position—suspended as they were with the front edge downward—is the most favourable one possible for the retention of water within the gill-cavity, for in this position the edges of the mantle would closely pack against the inner edges of the shell, effectually closing any small leaks, and the retained water would also be in the most favourable position to moisten the gills, even after part had evaporated. It is also possible that when in this position the oyster instinctively keeps the shell tightly closed, to prevent the loss of water. This incident, says Prof. Verrill, may give hint of the best mode of transporting oysters and clams long distances. Perfect shells should be selected, and they should be packed with the front edge downward, and kept moderately cool, in a crate or some such receptacle which will allow a free circulation of air. Under such favourable conditions selected oysters can doubtless be kept from eight to twelve weeks out of water. Mr. Ryder, of Washington, adds that he has had oysters live in the shell for two weeks, where the temperature ranged from 30° to over 80° F., lying on shelves in the cases in his work-room, exposed the whole time to the air, without showing the slightest tendency to decompose.

THE schooner *Rosario*, at New York, reports than on June 23, in lat. 29° 14′ N. and long. 133° 25′ W., at 11 a.m., two heavy shocks of submarine earthquake were experienced. These were about one minute apart, and the last was much heavier than the first, causing the vessel to tremble violently. The sky was overcast, and the sea remarkably smooth.

THE Russian Geographical Society is said by the St. Petersburgh journals to contemplate sending a scientific expedition to the Amour for the purpose of studying the surrounding region with regard to its geographical, historical, and commercial features, as well as its mineral resources.

IT is announced in Brussels that the German Lieutenant Weissmann, who is in the service of the African Association, has discovered that the River Kassaï, which was always believed to join the Congo above the equator station, forms a curve and falls into Lake Leopold II.

ON the night of August 31 to September 1 temperature fell to a lower point in several districts than is known to have ever before happened so early in the season. Over upper and middle Strathspey in particular the frost was very severe. At Kingussie the protected thermometer fell to 24°·9 and the exposed to 18°·0, while at Grantown the exposed thermometer fell to 15°·0, these being all compared instruments and in good order. At Kingussie ice an inch thick was found on the water supplying the hygrometer. In this large district the potato crop is completely destroyed, not only in low-lying situations but also on the high-lying slopes. On the other hand, on crossing from Inverness-shire into Perthshire, the potato crop is safe, the tops being only slightly blackened. At the Ben Nevis Observatory on the same night, with a sky equally clear and cloudless as was over Strathspey, the protected thermometer fell only to 32°·9 and the exposed thermometer to 24°·6, being respectively 8°·0 and 6°·6 higher than occurred at Kingussie on the same night.

THE additions to the Zoological Society's Gardens during the past week include a Barbary Ape (*Macacus inuus*) from North Africa, presented by Miss Bedford; at Bank Vole (*Arvicola pratensis*) from Essex, presented by Mr. E. Rosling; a Common Hedgehog (*Erinaceus europæus*), British, presented by Master C. Hanrott; a Common Polecat (*Mustela putorius*), British, presented by Mr. W. Buckley; an Undulated Grass Parrakeet (*Melopsittacus undulatus*) from Australia, presented by Mdlle. de Nujac; a Smooth Snake (*Coronella lævis*) from Dorsetshire, presented by the Rev. O. P. Cambridge, C.M.Z.S.; two Douglass's Horned Lizards (*Phrynosoma douglassi*) from New Mexico, presented by Dr. R. W. Shufeldt; two Common Chameleons (*Chamæleon vulgaris*) from North Africa, presented by Mr. F. Bland.

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, *SEPTEMBER* 20–26

(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 September 20

Sun rises, 5h. 44m.; souths, 11h. 53m. 16·2s.; sets, 18h. 2m.; decl. on meridian, 0° 56′ N.: Sidereal Time at Sunset, 18h. 1m.

Moon (Full on Sept. 24) rises, 16h. 21m.; souths, 21h. 21m.; sets, 2h. 27m.*; decl. on meridian, 12° 12′ S.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian ° ′
Mercury ...	4 1	10 50	17 39	8 51 N.
Venus ...	9 12	14 7	19 2	13 11 S.
Mars ...	0 23	8 21	16 19	20 42 N.
Jupiter ...	4 52	11 23	17 54	5 21 N.
Saturn ...	22 27*	6 35	14 44	22 20 N.

* Indicates that the rising is that of the preceding and the setting that of the following day.

