

l'on attribue à l'AYE-AYE sont en harmonie avec sa conformation. Or je ne voyais pas pourquoi il ne mangerait pas les vers des arbres, quoique je ne comprisse pas pourquoi il se servirait du second doigt pour les retirer de leurs trous, ne pensant pas qu'il pût ou percer ou retirer le ver. Cependant, j'eus bientôt occasion de vérifier la vérité de cette assertion. Ayant trouvé des branches d'arbres mangées par les vers, je les plaçai dans sa cage et j'observai ses mouvements. Je le vis bientôt grimper sur une des branches et l'examiner attentivement ; ensuite inclinant les oreilles en avant et appliquant le nez à l'écorce, il la frappa rapidement avec ce curieux deuxième doigt, comme le pic frappe l'arbre, quoiqu'il fit bien moins de bruit. De temps en temps il introduisait le bout du doigt effilé dans les trous des vers, comme ferait un chirurgien d'une sonde. Il arriva enfin à une partie de la branche qui rendit évidemment un son intéressant, car il se mit à la déchirer de ses fortes dents. Il eut bientôt enlevé l'écorce, coupé le bois et mis à nu le trou d'un ver qu'il retira délicatement avec son doigt effilé et le porta à sa bouche. J'observai ses mouvements avec beaucoup d'intérêt et je fus frappé de la manière merveilleuse dont cet animal est doué par rapport à ses habitudes. D'abord son ouïe si fine qui le met à même de bien distinguer les différents sons que font rendre au bois les légers coups qu'il lui donne, ensuite son odorat très subtil pour l'aider sans doute dans ses recherches, sa marche assurée sur les branches flexibles auxquelles il se cramponnait à l'aide de ses membres de quadrumane, ses fortes dents de rongeur qui lui permettent de déchirer le bois le plus dur, enfin ce curieux petit doigt qui ne ressemble à celui d'aucun autre animal et dont il se sert tour-à-tour comme d'un plessimètre, d'une sonde et d'une curette. La découverte des habitudes d'un animal aussi rare est réellement une bonne aubaine pour le naturaliste, bien que nos recherches, en apparence puériles, puissent faire sourire l'homme d'affaires.

March 8, 1859.

John Gould, Esq., F.R.S., V.P., in the Chair.

The following papers were read :—

1. DESCRIPTION OF AN ATTACUS FROM THE EAST INDIES, HITHERTO APPARENTLY UNRECORDED. BY ADAM WHITE, ASSIST. ZOOL. DEP. BRIT. MUS.

(Annulosa, Pl. LVII.)

ATTACUS EDWARDSII, n. s. (Pl. LVII.)

A. fusco-brunneus, colore saturatiore quam in ATTACO ATLANTIS ;

fenestris ad basin rectis, squamulis ochraceis circumdati, segmentis albis alarum latioribus: alis externe lineis duabus, rivulosis seu undatis, ochreis et nigro-fuscis.

Hab. In Indiæ mont. (*Dhargeeling*).

Bombyx hæc distinctissima, Professori Milne-Edwards clarissimo, a descriptore dedicatur, "in memoriam."

This fine insect comes next to the well-known *Attacus atlas*, but may at once be distinguished from it by its intensely dark colour, especially on that band, bounded by angled and curved, white, defined lines, in which the fenestræ occur. This band is of a dark blackish-brown, passing into a rich chestnut-brown above the fenestræ of the upper wings and on their posterior margin; the inner margin of the lower wings is of this red-brown also; the fenestræ are not bounded by a margin of black scales as in *Attacus atlas*, but by ochreous yellow squamulation; the part of the fenestra towards the base of the wings, which in *Attacus atlas* is curved convexly, is in *Attacus edwardsii* straight; the fenestra is longer, the white lines on the wings, breaking up the brown so beautifully, are wider, and that on the lower wing is less scalloped than in *Attacus atlas*; the margin of the lower wing on the outside has two much-waved lines, the inner is yellow, with thirteen or fourteen undulations, continued on the upper wing till it leaves off where the wing is dilated into the lobe, which gives the wing its hooked-like character; the lower line is brownish-black, and is straight, except in six places, where the black runs up the nerves triangularly to a point, and meets two of the yellow lobes, which are conjugate. The figure will show this and the other markings better than any description.

