Branchiostomidæ, by J. W. Kirkaldy (Plates 34 and 35), enumerates two genera, Branchiostoma (as sub-genera, Amphioxus, Heteropleuron) and Asymmetron. A new species of Heteropleuron, *H. cingalense*, is described.—On Sedgwick's theory of the embryonic phase of ontogeny as an aid to phylogenitic theory, by E. W. MacBride.

June.—On the anatomy of *Alcyonium digitatum*, by Prof. Sydney J. Hickson (Plates 36-39), gives a brief account of our knowledge of the anatomy of Alcyonium, the general morphology, the English species, their geographical and bathymetrical distribution, then the general anatomy, followed by the minute anatomy of the ectoderm, nematocysts, stomodæum, mesenterial filaments, mesogloea, spicules, endoderm, ovaries and testes, the buds, concluding with a note on the circulation of the fluids in the colony and on the digestion. In the history of investigations, Pallas' name is not alluded to, and yet he deserves to be quoted as having even before Savgny assigned correct characters to Alcyonium ("Hist. nat. des Coralliaires," Milne-Edwards, tome 1, p. 114), and the "Contribution a l'anatomie des Alcyonaires," by Pouchet and Myevre, dates, if we mistake not, before Vogt and Jung's account in their "Lehrbuch," and while it may be of little use to the student, it is not without interest, as it figures, after a fashion, the nematocysts in *A. digitatum*, and this possibly for the first time (1870). Prof. Hickson, however, leaves all previous writers far behind in his modern treatment of this subject, and if he keeps his promise of publishing an account of the maturation and fertilisation of the ovum and its development, he will leave us under still further obligations, for except Kowalevsky and Marion's important papers on the developmental history of *Clavularia crassa* and *Sympodium coralloides*, we have but little light on Alcyonarian development —Note on the chemical constitution of the mesogloea of *Alcyonium digitatum*, by W. Langdon Brown. It is chiefly composed of a "hyalogen" prior to the conversion of the hyalogen into hyalin the mesogloea will yield a mucin; it also contains a small amount of an insoluble albuminoid body, whose nature was not determined; it does not contain gelatine or nucleo-albumen. A study of metamerism, by T. H. Morgan. (Plates 40-43). The author in a long memoir, that does not admit of being briefly abstracted, thinks that the cases he cites show very positively that the variations appearing in a radiate animal must have come simultaneously and all together into the antimeres; he thinks few will doubt that the relation existing between repeated organs in a radiate animal is at bottom the same relation existing between the right and left sides of the body of a bilateral animal. Mivart and Brooks have emphasised the further fact that the relation between the right and left sides of the body is the same relation that exists between the serially repeated parts of a metameric animal; and he concludes that if this line of argument be admitted, it puts the problem of metamerism into a large category of well-established facts.—On the Cœlom, genital ducts, and Nephridia, by Edwin S. Goodrich. (Plates 44-45). The chief object of this paper is to call attention to the theory, "that the cavity which is known as the cœlom in the higher Cœlomata is represented by that of the genital follicles in the lower types of that grade."

American Journal of Science, July.—On the pitch lake of Trinidad, by S. F. Peckham. This pitch lake is situated near the village of La Brea, on the Gulf of Paria. At first sight it appears to be an expanse of still water, frequently interrupted by clumps of trees and shrubs, but on a nearer approach it is found to consist of mineral pitch with frequent crevices filled with water. The consistence of the surface is such as to bear any weight, and it is not slippery nor adhesive. It is about 100 acres in extent. It occupies a bowl-like depression in a truncated cone on the side of a hill covered with tropical jungles. The cone consists of both asphalt and earth. A heavy stream of asphalt has overflowed to the sea, forming a barrier reef for a considerable distance. Asphalt has also overflowed to the south, and the general appearance of the escarpment seems to indicate that at some remote period the basin now occupied by the lake had been filled some three feet higher than the present level. It occupies what appears to be the crater of an old volcano. Some diggings have been pushed to forty feet without reaching the bottom. There is a steady outflow towards the sea through the side of the cone. The Trinidad Bituminous Asphalt Company have lately run a tramway from the pier through the lake and back, so as to facilitate the removal of the material. This tramway in crossing the lake is supported on palm-leaves, some of which are 25 feet long, and this plan has answered every purpose.—On some reptilian remains from the Triassic of Northern California, by John C. Merriam. The author gives a description of some of the few Californian Mesozoic reptiles. One of these resembles *Ichthyosaurus*, while the other is described as *Shastasaurus Pacificus*.—A further contribution to our knowledge of the Laurentian, by Frank D. Adams. This paper is accompanied by a map of a portion of the edge of the Archean protaxis north of the island of Montreal, Quebec. There are in the district considered at least two distinct sets of foliated rocks. One of these represents highly altered and extremely ancient sediments, while the other is of igneous origin.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 16.—"On Measurements of Small Strains in the Testing of Materials and Structures." By Prof. J. A. Ewing, F.R.S.

