

alkaline earthy metals are much less soluble, and are generally obtained as crystalline precipitates by decomposition of the potassium salt by the chloride of the metal which it is desired to introduce. It is interesting that these salts are perfectly analogous to the double oxalates of ferric iron and chromium,  $Fe_2(C_2O_4)_3 \cdot 3C_2(NH_4)_2O_4$ , for instance; but the two series are not isomorphous owing to the difference in water of crystallization. Evidence of similarity between iron and rhodium is of course shown by the fact that their most stable chlorides are those derived from the sesquioxides—namely,  $Fe_2Cl_6$  and  $Rh_2Cl_6$ ; but the formation of these double oxalates shows that the connection is perhaps closer than has hitherto been supposed. And the interest in this connection is by no means lessened by the fact that iron and rhodium occupy corresponding positions in the eighth vertical group of Prof. Mendeleeff's periodic classification.

THE additions to the Zoological Society's Gardens during the past week include two Indian Jerboas (*Acactaya indica*) from India, presented by Mr. Cuthbert Johnson; a Bonnet Monkey (*Macacus sinicus* ♀, white variety) from India, presented by the Waterbury Watch (Sales) Company, Limited; a Lesser White-nosed Monkey (*Cercopithecus pelaurista* ♀) from West Africa, presented by Captain Stewart Stephens; a Brown Bear (*Ursus arctos* ♀), European, presented by Mr. John Foster Spence; a Polar Bear (*Ursus maritimus* ♀) from Spitzbergen, presented by Mr. Arnold Pike; a Python (sp. inc.), presented by Mrs. Bertha M. L. Bonser; a Hybrid Wild Swine (between *Sus scrofa* and *Sus domesticus* ♀) from Spain, presented by Mr. Ralph Banks, F.Z.S.; a Brush-tailed Kangaroo (*Petrogale penicillata* ♂) from New South Wales, presented by Sir Edmund A. H. Lechmere; five Violaceous Night Herons (*Nycticorax violaceus*) from St. Kitt's, W.I., presented by Dr. A. P. Boon, C.M.Z.S.; twelve Aldrovandi's Skinks (*Plestiodon auratus*) from North Africa, two Barnard's Parrakeets (*Platyercus barnardi*) from South Australia, purchased; a Laughing Kingfisher (*Dacelo gigantea*) from Australia, deposited; two Wonga Wonga Pigeons (*Leucosarcia picata*) from New South Wales, and a Red-winged Parrakeet (*Aprosmictus erythropterus*) from Australia, received in exchange; an African Wild Ass (*Equus taniopus* ♀), and a Collared Fruit Bat (*Cynonycteris collaris*) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE LATE PROF. CACCIATORE.—Prof. G. Cacciato, whose death we have briefly recorded (p. 208), had been associated with the Royal Observatory of Palermo, during nearly the whole of his life. He was born at Palermo on March 17, 1814, his father being the well-known Prof. Nicolo Cacciato, assistant at one time to Piazzi, and later his successor in the directorship of the Observatory Gaetano Cacciato, on the death of his father in 1841, was appointed Director of the Observatory and Professor of Astronomy in the University of Palermo, and he held these positions until 1849, when, having taken a very prominent part in the revolution of the previous year, he was compelled to leave Palermo by the return to power of the Bourbons. In 1860, however, Garibaldi recalled him to his former position. He spared no pains to increase the power and usefulness of the Observatory, and greatly increased its equipment. It was under his direction that the scope of the institution was enlarged, so that in 1880 it was reorganized in three sections—one of Geometrical Astronomy; one of Physical Astronomy, in the modern sense of the word; and the third of Meteorology.

COMET 1889 d (SWIFT).—A new comet was discovered on July 5'833 G.M.T., by Prof. Lewis Swift, of the Warner Observatory, Rochester, New York. The comet's place was as follows:—

R.A. = 22h. 52m. 30s. Daily Motion, - 2m.  
Decl. = 89° 11'. + 10'.

