NOTES.

Merista variabilis, Har. (Stett. ent. Zeit. 1880), is identical with *Haplosonyx trifasciatus*, Hope; the type contained in the British Museum agrees with v. Harold's description, that of Hope's being unrecognizable.

Merista rufipennis, Har., is synonymous with *Leptarthra dohrni*, Baly, the latter author having omitted to mention in his description the red colour of the elytra.

Nerissus griseo-scutellatus, Karsch (Berlin. ent. Zeitsch. 1882, December), is without doubt identical with *Cheiridea subrugosa*, Jacoby (P. Z. S. 1882, p. 55).

EXPLANATION OF PLATE XLV.

Fig. 1. *Oides apicalis*, p. 399.
2. —— *biplagiata*, p. 401.
3. —— *clarkii*, p. 401.
4. —— *affinis*, p. 400.
5. *Mesodonta transverso-fasciata*, p. 403.
6. *Pachytoma gibbosa*, p. 403.
Fig. 7. *Megalognatha cruciata*, p. 401.
8. —— *unifasciata*, p. 402.
9. —— *bipunctata*, p. 402.
10. *Merista oberthüri*, p. 404.
11. *Physonychis nigricollis*, p. 404.
12. *Systena discoidalis*, p. 405.

3. On the Madreporarian Genus *Phymastræa* of Milne-Edwards and Jules Haime, with a Description of a new Species. By Prof. P. MARTIN DUNCAN, F.R.S. (Communicated by Dr. SCLATER, F.R.S.)

[Received May 29, 1883.]

CONTENTS.—I. Introduction. II. The Generic Diagnoses of *Phymastræa* given in 1848 and 1857. III. The emended Diagnosis of the Genus. IV. Description of the Species hitherto known. V. Description of a new Species. VI. Remarks on the Structures of *Phymastræa irregularis*, Dunc. VII. The Affinities of the Genus with others of the Recent Coral-fauna. VIII. The Affinities with Extinct Genera.

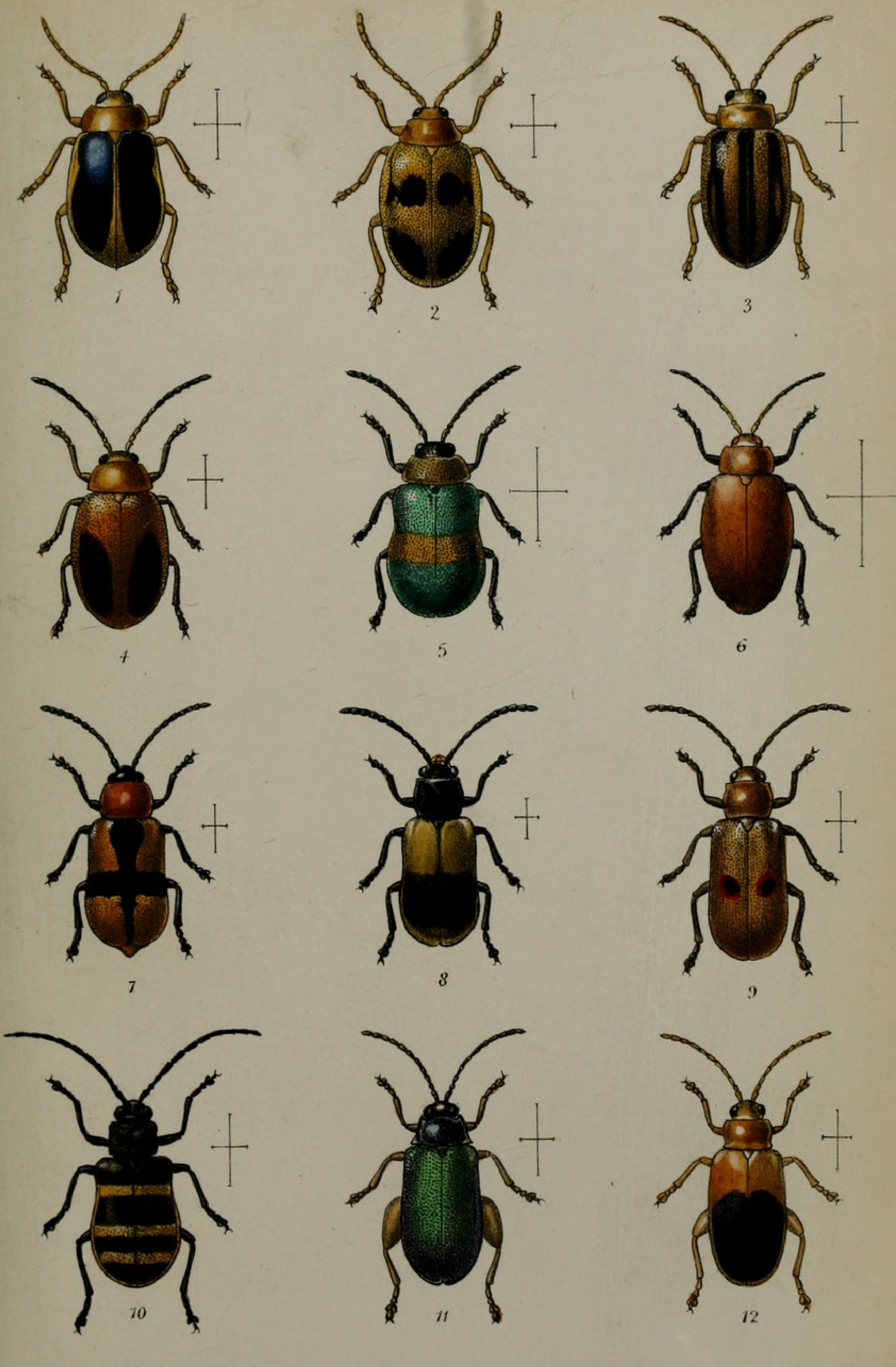
I. *Introduction.*

The species of the genus *Phymastræa* are rare; hitherto only two have been described, and a third is now brought forward for the first time. The genus belongs to the subfamily Astræaceæ of the family Astræidæ, and all the species are recent forms. Their structures are very remarkable, and recall in some points those of fossil forms.

In fact the genus, which is remarkably well defined, is exceptional amongst the recent Astræidæ, has a very old-fashioned appearance, and would not have been out of place in an early Secondary coral-fauna.

The species were studied in the first instance by MM. Milne-Edwards and Jules Haime, and they included them in the genus *Phymastræa*, which was established for the purpose in 1848[1]. Sub-

[1] Comptes Rendus de l'Académie des Sciences, t. xxvii. p. 494.



W. Purkiss lith.

Hanhart imp.

NEW SPECIES OF GALERUCIDÆ.

sequently the diagnosis of the genus was given in their work entitled 'Recherches sur la Structure et la Classification des Polypiers recents et fossiles;' and finally in their great work, the 'Histoire naturelle des Coralliaires,' tome ii. p. 499 (1857).

The generic diagnosis of 1857 does not correspond in a very important point with that published in 1848; and there is no doubt that the last diagnosis is erroneous. The great French zoophytologists described two species of the genus *Phymastræa* in their last-mentioned work, having noticed them fully in their previous one. Unfortunately the geographical positions of the two species are not known. Probably they are from the Eastern seas.

II. *The Generic Diagnoses of* Phymastræa[1] *given in* 1848 *and* 1857.

The generic diagnosis given by MM. Milne-Edwards and Jules Haime in 1848 is as follows:—

"Corallum in a convex or plane mass. Corallites prismatic and enveloped from the base to the summit by a thin epitheca without a trace of costæ. Corallites close, not joined by thin walls but, at certain distances, by large wart-like projections, so that there are considerable spaces between the walls of contiguous corallites. The gemmation is extracalicular and subapical. The walls are thick; the calices are subpolygonal, and their margins are free; the columella is spongy in texture and well developed; and the septa are well developed, slightly exsert, and strongly toothed, especially near the columella."

The generic diagnosis published in 1857 contains the same characters, but there is an alteration regarding the method of increase of the corallum in the nature of the gemmation. This is stated to be calicular and submarginal.

Fortunately the drawings and descriptions of the species of *Phymastræa* which were published along with the first diagnosis of the genus will satisfy any student of the Madreporaria that the gemmation is extracalicular, and from the wall beyond the edge of the calices. The second diagnosis is therefore incorrect; and this opinion is maintained after the examination of the third and hitherto unpublished species.

