

the explosion by percussion were ascertained by performing the reaction in a sealed tube of strong glass, also containing a few glass beads. The rattling of the beads was sufficient to induce explosion, and in one experiment out of a large number the tube remained intact. It was found that the products were all solid substances. The main reaction proceeds in accordance with the equation $4\text{NaCO} = \text{Na}_2\text{CO}_3 + \text{Na}_2\text{O} + 3\text{C}$. A small quantity of sodium cyanide was also produced. When a drop of water is introduced into a similar tube detonation immediately occurs, and the whole tube is filled with a red flame, the colour of which may perhaps be accounted for by the fact that a considerable quantity of hydrogen gas is liberated. The other products of the reaction are sodium carbonate, free carbon, and a small proportion of carbon monoxide. Water vapour, however, reacts in a quiet manner, as in the case of potassium carbonyl, the substance successively changing colour to brick-red, reddish-brown, and dark violet, until at length a viscous liquid of a deep red colour is produced, whose nature, together with that of the liquid derived from the potassium compound, M. Joannis is now investigating.

NOTES from the Marine Biological Station, Plymouth.—Last week's captures include a specimen of the fine Nemertine *Cerebratulus roseus*, now first recorded for the British Isles. There are clearly hosts of interesting forms in the deeper water off the Devon and Cornish coasts, if only we had a stout steamboat from which to dredge this rich locality. The floating fauna has not been rich, owing to the prevalence of northerly and easterly winds. The presence of *Radiolaria*, in spite of this, has been an interesting feature. Terebellid and Polynoid larvae, *Sagitta*, and a few Ophiuroid *Plutei* have also been observed.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus*, ♀) from India, presented by Mr. James Kendal; a Hairy-nosed Wombat (*Phalascornys latifrons*, ♂) from South Australia, two Marabou Storks (*Leptoptilus crumeniferus*), a White-necked Stork (*Dissura episcopus*) from West Africa, a Javan Adjutant (*Leptoptilus javanicus*) from Java, presented by Mr. E. W. Marshall, F.Z.S.; a Macaque Monkey (*Macacus cynomolgus*, ♀) from India, presented by Mrs. B. E. F. Stevens; two and three Hedgehogs (*Eriacus europæus*) British, presented respectively by Mr. W. Chatterton and Mr. A. S. Bird; two Herring Gulls (*Larus argentatus*) British, presented by Mr. B. Tremble; a Blossom-headed Parrakeet (*Palæornis cyanocephalus*, ♂) from India, presented by Mrs. Osmond Barnes; a White-handed Gibbon (*Hyllobates lar*, ♀) from the Malay Peninsula, deposited; a Mona Monkey (*Cercopithecus mona*, ♂) from West Africa, two Lapwings (*Vanellus vulgaris*), a Common Curlew (*Numenius arquata*) British, purchased; three Dingoes (*Canis dingo*) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

BROOKS'S NEW COMET (1893c).—In the *Astronomical Journal* (No. 306), Prof. E. E. Barnard briefly describes a photograph of this new comet, which he was able to obtain with a 6-inch Willard lens. The exposure was made under conditions not very conducive to good results, owing to the low position of the comet and the presence of the zodiacal light. The negative exhibits, however, many points of interest, and its characteristic features are described as similar to those shown in the photographs of Swift's comet 1892 I. Prof. Barnard's description is as follows:—"The plate shows the tail to a distance of $3\frac{1}{2}$. This tail irregularly divides into two slightly divergent branches. There are two narrow straight rays springing out from the head on opposite sides, and nearly symmetrical with the main tail. The north ray, which seems to leave the

region of the nucleus, is inclined to the body of the comet by about 45° ; the southern, which leaves the comet $10'$ or $15'$ back of the head, is inclined about 30° . They are both about $\frac{1}{2}^\circ$ long. There are faint evidences of several other rays from the southern side of the comet."

BIELA METEORS.—The return of the "Andromedes" this year is looked forward to with special interest, owing to their great abundance last year. It will be remembered that in 1892, instead of arriving on November 27 or 28, as was expected, the maxima occurred about the 23rd, or four days in advance of the predicted time, so that observers this year must be on the *qui vive* early. The director of the Pulkova Observatory, M. Bredichin, accounts for this retrograde motion by supposing it to be caused by the perturbations of Jupiter, which during 1890 were very great. Besides a retrogradation of the node amounting to $4'$, the inclination of the orbit has largely diminished.

THE PLANET JUPITER.—Jupiter's red spot, although preserving its oval form, is very dim, and is less sharp than in preceding years. The general aspect of the disc seems to have sensibly undergone changes and shows many more details, as if the cloudy atmosphere of the planet had been more than usual disturbed. Numerous observers are now scanning his disc, and some recent results are contained in the current number of *L'Astronomie* (No. 11). M. Guiot has made a series of drawings which are there produced; they show how the equatorial belt has gradually advanced to the west relatively to a small black spot indicated in the drawing, and has consequently made the latter appear to have a motion in the opposite direction, *i.e.* eastwards. The motion is clearly shown by a change of inclination in a line connecting the same two spots in the series.

A NEW VARIABLE STAR.—The Rev. T. E. Espin announces from the Wolsingham Observatory that a red star (anonymous) at R.A. 19h. 7m. 16s., Decl. $+25^\circ 46'$, is variable. Its magnitude on August 21 was 9.0, but it has diminished to 11.0 mag. Photographs taken with the Compton telescope have confirmed the variability of Es. 329 (R.A. 19h. 59m. 6s., Decl. $+36^\circ 25'$).

THE "OBSERVATORY" FOR NOVEMBER.—In the current number of this monthly, Mr. T. Lewis concludes his interesting survey on the various methods of computing double-star orbits. Mr. H. H. Turner describes briefly a short method of obtaining a star's right ascension and declination from a photograph, the results being correct to less than a second of arc. Mr. Dunkin, in a letter to the editors, gives the text of the "Adams Memorial," lately placed in the north transept of Truro Cathedral, and erected at the expense of a few Cornish friends and admirers, both resident and non-resident, as a mark of their high esteem for him as an astronomer and mathematician, and also for the strong affection he always entertained to the end of his life for the hills and dales of his native county. The translation is as follows:—

In this place, as is his due,
We commemorate our own [West] countryman
John Couch Adams

Tracing his way
By the sure clue of Mathematics
Through the boundless night of space
He found the outermost of the planets.
Faithfully pursuing the paths of the Sciences
With single-hearted modesty and clearness of intellect,
He loved God Whom he saw in the Face of Christ

For him, as well as for Henry Martyn,
Cornwall and Cambridge
Owe each other mutual debts.
He died, dearly loved by all who knew him,
On the 21st of January 1892,
Aged 72 years, 7 months, 16 days.

SOLAR OBSERVATIONS AT CATANIA, ROME, &c.—Prof. Riccò, in the August number of the *Memoire della Societa degli Spettroscopisti Italiani*, gives a detailed account of the observations of solar protuberances observed at the Royal Observatory of Catania during the year 1892. The same number contains two of the large diagrams showing the sun's limb as observed at Catania, Palermo and Rome, one for February–March 1892, and the other for March–April of the same year.