

## SOCIETIES AND ACADEMIES.

## PARIS.

**Academy of Sciences, August 17.**—M. Bouquet de la Grye in the chair.—A problem relating to the theory of orthogonal systems and the method of the mobile trihedron: Gaston **Darboux**.—The detection of a particular class of rays which may be emitted by the sun: H. **Deslandres**. An attempt at an explanation of the phenomenon of the second twilight. M. Durand-Gréville has recently shown that this phenomenon is a general one, and is not confined to mountainous districts. If there are solar radiations of wave-length smaller than  $0.1 \mu$ , possessing an index of refraction greater than the known rays, and for which the ratio  $n-1/d$  ( $n$  being the refractive index and  $d$  the density of the gas) is five or six times greater than with the luminous rays, the sunset for these rays would be about fifteen minutes after the sunset visible to the eye. It is further supposed that these ultra-violet rays excite phosphorescence in the atmospheric particles. These hypotheses would account for the second twilight, but further proof of the existence of such ultra-violet rays is necessary.—A hailstorm which followed the path of a high-tension circuit: J. **Violle**. This destructive hailstorm moved about 14 kilometres, and had a width of about 2 kilometres. It was remarked that its direction coincided very exactly with that of a high-tension line (45,000 volts). Owing to the fact that the permission of the owners had to be obtained in fixing this line, its course was sinuous. The most serious damage was done in the immediate neighbourhood of the wire, decreasing to the right and left, and ceasing altogether at about 800 metres to 1000 metres on each side. One of the owners of the district where the storm commenced was about 400 metres from the line, and observed three large spheres, twice as large as a man's head, which remained for a moment suspended, and the explosion of which was immediately followed by the fall of hail. These observations raise an interesting question as to the relation between these destructive hailstorms and lines transmitting electric energy under high voltage.—Periodic functions: P. **Cousin**.—The formation of fogs in presence of the radium emanation: Mme. **Curie**. The production of a mist in moist gases by the action of the radium emanation has been pointed out in an earlier communication. In the present paper an attempt is made to trace the cause of this phenomenon. It appears to be due to a chemical reaction under the influence of the emanation. In some cases the nature of the products has been determined with certainty; with carbon dioxide a little carbon monoxide is produced; air gives some oxides of nitrogen; sulphur and air produce traces of sulphurous and sulphuric acids. The mists produced are composed of very minute drops, not electrically charged.—Anatomical researches on the vegetative apparatus of the Geraniaceæ: Abel **Legault**.—The origin of the colour of black grapes: Philippe **Malvezin**. An account of the production of the red colour in grapes picked before the colour had developed. The results are in accord with the view of Duclaux, that there is only one chromogenic material in the grape, the transformation of which takes place under the simultaneous influence of air, heat, and possibly light.—The radio-activity of certain springs producing goitre: M. **Répin**. Various theories have been proposed to account for the production of goitre by certain waters. Two of these, the presence of a distinctive micro-organism or the presence of a rare mineral element, are regarded by the author as untenable from his researches. One singular property of such waters has been known for some time—the power of producing goitre disappears spontaneously after a certain lapse of time. This appeared to resemble the disappearance of radio-activity in certain mineral waters, and the author has examined several springs, well known to have the property of causing goitre, from this point of view. Three such springs were examined, and all were found to be radio-active, the one possessing the greatest radio-activity also being the one best known for its goitre-producing properties. There would thus appear to be a distinct parallelism between the two phenomena, and further work is being carried on from this point of view.—The optical properties of some contractile elements: Mlle. Doris L. **Mackinnon** and Fred. **Vies**. The contractile

elements appear to form two groups from the point of view of their reaction between crossed Nicols; in the one the lighting is due to double refraction (muscular elements in general), in the other the lighting is due to depolarisation (cilia).—The changes in the nuclei of the lecithogenic cells of Rhabdocœles: Paul **Hallez**.—The persistence of the pronephros in Teleostea: **Frédéric Guitel**.—The fossil flora of Lugarde, Cantal: P. **Marty**.

## CALCUTTA.

**Asiatic Society of Bengal, August 5.**—Major James Rennell's journals, 1764-7: T. H. D. **La Touche**. These are the original journals written by Major James Rennell, the first Surveyor-General of India, during his surveys of the rivers of Bengal, including an expedition up the Brahmaputra to the frontiers of Assam. They cover the period from 1764 to 1767, when Lord Clive was Governor of Bengal. Daily observations on the weather are given, and determinations of the variation of the magnetic needle at various places.—The Kosi River, and some lessons to be learnt from it: Captain F. C. **Hirst**. This paper gives an account of the past history of the Kosi River, its present condition, and of the considerations which, in the author's opinion, should govern any attempts made to control the river by embankments or otherwise.—A general theory of osculating conics (second paper): Prof. Syamadas **Mukhopadhyaya**.—Memoir on the surgical instruments of the Hindus, with a comparative study of the surgical instruments of the Greek, Roman, Arab, and modern European surgeons, part iii, the sharp instruments: Girindranath **Mukhopadhyaya**.

## CONTENTS.

	PAGE
Fluid Resistance and Ship Propulsion. By Sir W. H. White, K.C.B., F.R.S.	385
Lectures on Evolution. By Prof. W. Bateson, F.R.S.	386
Metallography. By T. K. R.	387
Electro-therapeutics	388
Our Book Shelf:—	
Wickham: "On the Plantation, Cultivation and Curing of Para India-rubber ( <i>Hevea brasiliensis</i> ), with an Account of its Introduction from the West to the Eastern Tropics"	388
"Decoration of Metal, Wood, Glass, &c."—C. S.	389
Jensen: "Cast-Iron House Drainage, with Especial Reference to Town Houses"	389
Dickinson and Andrews: "Macmillan's Orographical Map of Europe"; "Notes on the Orographical Map of Europe"	389
Hulme: "Familiar Swiss Flowers"	389
"Astronomischer Jahresbericht."—W. J. S. L.	390
Letters to the Editor:—	
The Crystallisation of Over-cooled Water.—( <i>Illustrated</i> ).—Prof. Boris Weinberg	390
Bright Meteors on August 19.—W. F. Denning	390
Barisal Guns in Western Australia.—W. E. Cooke	390
Surveying for Archæologists. I. ( <i>Illustrated</i> ). By Sir Norman Lockyer, K.C.B., F.R.S.	391
The Percy Sladen Trust Expedition to Melanesia. By Dr. A. C. Haddon, F.R.S.	393
The Preservation of Well-established Names in Zoological Nomenclature	394
The South African Association for the Advancement of Science. By Prof. J. E. Duerden	395
Notes	397
Our Astronomical Column:—	
The Origin of the Recently Discovered Jovian Satellites	401
Elements of the Orbit of Jupiter's Eighth Satellite	401
Search-ephemerides for Comet Tempel <sub>3</sub> -Swift	402
Definitive Orbit of Comet 1826 V	402
Relative Depths of the Sun-spots of a Group	402
An Alleged Excretion of Toxic Substances by Plant Roots. By E. J. R.	402
Acid-Resisting Alloys	403
Certain Aspects of the Work of Lord Kelvin. By Sir Oliver Lodge, F.R.S.	403
University and Educational Intelligence	407
Societies and Academies	408