Occultations of Stars by the Moon

Sept.	Star	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image ° °
20 ...	18 Aquarii	... 6	18 47	19 55	49 305
21 ...	B.A.C. 7774	... 6	22 8	23 22	136 283
24 ...	B.A.C. 8365	... 6½	5 12	6 5	124 350
25 ...	μ Piscium...	... 5	20 12	21 9	94 233
26 ...	B.A.C. 741	... 6½	21 19	22 3	26 299

The Occultations of Stars are such as are visible at Greenwich.

Sept.	h.	
20 ...	8 ...	Mercury at least distance from the Sun.
22 ...	– ...	Sun in equator.
24 ..	– ...	Partial eclipse of the Moon, but the Moon will set at Greenwich at about sunrise whilst partly obscured by the penumbra and before entering the shadow.

SCIENTIFIC SERIALS

The Proceedings of the Royal Society of Queensland, 1884, vol. i. parts 2, 3, 4.—We are glad to see that this new Society in one of our leading colonies is advancing rapidly. In the parts before us Mr. Tryon describes certain rock-drawings of the aborigines of Queensland, of a class hitherto undescribed (with plates). Mr. C. W. de Vis, who is one of the most indefatigable contributors, writes on new Australian lizards; on a new form of the genus Therapon; on new Queensland lizards; on a new species of Hoplocephalus; on an apparently new species of Halmaturus; on a new species of Hyla; a description of new snakes with a synopsis of the genus Hoplocephalus; on the fauna of the Gulf of Carpentaria, and a conspect of the genus Heteropus. Mr. Bailey gives instalments of his contributions to Queensland Flora. Mr. Broadbent writes on the migrations of birds at the Cape York peninsula, which is a peculiarly favourite spot for observing the migrations of birds from and to New Guinea, for the passage is shortest here. Ethnology is well represented in the numbers before us, for, besides the paper by Mr. Tryon mentioned above, we have one by Dr. Bancroft on the food of the aborigines of Central Australia, and one by Mr. Duffield on the inhabitants of New Ireland and its archipelago, their fine and industrial arts, customs, and language, especially their tattooing. Mr. Knight describes a new species of Parmelia, and Baron von Müller, the *Dendrobium cincinnatum*, sp. nov. Mr. Bernays describes exotic fruits new to Queensland. Mr. Pink pleads for the practice of hybridisation of plants; and Dr. Bancroft describes experiments with Indian wheats in Queensland. There are numerous other minor contributions.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, August 31.—M. Bouley, President, in the chair.—On the cyclonic character of the solar spots, in reply to M. Tacchini's objection, by M. Faye. In their normal state the spots, like terrestrial cyclones, are described as of circular form, with funnel-shaped penumbra, concentric circumferences,

and vertical axis, varying in size from almost imperceptible pores to abysses large enough to engulph the earth. The mechanical identity of the two phenomena is thus established, while the absence of this special disposition in the penumbra of certain spots proves nothing against the author's theory, which accounts both for the development and occasional disappearance of the cyclonic form.—Note respecting M. Bochefontaine's experiment on the origin of cholera, by M. Trécul. A pill containing the comma bacillus having been swallowed by M. Bochefontaine with impunity, the author infers that Koch's germ may not after all be the active principle of cholera. In any case he protests against the ridicule cast upon the experimenter, whose courageous act is worthy rather of admiration and reward.—On the part played by the bacilli in the ravages of the vine attributed to *Phylloxera vastatrix*, by M. Luiz de Andrade Corvo. From his experiments the author concludes that the disease, to which he gives the name of "tuberculosis," is quite distinct from, and independent of, Phylloxera, that it is constitutional and hereditary, and may also be transmitted by contagion, the insect merely playing a secondary part in its propagation.—Octahedrons of sulphur with square base, which is physically a rhombus, by M. Ch. Brame.—On certain points in the physiological action of tanguin, the poison used at ordeals in Madagascar, by M. Ch. E. Quinquand.—Influence of the sun on the vegetation, the vegetable functions and virulence of the cultivated virus of *Bacillus anthracis*, by M. S. Arloing.—A letter was read by the Perpetual Secretary from King Oscar of Sweden, to the effect that on attaining his sixtieth year, in 1889, he proposes offering a prize of 2500 francs, with a gold medal valued at 1000 francs, to the author of the most important contribution to mathematical science. The already nominated judges are a German, a Swiss, and M. Hermite of the Academy.—Experiments with various kinds of wheat, with a view to ascertain the most productive variety under normal conditions, by M. P. P. Dehérain. Five varieties yielded the following returns per hectare (2½ acres):—

