their attainments in classical fields. It is scarcely too much to say that few of these men have welcomed the introduction of science into the school curriculum. But, for the sake of recognition by county councils, and the consequent grants, science has been given a place in grammar schools as a paying guest. In many cases the headmasters know nothing of science, and care less; and the teachers in charge of the science work receive little encouragement to do anything but push on promising pupils to scholarship examinations. It is, of course, impossible to discover the educational value of scientific studies under these conditions, when no provision has been made for the supply of qualified teachers, and while the idea still prevails among many masters that text-books and lectures are the most important means of imparting scientific knowledge. It would be strange if the results of such teaching were satisfactory. If Mr. Balfour and Sir William Anson will examine the matter a little more closely, they will see that no fair comparison can yet be made between the merits of classical and scientific studies. Everything depends upon the method by which the subject is taught, and the spirit which inspires the teacher.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 14.—"The 'Elasmometer,' a New Form of Interference Apparatus for the Determination of the Elasticity of Solid Substances." By A. E. H. **Tutton**, D.Sc., F.R.S.

The apparatus is designed to measure the amount of bending suffered by a thin plate of the substance investigated, when supported near its ends against a pair of platinum-iridium knife-edges, under a known weight applied at its centre. It consists of an elaborate apparatus for the support and adjustment of the plate and knife-edges; a measuring microscope, reading in two rectangular directions by a new method to the thousandth of a millimetre, for measuring the dimensions of the plate *in situ*; a specially constructed form of balance, one end of the beam of which carries an agate point, through which a pressure is applied under the centre of the plate equal to the weight in a pan suspended from the other end; a delicate control apparatus, which only permits the weight to operate extremely slowly; an interference apparatus, of which the two reflecting surfaces concerned in the interference are (1) the lower surface of a colourless glass disc supported on a tripod in rigid connection with the knife-edges, and (2) the upper surface of a smaller black glass disc forming the top of a counterpoised rocker, arranged to move with the centre of the plate and thus to transmit its motion. The amount of diminution in the thickness of the air film between the two glass surfaces, consequent on the bending of the plate, is given by the number of interference bands which pass the centre of reference, as seen in the micrometer eye-piece of the observing apparatus, multiplied by half the wave-length of the G or F hydrogen light which is employed. The optical apparatus of the dilatometer previously exhibited is utilised for the transmission of the hydrogen light to the interference apparatus, and as observing apparatus.

June 18.—"On the Discharge of Electricity from Hot Platinum." By Harold A. **Wilson**, D.Sc., B.A., Fellow of Trinity College, Cambridge. Communicated by C. T. R. Wilson, F.R.S.

This paper contains an account of a series of experiments on the discharge of electricity from hot platinum wires. The main object of the investigation was to determine the influence exerted by the nature of the gas in which the wire is immersed.

It was found that the presence of traces of hydrogen in the wire enormously increases the leak of negative electricity from it. By taking precautions to remove hydrogen the negative leak was diminished to one part in 250,000 of its usual value. The presence of traces of phosphorus pentoxide was found enormously to increase the negative leak, and it is known that alkali salts have a similar effect. The results obtained lead to the conclusion that the negative leak is due to the presence of traces of hydrogen, or possibly other substances, in the wire.

With a particular wire in air, the small negative leak remaining when impurities have been got rid of, as far as possible, only falls off very slowly with time, and its variation with the pressure of the air, the potential difference, and the temperature can be measured.

It is shown that the variation of the negative leak with the air pressure and potential difference is due to the ionisation of the air by collisions of the negative ions leaving the wire with the air molecules. If the P.D. used is too small to produce ionisation by collisions, the leak is independent of the air pressure.

The variation of the negative leak with the temperature is investigated, and a formula which represents it is deduced from thermodynamical considerations.