In noticing the remarkable method of the junction of the corallites of *Phymastræa*, MM. Milne-Edwards and Jules Haime state that the genus has great affinities with others of the Astræidæ, and that this method is characteristic.

It is necessary to draw attention to the statement that the corallites are invested with a thin epitheca and that there is no trace of costæ. It is evident, moreover, that MM. Milne-Edwards and Jules Haime considered the junction-processes to be invested with epitheca, but to consist of an almost compact structure. These processes "*se soudent fortement à la muraille d'un polypiérite voisin.*"

In the delineation of the species *Phymastræa valenciennesi*, Ed. & H., on pl. ix. figs. 3 & 3 *a* (Ann. des Sciences Nat. 3 série, t. x., Zool.),

[1] φῦμα, a thing that grows upon the body.

it is perfectly evident that something more than costal structure is implicated, for there are only two rows of processes to one face of the walls of a corallite. The processes stretch across several costæ and intercostal spaces, and therefore the true wall adds to the growth as well as the costæ.

The study of the new species confirms this view of the nature of *Phymastræa* and that the gemmation is extracalicular.

It is proposed to emend the genus as follows:—

III. *Characters of the Genus* Phymastræa, *Milne-Edwards & Jules Haime, emended.*

The corallum is compound, massive, and its free surface is convex or plane. The corallites, more or less prismatic, increase by extracalicular gemmation and are joined together by short growths from costæ, or from the wall, which are placed with some regularity in vertical series, elsewhere they are separate. An epitheca exists which may environ the growths. There is a columella, an exotheca, and a well-developed endotheca. The costæ may or may not be apparent.

IV. *Description of the Species hitherto known,* Phymastræa valenciennesi *and* P. profundior.

Phymastræa valenciennesi, Ed. & H. (Hist. Nat. des Corall. vol. ii. p. 500).

The corallum is an incrusting subplane form, with a large columella and four more or less complete cycles of septa, the larger being exsert. The nodules are large and warty, and there are two vertical series of them on each face of the more or less prismatic-shaped corallites; they are enveloped in epitheca. The calices are shallow and pentagonal in outline, and measure from 8 to 10 millim. in diameter.

Locality unknown. Specimens in the Michelin Collection at Paris.

Phymastræa profundior, Edwards & Haime.

The corallum is incrusting and convex. The calices are polygonal, and are 8 millim. in diameter and are deep. The columella is moderately developed, and there are usually three cycles of septa more or less complete, and sometimes there is one septum of a fourth in each system. The septa are exsert, thickest at the wall, and have a large dentation near the columella. The junction-processes are slender.

Locality unknown. Specimens in the Michelin Collection at Paris.

The last species is distinguished from the first-named by having deep and smaller calices, a smaller columella, a lower septal number, and slender junctions.

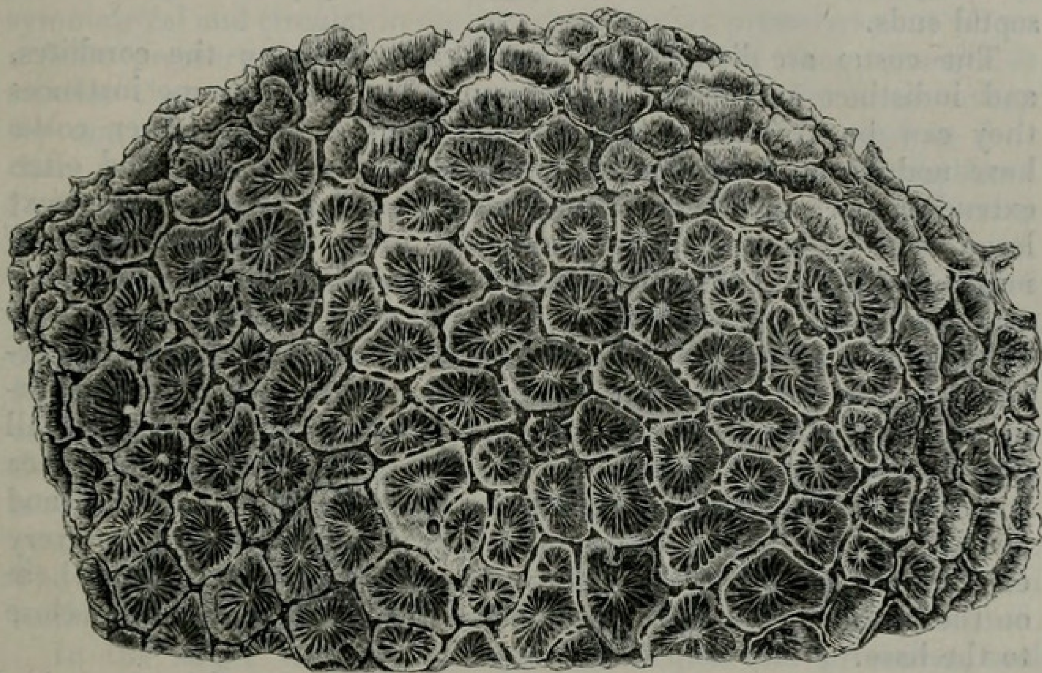
As the genus was determined by MM. Milne-Edwards and Jules Haime after the study of these two species, it is clear that the species about to be described is very distinct, for it has costæ from which the junction-processes arise.

V. *Description of a new Species.*

PHYMASTRÆA IRREGULARIS, sp. nov.

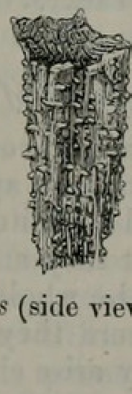
The corallum has a small adherent base and a large irregularly hemispherical shape, the surface being gibbose here and there. The

Fig. 1.



Phymastræa irregularis (corallum from above).

Fig. 2.



Phymastræa irregularis (side view of a corallite).

corallites are numerous, are small at the base, widen rapidly with height, and are very irregular in their outlines and dimensions; each is separated from its neighbours even at the calice by a narrow space which is crossed by slender junction-processes. The calices vary in size and shape and are rather deep; they are angular in outline and may be hexagonal, pentagonal, quadrangular, and triangular, or even deformed. The margins of the calices are sharp; the septa are non-exsert, unequal, some being very long and others quite rudimentary, and the cyclical arrangement is confused in the extreme. There is little or no difference between the primaries and secondaries, and some part of a system usually aborts. Three cycles of septa in six systems with some higher orders, abortion taking place here and there, is the rule; and the more irregular the outline of the calice, the greater is the confusion of the septal arrangement. The columella is small, lax, and trabeculate, being formed by processes from the septal ends.

The costæ are distinct and unequal low down on the corallites, and indistinct and absent higher up, although in some instances they can be traced to the calicular margin. The larger costæ have nodules on their free edge placed in linear series, and often extending over an intercostal space and smaller costæ to the next large one. These nodules join those of approximated costæ of neighbouring corallites, and form short processes. Junction-processes occasionally do not correspond to costæ. An epitheca exists over each corallite, especially low down; it covers the costæ and intercostal spaces and laps round the junction-processes; it is membranous-looking and has a few transverse and other ridges. A small amount of exotheca exists between the costæ, and the endotheca is largely developed, coming up to the base of the calices, and usually closing them below, but the dissepiments are not very close. The growth is by gemmation, which may occur anywhere on the outside of a corallite from below the calicular margin to close to the base.

Height of the corallum or colony 4 centim., breadth 10 centim. Width of calices from 3 millim. to 1 centim.

Locality. West coast of India, shallow water, fixed on an *Ostrea.*

The new form is distinguished from its nearest ally *Phymastræa profundior*, Ed. & H., by having well-developed costæ, non-exsert septa, and extremely irregular calices.

VI. *Remarks on the Structures of* Phymastræa profundior.

The attachment of the colony or corallum is by a comparatively small base to a shell, and it does not appear that it sprang from one corallite. The bases of several corallites may be seen in contact with the shell; and it is evident that they and their buds contribute to the symmetrical development of the whole colony. The corallite walls are solid and thick, except where they are growing at the calicular margin. The buds, when they arise close to the calicular margin of the parent, produce a certain amount of thinning of the parent wall, and often give the appearance of fissiparity. Lower down, the buds communicate with the visceral cavity of the parent; and there is a space at their base, where they spring from the parent, which leads into its interior.