This insect belongs to that largest group of *Bombycidae*, the cocoons of some of the species of which have been long used in India for the production of coarseish kinds of silk. One of these has been introduced into Algeria, Spain, Italy, and France, where the *Ricinus communis*, its food-plant, grows readily. The numerous valuable papers of M. Guérin-Méneville must be consulted, to show with what success the experiments have been made. It is not from want of energy, ability, and desire on the part of those who have tried to introduce it, that their endeavours have not been more successful. No silk is likely to supersede that of the old *Bombyx mori*, even although *Bombyx huttoni* and *Bombyx horsfieldii* be congeneric. The Silkworm seems, like the sheep, cow, and horse, to have been made for man. All our attempts are, or seem to be, in the main, unsuccessful to introduce new silk-producers—new domestic animals. They were created domesticated.



1. *Platysma sturtii*.
 2. *Platysma flindersii*.
 3. *Catadromus elseyi*.
 4. *Oryctes mullerianus*.

5. *Aulacopris reichi*.
 6. *Distichocera thomsonella*.
 7. *Schizorhina bakewellii*.
 8. *Diaphonia metallescens*.

G.H. Ford.

W. West imp.



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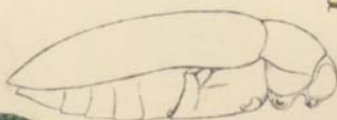
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1. *Chrysodema louisa*.
2. *Stigmodera guilielmi*.
3. *Stigmodera parallela*.
4. *Stigmodera bakewellii*.

5. *Temognatha imperatrix*.
6. *Zopherosis georgii*.
7. *Rhytiphora amricula*.
8. *Platymopsis armatula*.

2. DESCRIPTIONS OF UNRECORDED SPECIES OF AUSTRALIAN COLEOPTERA OF THE FAMILIES CARABIDÆ, BUPRESTIDÆ, LAMELLICORNIA, LONGICORNIA, ETC. BY ADAM WHITE, ASSIST. ZOOL. DEPART. BRIT. MUS.

(Annulosa, Pl. LVIII., LIX.)

CATADROMUS, MacI.

CATADROMUS ELSEYI. (Pl. LVIII. fig. 3.)

C. nitido-ater; thorace elytrisq̃ue viridi marginatis; thorace postice subquadrato; pectore ante propedes, lateraliter viso, recto; elytrorum basi, ad suturam, et pone scutellum, utrinque quadri-punctata.

Hab. In Australia boreali.

This fine Beetle was found on the Upper Victoria, Australia, in lat. 17° 30' S., in April 1856, by the lamented Mr. Elsey, the Surgeon of Mr. Gregory's famous Exploratory Expedition. It is as large as *Catadromus tenebrioides*, Macleay (Ann. Jav. p. 18, *Carabus t.*, Oliv.); the pectus, as in that species, is notched deeply in one sex, as Mr. Ford's admirable figure shows, less deeply in the other. It is an insect with the same long elytra as in that Javan species and in the Australian *C. australis*, differing from the *C. caraboides* from Australia, in which the elytra are much shorter.

PLATYSMA.

PLATYSMA STURTII. (Pl. LVIII. fig. 1.)

P. nigerrime lævigatum; thorace antice latiore quam longo; elytrorum lateribus basi et ante apicem dilatatis; dorso sulcato-striato, interstitiis depresso-convexis.

Hab. In Australia interiore.

Mr. Bakewell kindly gave to the Museum this species: it was found with the following, after a violent flood, and was washed from the plains of the interior into the province of Victoria. I have given to it the name of the great Australian explorer, Capt. Sturt.

PLATYSMA FLINDERSII. (Pl. LVIII. fig. 2.)

P. thorace elongatulo, lateribus rectiusculis; elytrorum basi carina abbreviata, lateraliter extensa.

Hab. In Australia interiore.

Found at the same time as the last. Both seem to be females, and nearly resemble each other: the thorax in this is much more elongate, the shortish outstanding keel at the base is not extended so far down the elytron at the side as in the last; but the general flattened character of the elytra and their dilated hind margin nearly agrees with it. They *may be sexes* of the same species. The first joint of the antennæ is longer than the rest, somewhat as in *Trigonotoma*. I have named it after Capt. Flinders, the great Australian navigator, whose naturalist was "Robertus Brown, Botanicorum facile prin-

ceps," and one of whose midshipmen was the distinguished Arctic explorer, Sir John Franklin.

These two insects should be placed in a new genus; but shortness of time and other reasons force me to refer them to *Platysma*, or *Percus*. Mr. Ford's admirable figures will make them known.

AULACOPRIS, White.

AULACOPRIS REICHII. (Pl. LVIII. fig. 5.)

A. aterrimus; thoracis dorso carinis decem elevatis longitudinalibus, quatuor antice et sex postice positis; elytris muricatis, singulis seriebus tribus longitudinalibus tuberculorum.