The negative leak in hydrogen at various pressures is measured and found to increase proportionally to the pressure at low pressures. It is shown that the negative leak depends on the amount of hydrogen occluded by the wire. The following table gives the negative leaks at 1400° C. at several pressures in hydrogen:—

Pressure.	Current per sq. centim.
133·0 mm.	$1·0 \times 10^{-3}$ ampere.
0·112 ,,	$1·2 \times 10^{-5}$,,
0·0013 ,,	$2·0 \times 10^{-7}$,,
0·0 ,,	$1·2 \times 10^{-10}$,,

The energy required for the production of a gram molecular weight of negative ions is found to have the following values:—

(1) Thoroughly clean wire in air or vacuum	155,000 calories.
(2) Cleaned wire in air or vacuum	131,100 ,,
(3) Wire in H_2 at 0·0013 mm.	120,000 ,,
(4) ,, ,, 0·112 ,,	85,900 ,,
(5) ,, ,, 133·0 ,,	36,000 ,,

The paper also contains measurements of the positive leak. It is shown that there is no positive leak appreciable on a galvanometer from a clean wire in a vacuum. In air or hydrogen there is a positive leak, which increases with the gas pressure, and which is probably due to ionisation of the gas molecules in contact with the hot platinum.

It is probable that a pure platinum wire heated in a perfect vacuum would not discharge any electricity at all, either positive or negative, to an extent appreciable on a galvanometer.

"Upon the Bactericidal Action of some Ultra-violet Radiations as Produced by the Continuous-current Arc." By J. E. **Barnard** and H. de R. **Morgan**. Communicated by Sir Henry Roscoe, F.R.S.

The experiments described were carried out with the object of determining the effect on the vitality of bacteria, as the result of exposure to the arc spectra of carbon and of various metals.

The organisms experimented with have been the *Bacillus coli communis*, *B. prodigiosus*, *B. subtilis*, *Micrococcus tetragenus*, *Staphylococcus aureus* and *Bacillus tuberculosis*.

The conclusion arrived at is that the bactericidal action of light is almost entirely due to the action of those radiations in the ultra-violet region of the spectrum which are included between the wave-lengths 3287 and 2265. It is, therefore, necessary that any source of light used as a bactericidal agent should be rich in these rays.

Royal Meteorological Society, June 17.—Captain D. Wilson-Barker, president, in the chair.—Dr. W. N. **Shaw**, F.R.S., read a paper on the meteorological aspects of the storm of February 26–27. Between sunset of February 26 and noon of February 27, the British Isles were visited by a storm of unusual severity. Its most impressive characteristic was the amount of damage done to trees and buildings by gales from the south or south-west, particularly in the neighbourhood of Dublin, where very large numbers of trees were uprooted, and in Lancashire. Gales or strong winds were also experienced in many parts of the British Isles. Dr. Shaw exhibited lantern slides showing the path of the barometric minimum and the area over which the destruction extended. He also put forward some general considerations about barometric depressions and storms, dealing more especially with the distribution of winds and

the velocity of travel, and concluded by making some remarks on self-recording instruments and their management.—A paper by Mr. J. **Baxendell,** on the Dines-Baxendell anemograph and the dial pattern non-oscillating pressure-plate anemometer, was read by the secretary. The Dines pressure-tube anemometer is now the accepted standard instrument for recording wind movement, but it does not record the direction of the wind. Mr. Baxendell has endeavoured to overcome this drawback, and in this paper he gives a description of the combined velocity and direction anemometer which he has designed for the Fernley Observatory at Southport. In addition, he has designed a non-oscillating pressure-plate for showing on a dial the maximum pressure of the wind. By using a combined "head" or vane for the Dines anemometer, Mr. Baxendell has been able to arrange for the new instrument to record (1) the velocity, (2) the direction, and (3) the maximum pressure of the wind.