There is considerable distance between the corallites at the surface, amounting to 1 millim. and more, and this is crossed by the junction-processes. These are very variable in their size and distribution; some do not reach across, and others are constricted in the middle. Very broad ones are exceptional.

The irregular shape of the corallites and calices is due to pressure during growth and the pushing upwards of growing buds; and this irregularity of outline appears to have interfered with the septal distribution.

In a very small calice belonging to a small bud, which is nearly symmetrical and circular in outline, there are six primaries; but where a little pressure has produced flattening, one of the primaries is smaller than the others and might be mistaken for a secondary septum. There are six systems of septa in the bud, and in four there is a secondary septum; two of them are long and two short. In the other two systems, near the flat part, there are no secondaries.

A second bud, which is oval elliptical in outline, being compressed from side to side, has six primaries, and where the pressure was at one end the primary there is small. There are, as usual, six systems. In the first, commencing to the right of a primary in the long axis of the calice, there is a secondary which is long, and in the second the secondary is a mere rudiment. In the third system the secondary is rudimentary, and so it is in the fourth; so that the third and fourth systems, with the intermediate small primary, look like one system. The fifth system has a long secondary and a tertiary, small and rudimentary, on either side; and the sixth system is like the second.

In the larger calices the secondaries equal the primaries, and some tertiaries do the same; moreover, in the same system a tertiary may abort or be rudimentary, so that there are three successive septa equal in length, *i. e.* a primary, a tertiary, and the secondary, and then comes a small tertiary. In the same calice in the next system, the normal long secondary has short tertiaries on either side; but the next system has a secondary equal in length to the primaries; on one side of it is a small tertiary, and on the other a long tertiary with a small septum between it and the secondary. This is a very irregular and abnormal distribution. In the next system the secondary is small and the tertiaries are as large as primaries, and between the primaries and the tertiaries is a rudimentary septum. None are found on either side of this secondary septum. The irregularity of the septal distribution in the last system of all transcends any thing I have ever seen. The secondary and the two tertiaries are equal in size and resemble primaries; and there is a long septum occupying the position of the fifth order between each tertiary and the secondary. Between one primary and the tertiary there is a septum of the fourth order, and between the other primary (the first in the calice) and the tertiary there are two septa! In the largest calices the septal arrangement appears to be without definite arrangement in cycles and systems, and large and much smaller septa alternate.

Sections of the corallum must cut across corallites at different angles to their long axes; and the appearances presented here and there, although perfectly explicable in the perfect specimens, might be mistaken for fissiparous calicular division. The appearance of the sections reminds one of that of many fossil corals which have weathered, or which have been partly preserved, or which are offered to the student in sections. The truth could not be ascertained from such relics.

VII. *The Affinities of the Genus with others of the Recent Coral-fauna.*

The genus *Phymastræa* would be very isolated in the classification were the two original species the only ones; but the new species, on which the costæ are tolerably well developed, allies it to *Heliastræa*. It does happen that very costulate Heliastræans have a union between opposing costæ by their spinulose growths, but it is a rare and not invariable occurrence. The growth of the two genera is much the same; but the presence of exotheca extending beyond the costæ and between the corallites in *Heliastræa* is a remarkable distinction, and decides the comparatively symmetrical shape of the Heliastræan calices. The genus *Astræa* appears at first sight to be allied to *Phymastræa*; but a careful study of its structure indicates that its junction-processes are synapticula.

The bushy forms which increase by gemmation from the external wall below the calice, and which have a more or less complete epitheca, and belong to the genus *Cladocora*, cannot be associated with *Phymastræa*, for when junction of corallites does occur in them it is through the epithecal bands which exist here and there, and not by means of mural structures.

In classification it is therefore requisite to leave the genus *Phymastræa* where MM. Milne-Edwards and Jules Haime placed it, between *Heliastræa* and the genera with entirely soldered or united walls.

VIII. *The Affinities with Extinct Genera.*

Some of the early Secondary corals have a superficial resemblance to *Phymastræa*, especially the species of *Elysastræa* described from the Infra-Lias of the Sutton Stone and Brocastle in South Wales. The resemblance is with the species described by MM. Milne-Edwards and Jules Haime; and the figures given by me in the 'Monograph of the British Fossil Corals,' second series, part iv. no. 1, Palæontog. Soc. 1867, plate vi. figs. 5–13, especially figure 10, are very suggestive. But the complete epitheca does not surround junction-processes in *Elysastræa*; they do not exist. In the genera more or less allied to *Cladocora*, and which are found fossil, there are no junction-processes. The genus really stands alone in its characteristic method of corallite union.

4. Notes on the Anatomy of *Sus salvanius* (*Porcula salvania*, Hodgson).—Part I. External Characters and Visceral Anatomy. By J. G. Garson, M.D., F.Z.S.

[Received June 5, 1883.]

One of the Pygmy Hogs recently acquired by the Society having died, it was put into my hands for examination.

In the present communication I intend only to treat of the external characters, and the digestive, circulatory, and respiratory organs and brain, reserving the muscular anatomy, as well as that of the vessels, nerves, and other parts of the body, and the osteology, for a subsequent communication.

The body is covered with brownish-black bristles, sparsely set on the abdomen, especially between the legs, on the sacral region, and hind limbs. The posterior surface of the ears is naked; and there are only a few fine hairs on their anterior surface. The tail is hairless. A slight increase in the thickness and length of the hair and bristles is observable on the back of the neck. The hair is thickest on each side of the body behind the shoulders. There is no underhair present at any part of the body. The colour of the skin is dark. On the abdomen are three pairs of nipples; the anterior pair are smaller in size than the other two pairs.

The body measures in length from the tip of the snout to the tip of the tail 58 cm. From the anterior angle of the eye to the tip of snout measures 7·3 cm. The length of the ear, which is ovoid in form, is 4 cm.; the breadth is 5·4 cm. The length of tail is 3·2 cm. The length of the manus, from the carpus to the tip of the central digit, is 6·5 cm., and from the carpus to the inner short toe 4·3 cm. The length of the pes is 4 cm., and from the tarsus to the inner toe 2·2 cm. The inner small second digit is slightly shorter than the outer fifth digit, both in manus and pes. This condition obtains in both the manus and pes of *Sus scrofa*, as I have had occasion to verify by examination of specimens in the College-of-Surgeons Museum. No trace of ducts opening on the skin at the inner side of the manus could be discovered. The permanent incisors and canines, the first and second premolars, and the first and second molars have been acquired. The third and fourth milk-molars are in place and are much worn. The ultimate lower molars have appeared, but are not full-grown: those of the upper jaw have not penetrated the gums; but on cutting into the gums their presence could be detected.

The adult dentition is I. $\frac{3}{3}$, C. $\frac{1}{1}$, P. $\frac{4}{4}$, M. $\frac{3}{3}$, exactly the same, then, as that of the Common Pig.

Being a female, the canines are small; but in the male now living in the Society's Gardens they seem to be well developed, and project slightly beyond the upper lip.

The *tongue* measures 9·5 cm. long by 2·4 cm. in breadth across the anterior part and 2 cm. across the posterior portion, is flat, and has the intermolar eminence less marked than in most Ungulates. The surface is covered with fine conical papillæ, among which, here and there, regularly over its whole extent, are scattered fungiform papillæ of a white colour. These papillæ are aggregated in a row along either side of the tongue. On the posterior portion are two large circumvallate papillæ of whitish colour, situated symmetrically on either side of the median line. Behind these the conical papillæ become large and soft. The specimen under observation showed a number of transverse markings, corresponding apparently to the rugosities on the palate ; there were also some transverse markings or cracks observed on the posterior portion.

The *epiglottis* is of large size ; and there is a large pouch-like cavity between it and the back of the tongue.

The *œsophagus* is about 15–16 cm. in length ; at its lower end, immediately before entering the stomach, its mucous lining becomes thrown into longitudinal folds and becomes thickened.

The *stomach* is in general outline essentially like that of *Sus scrofa*. When laid out flat it measures 12·2 cm. in its long axis and 8·3 cm. in depth between the two curvatures. To the left of the œsophageal opening is a conical pouch-like projection arising as it were from the left upper and posterior part of the viscus. The walls of the pouch are thick, and have longitudinal markings of bands of fibres running on the surface, directed towards the apex of the cone. On opening the viscus, it is found that the mucous membrane of the pouch-like cavity is very rugose, and that there is a well defined constricting ring developed on the right side or the side next the œsophageal opening which separates the pouch from the remainder of the gastric cavity. The thickened epithelium of the œsophagus extends some distance over the lining of the upper wall of the stomach around the cardiac orifice, and is so folded at the latter point as to form a sort of valve as in the Pig. The transverse ridge which marks off the antrum pyloricum is less marked than it is in the Pig. Towards the pylorus the walls of the stomach become considerably hypertrophied. The pylorus can be completely occluded by an oval pad situated on the side of the lesser curvature, which fills up completely its crescentic and concave under portion just as in the Pig.

