C. Martin; two Hybrid Widgeons (between *Mareca penelope* and *Anas boschas*), bred in England, presented by Mr. Wellesley Taylor; a Cape Viper (*Causus rhombeatus*), two Rufescent Snakes (*Leptodira rufescens*) from South Africa, presented by Mr. J. E. Matcham; a Great Kangaroo (*Macropus giganteus*) from Australia, deposited; two Hunter's Spiny Mice (*Acomys hunteri*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

RUTHERFURD'S STELLAR PHOTOGRAPHS. — The pioneer work of the late Dr. Rutherfurd in photographic star charting is gradually assuming a form which gives the results a high scientific value. In 1890, Dr. Rutherfurd presented his original negatives, many of them taken more than twenty years ago, to the Columbia College Observatory, New York, together with some thirty volumes of measures of certain star photographs, and Prof. J. K. Rees was authorised to arrange for the discussion of the photographs. After Dr. Rutherfurd's death in 1892, his son, Rutherfurd Stuyvesant, generously provided funds for continuing the reduction and publication of the measures. The results obtained for the stars of the Pleiades group, and for the stars about β Cygni have already been published, as well as an investigation of the parallaxes of μ and θ Cassiopeiæ. To these are now added two papers giving full details of an investigation of the parallax of η Cassiopeiæ, and of the reduction of positions of sixty-two stars in the neighbourhood (*Ann. New York Acad. Sci.*, vol. viii. 301, 381). Using three pairs of comparison stars, the parallax deduced for η Cassiopeiæ is $0''{\cdot}443 \pm 0''{\cdot}043$; or, taking six pairs, $0''{\cdot}465 \pm 0''{\cdot}044$ (see NATURE, vol. lii. p. 61). In view of the difficulty of getting comparison stars suitably situated either with respect to position angle, or distance, it was considered desirable to take a larger number than usual, and hence six pairs were reduced, being all that were sufficiently impressed on the plates in both seasons of the year. Only the three pairs which lead to the first-named value, however, are so situated with reference to the parallactic ellipse as to give good coefficients for the parallax.

RADIAL VELOCITIES OF SATURN.—The recent spectroscopic investigations of the velocities in the Saturnian system furnish an admirable illustration of the accuracy at present attainable in this department of astronomical research. Prof. Keeler, M. Deslandres, Prof. Campbell, and Dr. Belopolsky have each in turn directed their attention to the planet, and the following table brings together the different results obtained, and compares them with the computed velocities:—

	Equatorial velocity of planet.	Excess of velocity for inner edge of ring.
Keeler	... 10·3 km. per sec.	... 3·6 km. per sec.
Deslandres	... 9·4 ,,	... 4·7 ,,
Campbell	... 9·77 ,,	... 3·13 ,,
Belopolsky	... 9·4 ,,	... 5·5 ,,
Computed	... 10·3 ,,	... 3·9 ,,

It thus appears that in the hands of competent observers, the photographic methods now employed for the determination of velocities along the line of sight may be relied upon to give values which are correct to within one kilometre per second; while for results depending upon the measurement of more than one velocity, a little greater latitude must be allowed.

In reply to the objection of M. Deslandres and Prof. Seeliger, that the spectroscopic results do not strictly prove the meteoritic constitution of the ring, Prof. Keeler has pointed out that any other explanation which is consistent with them can only be regarded as artificial, or inherently improbable (*Ast. Nach.* 3313). If the ring were composed of concentric solid rings, a line in the spectrum would be made up of short straight lines, like an end view of a flight of stairs. Prof. Keeler does not consider his own photographs capable of showing more than ten such subdivisions, for if the number were greater than this, the step-like structure of the lines would be destroyed by unavoidable errors in guiding; but up to a certain point the effect would still be apparent in the widening of the lines. He finds, however, that the definition of the lines in the spectrum of the ring is less affected by guiding errors than that of the lines of the planet, as might be expected if the lines were smooth curves such as would be produced in the case of a meteoritic ring.

THE CAPE OBSERVATORY.—Dr. Gill's report of the work done at the Cape Observatory during 1894 has been distributed. It opens by pointing out that the chief desideratum in astronomy during the past decade has been an adequate provision for the study of astrophysics in the southern hemisphere. As the readers of NATURE are aware, Mr. Frank McClean, F.R.S., has given to the Cape Observatory a splendid equipment for such work, so the need has been met, and a harvest of results may be looked for as soon as the instrument is erected. With reference to this generous gift, the report says that the telescope will have a photographic object-glass of 24 inches aperture and 22½ feet focal length, and be provided with an objective prism of the same aperture having a refracting angle of 7½°. Mounted parallel to this there will be a visual telescope of 18 inches aperture and of the same focal length as the photographic telescope. The equatorial mounting will have complete circumpolar motion for within 30° of the zenith; and will be sufficiently elevated to allow of a slit spectroscope suitable for determining motion in the line of sight. Such a spectroscope will also be provided by Mr. McClean, together with an observatory of light construction. The instrument has been for some time under construction by Sir Howard Grubb, and will probably be completed before the end of 1896.

Among the work done with the astro-photographic telescope, we notice that, after rejecting all plates of insufficient exposure, or which are otherwise faulty, only 70 of the plates for the Catalogue, out of 1632 areas assigned to the Cape, remain to be done. Of the chart plates, 263 have been passed as satisfactory.

Measures of the diameters of the photographic discs of a variable star in Vela, together with those of nine comparison stars, prove the former to be a variable of the Algol type, its period being about 5d. 22h. 24m. 4s. A complete discussion of the light curve and period will shortly be undertaken.

The researches on the solar parallax have been carried forward, three sections of the work, on the observations of the minor planets Victoria and Sappho, having been passed through the press. The manuscript of the definitive discussion of the observations of Victoria has been sent to the printers; while the computations of the solar parallax from the observations of Sappho and Dr. Elkin's reductions of the observations of Iris are completed.

THE INSTITUTION OF MECHANICAL ENGINEERS.

AN ordinary general meeting of the Institution of Mechanical Engineers was held on the evenings of Wednesday and Thursday, October 23 and 24, at the Royal United Service Institution, Whitehall, the Council having lent their new theatre for the purpose. The building of the Institution of Civil Engineers, where the Mechanical Engineers have held their London meetings for years, is now in process of rebuilding. It is to be hoped, however, that the Institution of Mechanical Engineers will, before long, have their own premises.

There were three papers down for reading on the first day of the meeting:—

"The Electric Lighting of Edinburgh," by Henry J. Burstall.

"Report on the Lille Experiments upon the Efficiency of Ropes and Belts for the Transmission of Power," translated by Prof. David S. Capper.

"Observations on the Lille Experiments upon the Efficiency of Ropes and Belts for the Transmission of Power," by Prof. David S. Capper.

The chair was taken on each evening at 7.30, by Prof. Alexander B. W. Kennedy, F.R.S. On the first evening Mr. Burstall's paper was read and discussed.

The electric lighting of Edinburgh is in the hands of the Corporation. It was decided upon in 1893, when the work of designing and superintending the scheme was entrusted to Prof. Kennedy, the President of the Institution. From an electrical point of view the city consists of two districts. In one the houses are close together, and the demand for light may be expected to be fairly concentrated; in the other it will be more scattered. Having regard to the different districts to be served, and taking into account all the local circumstances, it was decided, after comparison of the various systems of supply and distribution which could be used, to adopt a low tension three-wire system