Linnean Society, June 18.—Prof. S. H. Vines, F.R.S., president, in the chair.—New Chinese plants, by Mr. S. T. **Dunn.** In this, descriptions of more than seventy new species are given, founded on specimens collected chiefly in Yunnan by Dr. A. Henry and Mr. E. H. Wilson.—The germination of the seeds of *Davidia involucrata*, by Mr. W. Botting **Hemsley,** F.R.S. The fruit has an exceedingly hard, bony endocarp or "stone," enclosing usually a number of seeds, and causing wonder how they can free themselves for germination. Under the influence of moisture, a portion of the back of each cell (carpel) separates and falls away in the form of a valve or shutter, revealing a portion of the seed. The radicle soon begins to grow, and in due time reaches the ground, when the upper part of the plantlet frees itself and commences an independent existence.—Rudimentary horns in horses, by Dr. G. W. **Eustace.** Two thoroughbred horses showed bilateral osseous prominences, casts of which were shown; in both the left or near boss is the larger. The occurrence of these is extremely rare, but the pedigree of all known instances being traced back, it is found that they are all descended from the Darly Arabian, bought at Aleppo, and shipped to England in 1705; further, all are descended from Eclipse. The only reference to this phenomenon is that noted by Darwin, "Variation of Animals and Plants," vol. i. p. 52. The author shows that these bosses are not mere exostoses due to disease, and draws the conclusion that they are instances of the reappearance, in a rudimentary condition, of structures which once existed in a functionally perfect condition.—Scottish fresh-water plankton, part i., by Mr. W. **West** and Prof. G. S. **West.** The paper deals with plankton-material from lochs in different parts of Scotland and the Outer Hebrides. The Scottish plankton is found to differ considerably from that of the western part of continental Europe; it is remarkably rich in Desmids, which are of a distinctly western type, and the most abundant are species of Staurastrum. The scarcity of free-swimming Protococcoideæ is striking, but Diatoms are fairly represented. A noteworthy feature is that both Diatoms and Desmids display long spines or processes; this excessive development is ascribed by the authors to the assumption of a purely free-swimming habit.—On the anatomy of the leaves of British grasses, by Mr. L. **Lewton-Brain.** The paper is the result of testing the classification of leaf-structure devised by Prof. Marshall Ward. Four main types are recognised:—(1) leaves in which the upper surface is flat or nearly so; (2) the upper surface marked by distinct though not very high ribs; (3) the upper surface marked by very distinct and high ribs; and (4) the upper surface reduced to a mere fold in an almost solid leaf.

Geological Society, June 24.—Sir Archibald Geikie, F.R.S., vice-president, in the chair.—On a transported mass of Ampthill Clay in the Boulder-clay at Biggleswade (Bedfordshire), by Mr. Henry **Home.** Under 10½ feet of soil and Boulder-clay, the Ampthill Clay was penetrated for 67 feet, resting on Chalky Boulder-clay, fine silty clay, disturbed Gault, and Lower Greensand. The clay is lithologically identical with the Ampthill Clay with its selenite-crystals, and contains *Ammonites excavatus*, often covered with Serpulæ, but no abundant examples of *Ostrea deltoidea*. The boulder was probably an outlier, situated in Oxford Clay at a level high enough to be ploughed into by the agent which formed the Glacial Drift.—The Rhætic and Lower Lias of Sedbury Cliff, near Chepstow, by Mr. Linsdall **Richardson.** The chief portion of the cliff-section described has a direction north-east and south-west; the dip of the beds does not exceed 3° to the south-south-east.—Notes on the lowest beds of the Lower Lias at Sedbury Cliff, by Mr. Arthur **Vaughan.** The two chief points of interest of this section are, the relation of the basal conglomerate to the Cotham Marble and White Lias of neighbouring districts, and the examination of the faunal sequence, with a view of testing the absolute value of ammonite-zones. A diagram is given showing the times of appearance and disappearance, the abundance or rarity, of several fossils within and below the zone of *Ammonites psilonotus*, and on account of the beginning of five forms at a given horizon and the disappearance of several forms immediately below it, this level is chosen as the base of the zone of *A. psilonotus*, rather than the point of appearance of *A. planorbis*, 4 feet higher up. It is hoped that the construction of similar diagrams will be of use in testing the value of a series of ammonite-ages as divisions of relative time.

DUBLIN.

