S.E. δ S.	11	21	S.E. δ S.
12	24	S. δ E.	12	25	S.S.E.
1	25	S.	1	27	S.
2	24	S.S.W.	2	25	S. δ W.
3	21	S.W. δ S.	3	22	S.W. δ S.
4	15	S.W.	4	16	S.W.

We lost no time in endeavouring to procure a correct drawing of the comet's appearance, but owing to the continuance of cloudy and hazy weather, we were not able till late on Thursday night to get a view of sufficient clearness for the purpose. At that time, favoured by the assistance of Sir James South, and the use of his powerful instruments, we succeeded in getting the sight from which the accompanying cut has been engraved. The comet appeared to be composed of a brilliant, well-defined nucleus, four or five seconds diameter, and a broad luminous tail of about two degrees in length.

Upon the extraordinary Cometary appearance in the spring of 1843, we find the following observations in Professor Nichol's *Contemplations on the Solar System*:

"Early in the recent year, 1843, an object appeared in the Heavens that must have astonished many worlds besides ours. Situated in the region below the constellation Orion, it had the appearance of a long auroral streak, visible immediately after sunset, and evidently pursuing a course through our system. Unfavourable weather concealed it from me until the 25th of March, when it presented the dim and strange appearance I have shown in the frontispiece. The beginning or head of this streak, although never observed here, was often seen in southerly latitudes, where it appeared like a very small star with an enormous misty envelope; behind

which that immense tail streamed through the sky. There is no reason to believe that this nucleus was in reality a star, but only a denser portion of the nebulous substance of which the whole object was composed; for with other apparitions of the same kind, whose brighter parts looked like a star, the application of a very small telescopic power has always been enough to dissipate the illusion, and to resolve what seemed their solid region into a thin vapour.

This extraordinary visiter was measured, and the nature of its path detected; and certainly the results of these inquiries caused us to look on it with still greater wonder. The diameter or breadth of its nucleus was rather more than a hundred thousand miles; and the tail streaming from it, which in some parts was thirty times as broad, stretched through the celestial spaces to the enormous distance of one hundred and seventy millions of miles, or about the whole size of the orbit of the Earth. Nor were its motions less singular. Unlike any globe connected with the Sun, it did not move in a continuous curve, which, like the circle or ellipse, re-enters into itself, and thus constitutes, to the body that has adopted it, a fixed, however eccentric home; but spying our luminary afar off, as it lay amid those outer abysses, it approached along the arm of a hyperbola; rushed across the orderly orbits of our system into closest neighbourhood with the Sun, being at that time apart from him only by a seventh part of our distance from the Moon; and, defying his attraction, by force of its own enormous velocity, which then was nothing less, in one part of its mass, than one-third of the velocity of light, it entered on the other divergent arm of its course, and sped towards new immensities.

"It was when retiring that this unexpected visitant was seen for a brief period in Europe. In the course of its approach, it must have passed between us and the Sun, causing a Cometic eclipse, and, in so far, an interception of his heating rays; but that occurred during our night.

"And now, what is to be made of this extraordinary apparition? what is its nature? what its relations to our system? and what new revelation does it bring concerning the structure of the Universe? Its relations with our system appear to have been few and transitory; and in this it resembles the probable millions of such masses, that have, since observation began, crossed the

planetary orbits towards the Sun, and after bending round him, gone in pursuit of some other fixed star. No more than three are known to belong, properly speaking, to the scheme dependent on our luminary—Encke's, Biela's, and Halley's; but though these do revolve around him in fixed periods, the circumstance must be regarded in the light of an accident, their orbits being wholly unlike any other, and having little assurance of stability; for as they cross the planetary paths, every one of them may yet undergo the fate of Lexell's, which, by the action of Jupiter, was first twisted from its diverging orbit into a comparatively short ellipse; and then, after making two consecutive revolutions around the Sun, so that it might have begun to deem itself a denizen, was, by the same planet, twisted back again, and sent off, never to revisit us, away to the chill abysses! Strange objects, with