Hab. In ripis fluvii Yarræ (Australia).

Mr. Bakewell kindly gave the Museum this fine new species, which I have named in compliment to my excellent friend Mr. Reiche of Paris, who has studied the Lamellicorns so much and described them so well. I remember seeing his fine collection in 1841. This is one of the *Minthophilides* of Lacordaire's third volume, in Section 2, where the pygidium is covered by the elytra. It has a broadly notched lobe on the front of the head, the surface of which is punctured. The femora of the fore legs have a strong, ridged hook on the under side. The deeply grooved thorax has its grooving produced by four elevated ridges on the fore part and six shorter ridges behind, the two portions separated by a transverse groove extending from side to side. The edges of the thorax are crenulated; on each side of the *Hyboma*-shaped elytra are four rows of pointed tubercles. The tarsi of the hind legs (the specimen is deficient of the tarsi of the other legs) are nearly equal in width throughout. The inside of the hind tibiæ is crenulate or tubercled. All the femora are two-keeled below. The pectus of the metathorax is grooved on the hinder edge, and ends in a ridge.

We have only one specimen. It is a most remarkable Australian form of the family *Copridæ*.

ORYCTES.

ORYCTES MÜLLERANUS. (Pl. LVIII. fig. 4.)

O. lævigatus, brunneo-niger; thorace valde dilatato, dorso valde cavato, margine antico ad medium cornu apice subfurcato armato, lateribus singulis cornu crasso angulato armatis.

Hab. In Australia sept. (Fitzmaurice River).

This remarkable Beetle, with its much dilated thorax hollowed deeply out on the back, and with a somewhat recurved, slightly forked, projecting horn in front, and a short, angled, strong upstanding horn, like a truncated snag-front, was found by the distinguished botanist Dr. Müller, on the Fitzmaurice River, N. Australia, during Mr. Gregory's exploration, on Oct. 18, 1855, as the late Mr. Elsey told me. Dr. Müller's able papers in the Linnean Society's 'Proceedings' must be valuable additions to Botanical science.

This species belongs to a new genus; but I prefer at present referring it to the old genus, as I have not *data* from which to describe it.

SCHIZORHINA.

SCHIZORHINA (HEMIPHARIS) BAKEWELLII. (Pl. LVIII. fig. 7.)

S. (H.) bakewellii, White, Ann. & Mag. Nat. Hist. 1859, iii. p. 290.

S. rufescenti-flava; capite, corpore subtus, pedibus thoracisque vitta lata mediana longitudinali nigris; thorace supra lævigato, postice ante scutellum dilatato; elytrorum scutello suturaque nigris; marginibus corporis supra maculis sericeo-albis notatis; pygidio transversim aciculato, apice emarginato.

Long. unc. 1, lin. $5\frac{1}{2}$.

Hab. Australia (ad ripas fl. Yarræ).

DIAPHONIA.

DIAPHONIA METALLESCENS, White. (Pl. LVIII. fig. 8.)

D. subrugosula, hirtula, viridi-ænea, obscure purpureo lavata; thorace linea mediana lævigata longitudinali.

Hab. —?

A species, rather hairy, which may be known from all the others by its slightly metallic bronzy-green hue tinged with purple.

STIGMODERA, Solier.

Among the Australian *Buprestidæ*, and evidently belonging to the genus *Stigmodera*, we have in the Museum, through the great liberality of Mr. Bakewell, a species of interesting form, which at first sight resembles a *Sternocera* in form, or an *Iulodis*; unfortunately I cannot test the character of the diffuse antennal pores, or of these same pores being concentrated into one mass in a fossette of each joint,—characters, very slight, by which Lacordaire divides important groups. The species ought to belong to his third tribe, being somewhat like the *Stigmodera goryi*, but much longer and cylindrical.

STIGMODERA BAKEWELLII. (Pl. LIX. fig. 4.)

S. subcylindrica, Iulodiformis, seu Sternoceræ speciei, primo visu, subsimilis; elytris elongatis simplicibus, luteis, punctato-striatis; thorace purpureo-flavo, coloribus cyaneis et viridibus micante, rude et creberrime punctato; corpore subtus cæruleo viridi fasciato; pedibus cæruleo-viridibus.

Long. unc. 1, lin. 10.

Hab. Australia, in dumetis *Eucalypti dumosi* vulgo dictis "Maillee scrub."

In honorem Dom. Roberti Bakewell, qui in Australia detexit, et specimen unicum Museo Britannico cum multis aliis insectis raris munificenter in dono dedit.