The paper describes a new form of "extensometer," or apparatus for measuring the elastic stretching of bars subjected to pull in the testing machine or otherwise. At the two extremities of the length under test, which is usually eight or ten inches, two cross-pieces are attached to the rod by means of a pair of diametrically opposed set-screws. Each piece is separately free to oscillate about the line joining its screw points, since it touches the rod under test at no other place, but the two pieces are caused to engage with each other in such a way that when the rod extends the end of one of the pieces becomes displaced through a distance which is proportional to the extension. The amount of this displacement is measured by means of a microscope attached to the other piece. The whole apparatus is self-contained, and the parts are arranged to have no unnecessary constraint. Its indications show the mean extension taken over the whole section of the rod, and are independent of any small amount of bending or twisting which the rod may undergo as it is stretched. The microscope is furnished with an eye-piece micrometer which reads the extension to $\frac{1}{5000}$ inch, and a calibrating screw is provided for testing and setting the micrometer scale. Two forms of the instrument are described, one suitable for laboratory use when the specimen under test stands vertically, and the other applicable to rods in any position, such as the members of bridge or roof frames *in situ*. In the laboratory use of the instrument the elastic properties of the material are examined by observing the strains under known loads; in the application to structures the object is to determine experimentally what the stress on any member is, from observation of the strain, the modulus of elasticity being assumed.

The author describes a number of observations made with the new extensometer, chiefly on rods of iron and steel. The following readings refer to successive loadings of a bar of steel, which conforms closely to Hooke's Law, the loads being well within the primitive elastic limit. They serve to illustrate the sensibility of the instrument. The zero of the extensometer was set at 400, and the unit of its scale was $\frac{1}{50000}$ inch. The bar was $1\frac{1}{4}$ inch in diameter, and the length under test was 8 inches.

Load in tons.	Extensometer readings.			Differences.		
	First loading.	Second loading.	Third loading.	First loading.	Second loading.	Third loading.
0	400	400	400			
$2\frac{1}{2}$	461	461	461	61	61	61
5	522	522	522	61	61	61
$7\frac{1}{2}$	583	583	583	61	61	61
10	645	645	645	62	62	62
$12\frac{1}{2}$	707	706	707	62	61	62
15	769	768	768	62	62	61
$17\frac{1}{2}$	830	829	830	61	61	62
20	892	891	891	62	62	61
0	400	400	400	492	491	491

In other experiments the rod under examination was allowed to become overstrained, that is to say the load was increased until the elastic limit was passed and permanent set was produced. In this condition the elastic properties of the rod are materially

different from its properties in the primitive state. On reloading the overstrained rod it is found that the proportionality of strain to stress no longer holds good, even under very light loads, and further that there is "creeping," or continued extension with the lapse of time, when any load is kept on for a few minutes. Again, on removing load the bar continues to retract for some time. These features of the overstrained state are most conspicuous in tests made directly after the overstrain has taken place. They tend to disappear if the bar is allowed to rest for some days or weeks. This elastic recovery with the lapse of time, some features of which have been already noted by Bauschinger and others, is less rapid in moderately hard steel than in iron or mild steel, apparently because the condition of overstrain requires a greater load to produce it. Thus a rod of common iron, overstrained so much that the yield-point was reached, was found to have made a practically complete recovery of its elasticity in five days. On the other hand, in a rod of rather hard steel, overstrained by applying a load of 11 tons and subsequently tested with loads of 8 tons only, the recovery was still imperfect after three weeks. The following table shows the progress of the recovery by giving the observed extensions of this rod after three intervals, namely ten minutes, one day, and three weeks, after the overstrain took place.

