

Slavonic, Italian, Norwegian, and English being spoken, though all orders were given in Italian. It was well selected, and the ships equipped according to the most approved directions, but still scurvy broke out, though apparently not to so serious an extent as in the case of the *Alert* and *Discovery*. Fresh meat was abundant, and everything known to prevent or counteract the disease, but it broke out in both winters, the men improving during spring. Payer is distinctly of opinion that a judicious use of alcohol is a preventive, but evidently the real cause of this scourge of Arctic explorers has yet to be found out. The lowest temperature met with was a little over 40° R., though the general temperature was much milder. No one suffered seriously from frost bites, though they were common. The single death was due to consumption.

The conduct of the expedition by its two leaders, and the behaviour of officers and men, were all that could be wished. Observations in meteorology and magnetism, on the Aurora (of which there were many magnificent displays), geology, biology, and other departments of science were regularly and carefully made, and will no doubt gradually find their way into the general body of scientific knowledge and deductions. Unfortunately, many of the specimens, geological and zoological, had to be left behind with the ship. On the whole, this expedition is one of the most satisfactory in its conduct and results of all that have gone out to gather knowledge in these inhospitable regions, and Lieut. Payer has written its story in a style not surpassed in fascinating interest and scientific value by any of those old narratives that are still the delight of all who love to read of the adventures of daring men. The translator has had a hard task before him in putting the narrative into English dress, but he has succeeded, we think, completely; while retaining an unmistakable German flavour, the English version is thoroughly idiomatic and readable.

OUR ASTRONOMICAL COLUMN

THE NINEVEH SOLAR ECLIPSE OF B.C. 763.—In the Rev. A. M. Sayce's notice of the discoveries of the late Mr. George Smith amongst the Assyrian inscriptions in the British Museum (*NATURE*, vol. xiv. p. 421), reference is made to a solar eclipse in the month Sivan, which has been fixed to the year B.C. 763, June 15 (not in *May*, as printed in the notice quoted). The following are elements of this important eclipse—which has so direct a bearing upon the Assyrian chronology of the period—deduced upon the same system of calculation adopted for other ancient eclipses previously alluded to in this column:—

Greenwich Mean Time of Conjunction in R. A., B.C. 763, June 14, at 19h. 9m. 25s.

R. A.	...	...	...	...	73	9	43
Moon's hourly motion in R. A.	...	...	...	...	39	56	
Sun's " " "	...	...	...	...	2	34	
Moon's declination " " "	...	...	...	...	23	10	10 N.
Sun's " " "	...	...	...	...	22	53	4 N.
Moon's hourly motion in decl.	...	...	...	...	0	54	N.
Sun's " " "	...	...	...	...	0	17	N.
Moon's horizontal parallax	...	...	...	...	60	9	
Sun's " " "	...	...	...	...	0	9	
Moon's true semi-diameter	...	...	...	...	16	24	
Sun's " " "	...	...	...	...	15	25	

The sidereal time at Greenwich noon was 4h. 57m. 47s., and the equation of time 8m. 4s. additive to mean time. Hence the middle of the eclipse fell at 19h. 8m. 52s., and the following would be points in the line of central and total phase:—

Longitude	...	35	14 E.	Latitude	...	30	59 N.
"	...	40	2	"	...	32	58
"	...	43	35 E.	"	...	34	19 N.

Sir George Airy places the Pyramid of Ninrud in long. 43° 20' 8" E., and lat. 36° 6' 1". Calculating directly for this

point from the preceding elements we find a very large partial eclipse—

Beginning June 15 at	h. m.	7	52	A.M., local M.T.
Ending " " "	h. m.	10	23	" " "

Greatest phase at 9h. 8m. A.M., magnitude of eclipse 0.987.

The breadth of the zone of totality in the longitude of Ninrud measured upon the meridian was 2° 5', whence it appears that this point is distant by calculation about 50' outside the northern limit, but at this remote period a very small alteration in the value of the moon's secular acceleration employed would suffice to bring Ninrud within the total eclipse, and it has been inferred that the eclipse was probably total at the station of the Assyrian Court, from the circumstance of the inscription referring to the phenomenon being underlined in the Assyrian Canon or register of annual archons at Nineveh, although there is no interruption in the official order of the Eponymes.

The discovery of the record of this eclipse was first announced by Sir Henry Rawlinson, in *May*, 1867.

THE COMET OF 1652.—This comet, which was observed for about three weeks only, is stated by Hevelius and Comiers to have equalled the moon in apparent magnitude, a fact pointing to a near approach to the earth. At present we have only the elements given by Halley in his "Synopsis Astronomiæ Cometice," which were calculated upon the observations of Hevelius, extending from December 20, 1652, to the 8th of the following month, published in the scarce volume of his "Machina Cœlestis." From this orbit the following positions and distances result:—

12h. G.M.T.	R.A.	Decl.	Distance from the Earth.
1652, Dec. 12	124 43	-59 18	0.2275
16	96 19	43 42	0.1515
18	81 52	27 2	0.1308
20	69 50	-6 2	0.1314
1653, Jan. 8	33 28	+48 50	0.5627

So that the comet's least distance from the earth was about 0.13 of the earth's mean distance from the sun, and the real diameter of the cometic nebulousity rather less than 110,000 miles.

THE BRIGHTNESS OF JUPITER'S SATELLITES.—In connection with a recent reference in this column to M. Prosper Henry's direct comparison of the brightness of Jupiter's satellites with that of Uranus, it may be mentioned that Dr. Engelmann of Leipsic, in his memoir "Über die Helligkeitsverhältnisse der Jupiterstrabanten," taking the star 132 Tauri as 5.3 in magnitude found the respective magnitudes of the satellites

I. ....	5.52	II. ....	5.70	III. ....	5.32	IV. ....	6.28
While a reduction of light-comparisons by Prof. Auwers between November, 1858, and May, 1860, gave							
I. ....	6.43	II. ....	6.59	III. ....	5.87	IV. ....	6.76

BIOLOGICAL NOTES

THE PROGRESS OF EMBRYOLOGY.—The value of Dr. Dohrn's Zoological Station at Naples has never been more conclusively demonstrated than by the publication, in a recent number (July, 1876) of the *Archiv für mikroskopische Anatomie*, of a series of researches by Dr. Bobretzky, of Kiew, on the development of certain forms of Gastropods. The systematic search for embryonic forms which is carried on under Dr. Dohrn's superintendence has enabled Dr. Bobretzky to publish a memoir of great value, illustrated by a hundred figures. His skill and success have been previously attested by his excellent researches on the development of the crustacean genera, *Astacus*, *Palæmon*, and *Oniscus*; and he has now passed with equal good fortune into the Gastropod group, dealing with