Zoological Illustrations, Or Original Figures and Descriptions Animals, ...

William Swainson

Zoological Illustrations,

OR

ORIGINAL FIGURES AND DESCRIPTIONS

OF

NEW, RARE, OR INTERESTING

ANIMALS,

SELECTED CHIEFLY FROM THE CLASSES OF

Ornithology, Entomology, and Conchology,

AND ARRANGED ON THE PRINCIPLES OF

CUVIER AND OTHER MODERN ZOOLOGISTS.

BY

WILLIAM SWAINSON, F.R.S., F.L.S,

MEMBER OF THE WERNERIAN SOCIETY OF EDINBURGH, ETC.

VOL. I.

London:

PRINTED BY R. AND A. TAYLOR, SHOE-LANE:

FOR BALDWIN, CRADOCK, AND JOY, PATERNOSTER-ROW; AND W. WOOD, STRAND.

1820-1.

TO

SIR JAMES EDWARD SMITH, M.D.

FOUNDER AND PRESIDENT OF

THE LINNÆAN SOCIETY OF LONDON,

FELLOW OF THE ROYAL SOCIETY, AND MEMBER OF THE PRINCIPAL SCIENTIFIC SOCIETIES BOTH IN EUROPE AND AMERICA,

THE FIRST AND SECOND VOLUMES

OF

Zoological Illustrations

ARE DEDICATED,

AS A SMALL, BUT SINCERE TRIBUTE TO THE EMINENT TALENTS OF

THE PHILOSOPHER,

AND THE EXCELLENT QUALITIES OF

THE MAN.

PREFACE.

THE termination of the first volume of the Zoological Illustrations is accomplished, and its contents will not only enable our readers to discern the nature of the work, but likewise to form a judgement, on that degree of improvement which we have introduced since its first publication, and they may safely rely on the continuation being in no respect inferior.

In commencing a work of this nature, we have had two principal objects in view: the diffusion of original observations, which, while they might further the ends of science, would also be interesting to the general reader; and that of discouraging the publication of distorted figures copied from old authors, by accustoming the public eye to original designs and correct representations of natural objects. How far we may have succeeded in this latter object, remains to be judged by others; we are however satisfied with having made the attempt, and we hope that abler pencils than our own, may engage in the prosecution of this most desirable object; for it is only by the publication of original matter, that a check can be given to the increasing number of compilations and multiplied copies of "ill-shaped" figures, by which error is perpetuated, and science retarded.

The only original work that has appeared in this country similar to our own, is the Zoological Miscellany by Dr. Leach, which, as it was discontinued after the third volume, it may be presumed was unsuccessful: although little can be said of many of the figures in the early volumes, those in the latter are much to be praised, and the whole are original; the descriptions also abound with details highly interesting to the scientific world, for which indeed the learned author principally intended it; nevertheless

it is a question, whether science in the end would not have been equally, and perhaps more advanced, had this work been more adapted to general readers. Instruction in these days of refinement must be made easy, palatable, and enticing; the eye must be pleased, while the understanding is improved, and Wisdom in her simple dignified garb will often be deserted for Ignorance, decked out in the glittering trappings of Folly.

The *Naturalist's Miscellany* conducted by Dr. Shaw, in its miscellaneous nature also resembled the present work, and reached to the extent of twenty-four volumes. What an invaluable fund of information these might have contained had their contents been original! Unfortunately, however, the exceptions are so few, that the whole may be termed a loose compilation, the descriptions being mostly given in as few words as possible, and the figures not only copied from wretched representations found in old authors, but often coloured from their descriptions only! It is indeed lamentable that the Author, whose talents and abilities were unquestionable, should have exerted them so little, and thus have descended to the rank of a voluminous compiler, for little better can be said of the General Zoology, begun and continued under his name: little original matter can there be found, excepting in the latter volumes, yet even in these no notice whatever is taken of the immense number of new species discovered in Africa by Le Vaillant, and long ago published in the *Oiseaux d'Afrique:* the engravings also are in like manner copied from old prints, enlarged or diminished as occasion offers, without even a regard to the selection of the best. It may be as well to observe in this place, that a great number of generic distinctions have been made in the two last volumes; which, as they have not been followed by any of the great and acknowledged Zoologists on the Continent, and appear to us in many instances trivial and unnecessary, will not be adopted in this work.