Load in tons.	Ten minutes after overstrain.		One day after overstrain.		Twenty-one days after overstrain.	
	Extensometer readings.	Differences.	Extensometer readings.	Differences.	Extensometer readings.	Differences.
0	200	—	200	—	200	—
1	287	87	286	86	285	85
2	377	90	373	87	371	86
3	469	92	463	90	458	87
4	565	96	559	96	545	87
5	662	97	658	99	632	87
6	760	98	758	100	720	88
7	866	106	860	102	810	90
8	976	110	963	103	900	90

The molecular settlement which is shown by these experiments to be going on for some time after overstrain has taken place, is known to be associated with a rise in the yield-point. Instances of this were given by the author in a previous paper (*Proc. Roy. Soc.*, No. 205, 1880).

May 30.—"On the Motions of and within Molecules; and on the Significance of the Ratio of the Two Specific Heats in Gases." By Dr. G. Johnstone Stoney, F.R.S.

In treating of molecular physics it is found to be convenient to widen the meaning of the word motion, so that it may be employed in regard to any change or event in which energy is stored, whether as kinetic energy, or as potential, electrical, chemical, or any other. It is in this generalised sense that the term is to be understood throughout this paper.

The aim of the paper is to demonstrate the existence of events going on within the molecules of matter which are so sluggish in affecting its pressure when in the gaseous state, or its temperature as measured by the thermometer, that it is only after millions of encounters that any manifestation of their having thus lost energy by conduction becomes appreciable; while these same events are prompt and active agents in other operations of nature through chemical reactions or by radiation.

Molecular events may be distinguished into A or external events, and B or internal. The external events are the movements of the centres of inertia of the molecules relatively to one another. They present themselves most conspicuously in those comparatively protracted journeys which the molecules of gases make between their much briefer encounters. By B motions are to be understood all events in which energy can be stored that go on within individual molecules, including rotation of the molecule (if there be any movement of this kind, which, however, is not probable) along with every other relative motion of the parts of the molecule: movements within its ponderable matter, or of its electrons, changes in the configuration of its parts, and every other event within the molecule which can absorb and yield energy. The electrons are those remarkable charges of electricity, all of the same amount, which are associated in every chemical atom with each capacity that it possesses of entering into combination with other atoms.

It is convenient to distinguish the B or internal events, into Ba events between which and the A or translational motions of the molecules there is ready interchange of energy whenever encounters take place; Bc events which are so isolated that no such interchange takes place; and Bb events which lie between these extremes. In the struggle which takes place during an encounter, or in any one of the much longer intervals between two encounters, a Bb event will part with but very little of any excess of energy it may possess by conduction, *i.e.* by transferring energy over to A or Ba events. Nevertheless it may sustain an appreciable loss of energy in this way when the molecule has been buffeted in a sufficient number of encounters. This may easily occur in a time which seems short to us, since, if the gas be at atmospheric temperature and pressure, each molecule meets with some thousands of millions of encounters every second. Meanwhile, during this process, which is slow from the molecular standpoint, the Bb events, if they have electrons associated with them, may be engaged in a prompt and active exchange of energy with the æther by radiation.

In substances that are appreciably phosphorescent, it is easy to detect the presence of these Bb events; and, accordingly, a proof that they exist in this class of bodies is given in the paper. Moreover, by comparing the behaviour of different phosphorescent bodies, we learn that the degree of isolation in which Bb motions stand varies much from substance to substance. Motions of this type, which are so conspicuous in the bodies that can be perceived to be phosphorescent, are, of course, not confined to that class of bodies. In fact, they appear to be an important part of what is going on in every molecule of matter that can emit a spectrum, a description which probably embraces every molecule.