	Corn		Straw
	Quintals	Hectolitres	(Tons)
Scholey	40·7	49·8	7·323
Scotch red ...	40·2	48·7	7·687
Berwick ...	37·7	44·8	6·281
Bordeaux ...	32·3	39·8	5·630
Noé Blue ...	29·6	35·6	5·491

—Account of a meteor observed at Fontainebleau, by M. E. P. Mounier. This meteor was noticed at 7.20 a.m. in a clear sky, describing a parabolic curve from north to south at a velocity much inferior to that of a shooting star. It emitted an intensely white light like that produced by a magnesium wire in combustion. Before disappearing it broke into three fragments, which for an instant flared with a still more vivid light, and then suddenly became extinguished.

BERLIN

Physiological Society, July 3.—Prof. Waldeyer reported on an investigation carried out in his institute by Herr Pischelis into the development of the thyroid gland. The oldest observers, Remak, Kölliker, and, quite recently, His, had found that the thyroid gland was developed medianly from the stomodærum, a thickening of the wall and then a buttonlike eminence arising thereon, which afterwards became hollow and got transformed into the gland. Seeing the gland was composed of two lateral lobes united by an intermediate piece, Herr His assumed that two protrusions arose from the anterior wall of the stomodærum, coalescing towards the middle. Herren Stieda and Wölfler had afterwards given an entirely different description of the development of this organ. According to them the thyroid gland was developed from two lateral buds emanating from the branchial cleft, probably from the fourth fissure. In view of this contradiction of authors Herr Born had quite recently resumed this investigation, and had come to the highly surprising conclusion that the thyroid gland originated both medianly and laterally, the middle part of the gland originating from the uppermost part of the stomodærum, the lateral portions from the branchial clefts. This fact having no analogy in embryology, Herr Pischelis had scrutinisingly traced the development of the thyroid gland, not only in swine, which had been examined by Herr Born, but also in rabbits and birds. The result was the complete confirmation of Herr Born's conclusions. Thus was all the ground taken from under the feet of phylogenetic speculators regarding the derivation of the thyroid gland. This organ, which was a complete riddle both physiologically and histiologically, remained inexplicable phylogenetically as well. In the discussion which followed, the effects of the excision of the thyroid gland in men and animals were copiously enlarged on.—Prof. Eulenburg spoke on a communication concerning the influence of the cortex of the cerebrum on the temperature of the body, which had been lately laid before the Society by Dr. Raudnitz, and sought to refute the arguments which had been brought forward by the latter in opposition to the conclusions at which, in conjunction with Herr Landois, he (Prof. Eulenburg) had arrived. The speaker maintained both the exactness of his thermo-electric measurements and the accuracy of his statements in reference to phenomena he had observed regarding the influence of certain parts of the cortex cerebri on the temperature of the part of the body lying opposite. His statements were supported not only by experiments on animals by means of stimulation and cutting, but likewise by a large number of clinical experiences.—Dr. Müllenhoff spoke of the different methods of investigating the locomotion of animals, and discussed the advantages afforded in this study by the photographic representation of a large number of individual moments on the part of animals in the act of movement. A rather large series of photographs prepared by Herr Anschütz in Lissa were shown. They reproduced the movements of men and horses, of storks dropping into their nests, lying there, and issuing from them, and of pigeons.—Dr. Salomon next exhibited some beautiful preparations of paraxanthine crystals which he had obtained from urine, and set forth some further qualities and reactions of this xanthine body discovered by him a year ago in the urine. Paraxanthine occurred very sparely; one thousand litres of urine contained but one grain of paraxanthine. In just as small quantity was another xanthine body present in urine, a body which he had now discovered and had called provisionally "heteroxanthine." This body was precipitated amorphously in the form of powder or in the shape of poppy-seeds, and with soda formed beautiful crystals. Certain reactions served to discriminate it from paraxanthine and to range it under the head of xanthine bodies. Of quite peculiar interest was its chemical composition. So far as the elementary analysis had yet gone, heteroxanthine was a methylxanthine, while paraxanthine was a dimethylxanthine, isomeric with theobromine. Seeing, as was known, that coffeine was a trimethylxanthine, by the discovery of the simply methylated xanthine the gap in the series of methylxanthines was filled up. We had now xanthine, methylxanthine = heteroxanthine, dimethylxanthine = paraxanthine and theobromine, trimethylxanthine = coffeine.

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