STIGMODERA PARALLELA. (Pl. LIX. fig. 3.)

S. elongata, parallela; capite thoraceque fusco-purpurascens

crebre et regulariter punctatis, thorace unicolore; elytris nigro-purpureis, sutura marginibusque latioribus, dorso longitudinaliter sulcato-striato; singulis flavo sex-plagatis, plagis duabus lateralibus, prima basali elongata, secunda ad medium; plagis quatuor dorsalibus longitudinaliter directis, tertia obliqua, quarta subtriangulari; elytris ad apicem integris, interne oblique subtruncatis; pedibus corporeque subtus obscure purpureis.

Hab. In Australia ("Moreton Bay") (Mr. Diggles).

STIGMODERA GULIELMI. (Pl. LIX. fig. 2.)

S. elongata, longo-elliptica, thoracis lateribus antice convexis, postice foveis tribus profunde impressis.

Hab. Australia (Moreton Bay).

Dedicated to my kind friend William Jeakes, Esq., the possessor of a large and ever-increasing collection of insects of the families *Buprestidæ*, *Longicornia*, *Carabidæ*, &c.

TEMOGNATHA.

Among the Australian *Buprestidæ* we have a fine species from the Swan River, which I have named *imperatrix*, from its rich, royal, gold and green enamelled surface.

TEMOGNATHA IMPERATRIX, n. s. (Pl. LIX. fig. 5.)

T. flava; elytris ad apicem mucronatis, sutura etiam apiculata, dorso aureo-flavo, suturæ marginibus lateralibus (spatio pone basim excepto) purpureo-nigris; ad medium dorsi maculis 3-4 parvis transversis purpureo-nigris; pedibus viridibus; corpore subtus flavo, viridi decorato.

Long. unc. 1, lin. 6.

Hab. Australia (Swan River).

BUPRESTIS.

BUPRESTIS (CHRYSODEMA) LOUISA. (Pl. LIX. fig. 1.)

B. læte viridis; antennis, tarsorum articulis quatuor basalibus et apice extremo pedum rufulo-flavis; tarsorum articulo ultimo læte cupreo-viridi; elytris sulcato-lineatis, horum laterum dimidio majore apicali denticulato, dentibus purpureis, ad latera vitta elongata depressa; superficie metallica, cupreo-viridi, pilis curtis rufulis obsita.

Hab. In "Fiji Islands, Ovalau" (Mr. John Macgillivray).

Louisæ, conjugis carissimæ Caroli Hyde, Eq., (in exercit. Brit. capitani,) Lepidopterorum præsertim studiosissimæ, insectum hoc pedibus antennisque pallidis valde distinctum, nomen fert.

There is no figure in Gory and Laporte, nor in any of the recent French or other voyages, which resembles this. The elegant species has a depressed flattened thorax, with an impressed line down the centre; and the surface is rather thickly clothed with punctures, some of which have a tendency to accumulate into four depressed spots; the

somewhat grooved lines are deepest behind, and are punctured; the under side and legs are metallic green.

ZOPHEROSIS, White.

ZOPHEROSIS GEORGII. (Pl. LIX. fig. 6.)

Z. subparallelus elongatus, carbonaceo-niger, subnitidulus; elytris rugosissime tuberculatis, dorso generali elytrorum deplanato, lateribus tuberculatis, ad suturam tuberculis minoribus, apice elytrorum subdeclivi, tuberculis ante apicem maximis; thoracis lateribus rectiusculis, paulo curvatis, antice posticeque extensis, superficie dorsali valde irregulari, medio postice sulco profundo impresso, medio antice laevi, parte laevi postice sulcis angustis profundis sinuatis marginata.

Long. lin. 14; lat. max. elytror. pone medium lin. 4½.

Hab. Australia ("New South Wales") (Mr. John Macgillivray).

In general appearance this remarkable insect closely resembles the species of the genus *Nosodendron*, particularly the *N. morbillosum* from Chili; but it evidently (as Mr. Waterhouse, who kindly examined it, and after whose Christian name its specific name is derived, remarks) is closely allied to *Zopherus*, G. R. Gray. Like that genus, it has the deep groove on the under side of the thorax, for the reception of the antennæ. This groove is widest at the end, and must effectually screen these organs from injury. The antennæ have the first eight joints with the inner edge straight, and forming a continuous line, while the outer edges of each of these joints are somewhat rounded, and give a moniliform appearance to the outer edge; the second joint is the smallest, it is very short, and widish compared with its length; the third joint is considerably longer than the joints from the fourth to the eighth; the three terminal joints form a short club, the sides of which have two notches, caused by the middle part of each joint across being the widest and the sides tapering to this point. The thorax and elytra are very like those of some species of *Nosodendron*; the tarsi, on the under side, have a widish groove, each of the sides of which have a keel; the prothorax below has a deep curved sulcus close to the margin, and two faint grooves behind it, and the sternal plate between the fore legs, which plate has on each side of the trochanter a curved groove, neatly impinged on the outer side.