Since Bb motions are in various degrees isolated from the other events that are simultaneously going on in the molecules, it follows that in some gases the specific heat as determined by experiment will not be a definite quantity, but will partly depend on the duration of the experiment by which it is determined—*i.e.* upon whether or not there has been time for an interchange of energy between the Bb motions and the A and Ba events. This is likely in some gases to make an appreciable difference between determinations of γ—the ratio of the two specific heats—deduced from the observed velocity of sound in the gas (where the real experiment lasts only during one semi-vibration of the musical note employed), and determinations made by other experiments which require seconds, perhaps minutes, to carry them through.

There is reason to believe that it is with these Bb motions that the electrons within chemical atoms are chiefly associated, and that in most cases it is they which are concerned in luminous effects, whether in flames or when the gas is under the influence of electricity. Accordingly in both cases the luminous effects may have their origin in events that are in a considerable degree isolated from those that directly affect the thermometer; and wherever this is the case, the luminous effects will be in excess of what belongs to the temperature of the gas as determined by its power of communicating heat by conduction to bodies upon which its molecules impinge. This seems to have been proved by Prof. Lewes of flames (*Proceedings* of the Royal Society, vol. lvii. p. 404 and p. 467), and many phenomena indicate that it is also true of all gases which exhibit spectra of bright lines when in that state which has been miscalled incandescent.

It is specially to be noted that the interpretation usually put upon the value of γ in a gas has to be profoundly modified in consequence of the presence of Bb motions within the molecules, and of the degree in which the corresponding Bb motions of swarms of molecules are more or less linked together by the interaction that goes on between their associated electrons and the æther. (See Fitzgerald, in the *Proceedings* of the Royal Society, vol. lvii. p. 312.)

These examples may serve to show how a knowledge of the presence and activity of Bb motions supplies a clue to interpreting some of the phenomena of nature; and the extent of its applications may be judged by reflecting that it is electrons for the most part associated with Bb motions which appear to be primarily concerned in every chemical reaction and in all phenomena of radiation.

"On the Velocities of the Ions." By W. C. Dampier Whetham. A continuation of a former paper (*Phil. Trans.* 184, 1893 A, p. 337). The velocities of certain ions

during electrolysis are observed by tracing the formation of the precipitates which they give with a trace of a suitable indicator. Thus solid agar jelly solutions of barium chloride and of sodium chloride containing a little sodium sulphate were set up in contact, and a current passed across the junction. The barium ions form a little insoluble barium sulphate as they travel, and so their velocity can be measured. The specific ionic velocity under a potential gradient of one volt per centimetre can then be calculated, the area of cross section of the tube, in which the solutions are placed, the mean specific resistance of the solutions, and the strength of current being known. The following table gives a comparison between the results thus obtained and the numbers theoretically deduced by Kohlrausch from the migration constants and the conductivities of the corresponding aqueous solutions :—

	Calculated velocity in c.m. per sec.	Observed velocity in c.m. per sec.
Barium	0·00037	0·00039
Calcium	0·00029	0·00035
Silver	0·00046	0·00049
Sulphate group (SO_4)	0·00049	0·00045

June 20.—"On the Occlusion of Oxygen and Hydrogen by Platinum Black." Part I. By Dr. Ludwig Mond, F.R.S., Prof. W. Ramsay, F.R.S., and Dr. John Shields.

The authors describe some preliminary experiments on the occlusion of oxygen and hydrogen by platinum sponge and foil, which in general confirm the results obtained by Graham. At most only a few volumes of these gases are occluded by the more coherent forms of platinum.

After giving details of what they consider the best method of preparation of platinum black, they next describe some experiments which had for their object the determination of the total quantity of water retained by platinum black, dried at 100° C., and the amount of water which can be removed from platinum black at various temperatures in vacuo. As the result of these experiments they find that platinum black dried at 100° retains in general 0·5 per cent. of water, and this can only be removed in vacuo at a temperature (about 400°) at which the black no longer exists as such, but is converted at least partially into sponge. At any given temperature the water retained by platinum black seems to be constant. The density of platinum black dried at 100° C. is 19·4, or allowing for the water retained by it at this temperature, 21·5.

The amount of oxygen given off by platinum black at various temperatures was determined. Altogether it contains about 100 volumes of oxygen; the oxygen begins to come off in quantity at about 300° C. in vacuo, and the bulk of it can be extracted at 400° C., but a red heat is necessary for its complete removal. Small quantities of carbon dioxide were also extracted, chiefly between 100–200° C.

