KINEMATOGRAPHY IN NATURAL COLOURS.

AT the inauguration, on May 1, of Urbanora House, where the Charles Urban Trading Co. make kinematograph films, Mr. G. Albert Smith gave a demonstration of the first examples that he has prepared of his system of animated photography in natural colours. The results were excellent, the colours being bright and clean, and so far as one could judge from the drapery, flowers, and flesh tints, they were very good copies of the originals. The method which Mr. Smith has practically perfected allows of the use of the ordinary bioscope and projection apparatus and the ordinary film. The film itself is not coloured at all, but consists, as in other methods, of colour records, the colour being supplied by stained films behind it.

The three-colour method of projection, of which Mr. Ives was the chief pioneer from a practical point of view, has been described in this Journal, and consists, shortly, in photographing the redness, greenness, and blueness of the subject, and then, by means of colour screens placed behind these photographs and three projection lanterns, combining the coloured images on the screen. Kinematography with three lanterns would offer great, if not insuperable, difficulties, besides requiring new and very complicated apparatus. Mr. Smith therefore makes his colour records alternately on the same strip of film by fixing a disc that carries the necessary colour screens in front of the film and causing it to rotate synchronously with it. As seen on the sheet, the alternating colours combine perfectly. To simplify the matter further, Mr. Smith has done away with the blue screen altogether, and broadened the spectrum bands transmitted by the red and green screens, the latter including some blue. As the blue in three-colour work is always a dark colour, its elimination, together with the readjustment of the other two colours, is justified in the result, whether it is theoretically correct or not. The method thus simplified left the difficulty of the comparative insensitiveness to red of ordinary films. The method of rendering the film so sensitive to red that the red image may be photographed at the necessary speed Mr. Smith does not describe, but apparently he used a bathing process.

Thus it has been demonstrated that it is now possible to represent colour and movement at the same time in a thoroughly practical manner, and with comparatively simple apparatus. G. J.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The date of the installation of the Chancellor in the Senate House is fixed for Wednesday, June 17.

Graces will be offered on Thursday, May 14, recommending the establishment of the proposed new professorship of biology, and gratefully accepting the proposal of a member of the University to contribute the sum of 300*l.* per annum for five years towards the stipend of the professor, this offer to be increased to 400*l.* per annum for any portion of the five years during which the professor may be holding a professorial fellowship.

It is proposed to continue the Caley lectureship now held by Dr. Baker and the Stokes lectureship now held by Dr. Hobson in mathematics; each lecturer is to receive a stipend of 200*l.* a year, payable by the University so far as the benefactions received for these purposes are insufficient. It is also intended to continue the appointment of the lecturers in mechanical engineering and in electrical engineering, which would lapse at Midsummer unless the University otherwise determine, and it is proposed in future to appoint three demonstrators of mechanism and applied mechanics in place of the two who now exist.

The special board of studies recommends the appointment of a university lecturer in agricultural physiology for five years from Midsummer, at an annual stipend of 150*l.*, payable out of the agricultural education fund.

The election to the professorship of political economy will take place on Saturday, May 30. Candidates are requested to communicate with the Vice-Chancellor on or before Monday, May 18.

The professor of botany records the gift of more than 4000 specimens of British plants, in excellent order, and mounted and prepared with unusual care. These have been presented by the Rev. J. D. Gray, Clare College, Vicar of Nayland, Suffolk.

The syndicate appointed to consider the steps to be taken for the erection of a building for the department of agriculture recommends that it be authorised to accept a tender for the building described in a report to the Senate, provided the cost does not exceed the architect's estimate of 13,000*l.* If this proposal should be accepted by the Senate and the building be proceeded with, it will almost exhaust the funds collected by the Cambridge Association for the agricultural school, and leave nothing for furniture and fittings or for maintenance. It is hoped that the funds of the agricultural building, in which the late Duke of Devonshire took so keen an interest, and which he did so much to collect, will be increased materially before the end of the year.

LONDON.—A course of eight lectures on the "Structure and Functions of the Central Nervous System" will be given in the physiological department of University College by Dr. W. Page May on Wednesdays at 5 p.m., beginning on Wednesday, May 13. The lectures are open to all students of the University and to qualified medical men on presentation of their cards.

PROF. H. POINCARÉ, professor of astronomy in the Paris École polytechnique, has resigned his chair, and has been given the title of honorary professor.

