

THE HEAVENS IN OCTOBER.

BY HENRY NORRIS RUSSELL, PH.D.

A bright telescopic comet, with a long tail, was discovered photographically by Prof. Morehouse on the evening of September 1. Its orbit has now been approximately calculated, and it appears that at the time of discovery it was rapidly approaching both the earth and the sun, and consequently increasing in brightness. On September 15 it was about half way between δ Cassiopeia and the Pole Star, and was distinctly visible with a field glass. It is moving westward, almost parallel to the Milky Way, and on October 1 will be a little north of the star β Cephei, after which it will continue to move in the same direction, nearly toward Vega.

Its orbit is such that it will not come within 100 million miles of the sun, or much nearer to us, but it will doubtless be visible with a field glass, and perhaps to the naked eye throughout October, though it cannot be called conspicuous, as was Daniel's comet of last year.

It is unusual for a comet at such a distance from the sun to have so conspicuous a tail. Perhaps this means that the comet contains more than usual of the very fine particles which are repelled by the presence of the sun's light, and form the tail (as explained here some months ago). But this is rather a matter of speculation. If the comet came near the sun, it would probably be a fine object; but unless the approximate orbit deduced from the first three observations is very far wrong, this will not be the case; and if we wish to see a strikingly conspicuous one, we will probably have to wait till Halley's comet comes round in the spring of 1910.

THE HEAVENS.

We may begin our identification of the constellations this month with the great square of Pegasus, which is high up in the southeast. It is so large, and the four stars at its corners are so bright and so nearly equal (all being of about the second magnitude), that it is one of the easiest figures in the sky to recognize.

Though called the great square of Pegasus, one of its corners is really in Andromeda, as our map shows. The ownership of this star (if we may so speak) was once somewhat in doubt, for some authorities formerly called it Delta Pegasi, thus depriving Andromeda of her brightest jewel. Now the question has been settled in favor of the lady, and all star catalogues refer to Alpherat as Alpha Andromedæ. Evidence of the dispute remains, however, for the next brightest star belonging to Pegasus (which lies half way between the lower edge of the square and Altair) is not lettered Delta, but Epsilon, as if it was the fifth star in order of brightness in the constellation, and the fainter stars follow down the Greek alphabet after this, leaving Delta out altogether.

Before we leave the subject, it may be remarked that α Andromedæ is shown by the spectroscope to have a dark companion, revolving about it in a highly eccentric orbit, in a period of about 100 days.

The eastern edge of the great square, carried far southward, comes upon an isolated bright star. This is Fomalhaut, in the constellation of the Southern Fish—one of the most isolated stars in the heavens. Below this is the southern constellation Grus (the Crane), which though containing some bright stars, never rises high enough above our horizon to be conspicuous.

In the southeast is another lonely star, almost as bright as Fomalhaut. This is Beta Ceti, which although it bears the second letter of the alphabet, is the brightest star of its constellation. Cetus is one of the few cases where the Greek letters seem to have been scattered over a constellation almost regardless of the brightness of the stars.

The other prominent stars of Cetus are shown on

the map. The remarkable variable Mira, which bears the letter ω , is now near its maximum brightness, and visible to the naked eye. Two years ago it was of the second magnitude, and for a few days the brightest star in the constellation. Last year it was hardly more than one-quarter as bright. It will be of interest to see how it behaves this time.

In the intervals between the maximum it sinks below the ninth magnitude, that is, to only 1/1000 of its greatest brightness.

Of the zodiacal constellations which lie above those just described, only Sagittarius, setting in the southwest, and Taurus, just rising, are conspicuous, though Aries contains one star of the second magnitude, and Pisces is now enlivened by the presence of the planet Saturn. Along the Milky Way is the familiar sequence of fine groups: Auriga low in the northeast, then Perseus, Cassiopeia, Cepheus, Cygnus, and Aquila, with Lyra below Cygnus in the northwest. Hercules and Corona, with parts of Ophiuchus and Boötes, fill the western sky. The Great Bear is below the pole, and the Little Bear and the Dragon are above it.

THE PLANETS.

Mercury is evening star until the 28th, when he passes through inferior conjunction, and becomes a

As her closest approach, or perigee, is near the time of full moon, we may expect unusually high spring tides, as was the case last month for the same reason.