In determining the quantity of hydrogen occluded by platinum black the authors have carefully distinguished between the hydrogen which goes to form water with the oxygen always contained in platinum black, and that which is really absorbed by the platinum *per se*. Altogether about 310 volumes of hydrogen are absorbed per unit volume of platinum black, but of this 200 volumes are converted into water, or only 110 volumes are really occluded by the platinum. Part of it can be again removed at the ordinary temperature in vacuo; by far the larger portion can be extracted at about 250–300° C., but a red heat is necessary for its complete removal. The amount of hydrogen absorbed by platinum is very largely influenced by slight traces of impurity, probably grease or other matter which forms a skin over the platinum.

Platinum black in vacuo absorbs a certain quantity of hydrogen. On increasing the pressure of the hydrogen up to about 200–300 mm. a further quantity is absorbed, but after this pressure is almost without effect. By increasing the pressure from one atmosphere up to four and a half atmospheres, only one additional volume of hydrogen was absorbed. On placing platinum black charged with oxygen in an atmosphere of oxygen, and increasing the pressure to the same extent, eight and a half additional volumes were however absorbed.

Platinum black charged with hydrogen and placed in an atmosphere of hydrogen kept approximately at atmospheric pressure, and platinum black charged with oxygen and confined in an atmosphere of oxygen, behave quite differently when heated. In the former case hydrogen is immediately expelled on raising the temperature, whilst in the latter case oxygen is steadily absorbed until a temperature of about 360° C. (the temperature of maximum absorption) is reached, when on further heating oxygen begins to come off again.

Incidentally it was noticed that mercury begins to combine with oxygen at 237° C., and that a mixture of platinum black and phosphorus pentoxide absorbs oxygen at a high temperature, probably with the formation of a phosphate or pyrophosphate.

In the discussion of the results special reference is made to the work of Berliner and Berthelot, and it is pointed out that there is not sufficient evidence for the existence of such chemical compounds as $Pt_{30}H_3$ and $Pt_{30}H_2$. Moreover, the authors are of opinion that the heats of combination of hydrogen and platinum as determined by Berthelot and Favre are valueless, and that the heat which they measured is due for the most part if not entirely to the formation of water by the oxygen always contained in platinum black. It has yet to be *proved* that the absorption of hydrogen by pure platinum black is attended by the evolution of heat, and as regards the formation of supposed true chemical compounds, solid solutions, or alloys, the authors prefer to wait until sufficient data have been accumulated for an adequate inquiry before coming to any definite conclusion.

Royal Microscopical Society, May 15.—E. M. Nelson, Vice-President, in the chair.—Messrs. Watson and Sons exhibited a simple centring underfitting for use with any ordinary student's microscope.—The Chairman exhibited a new low-lower lens by Zeiss, and a new photographic lens.—Mr. W. C. Bosanquet read a paper on the anatomy of *Nyctotherus ovalis*.—Mr. G. C. Karop read a paper, by Dr. A. Bruce, describing a new microtome for cutting sections.—The Chairman announced that the library would be closed from August 12 to September 9, and that the next meeting would be on October 16.

Mineralogical Society, June 18.—Lewisite and Zirkelite, two new Brazilian minerals, by Dr. E. Hussak, of the Geological Survey of São Paulo, and Mr. G. T. Prior. Lewisite is a new titano-antimonate of calcium and iron, which was found with xenotime, monazite, cinnabar and other minerals in the heavy sand obtained by washing the gravel from a hill slope at the cinnabar mine of Tripuhy, Minas Geraes, Brazil. It is cubic, occurs in small brown translucent octahedra, and has the composition $5RO.3Sb_2O_5.2TiO_2$. Zirkelite is a new titano-zirconate of calcium and iron found in association with the new zirconia mineral baddeleyite in the magnetite-pyroxenite from Jacupiranga, São Paulo, Brazil. It is cubic, occurs in black octahedra, and contains about 80 per cent. of ZrO_2 and TiO_2. The authors describe the physical and chemical characters of the two minerals, and also give an account of the minerals associated with the Lewisite at Tripuhy; amongst these occurs sparingly a new titano-antimonate of iron, the description of which will be completed when more material is obtained.