The species of *Zopherus* are all from the New World; and as there are several species which agree together, others from Australia may be found agreeing with this: it may be called *Zopherosis*. The last segment of the abdomen has on each side a deep transverse bisinuated groove. This may possibly be sexual; but as the Museum only possesses a single specimen, I cannot tell.

DISTICHOCERA.

In the Proceedings of this Society, Mr. Newman, two or three years ago, described the species of this genus. I here add the description of a new species.

DISTICHOCERA THOMSONELLA, n. s. (Pl. LVIII. fig. 6.)

D. thomsonella, White, Ann. & Mag. Nat. Hist.

D. velutino-nigra; capite, thorace elytrisque maculis albo-sericeis notatis; pedibus nigris; femoribus, apice atro excepto, rubris (♂).

Long. lin. $6\frac{1}{2}$.

Hab. Australia.

Named in compliment to the well-known author and publisher of the 'Archives Entomologiques' and other finely illustrated entomological works.

RHYTIPHORA.

RHYTIPHORA AMICULA. (Pl. LIX. fig. 7.)

R. pilis cinereis delicatule obsita, plagulis rufulo-flavis variegata; elytrorum apice subtruncato, ad basin verrucis nigris paucis exstantibus, dorso carinulis duabus (saltem) haud prominentibus longitudinalibus.

Hab. In Australia septentrionali (Dom. Elsey).

The late Mr. Elsey found this species at the Victoria River depôt, on Mr. Gregory's expedition; it is of a most delicate ash-colour, and slightly ornamented with dots of reddish-yellow hairs.

A species closely allied to *Rhytiphora polymita* of Mr. Pascoe. The antenna-joints, after the second, are fringed with hair; the head and thorax are thickly punctured under the hairs, and varied with rufous-yellow dots; the antennæ are cinereous, the fringe blackish, evanescent on the last joint.

SYMPHELETES.

SYMPHELETES (PLATYMOPSIS) ARMATULUS. (Pl. LIX. fig. 8.)

S. argenteo-cinereus, plagulis indistinctis rufescenti-flavulis, macula subobliqua subquadrata nigro-fusca in lateribus elytrorum ante medium, parte basali elytrorum colore subobfuscato, spinis curtis conicis paucis lineatim directis subarmata, spinis paucis in medio ad suturam, et paucis semiobsoletis in partibus alteris elytrorum; elytris ad apicem externum spinigerum ad suturam truncatis; thorace spinis (tuberculis potius) duabus transverse in medio dorsi positis, tuberculo in lateribus singulis thoracis ad angulum anticum.

Hab. In Australia septentrionali.

Collected by the late lamented J. R. Elsey, Esq., Surgeon to Mr. Gregory's Exploring Expedition. In this species the silvery grey pubescence, blackened somewhat on the base and on the hinder parts, and the squarish brownish-black spot on the sides before the middle, with a very short white oblique band before it, directed backwards, and another light and longer band considerably behind it, and directed forwards, and reaching almost to the suture, the conical spines on the back of elytra at the base and along the suture, and

other characters, mark it out as distinct from any other. The *Saperda obliqua* of Donovan is not unlike it. The hairs fringing the inside of the antennæ are whitish; while the eyes are nearly divided into two portions, the connecting part being very small. I must say I do not see any very trenchant characters to separate *Nyphona* and *Saperdopsis* or *Symphyletes*, Newm. In one *Lamia* (*L. pedicornis*), the great spine proceeding from the trochanters is a sexual character, possessed to a greater extent (and considerably curved) by a curious Longicorn from the Aru Islands, which will doubtless be described by my friend Mr. Pascoe, who studies the Longicorns so much, and who has described so many. In this the tibiæ of the fore legs are curved and have a spine at right angles to the tibia and near its tip. In the genus *Platymopsis*, established by Buquet in the 'Archives Entomologiques,' the head is flatter and broader than in *Symphyletes*. As we have not the 'Archives' in the British Museum, I can only quote it on Mr. Pascoe's authority. The head in *S. (Pl.) armatus* is widish and hardly notched.