The *small intestine* is long but of small calibre, and when *in situ* is situated chiefly on the right side of the abdominal cavity. The duodenum makes a moderate-sized loop to the right before it crosses beneath the ascending colon. The Peyer's patches are scattered through the intestine ; but there is no large patch at the lower end of the ileum like that found in the Pig. The last part of the ileum ascends to the top of the cæcum, which lies rather to the left side with its apex upon the bladder. The *cæcum* is saccular, measuring 7·1 cm. in length. Its outline is straight, in contradistinction to the irregular crenated outline of that of the common Pig. A strong band of muscular fibres runs down the internal or left surface; a second band runs down the external or right surface ; and extending from the ileum to the posterior surface of the cæcum is a third band. From the top of the cæcum arises the colon, which has a spiral arrangement, in form like two cones united by the apices, the bases being oval, however, instead of round. The lumen of the first part of the colon is greatest. At the top of the coil the intestine loops round, and, reversing its course, passes out at the base of the coil, ascends in front of the duodenum and passes to the left, then finally enters the pelvis. The arrangement is essentially that found in the Pig. The various coils of colon are united firmly together by fibrous tissue: the first part is crenated in outline; but the remainder is regular and uniform. The large intestine was found, on opening the abdominal cavity, to occupy chiefly the left side, and presented a marked contrast to the small intestine from its somewhat dark colour as compared with the dirty-yellow colour of the latter.

The liver[1] has no suspensory ligaments or round ligament. The umbilical fissure is well marked, and divides the viscus into two segments of nearly equal size. The right central lobe is considerably larger than the left, while in the Pig they are of almost equal size. The free border of the right central lobe is broken by a cystic fissure of small size. The superior or diaphragmatic surface of the left central lobe, and partially also that of the right, is excavated deeply, and the hollow filled up by the sac of a cysticercus, of which two were found—this one attached to the liver, and a second, free, in the abdominal cavity. The attached border of the right segment of the liver is notched for the vena cava, which is superficially placed and does not tunnel through the substance of the liver as in the specimen of *Sus scrofa* before me. The condition which obtains here is precisely that which was found by Prof. Flower to exist in *Phacochœrus* and *Potamochœrus*, notes on the dissections of which he has kindly placed at my disposal. In both of these genera the vena cava is superficial. The Spigelian lobe is well defined, but does not form any projection. The caudate lobe is well defined, and seems to have a tendency to be more complicated than in the Pig.

The *omentum* is small in quantity and shrivelled up in bands; it is also characterized by the absence of fat.

Immediately below the cartilages of the larynx situated on the front of the trachea is the thyroid gland, which measures 3·2 cm. in length (in the axial line) by 1·3 cm. broad and 1·4 cm. in depth (dorso-ventrally).

The *trachea* measures about 9 cm. in length; at its posterior end it divides into two short bronchi (1 cm. long) which immediately enter the lungs. About 2·5 cm. above the bifurcation, the trachea gives off a branch to the upper lobe of the right lung. This branch is about one third the size of the bronchus, and, immediately on entering the lung, splits up into two branches, one of which runs upwards, the other downwards. This arrangement of the three bronchi is precisely what is found in the Pig.

[1] The description of this organ given here is on the plan proposed by Prof. Flower in his Hunterian Lectures at the Royal College of Surgeons on the organs of digestion in the Mammalia, published in the 'Medical Times and Gazette,' Feb. 24 to Dec. 1872—a source which I have freely availed myself of in the description of the digestive organs in the specimen under consideration.

The right lung is composed of three lobes—an anterior and a posterior dorsal lobe and an anterior ventral lobe. The anterior dorsal lobe is subdivided into an anterior division and a posterior division. The anterior portion hooks forwards and downwards in front of the heart, more or less completely covering the right auricle. The ventral lobe lies against the posterior wall of the left ventricle, and is deeply grooved for the ascending cava.

The left lung consists of two lobes—an anterior and a posterior dorsal lobe, the former of which is subdivided into an anterior and a posterior portion. The anterior portion runs directly forwards, while the posterior portion is directed downwards dorso-ventrally. The extreme length of the lungs is about 12 cm., and the extreme depth along the diaphragmatic surface is 9 cm. A portion of the left lung in the form of a small lobule intervenes between the diaphragm and the heart.

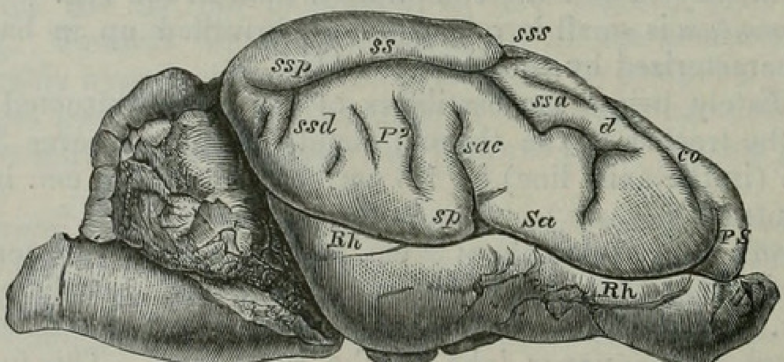
The heart measures from its base to apex 5·2 cm.; the antero-posterior length from the margin of one ventricle to that of the other is 5 cm.; the transverse diameter is 3·5 cm.

The *spleen* is long and narrow, very similar in all respects to that of the Pig, but differs from that of *Dicotyles* in being more elongated and not so broad at the posterior end.

The *mesenteric glands* are numerous and of large size. In some instances several glands are aggregated together so as to form large glandular patches between the folds of the mesentery. The vessels of the mesentery are quite straight, as in the Pig.

The *brain* is of small size, measuring, from the olfactory lobes to the posterior part of the cerebellum, 6·2 cm. in length, and 3·8 cm. in breadth. The fissures and convolutions are well marked, and can

Fig. 1.



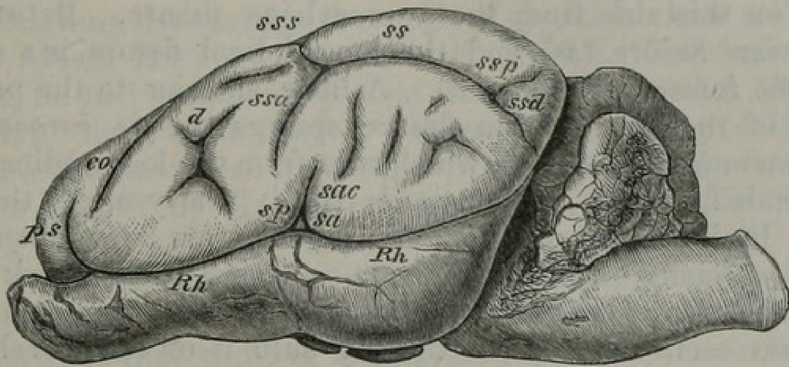
Lateral view, right side; natural size, after being hardened in spirit.

readily be compared with those of the common Pig. Adopting the nomenclature proposed by Krueg for the different cerebral fissures[1], we recognize the rhinal fissure (*Rh*) extending along the lower part of the cerebrum on each side throughout its whole length. About the centre of this fissure (figs. 1 and 2), but somewhat nearer the posterior than the anterior end, are the various portions of the Sylvian fissure, the

[1] Zeitschrift f. wissensch. Zool. Leipzig, 1878, xxxi. pp. 297–344.

anterior process (*Sa*) running forwards and downwards into the rhinal fissure, while the processus accessorius (*sac*) points backwards and upwards. Rising from the anterior portion of the rhinal fissure and running upwards and forwards is the presylvian fissure (*Ps*), a well-marked fissure symmetrical on both sides. Above the rhinal

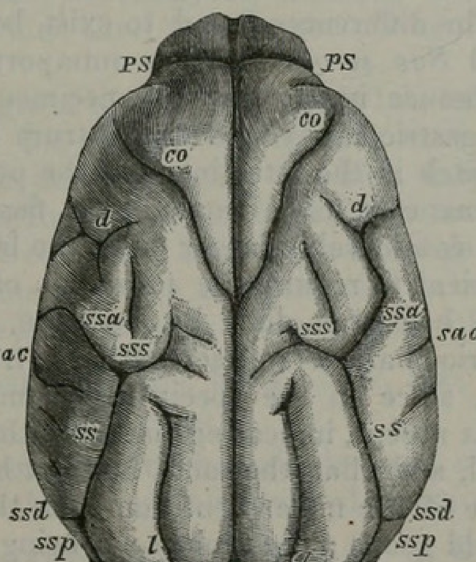
Fig. 2.