PARIS.

Academy of Sciences, July 8.—M. Marey in the chair.—On the physical characteristics of the moon and the interpretation of certain surface details revealed by photographs, by MM. Lœwy and P. Puiseux. A general discussion of surface characters of the moon and their origin, and comparison with certain terrestrial features of possibly similar origin.—On the manner in which any confused but periodic wave-agitation becomes regular in the distance, reducing to a simple wave, by M. J. Boussinesq.—Action of zinc chloride on resorcinol, by M. E. Grimaux.—Comparison of the work done by muscles in the case of positive work with that developed in the corresponding case of negative work, by M. A. Chauveau.—Law of the distribution of mean magnetism at the surface of the globe, by General Alexis de Tillo.—Volumes of salts in their aqueous solutions, by M. Lecoq de Boisbaudran. The author considers all soluble substances to belong to a continuous series of which the members at the one end may show dilatation on solution, whereas the members at the other end may exhibit contraction under similar circumstances. He illustrates his theory by examples demonstrating that the former at low temperatures give contraction also on solution, whereas the bodies usually showing contraction on solution exhibit dilatation on solution in sufficiently concentrated

solutions.—On diphenylanthrone, by MM. A. Haller and A. Guyot. The researches detailed prove that the substance $C_{26}H_{18}O$ is diphenylanthrone, $C_6H_4\left\langle\begin{matrix}C(Ph)_2\\CO\end{matrix}\right\rangle C_6H_4$. From this established constitution, the phthalyl tetrachloride melting at 88° C. must have the dissymmetrical formula, $C_6H_4\left\langle\begin{matrix}CCl_3\\COCl\end{matrix}\right.$.—A new lymphatic gland in the European scorpion, by M. A. Kowalewsky. The gland described has already been made known by J. Müller, who, in 1828, termed it a salivary gland. —On the laws of friction in sliding, by M. Paul Painlevé. The conclusion is deduced, from the singularities developed in the paper, that the empirical laws of friction are logically inadmissible (even for ordinary pressures and velocities) so soon as the friction becomes at all noticeable. —On the mirage effects and differences of density observed in Natterer's tubes, by M. P. Villard.—On explosive statical and dynamical potentials, by M. R. Swyngedauw.—On direct spectroscopical analysis of minerals and of some fused salts, by M. A. de Gramont.—Determinations of the solubility, at very low temperatures, of some organic compounds in carbon disulphide, by M. Arctowski. Étard found the solubility of substances to be represented for other solvents than water by curves practically of hyperbolic form of which the branches respectively directed themselves towards the points of fusion of the solvent and of the dissolved substance; he even admitted that the solubility would be zero at the point of congelation of the solvent, and infinite at the point of fusion or ebullition of the dissolved substance. The author finds, with carbon disulphide, that the point of fusion of the solvent appears not to be an essential point on the curve of solubilities; and it is otherwise known that the property of dissolving is not an exclusive property of the liquid state of matter.—On some oxidising properties of ozonised oxygen and of oxygen in sunlight, by M. A. Besson.—Action of nitric oxide on some metallic chlorides: ferrous, bismuth, and aluminium chlorides, by M. V. Thomas. A fine red ferrous compound has been obtained of the formula $5Fe_2Cl_4.NO$. By decomposition of this, or by suitably heating anhydrous Fe_2Cl_4 in a current of nitric oxide, yellowish brown $Fe_2Cl_4.NO$ is obtained. A fine yellow bismuth compound and a pale yellow aluminium compound have also been obtained. They are very hygroscopic substances, and have the composition $BiCl_3.NO$ and $Al_2Cl_6.NO$ respectively.—Action of halogens on methyl alcohol, by M. A. Brochet.—On a physical theory of the perception of colours, by M. Georges Darzens.—On the presence and the *rôle* of starch in the embryonic sac of Cacti and Mesembryanthema, by M. E. d'Hubert. The observations favour the view that starch serves to preserve the embryonic sac in these plants in that state which characterises the ripe and readily fertilised sac.—On the tectonic characters of the north-west part of the Alpes-Maritimes department, by M. Leon Bertrand.—An inferior maxillary human bone found in a grotto in the Pyrenees, by MM. Louis Roule and Felix Regnault. From the characters of the bone described and other similar remains it is concluded that: In the time of the great Cave-bears, France was inhabited by a human race of normal height with a flat and powerful lower jaw.