Royal Dublin Society, June 16.—Prof. J. M. Purser in the chair.—Prof. T. **Johnson** and Miss M. C. **Knowles** gave an account of the contents of the British herbarium of the late H. C. Levinge, which had been given to the National Museum in Dublin. The collection contains specimens of nearly all the species of flowering plants and ferns recorded for Ireland; it is especially rich in West-meath plants, and supplies many additions to the records of Irish topographical botany. Mr. Levinge's herbarium of ferns, British and foreign—4000 sheets—had been previously given to the museum.—Prof. J. A. **McClelland** read a paper on ionisation in atmospheric air. This paper deals with the amount of ionisation in free atmospheric air, and the variations of the ionisation at different times. The largest values have been obtained after several hours' continuous rain, which would agree with the known radio-activity of freshly fallen rain. On the other hand, very small values of the ionisation have been found after slight showers, probably because the ions have been removed from the atmosphere by the condensation on them of water vapour.—Dr. Henry H. **Dixon** showed a model for illustrating the part played by the mesophyll cells in transpiration. The model consists of a funnel closed above by two membranes, between which is a lenticular space containing a sugar solution. The funnel and its stem are filled with water, and, when set in an upright position, are supplied with water through a capillary tube. The motion of water in this tube is made apparent by microscopically observing a precipitate suspended in it. In the paper the working of the model is explained, and it is pointed out that the tension set up by evaporation from the surface of the leaf-cells is transmitted, through the solvent in them, to the water in the conducting tracts of the plant, while at the same time the dissolved substances exert an osmotic pressure and keep the cells turgid. The paper also contains the description of an experiment by which the solvent of osmotic cells may be subjected to tension while at the same time the pressure exerted by the solute is apparent.—Prof. A. W. **Conway** read a paper on a new foundation for electro-dynamics; a modification of the scheme of Helmholtz was proposed in it, the scalar and vector potentials being multiplied by a factor showing Döppler effect.—Mr. J. T. **Jackson** described a new method of producing tension in liquids; how ordinary tap water, just as drawn from the city supply mains, had been subjected to a tension of 38lb. per square inch. Advantage was taken of the principle underlying the working of the common filter pump, Venturi water-meter, spray distributor, &c. The water was forced through a glass tube constricted at one point, and the pressure at the constriction was estimated to fall below two and a half atmospheres negative.

Royal Irish Academy, June 22.—Prof. R. Atkinson, president, in the chair.—On the synthesis of glycosides—some derivatives of arabinose, by Prof. Hugh **Ryan** and Mr. George **Ebrill.** Following the method employed by Ryan

for the synthesis of glycosides (*Jour.* Chem. Soc., 1899, p. 1054; 1901, p. 704), the authors have obtained from the acetochloroarabinose previously prepared by Ryan and Mills (*loc. cit.*) methyl-arabinoside, β-naphthylarabinoside, o-cresyl-arabinoside, and carvacryl-arabinoside.—Report on the metamorphosed sedimentary and igneous rocks of the Ox Mountain range in Mayo and Sligo, and of their being probably a continuation of the similar rocks to the west in Mayo and Galway, also that they most likely extend northwards into Donegal and Londonderry, by Mr. A. **McHenry.** Opinions were stated as to the probability that the igneous rocks were contemporaneous in age with the granitic and associated basic rocks of Leinster; that is, that they belong probably to early Devonian time. Also that the sediments into which the igneous rocks of the west and north-west intrude are mainly of Ordovician age, with occasionally Upper Silurian sediments included, as in the case of the Wenlock quartzite of Croagh Patrick Mountain, south of Clew Bay.—On the antipodal relations of the eruptions and earthquakes reported as having occurred since January, 1901, by Prof. J. P. **O'Reilly.** The paper details the principal earthquakes and eruptions mentioned as having taken place since the commencement of 1901, giving the essential particulars regarding the points cited, as also the antipodal relations in each case. It is stated that of the centres of eruption mentioned, between 91 and 92 per cent. lie in the northern hemisphere, giving rise, therefore, to antipodes situated in the southern hemisphere, and for the most part in the Pacific and South Pacific, in the neighbourhood of New Zealand, in the Indian Ocean and the island groups of these oceans, that is to say, in parts of the earth's surface usually considered as being in a state of continued immersion, and so far implying a certain connection between the seats of activity on land and their antipodals in these oceans.—To obtain the cubic curve having three given conics as polar conics, by Dr. J. P. **Johnston.** It was shown that the conditions that the three conics could be transformed by a linear substitution, so as to be the first derivedes of a ternary cubic, gave eight independent linear equations to determine the nine constants of the transformation. A method was then given by which the equation of the cubic could be at once written down in a short symmetrical form. The constants of transformation were seen to be the coordinates of the points of which the conics were the polar conics.—A report on the Irish Hepaticæ, by Mr. D. **McArdle,** forms a *résumé* of all papers on the subject since 1876. 170 species and 63 varieties are enumerated. The arrangement is the same as that adopted in the "Cybele Hibernica," of which it is intended to form part ii. A table of districts shows at a glance the rarity or frequency of each plant.