Lateral view, left side; natural size.

fissure, and running in a direction more or less parallel to it, is the suprasylvian fissure, which shows a curious asymmetry on both sides (figs. 1, 2, and 3): on the right side (figs. 2 and 3) it begins by the

Fig. 3.



View from above; natural size.

union of two short branches—that nearest the mesial line called the processus posticus (*ssp*), the other, more external, named the processus descendens (*ssd*),—and extends forwards to the line of the sylvian fissure (*ss*); at this point it gives off an ascending branch (*sss*), which runs up almost to the middle line, and called the processus superior; it then bends downwards and forwards, this portion being called the processus anterior (*ssa*), and is continued forward as the diagonal fissure (*d*). On the left side the suprasylvian fissure is more simple (figs. 2 and 3): it has two posterior branches and an ascending anterior branch as on the right side; it then passes downwards and forwards and terminates. The diagonal fissure (*d*) is quite separate on this side from the suprasylvian fissure. Between the suprasylvian fissure (*ss*) and the longitudinal fissure is a straight fissure, *fis. lateralis* (*l*) (fig. 3). A little anterior to the processus superior of the suprasylvian fissure springs the *fis. coronalis* (*co*) (fig. 3), an important fissure, which runs from the longitudinal fissure and extends forwards and outwards till it nearly meets the rhinal fissure. Besides these principal fissures there are a few of small size present, especially on the right side. A very small speck of the island of Reil is to be seen at the junction of the rhinal and sylvian fissures on each side. The olfactory bulb is of considerable size. In general form and in the arrangements of the fissures the brain is exceedingly like that of *Sus*, especially on the left side.

The *uterus* was seen, on opening the abdominal cavity, to occupy the anterior portion; and on examination was found to be pregnant, containing five young. It resembles that of the Pig.

The *kidneys* measure 5·5 cm. in length, and are surmounted by suprarenal capsules of considerable size.

Conclusions.—The differences found to exist between the animal just described and *Sus scrofa* are very unimportant and few, the chief being the absence in the present specimen of the transverse fold between the gastric cavity and the antrum pyloricum, and of the long Peyer's patch in the intestine, and the presence in the liver of a superficial vena cava, of a small cystic fissure, and its right lateral lobe being considerably larger than the left. Those differences are not sufficient to require the formation of a distinct genus for the animal as has been done by Hodgson, who claims for it the following generic characters as separating it from *Sus*:—a difference of dentition, since in the specimens examined by him the posterior molar was absent, indicating probably that it was the skull of a young animal, and that the tooth had not been acquired (this supposed difference of the molar dentition from that of *Sus*, I have shown does not hold good); the canines not being protruded beyond the lips (a condition which we find to obtain in the male specimen now living in the Gardens); the inner digit being shorter than the outermost (a condition which we find obtains in *Sus scrofa*). Having shown that none of these supposed generic characters exist, and that the animal resembles *Sus* so closely that there is no ground for separating it from that genus, the generic name *Porcula*, by which it has been known since Hodgson first described it, must be abandoned unless hitherto unobserved or at least unrecorded differences should present themselves in the organs yet to be examined which would justify the retention of the name.

5. A List of the Birds collected by Captain A. H. Markham on the West Coast of America. By Osbert Salvin, M.A., F.R.S.

[Received June 18, 1883.]

The following list contains the names of the birds' skins collected by Captain Albert Hastings Markham of H.M.S. 'Triumph,' during the time he had command of that ship, when forming one of the squadron of the Pacific Station. From this list the greater portion of the Laridæ have been omitted, as they have already formed the subject of a paper by Mr. Howard Saunders (P. Z. S. 1882, pp. 520 *et seqq.*).

The birds now before us are 149 in number, and were obtained at various points of the western shores of the Pacific from Esquimalt in the north to the Straits of Magellan in the south, including some from the Galapagos Islands and from the island of Juan Fernandez; the greater portion, however, are from the coasts of Peru and Chili.

Amongst those of the former country, I find a species of *Geothlypis*, which appears to me to be undescribed; there is also an example of a fine Albatross, which I have been unable to determine; and another Petrel, congeneric with our Fork-tailed Petrel, requires a name. Besides these novelties, the collection is rich in specimens of Procellariidæ, of which there are representatives of no less than fourteen species in all.

The references given to each species are taken from published memoirs relating to the country where they were obtained, or from some general work on the region to which they belong. Captain Markham deserves the thanks of ornithologists for his industry in amassing so large a collection during the intervals of the many duties involved in the command of a large ironclad in active service. We only hope that his example may frequently be followed.

1. Turdus magellanicus, King; Salv. Ibis, 1875, p. 376.

Juan Fernandez, March 1882.

A young bird assuming its second plumage, which is perhaps a shade darker than that of adult individuals from the mainland.

2. Turdus flavirostris (Sw.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 21, t. 3. f. 1.

Acapulco, Mexico.

3. Troglodytes furvus (Gm.).

Coquimbo, November 1881.

Two specimens resembling other Chilian examples which have been called *T. hornensis* by Lesson (*cf.* Sharpe, Cat. B. Brit. Mus. vi. p. 257).

4. Anthus correndera, Vieill.; Scl. Ibis, 1878, p. 362.

♀. Coquimbo.

5. Siurus auricapillus (L.); Baird, Brew., & Ridgw. N.-Am. B. i. p. 280.

Esquimalt, 1880.

6. Helminthophaga chrysoptera (L.); Baird, Brew., & Ridgw. N.-Am. B. i. p. 192.

Two specimens without labels, probably from Esquimalt.

7. Dendrœca aureola (Gould); Salv. Trans. Z. S. ix. p. 473.

Charles I., Galapagos.

When writing my paper on the birds of the Galapagos Islands, I overlooked the record of the occurrence of this bird on the mainland, Fraser having obtained a specimen at Esmeraldas in 1859 (P. Z. S. 1860, p. 291). We have recently received specimens from the island of Puna; and MM. Jelski and Stolzmann found it at Santa Lucia, in Western Peru (*cf.* P. Z. S. 1877, p. 744).

8. Geothlypis auricularis, n. sp.

Supra olivacea, capite summo cinereo, fronte anguste, loris et regione suboculari nigris, regione parotica saturate oleaginea; subtus læte flava, subalaribus et campterio alari luteis; rostri maxilla cornea, mandibula pallida, pedibus carneis. Long. tota 4·5, *alæ* 2·2, *caudæ* 1·7, *rostri a rictu* 0·68, *tarsi* 0·8.

♂. Callao, Peru, December 1881 (*A. H. Markham*).

Obs. G. æquinoctiali proxima, sed colore oleagineo regionis paroticæ distinguenda.

Capt. Markham's collection contains a single male specimen of this species, which seems different from the closely allied forms, of which *G. æquinoctialis* is perhaps the best known. *G. semiflava*, which is its nearest neighbour, has the whole of the ear-coverts black and no grey on the head. *G. chiriquensis* has the grey head, but the ear-coverts are black.

9. Ampelis garrula (L.); Baird, Brew., & Ridgw. N.-Am. B. i. p. 401.

Esquimalt, 1880.

10. Hirundo erythrogaster, Bodd.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 232.

♂. Callao, December 1881.

11. Tachycineta thalassina (Sw.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 233.

Two specimens without labels, probably from Esquimalt.

12. Tachycineta meyeni (Cab.); Baird, Rev. Am. B. i. p. 302.

♂. Coquimbo, November 1881.

13. Atticora cyanoleuca (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 229.

♀. Coquimbo, November 1881.

14. Calliste inornata, Gould; Scl. & Salv. P. Z. S. 1864, p. 350.

Panama, January 1882.