It will be unnecessary to point out with regard to the scientific arrangement, that we have avowedly adopted the principles of the modern classification; which the

strict followers of Linnæus (in this country alone) have so long, but so ineffectually opposed. The first has been designated as the natural, and the other the artificial system; and, without entering into a critical disquisition on these definitions, it will be sufficient to observe, that by the Artificial System we bend nature to conform to certain arbitrary principles, which we lay down and to which we insist all her productions known and unknown will conform; while in the Natural method, we endeavour by tracing her modifications, to adapt our system to that which appears to regulate her operations. In the one we give laws, in the other receive them; by the first we are taught to believe that the highest attainment of the science, is that of ascertaining the name of an object in our Museum, or of giving a new one; we record it in our favourite system as a grammarian enters a new word in his dictionary, and there the matter terminates. Where the artificial system ends, the natural begins; for we then proceed to the investigation of affinities founded on anatomical construction, economy, and geographic distribution; our attention ceases to be confined to individuals, and extends to large groups; general facts enable us to draw general conclusions, till the mind begins faintly to discern a vast and mighty plan, by which the zones of the earth are peopled by their own respective races of animate beings; blending their confines unto each other with divine harmony, beauty, and usefulness.

That these inquiries and results have had a most wonderful effect on the natural sciences of late years, is abundantly evident. Geology, a subject hardly thought of in this country a few years ago, is now found to be a science of the first importance; with this, however, Conchology is so intimately connected, that without a certain knowledge of it, the geologist is frequently unable to prosecute inquiries of the most interesting nature; and there is little doubt but that Botany has been raised to the rank it now so justly holds, solely because its natural system has been more generally studied and advocated in this

country, than that of any other branch of Natural History. In this science at least, we possess a superiority which our continental neighbours cannot dispute; and the name of Brown will be enrolled in the brightest page of our philosophic inquirers.

That the prejudiced adherence to the strict Linnæan system, has been the primary cause why Zoology has been more neglected with us than on the Continent, will admit of little doubt; for by shutting the door to all further improvement, it has impressed the generality of our countrymen with an idea, that the highest object of the Naturalist was to label the contents of a museum, and to arrange stuffed animals, like quaint patterns of old china, in glass cases: to thinking minds no less than to the vulgar, this idea has produced a feeling of contempt and ridicule, and very few of those qualified by nature for accurate investigation and philosophic reasoning, have been induced to make the science a study; and thus from such an unfortunate prejudice, to use the words of a powerful writer of the present day, "some future historian of the progress of human knowledge, will have to state that England, till within the few last years, stood still at the bottom of the steps where Linnæus had left her; while her neighbours were advancing rapidly towards the entrance of the temple*."

Finally—Linnæus to a comprehensive genius united indefatigable industry; yet he could not see and study those innumerable productions that have been discovered since his death: in proportion as our knowledge of objects increases, so must our systems change, until the natural one is fully developed; and the question simply comes to this, Whether the Linnæan method should be upheld as a solitary exception to the mutability of human wisdom.

The sun of truth must however finally prevail, and there is every reason to think it has already broke, and

* *Horæ Entomologicæ*, by W. S. MacLeay, Esq. M.A. of Trinity College, Cambridge. London, 1819. A work which for acuteness of reasoning and profound research, has never been equalled either in this, or perhaps in any other country.

will gradually disperse these mists of prejudice. It is however much to be regretted, that our public institutions are wholly inadequate to facilitate not only the advancement of students, but the researches of those who are already engaged in prosecuting their inquiries: in Scotland alone are founded any Professorships of Natural History, and the establishment of our National Museum (in this branch only) is confessedly difficult: materials for study are more necessary in this science than any other; yet the public Institutions and libraries of the metropolis, "rich and rare" in every other department of knowledge, in most instances are deficient in this of the most elementary books; setting aside those of illustration, which, from being unavoidably expensive and within the reach of few purchasers, are more particularly adapted for such general repositories of learning. The protracted ill-health of its noble possessor, was the cause no doubt of the Banksian magnificent library being left deficient in several of the latest continental works; and that of the British Museum I have reason to think is still more defective. To the honour however of the keepers of the Bodleian and Radcliffe Libraries, it should be mentioned, that no pains or expense have been spared to render them as perfect in this branch as possible; and we have been told that the latter particularly is the most magnificent in the kingdom.