3. DESCRIPTION OF TWO NEW SPECIES OF BULIMUS FROM THE COLLECTION OF MRS. DE BURGH. BY LOVELL REEVE, F.L.S., F.G.S.

BULIMUS DEBURGHIE. *Bul. testa elongato-ovata, crassiuscula, parum ventricosa, intense cærulescenti-viridi, infra suturas flavicanti-viridi abrupte interrupta, strigis flavidis longitudinalibus oblique undatis subdistantibus ornata, linea nigra spiraliter decurrente; anfractibus sex, declivi-convexis, lævibus, apertura parviuscula alba; labro reflexo; columella eburnea, valde implicata.*

Long. $2\frac{3}{4}$ in. Lat. $1\frac{1}{4}$ in.

Hab. Peruvian side of the Amazon.

A fine solid shell, encircled by a broad dark-green band, which suddenly stops short within a quarter of an inch of the suture, where the shell is yellowish-green, and it is crossed obliquely with yellow lightning-marks, which on reaching a thin black spiral band become narrower and more numerous. The columella, which is strongly plaited, and the aperture, are of a shining porcelain white.

BULIMUS PEELII. *Bul. testa elongato-ovata, subfusiformi, basi effusa, albida, maculis undatis ferrugineo-griseis albipunctatis fasciatim marmorata; anfractibus sex, lævibus aut longitudinaliter plicato-striatis; columella subappressa et oblique contorta vivide aurantiaca; apertura parviuscula, depressa; labro tenuiter reflexo, intus vivide aurantiaco.*

Long. $2\frac{1}{8}$ in. Lat. $\frac{3}{4}$ in.

Hab. Peruvian side of the Amazon.

This very elegant species belongs to the Bolivian and New Granada type of the genus represented by *B. fusoides*, *murinus*, *lino-*

stoma, and *spectatus*. It is painted with white-dotted rust-grey waved bands upon a white ground, the columella and border of the aperture being tinged with bright orange. I have the pleasure of naming it after Capt. John Peel.

4. SOME ADDITIONAL OBSERVATIONS ON *ZOANTHUS COUCHII*. By E. W. H. HOLDSWORTH, F.L.S., F.Z.S., ETC.

Some fine groups of *Zoanthus couchii* from Torbay having lately come under my notice, I have been enabled to obtain a better knowledge of the species than I possessed when I recently laid before the Society a description of its characters. I therefore venture to add a few remarks on certain points, which before were considered as relating to particular specimens, rather than to the species generally.

First, as to size. The dimensions given in my previous communication were those of the largest Polypes that I had seen alive, and which were described as being from 2 to $3\frac{1}{2}$ lines in height by about $1\frac{1}{2}$ in breadth; such also is the size of many that I have seen since; but among them have been several examples in which these measurements have been nearly doubled, and with the increase of size a power of varying the shape of the body has been exhibited, almost equalling that of *Corynactis*, so well known for the remarkable changes of form that it undergoes. This mutability of shape is dependent in a great measure on the degree of density of the external coating of sand, which does not increase in proportion to the growth of the animal; so that while the half-grown Polype is closely imprisoned in its hard covering, older and larger individuals are less thickly clothed; and when in a state of expansion, the grains of sand are sufficiently separated to allow the integument to be seen between them, and thus to permit that mobility of body which is so characteristic of the *Zoanthidæ*. The rigid form in the first specimens that I examined, was one of the difficulties that I met with in identifying them with Mr. Couch's description of the species.

There are some other points of disagreement which I have little hesitation in saying are due to a misconception on the part of Mr. Couch when preparing the original description. I refer especially to the statement that "the surface of the body is minutely glandular," and that "radiating from the mouth are numerous rows of whitish glandular-looking bodies, which are the tentacula in a contracted state;" in both these cases it is evident that the character of the sandy covering has been misunderstood. Secondly, as to the growth of the basal membrane. I have previously referred to it under the linear and expanded forms, which I then ventured to think were only modifications in the development of one species: the recently captured specimens throw some further light on the subject. Among various groups on one large shell, I have found lines of Polypes sometimes sending out lateral shoots from the basal membrane, and these again dividing; others expanding, so as to include two or three Polypes in parallel series, and in one instance a single specimen

was observed with the basal expansion extending equally on every side: again, the membrane leading from a group spreads at times over the surface of the shell in an irregular manner for a considerable distance, without any bud arising from it; so that no special form of growth can be considered as characteristic of the connecting membrane in this species. The rate of development in the members of a group is also of the same uncertain character—a large Polype being occasionally followed by a very small one, and that succeeded by two or three of intermediate but varying size; in fact, except in certain characters, the development of this *Zoanthus* is subject to great irregularity; and the cases above mentioned appear to me to confirm the opinion that I have before expressed of the specific identity of the linear form of growth with that which has been found in the Northern seas, overspreading the entire surface of small uni-valves.