PARIS.

Academy of Sciences, July 6.—M. Mascart in the chair.—The secretary announced to the Academy the death of Prof. J. W. Gibbs, correspondant for the section of mechanics. (An obituary notice appeared in NATURE of May 7, p. 11.)—Study of the flow of sheets of water, by M. J. **Boussinesq.**—On new syntheses effected by means of molecules containing the methylene group associated with one or two negative radicles. The action of epichlorhydrin upon the sodium derivatives of acetone-dicarboxylic esters, by MM. A. **Haller** and F. **March.** The lactone obtained as the result of this reaction has been esterified with alcohol and hydrochloric acid. The ester was not isolated, since it suffers internal condensation, giving rise to a hydrofurfurane derivative, the properties and reactions of which are described.—The action of human serum upon the Trypanosomes of nagana, caderas, and surra, by M. A. **Laveran.** Human serum, injected into animals suffering from nagana, surra, or caderas, causes the temporary disappearance of the parasites from the blood of the animal. No other method of treatment has been found which causes even a temporary cure of these diseases. No other species of animal furnishes a serum having properties analogous in this respect to human serum, with the exception of a slight effect noticed in the serum from the ape.—Remarks on the formation of pollen in the Asclepiadeæ, by M. L. **Guignard.**—On a rapid method of obtaining a plan of a country by means of photographs taken from a balloon, by M. **Laussedat.** Maps taken photographically from balloons have hitherto required a laborious graphical treatment to reduce them to a plane; a purely optical method of treatment is now described.—Experiments on the resistance of the air, by M. G. **Eiffel.** A heavy mass, 120 kilogrammes, and carrying plates which could be varied in shape and size, as well as means of recording the velocity and air pressure, was allowed to fall freely. The formula usually given for the pressure is KSV^2, where S is the surface, V the velocity, and K a constant 0·125kg. As a result of these experiments, it was found that K increased with the surface, and with equal surfaces, increases with the perimeter p, such that $K=0{\cdot}032+0{\cdot}022\ p$.—Secular variations of secondary importance, by M. Jean **Mascart.**—On the lines of curvature of certain surfaces, by M. E. **Blutel.**—On the groups of Mathieu, by M. **de Séguier.**—On the fundamental functions of Poincaré and the method of Neumann for a frontier composed of curvilinear polygons, by M. S. **Zaremba.**—On the characteristics of the vowels, the vocal scales, and their intervals, by M. l'abbé **Rousselot.**—On a species of oscillation of the chromatic perception, by M. C. **Maltézos.**—Consequences of the theory of nickel steels, by M. C.-E. **Guillaume.** The theory that the anomalous behaviour of nickel steels is due to the transformation of iron from the α to the γ state, and inversely, is applied to the explanation of experiments by Howe, Nagaoka and Honda, and Curie with satisfactory results.—On the diminution of the potential for any spontaneous change in a medium at constant temperature and pressure, by M. **Ariès.**—The action of iodine on thin pellicles of copper, by M. **Houllevigue.** It was found as a result of these experiments, that the smallest molecule of copper capable of reacting chemically with the vapour of iodine is of dimensions of the order of 40 μμ. Its weight is of the order of 5×10^{-13} milligrams.—Simplification of the analysis of silicates by the use of formic acid, by M. A. **Leclère.** After opening up the silicate by fusion with an appropriate base, the use of formic acid in the place of nitric acid is recommended in the subsequent separation of the silica and titanium.—On the conditions of production and stability of thiosulphuric acid, by M. J. **Aloy.** Thiosulphuric acid can be produced by the action of an alcoholic solution of sulphur dioxide on sulphur; the presence of alcohol and of neutral salts increases the stability of the acid.—On the esterification of the hydracids, by M. A. **Villiers.**—On dibromo-acetylene, its purification, cryoscopy, and analysis, by M. P. **Lemoult.** By the action of alcoholic potash upon tribromoethylene, and fractionation in the complete absence of oxygen, pure dibromo-acetylene can be obtained. The formula CBr:CBr was established by analysis and cryoscopic determinations in acetic acid solution.—On lactase, by MM. Em. **Bourquelot** and H. **Hérissey.** Lactase and emulsin are probably two distinct ferments, since emulsin without lactase can be obtained from *Aspergillus niger* and *Polyporus sulphureus,* lactase without emulsin from kephir, and the two together in several species of almond.—The action of sodium on carbon tetrachloride and chlorobenzene: formation of triphenylmethane and hexaphenylethane, by M. Jules **Schmidlin.**—The preparation of primary alcohols by means of the corresponding acids, by MM. L. **Bouveault** and G. **Blanc.** The method of reduction previously described, sodium in boiling alcohol, has been extended to other fatty acids. Aromatic acids with the carboxyl group in the ring resist the reduction.—The internal ethylene oxide of β-cyclohexanediol-1.2, and its derivatives, by M. Léon **Brunel.**—On the amount of acids soluble in ether in wines, considered as a means of differentiation, by M. Ch. **Blarez.**—The heat of neutralisation of hydroferrocyanic acid; the heat of formation of its compounds with ether and acetone, by MM. **Chrétien** and **Guinchant.**—On the fatty acids of egg lecithine, by M. H. **Cousin.** It is shown that egg lecithine contains, besides the derivatives of stearic, oleic, and palmitic acids already known, a derivative of linoleic acid.—The intravenous injection of glycerol; the estimation of the glycerol in the blood and its elimination by the urine, by M. Maurice **Nicloux.** Glycerol disappears very rapidly when injected into the blood, and appears in the urine in notable quantity very soon after injection.—The carbohydrates of barley and their transformation in the course

