it with the nebula with very great interest at the time, and I cannot agree with Mr. Common in preferring Father Secchi's drawing. It seems to me that the Earl of Rosse's drawing is much the more accurate in respect of details. As regards contour and outline, that depends very much upon the amount of light, which impresses one man's eye rather than another's so that the general outline may be extended much more in one case than in another. Lord Rosse's drawing does not give the whole sweep of the nebula, and does not take in so extensive a field as Father Secchi's drawing. Lord Rosse's drawing is better seen in the black upon white print than in the white upon the black ground.

Mr. Common said that there was a great black channel in the nebula, which is well shown in Father Secchi's drawing, but is lost in the Earl of Rosse's drawing. The latter drawing seemed to him too full of detail.*

Mr. Ranyard said although the actual brightness of various parts of an object like a nebula or corona cannot be judged of from the opacity of corresponding parts of photographs, yet a photograph will enable one to tell with great certainty which is the brightest region of the object photographed, and it affords a very valuable permanent photometric scale, by which various degrees of brightness of one region relatively to another may be judged of. For example, Dr. Draper's photograph shows that a nebulous mass on the preceding side of the trapezium is the brightest region of the nebula. This does not correspond with any of the drawings. It is of course possible that the actinic light of the nebula does not correspond with its luminosity as observed by the eye, but this supposition is not very probable, as the spectroscope does not show any striking differences in the composition of the light of the nebula. The photograph enables us to judge very well of the relative magnitudes of the stars involved in the nebula. I have compared the magnitudes of the images of the stars in the photograph as enlarged by irradiation, with the magnitudes of the same stars as given by Liaponnov, and I find that they correspond very accurately. No doubt it may also be assumed that the brightness of various regions of the nebula may be compared with equal safety by noting the opacity of corresponding parts of the photographic film. With regard to Father Secchi's drawing and the drawing of the Earl of Rosse, I agree with Mr. De La Rue that I rather prefer the Earl of Rosse's. It shows a much smaller region of the nebula, and I must remark that I have not much faith in the existence of these outlying nebulous structures shown in Secchi's and Tempel's drawings. If such structures exist the nebula would occupy an area of more than a degree, and it ought to be seen with the naked eye better than with any telescope. Every one is familiar with the way in which a faint structure like the tail of a comet—which can be easily seen with the naked eye—is lost when viewed with the best of telescopes. A telescope of whatever aperture will not increase the brightness of an object occupying a sensible area.

Mr. De La Rue: Lord Rosse's drawing does not embrace such a large area as Secchi's, and you do not see the contour definitely marked as you do in Secchi's. If you cover those parts of Secchi's drawing down to the extent of Lord Rosse's drawing then the difference of outline that strikes Mr. Common would to a great extent disappear.

Mr. Mitchell: If you get a definite chemical compound with which you make your photographic plate, and can obtain a definite exposure, and know the other conditions of temperature, and so on, I think that it can not be doubted that you would have a more reliable record than if the varying conditions of the brain, at one time and another, have to be taken into account. If the condition of one man's brain has to be compared with the condition of the brain of another man, physiological difficulties come in which may be avoided by means of photography. In comparing photographs you have only mechanical differences and physical conditions to consider, which certainly involve much less complication than physiological differences.

* [Note by Mr. Common.] Reference to the drawings here mentioned was only made incidentally, and with regard to one point. As to which of the two is the better one, I have no doubt in my mind, nor need any one have who looks at them with a recollection of the real object. What I wanted to point out was, that owing to a proper contrast not having been made in Lord Rosse's drawing, the general appearance, or what we would tails the leading features, was lost, and a drawing excellent in all the decall fails in these leading features.

ASTRONOMY.

MAGNITUDE OF JUPITER'S THIRD SATELLITE.

On the evening of February 2, Jupiter was passing near the star B. A. C. 303 (73 Piscium, and the opportunity was taken at the Observatory of Harvard College to compare photometrically the third satellite of the planet, with the star. Three observers took part in the work, and four sets of measurements, each consisting of eight single comparisons, were made. The result obtained was that the star was fainter than the satellite by 0.38 magnitudes of Pogson's logarithmic scale. For the magnitude of the star we have 6.16 by the mean of the available estimates on record, and 6.17 by the observations made at this observatory with the meridian photometer. The resulting magnitude of the satellite is 5.28 or 5.29, in close agreement with the value, 5.24, found by a very different method, in the Annals of the Observatory, Vol. XI., p. 276.

SWIFT'S COMET.—We are indebted to Prof. Pickering for the following list of dates on which observations of Swift's Comet (1880 e), were obtained at Harvard College Observatory, by Mr. Wendell:

1880, Nov. 3,	1880, Nov. 27,	1880, Dec. 28,
" 8,	" 29,	" 30,
" 9,	Dec. 2,	" 31,
" 11,	" 3,	1881, Jan. 1,
" 18,	" 4,	" 3,
" 19,	" 7,	" 7,
" 21,	" 11,	" 8,
" 22,	" 19,	" 18,
" 23,	" 22,	" 20.
" 26.	" 23.	

URANIA.—The first number of the new *International Journal of Astronomy* contains in a very convenient form of 24 demy 4to pages, a number of interesting articles. Among others are the following papers: "Observations of the Spectrum of Comet 1880 d, (Hartwig) at Dunecht," by Copeland and Lohse. "A New Planetary Nebula," by Dr. Copeland. "Observations of Comets 1880 b, c, and d, at Dunecht. "Uber die Auflösung der Lambert'schen Gleichung für Parabolische Bahnen, by Professor Klinkerfues.

PROF. WILLIAM A. ROGERS, of Cambridge, has recently made a visit to Washington to compare the copies of the English and French standards of length, with the standards of our Government deposited at the Coast Survey Office. Prof. Rogers obtained very accurate copies of the yard and metre during January and February, 1880 having made a trip to Paris and London for that purpose.

WE learn of the recent death of Baron Dembowski, the well-known double-star observer, at the age of 69. For upward of twenty-five years he had devoted himself to the re-measurement of the stars of the Dorpat Catalogue, and for this work was awarded in 1878 the gold medal of the Royal Astronomical Society.

W. C. W.