5. NOTE ON THE ARTIFICIAL PROPAGATION OF SALMON. BY A. D. BARTLETT.

The Committee of the Australian Association have been trying a series of experiments with a view of ascertaining the possibility of conveying Salmon to Australia, for the purpose of introducing this noble fish into the rivers of that country. The difficulty is to convey them across the tropics; and the object of these experiments, which have been carried on in the Crystal Palace under my supervision, has been—

1. To filter a sufficient quantity of water to supply a running stream for the spawn or young fish.
2. To ascertain the highest amount of temperature in which they would live.
3. To discover the best and most economical means of lowering the temperature, that they may be kept alive while passing the tropics.

In order to accomplish the first object, arrangements were made with the Charcoal Filter Company to fix filters to supply a running stream through long boxes, which were partly filled with gravel and small stones, upon which the Salmon ova were to be placed.

Mr. Ramsbottom being engaged to obtain the ova and to ensure their being perfectly impregnated, and to deposit them in the breeding place in the Crystal Palace, proceeded to Wales, and on the 5th of February obtained from two female fish at least 20,000 ova, which, by the usual process adopted in the artificial propagation of fish, he rendered fertile, and then starting immediately for the Crystal Palace, arrived there February 7th, and deposited the ova in the breeding-boxes, which had been duly prepared. Unfortunately, at this time the filters had ceased to act, and the water supplied by the Lambeth Water Company was obliged to be laid on in its usual state. In a few days the ova and the bottom of the breeding-boxes became co-

vered with a dark deposit, from the impure condition of the water, and large numbers of the ova died daily in consequence. Another batch of filters was then fixed, and a fresh supply of filtered water obtained; and no more sediment was deposited upon the ova. Notwithstanding this, they continued to die for some days; but about the 20th, the whole of the deposit, which had settled upon the bottom of the boxes and upon the ova, began to rise towards the surface in the form of *Confervæ*; the bottom of the boxes and the remaining ova appeared quite fresh and clean; the surviving ova rapidly assumed the perfect state of the young fish; and on March 7th the young fry began to move about (the outer covering being thrown off), endeavouring to hide themselves between the stones and gravel. The temperature of the water during this experiment was 57°. In order to ascertain if any advantage could be gained by placing some of these in filtered water at a lower temperature, a number of them were carefully removed to a glass tank, supplied with a fountain at the temperature of 54°. In this they appeared to be doing well, were evidently larger and more active, and exhibited great promise. Unfortunately, on the morning of the 13th, the workmen having been ordered to make some alteration in the water pipes in the building, turned off the water, leaving the young salmon, together with the ova which had not yet been hatched, five or six hours without fresh water, in the tropical end of the building: in consequence of this, they were all destroyed, and this interesting experiment delayed for a whole year, as it is impossible to obtain the ova until the next breeding-season.

There are, however, some important facts learned from this experiment, one of which is the early period of hatching. Previous experiments have shown that 60 days usually expire before the young come to life; sometimes 140 days have passed. This experiment has proved that the young fish can be hatched in 30 days: it yet remains to be tested whether this is an advantage. It is certain that in the case of more highly organized and warm-blooded animals, their production at an earlier period than the ordinary one is attended, if not with death, at least with great debility; while, on the other hand, it is not possible to retard the operations of nature beyond the ordinary period without destroying the mother or the offspring. There are many circumstances that induce the belief that the young fish would be stronger by the early development; but no positive conclusion can be arrived at without further experiments.

Mr. Gould took occasion to lay upon the table specimens of all the known species of the genus *Elanus*, and made some observations upon their habits and economy, and their distribution over the face of the globe. With the exception of *Elanus leucurus*, which is confined to America, all the other species of the genus are inhabitants of the Old World, the *Elanus melanopterus* being found sparingly in Southern Europe, Africa, the Indian Peninsula, and pro-

bably Java,—the *Elanus axillaris* inhabiting Australia, and perhaps extending its range to Java (he said perhaps, because a slight difference is observable between the only Javan specimen he had seen and those from Australia), and the fine *Elanus inscriptus* having been hitherto found only in Australia. To these he now added, to the Old World a fourth species, and to the entire group a fifth, by characterizing a fine bird from Celebes as *Elanus hypoleucus*. This new species is one of the largest members of the genus, and is rendered conspicuous by the entire under surface being white, even the basal half of all the primaries being of this hue,—in which respect, and in its larger size, it materially differs from the *E. melanopterus*, the only bird with which it could be confounded.