of germination as carried out on the industrial scale, by M. L. **Lindet.**—Researches on the constitution and structure of the cardiac fibres in the lower vertebrates, by M. F. **Marceau.**—On the suprarenal capsule in amphibia, by M. Ed. **Grynfeitt.**—Experimental pathogenetic segmentation in the eggs of *Petromyzon Planeri*, by M. E. **Bataillon.**—The meriphyte in the Cycadaceæ, by M. H. **Matte.**—On two Cephalopod layers of the Upper Devonian in the Sahara, by M. Émile **Haug.** These fossil-bearing layers present remarkable palæontological affinities with the layers of the same age in central Germany.—On the variations of the Meuse at the quaternary epoch, by M. Paul **Bois.**—On the retrogradation of starch, by M. L. **Maquenne.**—On an oxidising bacterium, its action on alcohol and glycerol, by M. R. **Sazerac.** There exists in certain wine vinegars an oxidising bacterium which differs both in its appearance and cultures from the sorbose bacterium, and which is capable of rapidly oxidising glycerol to dioxyacetone. Its acetifying power is very small.—On the production of glucose under the influence of asphyxia by the tissues of *Bombyx mori*, at various phases of its evolution, by M. F. **Maignon.**—On the production of hydrogen sulphide by extracts of organs and albumenoid materials in general, by MM. J. E. **Abelous** and H. **Ribaut.**—Study of the marine circulation, by M. J. **Thoulet.**

NEW SOUTH WALES.