15. Rhamphocœlus dimidiatus, Lafr.; Scl. & Salv. P. Z. S. 1864, p. 350.

Panama, January 1882.

16. Saltator albicollis (Vieill.).

Saltator isthmicus, Scl. & Salv. P. Z. S. 1864, p. 351.

Panama, January 1882.

17. Saltator atriceps, Less.; Scl. & Salv. P. Z. S. 1864, p. 351.

Panama, January 1882.

18. Cardinalis virginianus (L.); Baird, Brew., & Ridgw. N.-Am. B. ii. p. 100.

Acapulco, March 1880.

19. Geospiza fortis, Gould; Salv. Trans. Z. S. ix. p. 481.

Charles I., Galapagos.

20. Piezorhina cinerea (Lafr.); Scl. & Salv. P. Z. S. 1878, p. 137.

Camarhynchus cinereus, Tacz. P. Z. S. 1877, p. 321.

Payta, Peru.

This species, originally supposed by Lafresnaye, who described it, to be from the Galapagos Islands, is now known as an inhabitant of Western Peru, specimens having been obtained at Tumbez by MM. Jelski and Stolzmann, by Prof. Steere at Sorritos, and now by Capt. Markham at Payta.

21. Spermophila telasco (Less.); Scl. Ibis, 1871, p. 7.

♂. Callao, December 1881.

22. Volatinia jacarina (L.); Tacz. P. Z. S. 1874, p. 520.

♂. Callao, December 1881.

23. Cyanospiza leclancheri (Lafr.); Lawr. Mem. Bost. Soc. N. H. ii. p. 277.

Acapulco, March 1880.

24. Phrygilus gayi (Eyd. & Gerv.); Scl. P. Z. S. 1867, p. 322.

♀. Coquimbo, November 1881.

25. Phrygilus alaudinus (Kittl.); Scl. P. Z. S. 1867, p. 322.

♂ ♀. Coquimbo, November 1881.

26. Diuca grisea (Less.); Scl. P. Z. S. 1867, p. 322.

♂ ♀. Coquimbo, November 1881.
Talcahuano, 1881.

27. Zonotrichia pileata (Bodd.); Scl. P. Z. S. 1867, p. 322.

Coquimbo, November 1881.

28. Zonotrichia gambelli.

Zonotrichia leucophrys, var. *gambeli*, Baird, Brew., & Ridgw. N.-Am. B. i. p. 566.

Esquimalt, 1880.

29. Spizella socialis (Wils.); Baird, Brew., & Ridgw. N.-Am. B. ii. p. 7.

Esquimalt, 1880.

30. Embernagra striaticeps (Lafr.); Scl. & Salv. P. Z. S. 1864, p. 352.

Panama, January 1882.

31. Hæmophilia melanotis, Lawr. Mem. Bost. Soc. N. H. ii. p. 277.

Acapulco, March 1880.

32. Chrysomitris barbata (Mol.)

Chrysomitris capitalis, Tacz. P. Z. S. 1874, p. 522.

♂ ♀. Callao, September 1881.

33. Sycalis luteola (Sparrm.); Scl. Ibis, 1872, p. 44.

♀. Coquimbo, November 1881.
Talcahuano, 1881.

34. Cassiculus melanicterus (Bp.); Lawr. Mem. Bost. Soc. N. H. ii. p. 278.

Acapulco, March 1880.

35. Icterus mesomelas (Wagl.); Tacz. P. Z. S. 1877, p. 223.

Payta, Peru.

36. Icterus pustulatus (Wagl.); Lawr. Mem. Bost. Soc. N. H. ii. p. 280.

Acapulco, March 1880.

37. Icterus grace-annæ, Cass.; Scl. & Salv. P. Z. S. 1878, p. 137.

Payta, Peru.

38. Agelæus thilius, Scl. P. Z. S. 1867, p. 323.

Coquimbo, November 1881.

39. Sturnella militaris (L.); Scl. P. Z. S. 1867, p. 323.

Coquimbo, 1881.
♂. Chili.

40. Sturnella bellicosa (De Fil.); Tacz. P. Z. S. 1874, p. 323.

Payta, Peru.

41. Curæus aterrimus (Kittl.); Scl. P. Z. S. 1867, p. 323.

♂. Chili.

42. Cyanocitta stelleri.

Cyanura stelleri, Baird, Brew., & Ridgw. N.-Am. B. ii. p. 277.

Esquimalt, 1880.

43. Cyanocorax mystacalis (Geoffr.); Scl. & Salv. P. Z. S. 1878, p. 138.

Payta, Peru.

44. Calocitta formosa (Sw.); Lawr. Mem. Bost. Soc. N. H. ii. p. 285.

Acapulco, March 1880.

45. Agriornis livida (Kittl.); Scl. P. Z. S. 1867, p. 325.

Talcahuano, 1881.

46. Lichenops perspicillatus (Gm.); Cab. & Hein. Mus. Hein. ii. p. 47.

Coquimbo, November 1881.

47. Centrites niger (Bodd.); Scl. P. Z. S. 1867, p. 326.

♂. Coquimbo, 1881.

48. Todirostrum cinereum (L.); Scl. & Salv. P. Z. S. 1864, p. 358.

Panama, January 1882.

49. Anæretes fernandezianus (Phil.); Scl. Ibis, 1871, p. 179, t. vii. f. 1.

Juan Fernandez, March 1882.

50. Anæretes parulus (Kittl.); Scl. P. Z. S. 1867, p. 327.

♂. Talcahuano, 1881.

51. Cyanotis azaræ (Naum.); Scl. P. Z. S. 1867, p. 327.

♂. Coquimbo, 1881.

52. Elainea albiceps (d'Orb. & Lafr.); Tacz. P. Z. S. 1874, p. 536.

♀. Callao, December 1881.

53. Myiozetetes texensis (Giraud); Lawr. Mem. Bost. Soc. N. H. ii. p. 286.

Acapulco, March 1880.

54. Pitangus derbianus (Kaup); Lawr. Mem. Bost. Soc. N. H. ii. p. 286.

Acapulco, March 1880.

55. Pyrocephalus rubineus (Bodd.).

Payta, Peru.

♀. Callao, December 1881.

The Callao specimen is in the dusky plumage not unfrequent in birds of this species from the west coast of Peru.

56. Pyrocephalus nanus, Gould; Salv. Trans. Z. S. ix. p. 492.

Charles I., Galapagos.

57. Tyrannus melancholicus, Vieill.; Lawr. Mem. Bost. Soc. N. H. ii. p. 288.

Acapulco, March 1880.

58. Heteropelma veræ-pacis, Scl. & Salv.; Lawr. Ann. Lyc. N. Y. vii. p. 473.

Panama, January 1882.

59. Geositta cunicularia (Vieill.); Scl. P. Z. S. 1867, p. 321.

♂ ♀. Coquimbo, 1881.

60. Furnarius longirostris, Pelz.; Ibis, 1881, p. 409.

Payta, Peru.

This bird agrees with our Ecuadorean specimens called *F. cinnamomeus*, Less.; but as it seems doubtful if this name really belongs to this species, we adopt that proposed for it by Herr v. Pelzeln.

61. Cinclodes fuscus (Vieill.).

Chilian Cordillera.

♂. Coquimbo, 1881.

62. Cinclodes nigrifumosus (d'Orb. & Lafr.).

Cillurus nigrifumosus, Tacz. P. Z. S. 1874, p. 526.

San Lorenzo Island, Peru.

63. Leptasthenura ægithaloides (Kittl.); Scl. P. Z. S. 1867, p. 324.

♂ ♀. Coquimbo, November 1881.

64. Dendrornis susurrans (Jard.); Scl. & Salv. P. Z. S. 1870, p. 839.

Panama, January 1882.

65. Picolaptes souleyeti, Lafr.; Scl. Cat. Am. B. p. 166.

Payta, Peru.

66. Cercomacra tyrannina, Scl.; Scl. & Salv. P. Z. S. 1864, p. 356.

Panama, January 1882.

67. Pteroptochus albicollis, Kittl.; Scl. P. Z. S. 1867, p. 325.
♂. Coquimbo, November 1881.

68. Acestrura micrura, Gould, Intr. Troch. p. 92; Tacz. P. Z. S. 1877, p. 327.
Calothorax micrura, Gould, Mon. Troch. iii. pl. 148.
Payta, Peru.