homes so undefined—flying from star to star—twisting and winding through tortuous courses, until, perhaps, no depth of that Infinite has been untraversed! What, then, is it your destiny to tell us? To what new page of that infinite book are you an index? We missed, indeed, only very narrowly, an opportunity of information, which might have been not the most convenient; for the Earth, escaped being involved in the huge tail of our recent visiter, merely by being fourteen days behind it. For one, I should have had no apprehension, even in that case, of the realisation of geological romances, viz., of our Equator being turned to the Pole, and the Pole to the Equator—the Ocean, meanwhile, leaping from its ancient bed. But if that mist, thin though it was, had, with its next to inconceivable swiftness, brushed across our globe, certainly strange tumults must have occurred in the atmosphere; and pro-



THE NEW COMET DISCOVERED IN SEPTEMBER, 1844.

bably no agreeable modification of the breathing medium of organic beings. Right, certainly, to be most curious about comets; but prudent, withal, to inquire concerning them, from a greater distance than that: although one night in November, 1837, I cannot be persuaded that the Earth did not venture on a similar, but comparatively small experiment. It was when our globe passed from the peaceful vacant spaces into that mysterious meteor region. The sky became inflamed and red as blood; conruseations, like Auroras, darted across it; not as usual, streaming from one district, but shifting constantly, and sweeping the whole Heavens."

Nichol observes that "these hazy bodies, now and then reaching our system, and leaving it without ever operating an appreciable effect, are not spectral and isolated monstra! As all things have a home in nature, they too doubtless hold relations with some grand external scheme of matter in a state of similar modification: and since, when influenced by the sun's attraction, they approach us from all quarters of the heavens, the nebulosities in which they have their root, must lie around us on every side, and be profusely scattered among the intervals of the stars. What an error to fancy these comets anomalies! They demonstrate that, which, as we have seen, is required to make a large and varied series of phenomena explicable. They are, in fact, absolutely indispensable; for without them the conjectural disclosures of the telescope would scarcely be established. And in accomplishing this service, they have also vindicated their own position; so that we have at once two of our best imitations that knowledge is advancing,—remote phenomena appear in closest relationship, and objects and occurrences formerly deemed insignificant, assume a place as constituents of the compact fabric of the Universe."

An eminent lyric poet has penned the following

HYMN

ON THE OCCASION OF THE ABOVE ASTRONOMICAL VISITATION.

How beautiful is all this visible world!
How glorious in its actions and itself!—BYRON'S *Manfred*.

If there be aught throughout the pearly deep
Of Heaven's unfathomable ocean wide,
That doth affect man's soul
With wonder and delight
Beyond the rest of vast creation's wealth
'Tis THOU, mysterious star!

Thou comest whence no mortal seer can know—
Thou goest whither nothing human dreams—

Thy mission, tho' so bright
Is Speculation's gloom!
We can but gaze upon the starry dust*
Thy lightning wheels up turn.

Along Heaven's road, and call thee charioteer,
Or names which prove that man cannot baptize
Such giant births as thou
With aught descriptive term!
Comet, or fiery star, or feeding light
To myriad viewless suns,

Which trim their lamps at the renewing fount!
Or art thou some watch-angel on his rounds,
To see if drowsy guards
Neglect the camp of Heaven,
And leave an outpost for the Fiend to pass
As once of old he did?

Thou mayst be, Light incomprehensible!
A moral messenger enjoin'd to check
Our mind's poor vanity,
That doth imagine all
The secrets of the Omnipotent are found!—
We can't unravel THEE!

Roll on, thou child of wedded time and space,
Eccentric offspring of eternal power,—
Be thy portent to us
Or good or ill, the same—
We'll pay thee symbol worship for thy cause,
And in submission bow.

Com'st thou in anger, we will not repine—
Com'st thou in harmless beauty, we'll adore,
And through thee bless the ONE
Who by his simple word
Can call creations like to thine from nought,
And end them all again!—

Beautiful—lustrous as the heavens can be
On vernal nights with their commission'd stars,
How much more do they seem,
When unaccustom'd lights,
Like thine shoot forth from out the sapphire throne
Whereon the GREAT ONE sits!—W.

* An epithet of Plato's bestowed upon the *Via Lactea*.