COMET 1889 b (BARNARD, MARCH 31).—This object may soon again be observed in the early morning. The following elements and ephemeris are by Prof. Millosevich, from observations made at the Lick Observatory on March 31, April 15 and 29 (*Astr. Nach.* No. 2907):—

T = 1889 June 10'63608 Berlin M.T.  
 $\pi = 186 \ 38 \ 20 \cdot 8$   
 $\Omega = 310 \ 40 \ 19 \cdot 3$  } Mean Eq. 1889'0.  
 $i = 163 \ 49 \ 47 \cdot 8$   
log q = 0'353613

Error of middle place O - C).  
 $\Delta\lambda = - 1'' \cdot 3$ .  $\Delta\beta = + 5'' \cdot 4$ .

Ephemeris for Berlin Midnight.

1889.	R.A.	Decl.	Log r.	Log Δ.	Bright-ness.
	h. m. s.	° ' "			
July 19 ...	5 7 52	10 59'0 N.	0'3618	0'4706	0'83
23 ...	5 7 1	10 34'4	0'3635	0'4624	0'85
27 ...	5 5 53	10 7'7	0'3754	0'4534	0'88
31 ...	5 4 26	9 38'7 N.	0'3675	0'4436	0'91

The brightness at discovery is taken as unity.

COMET 1889 c (BARNARD, JUNE 23).—The following elements for this comet are by Dr. H. Kreutz, from observations at Lick on June 23, at Strasburg June 25, and at Munich June 26; the ephemeris is by Prof. A. Krueger:—

T = 1889 July 2'8884 Berlin M.T.  
 $\omega = 75 \ 19 \cdot 5$   
 $\Omega = 278 \ 6 \cdot 7$  } Mean Eq. 1889'0.  
 $i = 32 \ 50 \cdot 2$   
log q = 0'09248

Ephemeris for Berlin Midnight.

1889.	R.A.	Decl.	Log r.	Log Δ.	Bright-ness.
	h. m. s.	° ' "			
July 14 ...	3 1 51	47 38'9 N.	0'0970	0'1432	0'9
18 ...	3 21 50	48 35'5	0'1005	0'1489	0'9
22 ...	3 41 23	49 17'9	0'1051	0'1548	0'8
25 ...	4 0 56	49 47'7 N.	0'1105	0'1603	0'8

The brightness at discovery is taken as unity.

COMET 1888 e (BARNARD, SEPTEMBER 2).—The following ephemeris is in continuation of that given in NATURE for May 30, p. 109:—

1889.	R.A.	Decl.	Log r.	Log Δ.	Bright-ness.
	h. m. s.	° ' "			
July 11 ...	21 7 34	0 1'4 N.	0'4287	0'2491	2'5
15 ...	20 52 59	0 36'3 S.	0'4342	0'2487	2'4
19 ...	20 38 17	1 16'7	0'4396	0'2509	2'4
23 ...	20 23 44	1 58'9	0'4450	0'2559	2'3
27 ...	20 9 33	2 42'0	0'4503	0'2634	2'2
31 ...	19 55 58	3 25'0 S.	0'4556	0'2733	2'0

The brightness at discovery is taken as unity.

Mr. Barnard, observing this comet on June 3, at 3 a.m., noticed that it showed only one tail and that this followed the comet, and therefore pointed almost directly towards the sun. The tail was about a degree in length, and some 2' or 3' in breadth; position-angle, 90°. The head of the comet was roundish, with an almost stellar nucleus in an extended condensation, this latter having a position-angle of about 135°.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1889 JULY 14-20.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on July 14

Planet.	Rises.		Souths.		Sets.		Right asc. and declination on meridian.	
	h. m.	s.	h. m.	s.	h. m.	s.	h. m.	° ' "
Mercury..	2 36	...	10 37	...	18 38	...	6 7'1	21 14' N.
Venus ...	1 10	...	8 51	...	16 32	...	4 25'8	18 8' N.
Mars ...	3 16	...	11 33	...	19 50	...	7 3'6	23 32' N.
Jupiter ...	18 38	...	22 32	...	2 26*	...	18 4'0	23 20' S.
Saturn ...	6 32	...	14 0	...	21 28	...	9 30'0	15 59' N.
Uranus ...	12 6	...	17 36	...	23 6	...	13 7'4	6 31' S.
Neptune..	0 50	...	8 39	...	16 28	...	4 8'4	19 20' N.

\* Indicates that the rising is that of the preceding evening and the setting t' at of the following morning.