THE new Education (Scotland) Bill introduced in the House of Commons on March 26, and read a second time on Tuesday, May 5, is not so comprehensive a measure as the Bill of last session. It is interesting, however, to notice how much larger a part educational matters pure and simple take in the Scottish Bill compared with Education Bills affecting England. The Bill for Scotland now before Parliament proposes to give school boards additional general powers for the supply of meals subject to provisos with regard to defraying expenses, for bringing opportunities for education within easier reach of children in outlying districts, and for collecting and distributing information as to employments open to children on leaving school. It makes it the duty of the parent to provide efficient education for his children from five to fourteen years of age, and gives the school board power to summon to one of its meetings parents neglecting their duty, and if satisfactory reasons are not forthcoming to issue an attendance order, which, however, may be made the subject of appeal to the Sheriff. The school board is given power also, in issuing exemption certificates, to impose as a condition of exemption such attendance as it shall prescribe, after the age of fourteen and until such age not exceeding seventeen years as the school board shall think fit, either at a day school or continuation class, or both. The school board must provide continuation classes, and may make, vary, or revoke bye-laws regulating attendance at continuation classes. It is made a punishable offence to employ a boy or girl at any time when his attendance is by any bye-law required at a continuation class, and parents must assist the school board under liability to fine. The Bill is thus a first step to make education in Scotland compulsory up to the age of seventeen, through continuation schools.

A DISCUSSION took place in the House of Commons on April 29 on the subject of education in India, and a motion was brought forward for "an impartial and searching inquiry into the scope, character, and methods of education in India." The grounds on which this proposal was urged were that the Indian Government had pronounced in favour of free elementary education, but no progress had been made towards it. Also that only one-tenth of the boys of school-going age were actually at school, while the proportion of girls at school was very much smaller even than this. It was also pointed out that the "amount of money spent on education was deplorably inadequate,

being only about 1½*d.* per head of the children of school age." It was also urged that the education given had been a "great deal too literary," and that the "whole training had not been sufficiently scientific and practical." The proposal was supported by two or three members and opposed by others who are well acquainted with India and with educational problems, and it was pointed out that "it was a bad thing too frequently to pull up a plant by its roots to see how it was growing." Mr. Hobhouse, who replied on behalf of the Under-Secretary of State for India, had no difficulty in showing that the request for a committee of inquiry was unnecessary. He assured the House that educational questions had within the past few years been thoroughly investigated and discussed in India by various conferences, commissions, and committees, that the educational system had been recently thoroughly overhauled and re-modelled, and that it is now on more practical and thorough lines than formerly, and that special attention had been paid to primary, secondary, and technical education. Also that the expenditure on education had been almost doubled within the last ten years, and that every effort would be made to increase this expenditure, due consideration being given to other pressing wants in the country. He assured the House that the Secretary of State for India was in fullest sympathy with the object which those proposing the motion had in view, but he was unable to accede to the request, "because the work of education in India had progressed and was steadily being pushed forward, and any inquiry of the sort suggested would not really expedite it." The motion was then withdrawn.

WHEN the British Association met in Bristol ten years ago, Sir Norman Lockyer referred at the closing meeting to the fine educational establishments of the city, and expressed the hope that at some future meeting the association would find Bristol at the head of some great south-western university. Since that time the movement for a University of Bristol has made substantial progress, and frequent references have been made to it in these columns. An important meeting was held at Bristol on April 25 under the auspices of the Bristol and District Workers' Educational Association, when an earnest appeal on behalf of the scheme for a university for Bristol was made by the Bishop of Hereford, the president of the University College. Dr. Percival said he was not sure that the people of Bristol at large had really grasped the extent of the advantages which would accrue to the city in connection with the establishment of a university for Bristol and the west of England. Bristol claims to be the "lantern of the west," and if she is to maintain that claim in future and to maintain her position in the forefront with all the other great cities of England, all grades of citizens must unite in the endeavour to crown their system of educational institutions by the establishment of a university. As local patriots he appealed to them to give their sympathy and their efforts in support of the movement. He put this question to himself, "Why should not I, as a citizen of Bristol, be able to claim as much as if I belonged to Liverpool, Manchester, Sheffield, Leeds, or Birmingham?" Every one of those great cities has secured its university. But the question may naturally be asked, "What are we to gain by a university?" He said he could answer that question in almost a single word. We need only look at a country like Scotland to see what is gained by the possession of popular universities. The population of Scotland is only about 4½ millions, and Scotland has its four ancient universities. If any part of the kingdom or the Empire has profited more by education than all the rest it is Scotland, and Scotland owes its preeminence to the fact of its having enjoyed and made use of those four universities. If we turn from Scotland, Wales is close behind, and has profited immensely by her university colleges and national university. Then in Ireland we are beginning to multiply the universities, and should the citizens of Bristol be content to stand aside? He assured them from a long experience that nothing they could do in Bristol would be better for the education and the future well-being of the working classes of the city than that they should use their best efforts to secure a university.