ELANUS HYPOLEUCUS, Gould.

Adult.—Face, space over the eye, ear-coverts, all the under surface of the body, under tail-coverts, under surface of the tail feathers, and the thighs, pure white; the under surface of the wing is also pure white; basal half of the under side of the first six primaries white, slightly speckled with grey, passing into blackish grey; on their apical halves this grey hue also pervades the under surface of the remaining primaries; crown of the head, back of the neck, back, and scapularies, deep grey; on the shoulders a large patch of black; secondaries and basal half of the primaries deep grey, passing into blackish grey at their tips; two centre tail feathers grey above, the next on each side grey on their outer margins, the rest white; cere and legs orange yellow; bill and nails black.

Total length, 14 inches; bill, $1\frac{1}{4}$; wing, $12\frac{1}{8}$; tail, $6\frac{3}{4}$; tarsi, $1\frac{5}{8}$.

Young.—At apparently about nine months old differs from the adult in having the crown lineated with reddish brown, and a crescent of white at the tip of the primaries, secondaries, scapularies, and wing-coverts.

Hab. Vicinity of Macassar, Celebes.

Remark.—The above description of the adult is taken from a fine example in the possession of J. H. Gurney, Esq., which, as well as the young bird in the possession of Mr. Gould, was collected by Mr. Wallace.

Dr. Crisp exhibited a hen, six years of age, that had taken on the plumage of the cock; the bird also had spurs an inch long. On dissection, the ovary was found converted into a hard cartilaginous mass of uniform consistence. He placed the specimen before the Society, not because this abnormal state of the ovary, and consequent change of external character, was of rare occurrence, but rather for the purpose of ascertaining whether such changes of plumage occurred in birds living in a state of nature. Dr. Crisp had seen them in the Hen, tame Duck, and common Pheasant; but the last-named bird in this country could scarcely be called a wild bird.

There was one curious physiological deduction which he might notice: viz. that when quadrupeds were castrated (young), they

assumed a feminine appearance ; but birds, on the contrary, when the function of the ovary was destroyed, put on the male character.

March 22nd, 1859.

Dr. Gray, F.R.S., V.P., in the Chair.

Mr. Gould exhibited and characterized two new species of birds, one belonging to the family *Cuculidæ*, the other to the *Coturniceæ*, and remarkable as forming probably the smallest species of the groups to which they respectively pertained.

For a small Shining Cuckoo, killed at Port Essington, on the north coast of Australia, and of the same form and very nearly allied to the *Chrysococcyx lucidus* of New South Wales and the *C. basalis* of Java, Mr. Gould proposed the name of *Chrysococcyx minutillus* ; and for the Quail, which belonged to the genus *Excalfactoria* of Bonaparte, that of *Excalfactoria minima*.

The following are the descriptions of these new species :—

CHRYSOCOCCYX MINUTILLUS, Gould.

Head, all the upper surface, and wings shining bronzy-green ; all the under surface white, barred with bronzy-green, the bars being most distinct on the flanks ; primaries and secondaries white on the basal portion of their inner webs ; two centre tail feathers bronzy-green ; the next on each side bronzy-green on the outer web, rufous on the inner web, crossed by a broad band of black near the tip, and with an oval spot of white across the tip of the inner web ; the two next on each side bronzy-green on their outer webs, their inner webs rufous, with large spots of black near the shaft, most conspicuous in the outermost of the two feathers ; their inner webs are also crossed near the tip with a very broad band of black, and have an oval spot of white at the tip ; the outer feather on each side is barred alternately on the outer web with dull bronzy-green and dull white, and on the inner one with broad decided bars of black and white, and tipped with white ; bill black ; feet olive.

Total length $5\frac{1}{2}$ inches, bill $\frac{5}{8}$, wing $3\frac{1}{4}$, tail $2\frac{1}{2}$, tarsi $\frac{1}{2}$.

Remark.—This bird is perhaps more nearly allied to the Java species, *C. basalis* of Horsfield, than to the *C. lucidus* ; but it is as much smaller than the *C. basalis* as that bird is less than *C. lucidus*. The type of *C. basalis*, which is the only one I have seen, is not a fully adult bird ; and yet the measurement of its wing exceeds by half an inch that of the *C. minutillus*.

EXCALFACTORIA MINIMA, Gould.

Forehead and sides of the head grey ; crown of the head, all the upper surface, and wing-coverts reddish-brown, conspicuously spotted