69. Myrtis fanny (Less.).
Calothorax fanny, Gould, Mon. Troch. iii. p. 151.
♀. Lima, Peru.

70. Thaumastura cora (Less.); Gould, Mon. Troch. iii. p. 153.
Rimac, Lima, Peru.

71. Rhodopis, sp. inc.
Payta, Peru, November 1880.
A female specimen which I am not able to determine satisfactorily. It is considerably smaller than *R. vesper*, and may belong to *R. atacamensis*.

72. Eustephanus galeritus (Mol.); Gould, Mon. Troch. iv. pl. 265; Scl. Ibis, 1871, p. 181.
Juan Fernandez.

73. Amazilia pristina, Gould, Mon. Troch. v. pl. 303.
Lima, Peru.

74. Sapphironia cæruleogularis (Gould); Mon. Troch. v. pl. 446.
Colon, Isthmus of Panama.

75. Stenopsis æquicaudata (Peale); Tacz. P. Z. S. 1874, p. 545.
♂ ♀. Callao, September 1881.

76. Picus lignarius (Mol.); Scl. P. Z. S. 1867, p. 328.
Coquimbo, November 1881.

77. Hylotomus pileatus; Baird, Brew., & Ridgw. N.-Am. B. ii. p. 550.
Esquimalt, 1880.

78. Dryocopus lineatus (L.); Tacz. P. Z. S. 1874, p. 546.
Payta, Peru.

79. Colaptes mexicanus; Baird, Brew., & Ridgw. N.-Am. B. ii. p. 578.
Esquimalt, 1880.

80. Centurus elegans (Sw.); Lawr. Mem. Bost. Soc. N. H. ii. p. 294.
Acapulco, March 1880.

81. Momotus mexicanus, Sw.; Lawr. Mem. Bost. Soc. N. H. ii. p. 289.

Acapulco, March 1880.

82. Ceryle cabanisi, Reich.; Tacz. P. Z. S. 1874, p. 547.

♂ ♀. Rio Rimac, Peru, September 1881.

83. Ceryle alcyon; Baird, Brew., & Ridgw. N.-Am. B. ii. p. 392.

Esquimalt, 1880.

84. Ceryle torquata, Tacz. P. Z. S. 1877, p. 328.

Rio Rimac, Peru, September 1881.

85. Crotophaga sulcirostris, Sw.; Tacz. P. Z. S. 1874, p. 548.

♂ ♀. Callao, Peru, September 1881.
Payta.

86. Piaya cayennensis (Linn.).

Paya ridibundus, Lawr. Mem. Bost. Soc. N. H. ii. p. 293.
Acapulco, March 1880.

87. Conurus erythrogenys, Less.; Tacz. P. Z. S. 1877, p. 328.
Payta, Peru.

88. Conurus petzii (Hahn); Lawr. Mem. Bost. Soc. N. H. ii. p. 296.

Acapulco, March 1880.

89. Conurus cyanolyseos, Scl. P. Z. S. 1867, p. 328.

♂. Sandy Point, Straits of Magellan, August 1882.

90. Pholeoptynx cunicularia.

Athene cunicularia, Scl. P. Z. S. 1867, p. 339.
Coquimbo, 1881.

91. Glaucidium nanum (King); Scl. P. Z. S. 1867, p. 338.

♀. Chili.

92. Circus cinereus (Vieill.); Scl. P. Z. S. 1867, p. 330.

♂. Coquimbo, May 1882.

93. Asturina ruficauda, Scl. & Salv.
Acapulco, March 1880.

94. Buteo erythronotus (King); Scl. P. Z. S. 1867, p. 329.
Coquimbo, 1881.

95. Tinnunculus cinnamominus, Sw.

Tinnunculus sparverius, Scl. P. Z. S. 1867, p. 330.

♂. Chili.
Payta, Peru.
The Chilian specimen is a male with the head wholly slate-blue, without any rufous patch.

96. Tinnunculus sparverius, Baird, Brew., & Ridgw. N.-Am. B. iii. p. 169.

Esquimalt, 1880.

97. Fregata aquila.

♂ ♀. Payta, Peru, January 1882.
The specimen marked a male is in the first plumage; the other is in change to the adult dress, dark feathers appearing all over amongst the white ones, showing that the bird was a male and not a female as it is marked.

98. Pelecanus fuscus, Gm.; Salv. Trans. Z. S. ix. p. 496.

♀. Payta, Peru, January 1882.
Charles I., Galapagos.

99. Sula cyanops (Sundev.); Salv. Trans. Z. S. ix. p. 496.

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100. Sula variegata (Tsch.); Tacz. P. Z. S. 1874, p. 554.

Callao Bay, Peru, August 1881.
San Lorenzo I., Peru.

101. Phalacrocorax gaimardi (Less.); Tacz. P. Z. S. 1874, p. 553.

San Lorenzo I., Peru.

102. Phalacrocorax brasilianus, Bp.; Tacz. P. Z. S. 1874, p. 553.

♂. Paracas Bay, Peru, October 1881.

103. Phalacrocorax, sp.?

Guadalupe I., 1880.
A female or young bird, probably of *P. dilophus*.

104. Ardea egretta, Gm.

Herodias egretta, Lawr. Mem. Bost. Soc. N. H. ii. p. 310
Acapulco, March 1880.

105. Ardea cærulea, Linn.

Florida cærulea, Lawr. Mem. Bost. Soc. N. H. ii. p. 310.
Acapulco, March 1880.

106. Butorides virescens (Linn.); Lawr. Mem. Bost. Soc. N. H. ii. p. 310.

Acapulco, March 1880.

107. Butorides plumbeus (Sundev.); Salv. Trans. Z. S. ix. p. 497.

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108. Nycticorax gardeni.

Nyctiardea nævia, Lawr. Mem. Bost. Soc. N. H. ii. p. 311.
Acapulco, March 1880.

109. Dafila bahamensis (Linn.); Salv. Trans. Z. S. ix. p. 499.
Charles I., Galapagos.

110. Bucephala albeola (Linn.); Baird, B. N. Am. p. 797.
Esquimalt, 1880.

111. Erismatura ferruginea.

♂. (Locality not given).

112. Columba flavirostris, Wagl.; Lawr. Mem. Bost. Soc. N. H. ii. p. 304.

Acapulco, March 1880.

113. Melopelia leucoptera (Linn.); Lawr. Mem. Bost. Soc. N. H. ii. p. 305.

Acapulco, March 1880.

114. Scardafella inca (Less.); Lawr. Mem. Bost. Soc. N. H. ii. p. 305.

Acapulco, March 1880.

115. Gallinula galeata, Licht.; Tacz. P. Z. S. 1874, p. 559.

Callao, Peru, 1881.

116. Porphyriops melanops, Scl. & Salv. P. Z. S. 1868, p. 461.
Porphyriops crassirostris (Gray); Scl. & Salv. loc. cit.
♀. Coquimbo Lagoon, Chili, November 1881.

117. Parra gymnostoma, Wagl.; Lawr. Mem. Bost. Soc. N. H. ii. p. 312.

Acapulco, November 1880.

118. Ægialitis semipalmata (Bp.); Tacz. P. Z. S. 1874, p. 560.

♂. Paracas Bay, October 1881.
♂. Coquimbo Lagoon, Chili, November 1881.

119. Ægialitis nivosa (Cassin); Scl. P. Z. S. 1867, p. 331.
Chili.

120 Strepsilas interpres (L.); Tacz. P. Z. S. 1874, p. 560.
♂ ♀. Paracas Bay, October, 1881.

121. Hæmatopus palliatus, Scl. P. Z. S. 1867, p. 339.
♀. Paracas Bay, Peru, October 1881.

122. Hæmatopus ater, Scl. P. Z. S. 1867, p. 339.
San Lorenzo I., Peru.

123. Thinocorus rumicivorus, Eschsch.; Scl. P. Z. S. 1867, p. 331.
Coquimbo, 1881.

124. Phalaropus fulicarius (Linn.); Baird, B. N. Am. p. 707.
♂. Coquimbo Bay, Chili, November 1881.
"A solitary specimen got alongside the ship."
This species has never before been met with so far south on the continents of America, and has not even been recorded from Mexico or Central America.