SOCIETIES AND ACADEMIES.

LONDON.

Chemical Society, April 2.—Sir William Ramsay, K.C.B., F.R.S., president, in the chair.—Rate of hydrolysis of chloroacetates, bromoacetates, and α-chlorohydrin by water and by alkali, and the influence of neutral salts on the reaction velocities (preliminary note): G. **Senter.** The results of an investigation of the rate of displacement of halogen by hydroxyl for bromoacetic acid, its sodium salt, and for α-chlorohydrin, and the effect of certain neutral sodium salts on the reaction velocities are given. These confirm the view that the effect of neutral salts is mainly due to their action on the reacting substances, and appear to be incompatible with the hypothesis advocated by Armstrong and his co-workers, that neutral salt action is due to combination between salt and solvent, with consequent concentration of the solution.—The constituents of Cyprus origanum oil. Isolation of a new terpene, "origanum": S. S. **Pickles.** The oil consists mainly of carvacrol. There are also present (1) a hydrocarbon, $C_{10}H_{16}$, apparently a new terpene, for which the name *origanene* is proposed (2·5 per cent.); (2) cymene, which, together with associated terpenes, constitutes 8·5 per cent.; (3) terpene alcohols (3·5 per cent.); and (4) high boiling residue (1·3 per cent.), besides very small quantities of a second phenol, and probably *iso*butyric acid. Origanene is probably $\Delta^{1:3}$-p-*menthadiene*.—The displacement of halogen in *l*-phenylchloroacetic acid by hydroxy- and methoxy-groups. A contribution to the chemistry of the Walden inversion: A. **McKenzie** and G. W. **Clough.**—The condensation of epichlorohydrin with phenols: D. R. **Boyd** and E. R. **Marle.** The condensation product of phenol and epichlorohydrin is glyceryl diphenyl ether, and not phenyl glycide ether, as Cohn and Plohn suggested. Similarly, the crystalline compound obtained from *p*-cresol and epichlorohydrin is glyceryl di-*p*-tolyl ether.—A new general method of preparing diazonium bromides: F. D. **Chattaway.** Primary aromatic hydrazines react quantitatively with the diazonium perbromides, producing diazonium bromides.—The absorption spectrum of triphenylmethane: A. G. G. **Leonard.** The cause of the difference between the absorption curve plotted by Hartley in 1887 and that plotted by Baker in 1907 is shown to be due to the presence of an impurity in the sample originally examined.—The nature of the impurity found in preparations of triphenylmethane: W. N. **Hartley.** The impurity referred to in the preceding paper appears to be triphenylmethyl.—The constitution of coordinated compounds: S. H. C. **Briggs.** The existence of the two compounds $(Pt6NH_3)Cl_4$ and $(PtCl_6)K_2$, in which the platinum atom is the basis of a complex cation and anion respectively, suggests the view that the platinum atom has both positive and negative affinities, and formulæ giving expression to this view are suggested and discussed.—A combined stop-cock and capillary connecting tube for gas burettes: A. E. **Hill.** The apparatus is figured and described in the original.—The hydrolysis of amygdalin by emulsin, part i.: S. J. M. **Auld.** It has been shown that Jorissen and Hairs's "emulsin" is really a mixture of two enzymes, viz. true emulsin and a maltase-like ferment, and the effect of varying the concentration of amygdalin and emulsin has been investigated, as also the action of many inhibitants.—Complex nitrites containing potassium and lead (preliminary note): A. N. **Meldrum.**—The composition and formula of Wells's potassium lead periodide: A. N. **Meldrum.**—The molecular complexity of amides in various solvents: A. N. **Meldrum** and W. E. S. **Turner.** Determinations of the molecular complexity of eleven amides in various solvents confirm the Nernst-Thomson theory that the smaller the dielectric constant of the solvent the greater is the association of the solute.—The optical activity of compounds having simple molecular structure: W. J. **Pope** and J. **Read.** Chlorosulphoacetic acid and chlorobromomethanesulphonic acid each contain an asymmetric carbon atom in the molecule, but, although their strychnine and quinidine salts crystallise well, no evidence was obtained that the acids are resolvable into enantiomorphously related components.—Acetylketen: a polymeride of keten: F. **Chick** and N. T. M. **Wilsmore.**—Saponification of ethyl formate by water in presence of acids as catalytic agents: A. **Lap-**