NEW SOUTH WALES.

Linnean Society, May 29.—Mr. P. N. Trebeck in the chair.—Oological notes (continued), by A. J. North.—Note on the correct habitat of *Patella* (*Scutellastra*) *kermadecensis*, Pilsbry, by T. F. Cheeseman.—On two new genera and species of fishes from Australia, by J. Douglas Ogilby.—Descriptions of new species of Australian Coleoptera, Part II., by Arthur M. Lea. This paper comprises descriptions of over one hundred species, for the most part referable to the families *Malacodermidæ*, *Mordellidæ*, *Anthicidæ*, and *Corylophidæ*.—Life-histories of Australian Coleoptera, Part III., by W. W. Froggatt.—Description of a giant *Acacia* from the Brunswick River, New South Wales, by J. H. Maiden. This Acacia was collected by Mr. W. Bäuerlen on Tergoggin Mountain and on Mullumbimby Creek, Brunswick River, N.S.W. As far as known, it is confined to brushes, as distinguished from open forest. It attains a height of 120 feet and a diameter of 5 feet; it is therefore one of the largest of the genus. Its closest affinity is with *A. binervata*, from which it differs in the structure of the flowers, seeds, and pod, and in other less important particulars. The inflorescence is in loose, elongated panicles or racemes, with peduncles in clusters. The flowers are few—never more than twenty—with villous petals and sepals, which are spathulate and tetramerous. The pod is nearly six lines broad, thin and straight. The author proposes the name of *Acacia Bakeri* for the species, in honour of his colleague, Mr. R. T. Baker.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Open-Air Studies: Prof. G. A. Cole (Griffin).—A Garden of Pleasure (E. Stock).—Dr. Schlich's Manual of Forestry, Vol. 4 (Bradbury). —The Alps from End to End: Sir W. M. Conway (Constable).—Nature *versus* Natural Selection: C. C. Coe (Sonnenschein).—Microbes and Disease Demons: C. Berdoe (Sonnenschein).—The Climates of the Geological Past: E. Dubois (Sonnenschein).—Physikalisch-Chemische Propaedentik Erste Halfte: Prof. H. Griesbach (Leipzig, Engelmann).—Die Physiologie der Geruchs: Dr. A. Zwaardemaker (Engelmann).—Experimental Plant Physiology: D. T. Macdougal (Holt and Co., New York).

PAMPHLETS.—Static and Dynamic Sociology: L. F. Ward (Boston, Ginn and Co.).—On Kaloxylon Hookeri and Lyginodendron Oldhamium: T. Hick.—On the Structure of the Leaves of Calamites (Manchester).—Report of the Trustees of the South African Museum for 1894 (Cape Town).—Returns of Agricultural Statistics of British India, &c., 1893-4 (Calcutta).—Studies on the Dissemination and Leaf Reflexion of Yucca Aloifolia: H. J. Webber (Missouri Botanic Garden).—On the Osteology of Agriochœus: J. L. Wortman (New York).—Fossil Mammals of the Uinta Basin Expedition of 1894: H. F. Osborn (New York).

SERIALS.—Journal of the Royal Statistical Society, June (Stanford).—Record of Technical and Secondary Education, July (Macmillan and Co.). —American Journal of Science, July (New Haven).—Psychological Review, July (Macmillan and Co.).—Engineering Magazine, July (Tucker).—Medical Magazine, July.—Natural History of Plants, Part 14 (Blackie).—Tokyo Sugaku—Butsurigakaukwai Kizi Maki, No. vi. Dai 1 and 2 (Syuppan).—Journal of the Franklin Institute, July (Philadelphia).—Bulletin of the American Mathematical Society, June (Macmillan and Co., New York).—Bulletin of the Johns Hopkins Hospital (Baltimore).

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