The moon is in conjunction with Uranus on the 3d, Saturn on the 8th, Neptune on the 16th, Jupiter on the 20th, Venus on the 21st, Mars on the 23d, Mercury on the 25th, and Uranus again on the 30th.

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THE LINER "CLEVELAND" LAUNCHED.

At the shipyard of Blohm & Voss, Hamburg, Germany, there was launched on September 22 the steamship "Cleveland," the latest ocean leviathan of the Hamburg-American Line.

The "Cleveland" is a sister ship to the "Cincinnati," which was launched in July. These vessels of about 18,000 tons are destined for the service between New York, England, and the Continent, which they will enter in the spring of 1909.

In type they are similar to the well-known "Amerika" and "Kaiserin Auguste Victoria," although not quite as large. In the first cabin, accommodating not over 300 passengers, a notable feature is the large number of staterooms for the sole use of one passenger as well as the splendid suites.

The dining room on the upper deck will be equipped with small tables seating two, four, and six persons, a recent innovation which has become immensely popular.

Other public rooms are the spacious lounge, music room, writing room, smoking room, as well as the gymnasium with electrical apparatus. Sheltered corners, making it agreeable to be out of doors during all weathers, have been provided on both the spacious promenade decks. In addition to the above-named feature there will be an electric elevator, electric-light bath, a dark room for photographers, a bookstall, library, information bureau, etc.

The second cabin accommodates 350 passengers, and will contain the finest accommodations and conveniences ever offered in a transatlantic passenger steamer; the same applies to the third-class and steerage passengers.

The following are the principal dimensions of the vessels: Their length is 600 feet, beam 65 feet, and height from waterline to upper deck 55 feet. They are built of steel, provided with five decks and a double bottom extending the entire length of the ship divided into numerous water-tight compartments. As these ships will also carry large cargoes of freight, they have been provided with facilities which will enable them to load and discharge

the freight very expeditiously. The ships have four masts with twenty-four derrick booms. For the safety of the vessel all the latest appliances have been provided: An automatic hydraulic system for closing the water-tight doors separating the eleven water-tight compartments into which the hull is subdivided, automatic fire extinguishers, intercommunicating telephones, submarine signal system, wireless telegraphy. The speed will be about 16 knots.

A MOTOR-CAR LOCK IS WANTED.

A motor-car lock which will be simple and thief-proof would be an invention which would appeal to motorists just now, and the wonder is that some such device has not already been included in the regular equipment of some make of car. It may be true that in some cities the removal of the starting crank or a spark plug or some other part of the mechanism is a guard against theft, but thieves are too often graduates of factories and carry a few handy tools along with them. Several instances have occurred of late in which the thief has supplied the spark plug himself. In one day the Detroit police received news of six thefts of motor cars. Three of the cars were discovered that evening.—Motor Age.



At 11 o'clock: Sept. 6.
At 10½ o'clock: Sept. 14.
At 10 o'clock: Sept. 21.

At 9 o'clock: Oct. 7.
At 8½ o'clock: Oct. 15.
At 8 o'clock: Oct. 22.

At 9½ o'clock: September 29.

NIGHT SKY: SEPTEMBER AND OCTOBER

morning star. On the 4th he is at his greatest elongation, 25 deg. from the sun, but, being far south, is not well visible in our latitude.

Venus is morning star, rising about 2:30 A. M. on the 1st and 3:10 on the 31st, and is exceedingly conspicuous.

Mars is also morning star, but is still pretty near the sun. Toward the end of the month he rises about 4:30 A. M.

Jupiter is also a morning star. Early on the morning of the 13th he is in conjunction with Venus, the two planets being less than a degree apart. This gives the amateur who is enterprising enough to get up early an opportunity to see the two planets in one telescopic field, and compare their apparent size and brightness.

Saturn has just passed opposition, and is observable all night. Uranus is in quadrature on the 6th, and comes to the meridian at 6 P. M. Neptune is almost exactly opposite him, and when he is in quadrature on the 10th, he is due south at 6 A. M.

THE MOON.

First quarter occurs at 1 A. M. on the 3d, full moon at 4 P. M. on the 9th, last quarter at 10 P. M. on the 16th, and new moon at 2 A. M. on the 25th. The moon is nearest us on the 7th, and farthest off on the 19th.