125. Rhynchæa semicollaris, Scl. P. Z. S. 1867, p. 339.
♂. Chili.
♂. Coquimbo, Chili, 1881.

126. Tringa minutilla, Vieill.
Tringa wilsoni, Baird, B. N. Am. p. 721.
Esquimalt, 1880.

127. Calidris arenaria (Linn.); Scl. P. Z. S. 1867, p. 339.
♂ ♀. Coquimbo Bay, Chili, November 1881.

128. Ereunetes petrificatus, Ill.; Baird, B. N. Am. p. 724.
♂ ♀. Paracas Bay, October 1881.

129. Heteroscelus incanus (Gm.); Salv. Trans. Z. S. ix. p. 503.
Heteroscelus brevipes, Baird, B. N. Am. p. 734.
Acapulco, March 1880.
Not previously noticed from Mexico.

130. Tringoides macularius (Linn.); Baird, B. N. Am. p. 735.
No label.

131. Numenius hudsonicus (Lath.); Tacz. P. Z. S. 1877, p. 330.
♀. Paracas Bay, October 1881.

132. Numenius borealis (Forst.); Baird, B. N. Am. p. 744.
Charles I., Galapagos.
Not previously noticed on the Galapagos Islands.

133. Anous galapagensis, Sharpe, Phil. Trans. clxviii. p. 469.

Anous stolidus, Salv. Trans. Z. S. ix. p. 504.

Charles I., Galapagos.

The single skin in Captain Markham's collection has unfortunately been injured by cockroaches, and the skin of the top of the head is almost entirely destroyed. A few feathers, however, remain, and these, so far as they go, confirm Mr. Sharpe's view as to the distinctive character of the Galapagos bird.

134. Diomedea brachyura, Temm.; Lawr. B. N. Am. p. 822; Coues, Pr. Ac. Phil. 1866, p. 177.

At sea, lat. 33° N., long. 119° W., March 1880.

135. Diomedea melanophrys, Temm.; Coues, Pr. Ac. Phil. 1866, p. 181.

Talcahuano Bay, Chili.

136. Diomedea irrorata, sp. n.

Supra dorso medio et alis extus fuliginoso-fuscis, dorso antico et uropygio albis nigro transverse variegatis; capite et cervice tota albis, hac supra flavo lavata; subtus abdomine toto griseo-fusco, albo præcipue in pectore et crisso, minutissime irrorato; alis intus quoque albo et fusco variegatis; cauda fusca ad basin alba; rostro flavido, mandibulæ apice corneo, pedibus corylinis. Long. tota 35·0, *alæ* 20·5, *caudæ* 5·5, *rostri a rictu* 6·2, *tarsi* 3·8, *dig. med.* 5·1.

♂. Callao Bay, Peru, December 1881.

The Albatross described above seems quite distinct from any hitherto known. It appears to come next to *D. melanophrys*, having the bill similarly constructed (*cf.* Coues, Pr. Ac. Phil. 1866, pp. 186, 187), but the bill is much longer and the bird larger in all its dimensions, except the tail, which is shorter and more rounded. In coloration, too, there is great difference, the upper back and rump being variegated with dusky and white instead of pure white, and the abdomen wholly dusky with minute white freckles.

137. Cymochorea markhami, sp. n.

Omnino fuliginosa fere unicolor, capite toto paulo plumbescentiore, tectricibus alarum dilutioribus, cauda profunde furcata, rostro et pedibus nigerrimis. Long. tota 9·0, *alæ* 6·9, *caudæ rectr. med.* 2·6, *rectr. lat.* 3·8, *tarsi* 1·0, *dig. med.* 1·1, *rostri a rictu* 1·0.

♀. Coast of Peru, lat. 19° 40′ S., long. 75° W., December 1881.

Obs. C. melaniæ, Bp., apud Coues, certe similis, sed capite plumbescente, tarsis brevioribus forsan diversa.

This species is certainly very closely allied to *C. melania* of Bonaparte as described by Dr. Coues (Pr. Ac. Phil. 1864, p. 76), but the head of that species is described as being darker on the sides and the region of the eyes as well as the upper parts generally. This can hardly be said to be the case in the present bird, the whole head and throat being rather paler than the body and with a plumbeous rather than a sooty tint.

As in *C. leucorrhoa* the wing-coverts are lighter than any part of the wing; but this species is obviously distinct, having a white rump, as is also the case with Mr. Ridgway's *C. cryptoleucura*.

Captain Markham's collection contains two specimens of this species, which I propose to call after him. Both are marked as females. No species of this genus has been previously noticed in these seas, *C. melania* being from the coast of Mexico.

138. Majaqueus æquinoctialis (Linn.); Coues, Pr. Ac. Phil. 1864, p. 118; Salv. Orn. Misc. i. p. 232.

♀. Coquimbo, Chili, June 1882.

139. Puffinus griseus (Gm.); Salv. Orn. Misc. i. p. 236.

Callao Bay, Peru, August 1881.

140. Puffinus creatopus, Coues; Pr. Ac. Phil. 1864, p. 131; Salv. Ibis, 1875, p. 376.

♂. Coquimbo Bay, Chili, November 1881.

141. Puffinus obscurus (Gm.).

Charles I., Galapagos.

Not previously noticed in the Galapagos Archipelago.

142. Thalassœca glacialoides (Smith); Coues, Pr. Ac. Phil. 1866, p. 30.

♂ ♀. Coquimbo Bay, Chili, November 1881.
♂. Valparaiso, Chili, July 1882.

143. Ossifraga gigantea (Gm.); Coues, Pr. Ac. Phil. 1866, p. 32.

♀. Coquimbo Bay, Chili, November 1881.

144. Œstrelata defilippiana, Gigl. & Salvad.; Salv. Orn. Misc. i. p. 255, pl. 33.

♀. Coast of Chili, December 1881.

145. Œstrelata neglecta (Schl.); Mus. d. Pays-Bas, vi. *Procell.* p. 10.

Juan Fernandez, March 1882.

Two specimens in Captain Markham's collection are in all essential particulars so much like one of MacGillivray's examples of *Œ. neglecta* from the Kermadec Is., that I hesitate to separate them. The only differences I can trace are in the coloration of the lower plumage, which, in the Juan-Fernandez examples, is dusky instead of white, and in the inner web of the primaries, except at the tip, being white right up to the shaft of the feather instead of having a dark strip dividing the white portion of the web from the shaft.

One of the Juan-Fernandez birds is rather lighter-coloured beneath than the other, and in this respect approaches nearer to *Œ. neglecta* and shows that there probably exists no definite distinction between the light- and dark-coloured birds. Moreover the dark-coloured specimen has the tarsi and the proximal portion of the digits and the intervening webs dark like the rest of the foot; the other has these parts the normal colour, as found in the generality of *Œstrelatæ*. This fact is of importance as tending to show that the colour of the tarsi and toes cannot always be looked upon as a specific character.

In *R. arminjoniana* the primaries beneath are only white at the base; but this species and *R. neglecta*, I am now disposed to think, are more nearly allied than I formerly believed to be the case (*cf.* Orn. Misc. i. p. 252, pl. 31).

146. Daption capensis (Linn.); Coues, Pr. Ac. Phil. 1866, p. 162.

West coast of South America, lat. 25° S., long. 85° W.
 „ „ lat. 20° S., long. 71° W.

147. Pelecanoides garnoti (Lesson); Coues, Pr. Ac. Phil. 1866, p. 190.

♂ ♀. Coquimbo Bay, Chili, November 1881.

I much doubt if there is more than one variable species of this form, which should bear the name of *P. urinatrix* (Gm.).

148. Podiceps major, Bodd.; Scl. & Salv. Ex. Orn. p. 190.

♀. Coquimbo Bay, Chili, November 1881.

149. Podiceps rollandi, Scl. & Salv. Ex. Orn. p. 190.

Talcahuano, Chili, 1881.

6. Further Notes on the Birds of the Argentine Republic By E. W. White, F.Z.S.[1]

[Received June 18, 1883.]

These notes refer to some specimens, which I was unable to determine until I had the opportunity of consulting the collections of Mr. Sclater and Messrs. Salvin and Godman, who have kindly furnished the necessary names.

1. Nothoprocta doëringi.

♂. Cosquin, Cordova, Arg. Rep., Aug. 1st, 1882.

Iris reddish brown.

This is the only example of this species that I have met with in the Argentine Republic, where it evidently seems to be rare. It was brought to me alive by a native who had been out on the mountains driving cattle; he told me that they were only to be met with on the highest parts of the Sierras, which are covered with a coarse kind of grass: the elevation would be about 3000 ft. above the sea-level.

[1] See P. Z. S. 1882, p. 591, et 1883, p. 37.