Royal Society, May 6.—Prof. Warren, president, in the chair.—The president delivered an address on the development and progress of engineering during the last twenty-one years. In the course of his address he remarked that the wonderful progress during that time, and the great activity to-day in all branches of science and engineering, suggests great possibilities in the future. All future progress in engineering must depend upon exact knowledge and scientific thought and work. Our systems of primary, secondary, technical, and professional education must be carefully reconsidered in order to bring them up to the needs and requirements of modern civilisation. The engineer of the future must be a still more widely trained and better educated man than his predecessor of to-day, so that he may be better able to solve the many problems which lie before him in the future.

Linnean Society, April 29.—Dr. T. Storie Dixson, president, in the chair.—Australian fungi, new or unrecorded. Decades iii.–iv., by Mr. D. **McAlpine.** Of the fungi here recorded, fifteen are described as new species, fourteen genera being represented. The orchids, which are generally comparatively free from fungi, contribute two, one of the genera (Amerosporium) being new to Australia.—Notes on Australian Rhopalocera: Lycænidæ. Part iii., by Mr. G. A. **Waterhouse.** This part deals fully with the descriptive portion of the subject and with the nomenclature.—The bacterial origin of the gums of the Arabin group, by Dr. R. Greig **Smith.**—On some new or unrecorded species of West Australian plants, by Mr. W. V. **Fitzgerald.** The following are described as new:—(1) Hensmania, gen. nov., founded upon *Xerotes turbinata*, Endl., of which perfect flowers were previously unknown, and of which Mr. Bentham did not see specimens in fruit. (2) Six species referable to the genera Leucopogon, Conostylis, Centrolepis, Restio, Hypolæna and Cyathochæte, and four to Schœnus. Two species, *Anisacantha* (*Bassia*) *longicuspis*, F.v.M., and *Stipa Tuckeri*, F.v.M., are now recorded from West Australia for the first time.—The vegetation of New England, N.S.W., by Fred. **Turner.** The New England district lies between 29° and 31° south lat., and 151° 20′ and 152° 20′ east long., and has an average elevation of about 3500 feet. Its flora may be described as intermediate in character between the subtropical and in places very dense and luxuriant vegetation of the coastal strip between its eastern boundary and the sea and that of the plains to the west, consisting of trees and shrubs of a more dwarf habit, and generally with less luxuriant foliage, except near water-courses. The census of the phanerogams and vascular cryptogams now brought forward yields a total of 369 genera and 708 species.

May 27.—Dr. T. Storie Dixson, president, in the chair.—Australian Psyllidæ, part iii., by Mr. W. W. **Froggatt.** Sixteen species are described as new, including three fine gall-making species of Trioza—two from Tasmania, and the third from Queensland, which is remarkable for its curious, open, saucer-like galls, in form approaching those of some of the gall-making Coccids.—On a revision of the Eucalypts of the Rylstone District, N.S.W., by Mr. R. T. **Baker.** In a previous paper twenty-two species of Eucalypts were enumerated. As the result of further collecting and study in the interval, the number of species now recognised has been increased by ten, while some of the earlier determinations have been reconsidered and amended.—A slime bacterium from the peach, almond and cedar (*Bact. persicae*, n.sp.), by Dr. R. Greig **Smith.** The organism produces a slime, the essential carbohydrate of which readily becomes converted to an insoluble modification. The carbohydrate is easily hydrolysed to arabinose and galactose, the latter sugar preponderating. The insolubility of the gummy constituent when heated under pressure shows that it does not belong to the arabin group. The soluble gum is coagulated by the acetates of lead, barium hydrate, milk of lime, and aluminium hydrate. The insoluble modification is easily dissolved by dilute acids, but not by dilute alkali. A small quantity of gum behaving to reagents like the bacterial gum was separated from the natural gum of the almond.

CONTENTS.