OUR ASTRONOMICAL COLUMN

CHANGE OF COLOUR IN A STAR.—Dr. Klein of Cologne first directed attention to a periodical change of colour in the star α Ursæ Majoris, from yellow to an intense fiery red, and estimated the duration of the period to be about five weeks. In a communication to the *Astronomische Nachrichten*, he gives observations by Herr Weber from August 22, 1876, to October 24, which support his inference. Thus on September 5 and October 10 the star was considered "stark feuerroth" and "feuerroth, tief," while on August 22 and October 24, it was noted "weissgelb" and "gelb, schwach blaulich" respectively: from September 5 to October 10 is a period of thirty-five days, confirming the earlier estimation by Dr. Klein. Herr Weber observed with a Steinheil achromatic of $2\frac{2}{3}$ inches aperture, and $3\frac{1}{2}$ feet focal length with a power of 90. Probably since the suspicion of a regular change of colour was made known, the star has engaged the attention of other amateurs, who may be able to add something to the evidence pro or con.

NEW DOUBLE STARS.—Mr. Ormond Stone, Director of the Observatory, Cincinnati, has circulated a list of fifty double stars, varying in distance from 0″·8 to 8″·0, which are assumed to be new, and which have been recently found by Mr. Howe with the eleven-inch refractor; the whole are included between 8° and 40° south declination. Positions are given for 1880, with estimated angles and distances, and the magnitudes of the components. Since the number of rapidly-revolving double-stars is probably much greater than at present known, it appears very desirable that micrometrical measures of objects newly discovered should be at once placed upon record, in place of merely estimated angles, which form no satisfactory starting-points for the calculation of orbits.

THE BINARY STAR η CASSIOPEÆ.—Dr. Gruber, of Buda-Pesth, has investigated elements of this binary, from normal position-angles formed with the aid of Duner's orbit. His figures agree as nearly as can be expected in such a case with those obtained by the careful calculation of Doberck. With the value of annual parallax obtained by O. Struve, viz., 0″·154, we find—

	Gruber.	Doberck.
Mass of the system	4·632 ...	5·256
Semi-axis major	56·097 ...	63·831

The sun's mass is taken for unity, and the semi-axis major is expressed in mean distances of the earth from the sun. Dr. Gruber's period is $195\frac{1}{4}$ years.

In the only two cases which we are at present able to compare with that of η Cassiopeæ we have for α Centauri, mass of system = 2·2 sun-masses, while for 70 Ophiuchi the similar value is 3·1.

THE MASS OF NEPTUNE.—It is understood that M. Leverrier, from his final researches on the motion of Uranus, obtains a sensibly larger value for the mass of Neptune than has been assigned by Prof. Newcomb, and one approximating to that which was inferred many years since from Mr. Lassell's direct measures of the distances of the satellite.

THE NAUTICAL ALMANAC FOR 1880 has been published during the last week. The ephemeris of the planet Saturn, which since the appearance of the almanac in its improved form has hitherto been founded upon Bouvard's Tables, is computed from heliocentric plans communicated by M. Leverrier in advance of the publication of his new tables in vol. xii. of the *Annales* of the Observatory of Paris; the number of standard stars has been increased from 149 to 197, and in extending Damoiseau's Tables of Jupiter's satellites, certain corrections supplied by Prof. Adams have been introduced.

The impression of the *Nautical Almanac* now considerably exceeds 20,000 copies.

METEOROLOGICAL NOTES

ACCELERATED TRANSMISSION OF WEATHER MAPS.—The *New York Herald* of November 7 publishes a map of the weather of that morning, exhibiting the lines of atmospheric pressures and of the temperatures over the United States. The meteorological charting which was finished at the Central Office in Washington at 10 A.M. was immediately transmitted from Washington in *fac-simile* by telegraph to Philadelphia, where it was received at 10.30 A.M. It was shortly thereafter published in the supplement of the *New York Herald* of the same day, being the first occasion on which such telegraphic charting had appeared in any newspaper. The fact of telegraphing and printing such charts solves one of the greatest difficulties of exchanges of Weather Reports. It may now be regarded as only a question of time when the more important newspapers of our British large towns will be in a position to present their readers every morning with a chart of the weather as existing only two or three hours before going to press; and indeed it will not be till this result be effected that the practical utility of weather warnings will be properly developed, owing to our close proximity to the Atlantic and the rate at which our weather-changes pass to the eastward.

GREAT STORM OF WIND AT SYDNEY.—Mr. Russell, the Government astronomer at Sydney, reports that during a heavy storm of wind which occurred in that part of Australia on Sunday, September 10, the wind, in a gust lasting one or two minutes, attained the extraordinary rate of velocity of 153 miles per hour, as ascertained by Robinson's cup anemometer; and that during the twelve minutes, from 12.18 to 12.30 A.M. $22\frac{1}{2}$ miles of wind passed the Observatory, being at the rate of 112 miles per hour. This extraordinary recorded velocity may be regarded as a new contribution to meteorological observation, and we look with much interest to the description which will doubtless be given of the method by which it was determined. It scarcely admits of a doubt that the maximum velocity or force of the wind that occurs in great storms is frequently much understated.

THE TEMPERATURE OF THE NORTHERN PART OF THE ATLANTIC.—An important contribution to the physics of the North Atlantic appears in the November number of *Petermann's Geogr. Mittheilungen*, in a paper by Prof. Mohn on the temperature of the sea beween Norway, Scotland, Iceland, and Spitzbergen The material employed in the discussion consists of the observations collected by the Norwegian Meteorological Institute from the lighthouses on the coast of Norway and from Norwegian ships, and the observations published by the Scottish Meteorological Society from their stations in Scotland, Farö, and Iceland—the observing stations, exclusive of the ships, numbering twenty-two. At places where observations only for two or three years are available, they are reduced to the longer period of the nearest station by the process of differentiation, with the result that virtually the averages are all good and fairly comparable with each other. The results are represented on seven charts, well executed in colours, showing by six distinct shades, as well as by isothermal lines, the distribution of temperature over this portion of the Atlantic for each set of two months and for the year, and the changes in the positions of the same temperatures from season to season. The outstanding feature of the charts is a strong-marked warm thermal axis, taking a north-easterly direction about 150 miles to westward of Scotland and Norway, extending even beyond the North Cape. Along this line of warm water temperatures are considerably higher than elsewhere in the same latitude. On the July-August chart, however, the warm axis approaches much nearer to the coast of Norway, and extends only from off the Naze to about lat. 66°. From June to September the North Sea is coldest on the Scottish coast and warmest in the Skagerak, but during the rest of the year this is reversed.