the spark passed between the lowest points; but as the ionised air ascended so did the most conducting path, and consequently the spark worked its way to the top of the electrodes. Here the heated air passed away and the spark returned to the lowest point to rise again. The Chairman thought that these effects might be due to the magnetic forces produced by the circuit itself. That similar effects in the arc light were due to this cause had been proved many years ago. Mr. Watson repeated some of the experiments under new conditions, and proved that the explanation of the phenomena was not to be found in the tendency of the circuit to enlarge itself owing to magnetic forces. Mr. Boys pointed out that the relation of the heating effect to the current, which was small in the arc light, was very large in the case of the spark discharges used, and therefore the movement of the spark in the latter case was practically determined by the heating effect in consequence of the relatively small importance of the electromagnetic effect. Prof. S. P. Thompson remarked that similar effects could be produced by an alternating current working an ordinary induction coil. —The Society then adjourned until November 10, when the meeting will be held in the Central Technical Institute.

PARIS.

Academy of Sciences, October 23.—M. van Tieghem in the chair.—On the simultaneous occurrence of phenomena of oxidation and hydration at the expense of organic substances under the influence of free oxygen and light, by M. Berthelot. Experiments were carried out on the slow oxidation of ether in presence of water and air, or of hydrogen peroxide. Practically no oxidation of moist ether takes place in the dark, either with air or hydrogen peroxide. After five months' exposure to light in a sealed tube, the air remaining over the ether contained no trace of free oxygen, but some aldehyde, acetic acid, and alcohol were found in the ether. A little methane is formed at the same time. Two chemical reactions are thus shown to go on together, a hydration and an oxidation. The author considers that similar reactions go on in nature, such substances as the sugars and carbohydrates, glycerides, &c., undergoing simultaneous hydration and oxidation.—Equilibrium of a vessel carrying liquid, by M. Appell. The author has shown in a previous paper on the same subject that the determination of the positions of equilibrium of a vessel with a liquid cargo may be reduced to the determination of the smallest value of the distance between two parallel planes tangential to two given surfaces. The problem is now simplified to finding the shortest distance of a fixed point to a tangent plane to one surface.—Observations on a note by M. Blondel, relating to the reaction of induction in alternators, by M. A. Potier.—On certain remarkable surfaces of the fourth order, by M. G. Humbert.—On the determination of the coefficient of solubility of liquids, by MM. A. Aignan and E. Dugas. In a previous paper by the authors it is shown how to determine the coefficients of reciprocal solubility of two non-miscible liquids when no contraction takes place. In the present paper, expressions are developed in which this restriction is removed, and the results are applied to experiments on mixtures of aniline and water, and amyl alcohol and water.—On merogonic impregnation and its results, by M. Yves Delage. The results published by the author a year ago showing the possibility of producing an embryo from a portion of an egg not containing a nucleus have now been extended. The fertilisation of non-nucleated ovular cytoplasm is not limited to the echinoderms. It is found in some molluscs, and in the annelid *Lanice conchylega*. Since it can no longer be looked upon as a biological curiosity, but is a process which may be generalised, the author proposes to give it the name of merogony.—The affinities and the property of absorption or arrest of vascular endothelium, by M. Henri Stassano. It is shown that it is the affinity of the vascular endothelium for mercury which is the cause of the predominance of this poison in the organs containing the most blood. This endothelium also appears to act in the same way with other poisons, such as strychnine and curare.—Death by the electric discharge, by MM. J. L. Prevost and F. Battelli. From a series of experiments on dogs, rabbits and guinea-pigs, the authors conclude that the fatal effects of the electric shock are proportional to the energy of the discharge, and are not proportional to the quantity of electricity passing.—The grafting of some monocotyledons upon themselves, by M. Lucien Daniel. After many unsuccessful attempts, it has been found possible to graft a part of a monocotyledon (Vanilla and *Philodendron*) upon itself. The success depends largely upon the extent of the surfaces in contact.—*La graisse*, a bacterial disease of the haricot, by M. Delacroix. The disease is probably identical with that recently described by M. E. F. Smith as affecting the haricot in the United States, and the bacillus from which is named *Bacillus phaseoli*. No curative treatment of the living plant would appear to be possible.—Observations relating to the deposit of certain calcareous travertins, by M. Stanislaus Meunier.

DIARY OF SOCIETIES.

THURSDAY, NOVEMBER 2.

LINNEAN SOCIETY, at 8.—On the Proliferous State of the Awn of Nepal Barley: Rev. Prof. Henslow.—On the Hyobranchial Skeleton and Larynx of the New Aglossal Toad, *Hymenochirus Boettgeri*: Dr. W. G. Ridewood.—On the Eye-spot and Cilium in *Euglena viridis*: Harold Wager.

CHEMICAL SOCIETY, at 8.—The Theory of Saponification: J. Lewkowitsch.—The Action of Dilute Nitric Acid on Oleic and Elaidic Acids: F. G. Edmed.—Tetrazoline: Siegfried Ruhemann and H. E. Stapleton.—On Ethylic Dibromobutanetetracarboxylate and the Synthesis of Tetrahydrofurfuran-$\alpha\alpha'$-dicarboxylic Acid: Dr. Bevan Lean.—(1) Camphoroxime. Part III. Behaviour of Camphoroxime towards Potassium Hypobromite; (2) Optical Influence of an Unsaturated Linkage on certain Derivatives of Bornylamine: Dr. M. O. Forster.

CAMERA CLUB, at 8.15.—Scenery in the Canary Islands: T. C. Porter.

TUESDAY, NOVEMBER 7.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Address by the President, Sir Douglas Fox, and presentation of Prizes.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—Notes on the Ethnology of Tribes met with during progress of the Juba Expedition of 1897-99: Lieut.-Colonel J. R. L. Macdonald, R.E.

THURSDAY, NOVEMBER 9.

MATHEMATICAL SOCIETY, at 8.—Certain Correspondences between Spaces of n Dimensions: Dr. E. O. Lovett.—On the Form of Lines of Force near a Point of Equilibrium; The Reduction of Conics and Quadrics to their Principal Axes by the Weierstrassian Method of reducing Quadratic Forms; and on the Reduction of a Linear Substitution to a Canonical Form; with some Applications to Linear Differential Equations and Quadratic Forms: T. J. I. Bromwich.—On Ampère's Equation $Rr+2Ss+Tt+U(rt-S^2)=V$: Prof. A. C. Dixon.—The Abstract Group isomorphic with the Symmetric Group on k Letters: Dr. L. E. Dickson.

FRIDAY, NOVEMBER 10.

ROYAL ASTRONOMICAL SOCIETY, at 8.

CONTENTS.