

portion eliminating oxygen and forming ammonia, and another part suffering oxidation to nitrous and hyponitrous acids, which combine or react with the ammonia and a further quantity of hydroxylamine. As hydroxylamine nitrite spontaneously decomposes, as M. de Bruyn has shown by experiment, it is probable that the hyponitrite of the base is incapable of existence; hence the liberation of nitrogen and nitrous oxide is fully accounted for. M. de Bruyn states that in preparing large quantities of the solid base by fractional distillation of the methyl alcohol solution under diminished pressure it is preferable, after distilling off the methyl alcohol, to divide the residue rich in hydroxylamine among several distilling flasks, and to thus complete the fractionation in small portions. For it is a somewhat remarkable fact that the yield is very much larger when the distillation occurs in this manner; it would appear that the amount of decomposition considerably increases with the bulk of liquid distilled. Moreover, the risk of explosion upon temporarily arresting the distillation in order to change the receiver, is greater with larger quantities, but usually an explosion may be prevented by immersing the distilling flask in cold water during the rapid change of receivers. Taking this precaution, M. de Bruyn has safely distilled as much as half a kilogram of the pure base.

ERRATUM.—In NATURE of April 26 (p. 603), and on the tenth line from the bottom of the first column, for "mosses" substitute "mirses."

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus*) from India, presented respectively by Mr. C. Palmer and Miss A. Orvis; two — Jackals (*Canis variegatus*), two Fennec Foxes (*Canis cerdo*), two Pale Fennec Foxes (*Canis pallidus*), a Syrian Fennec Fox (*Canis famelicus*), an Egyptian Cat (*Felis chaus*), a — Genet (*Genetta*, sp. inc.), a — Zorilla (*Ictonyx frenata*), a Crested Porcupine (*Hystrix cristata*), two — Gerbilles (*Gerbillus*, sp. inc.), two Lesser Egyptian Gerbilles (*Gerbillus agyptius*), three Spiny Mice (*Acomys*, sp. inc.), six — Uromastix (*Uromastix ornatus*) from Suakin, a Libyan Zorilla (*Ictonyx lybica*), two Dwarf Jerboas (*Dipodillus*, sp. inc.), four Spiny Mice (*Acomys*, sp. inc.), three — Hedgehogs (*Erinaceus auritus*), two Egyptian Jerboas (*Dipus agyptius*) from Egypt, presented by Dr. John Anderson, F.R.S.; a Wattled Crane (*Grus carunculata*), two Cape Crowned Cranes (*Balearica chrysoptera*) from South Africa, presented by Sir H. B. Loch, G.C.B., G.C.M.G.; a Grey Ichneumon (*Herpestes griseus*) from India, presented by Mr. John Penn, M.P.; two Robben Island Snakes (*Coronella phocarium*) from South Africa, presented by Mr. Barry McMillan; an Indian Civet (*Viverricula malaccensis*) from India, a long-legged Buzzard (*Buteo ferax*) captured in the Red Sea, a Mexican Deer (*Cariacus mexicanus*) from Mexico, deposited; four Red-headed Pochards (*Fuligula ferina*), European, purchased.

OUR ASTRONOMICAL COLUMN.

AN ASTRONOMICAL EXPEDITION FROM HARVARD.—A party, in charge of Prof. W. H. Pickering, will soon set out from Harvard College Observatory (says *Astronomy and Astro-Physics*) to establish an observing station somewhere in the State of Arizona, the principal object of the expedition being to observe Mars during the favourable opposition this year. The chief instrument to be conveyed to the site chosen is an eighteen-inch refractor by Brashear, the objective of which was exhibited at the Chicago Exposition. Mr. Percival Lowell, of Boston, who has generously provided the funds for the expedition, will accompany it as an observer.

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ELEMENTS AND EPHEMERIS OF GALE'S COMET.—*Edinburgh Circular*, No. 42, contains the subjoined ephemeris for Gale's comet, computed by Mr. A. J. Ramsay.

Ephemeris for Greenwich Midnight.

1894.	R.A.			Decl.	Bright- ness.
	h.	m.	s.		
May 3	...	8	17 17	...	7 20.6
4	...	8	28 4	...	S. 3 26.6
5	...	8	38 18	...	N. 0 16.6
6	...	8	48 1	...	3 47.4
7	...	8	57 10	...	7 3.7
8	...	9	5 49	...	10 5.7
9	...	9	13 59	...	12 52.7
10	...	9	21 42	...	15 25.6
11	...	9	28 57	...	17 45.4
12	...	9	35 52	...	19 52.7
13	...	9	42 22	...	21 48.2
14	...	9	48 28	...	23 33.3
15	...	9	54 16	...	N. 25 10.7

The brightness at the time of discovery has been taken as unity.

THE HATCHERY FOR SEA FISHES, OF THE FISHERY BOARD FOR SCOTLAND AT DUNBAR.

IN recent years, owing to over-fishing, the scarcity of certain important marine food-fishes has become manifest in many countries, and as one way of meeting the constant drain on the fishing grounds, sea-fish hatcheries have been established in the United States, Newfoundland, Canada, and Norway. A year or two ago the Fishery Board for Scotland began the erection of a similar establishment at Dunbar, which has lately been completed; and for the last five or six weeks active operations have been going on in hatching plaice, with complete success, under the charge of Mr. Harald Dannevig, a Norwegian expert, whose services have been obtained by the Fishery Board. The hatchery consists of (1) a tidal pond; (2) a large "spawning" tank; (3) a chamber for the collection of the eggs and for filtering the water; and (4) the house in which the hatching apparatus is placed. The spawning fishes, male and female, number about 350, and are confined in the large elevated spawning tank (made of concrete) through which a constant current of sea water is maintained. They range from about 14 to 27 inches in length, and are vigorous and feed well. In this tank, which has a capacity of over 60,000 gallons, the fishes spawn naturally, just as they would in the sea; and as the eggs are buoyant they rise to the surface, or near it, and are collected in hundreds of thousands at a time in a specially constructed apparatus placed at the point where the overflow from the tank occurs. The fertilised eggs, which are among the largest of the pelagic forms, are then transferred to the apparatus in the hatching room, through which a continuous circulation of pure sea water is kept up. The hatching takes nearly three weeks to accomplish, and the little fishes are retained for some time after hatching until the yolk is almost absorbed. In smaller vessels with a higher temperature, hatching occurs more rapidly, but the period named (three weeks), probably approaches the normal period in the sea. The number of plaice eggs and larvæ at present in the hatching boxes is 8,500,000, and over 7,700,000 fry have been already put in the Firth of Forth by the s.s. *Garland*. The supply of sea water required is considerable, and is obtained by means of two double-acting steam pumps, capable of throwing over 7000 gallons an hour, and driven by an 8 h.p. locomotive boiler. Before being conducted to the hatching apparatus, the water passes through a series of flannel filters, but from its purity when it comes from the sea the filtration gives little trouble. Strong evidence of the suitability of the water for the purpose, and of the satisfactory working of the arrangements, is afforded by the very low death-rate, that is to say, the proportion of eggs which succumb in the process of hatching. At Dunbar it has not exceeded 4 per cent.—a much lower death-rate, so far as known, than at any other marine hatchery. At the Newfoundland hatchery the death-rate has varied from about 37 per cent. to nearly 50 per cent. in different years;