We shall now as briefly as possible advert to the contents of this volume.

In the Ornithological department the systems of Cuvier and Temminck have mostly superseded all others: as a whole, we give a decided preference to the latter, as being more natural, though it may be doubted if the generic distinctions are not too few, while those of Cuvier are too many: both however can be considered only as sketches, subject to improvement—as natural affinities are more studied.

Regarding that part of our work which relates to Entomology, we have given a decided preference to the Lepidoptera, for the simple reason that this order has received less attention from all writers, concerning their real characters and affinities, than any other; indeed they have

been most unaccountably neglected even by Latreille, the great founder of the modern school: we have therefore thought it necessary to propose in this department many new genera, and only have to regret that their definitions could not be made more perfect without the destruction of the specimens, frequently not our own, and which therefore was unattainable: a more extended knowledge of the natural affinities existing in this tribe, will alone confirm or annul the propriety of these distinctions.

In *Conchology* many of the genera long established on the Continent, but new to our own collectors, have been characterized and illustrated, as well as specific distinctions defined between shells hitherto considered as varieties; and here it must be observed that so much latitude has been given to the meaning of the term *variety*, that in its general acceptation its definition becomes impossible: our own idea of its true meaning is, a shell possessing one or more characters which are changeable and uncertain, and which consequently will not serve as indications by which it may infallibly be distinguished from all others; *variety* depends on local circumstances, and affects the size, colour, and greater or less development of the same modification of structure; a *species* is permanent, its structure always the same though more or less developed, producing and perpetuating its kind, and depending on formation, discernible in youth, and matured in age: we cannot therefore comprehend the contradictory term of *permanent varieties* in a state of nature (though such occur in domesticated animals), which some authors have used, and which has led to, in many instances, the most erroneous conclusions.

It is lamentable to see the opposition which is still made by our own writers against all the modern improvements; yet although Linnæan Introductions to Conchology are constantly issuing from the press, the desire of being acquainted with a more natural and intelligible classification has already appeared; and as we are frequently questioned on the subject, we cannot in this place do better than refer the young student to the valuable article on Conchology contained in the late supplement to the

Encyclopedia Britannica, the perusal of which will convey more solid information, and less perplexity, than all the Introductions our booksellers can boast of.

With respect to the quotations or synonyms, it should be observed that we have in most instances limited them only to original works, all doubtful ones have been rejected, and such only given as have been actually consulted; indeed to this latter cause must be attributed the occasionalomission of some, existing in books we had not the immediate power of consulting; our own library is not small; but the difficulty and expense of procuring all the new continental publications, and the impossibility of meeting with them at our public libraries*, may have sometimes led us into error, and unintentionally to have passed over the discoveries of others.

With the few additions contained in the Appendix we shall now conclude; trusting that in the remarks drawn from us by the present state of the science in this country, our zeal for truth will not give us an appearance of want of candour or of vanity. The truth of our remarks on the labours of others, every one at all acquainted with the subject can inquire into, and either acknowledge or disprove: we neither deprecate nor despise criticism: an author who presumes to instruct others, should have his pretensions publicly canvassed, his merits admitted, or his deficiency exposed; no one is more sensible than we are that our own pretensions chiefly consist in having set an example for others more able to follow: and if we have in any way advocated the cause of truth and science, our object will be attained, and we shall then gladly retire in the shade.

* It is truly grievous in those which are privileged to possess themselves of the works of their countrymen, however expensive, at free cost, and thus to inflict a ruinous fine on authors. Thus—National Institutions, founded for the encouragement of learning, are made to oppress and impoverish its followers.

LONDON,
Sept. 15, 1821.

LIST OF BOOKS REFERRED TO.

Bruguire, Encycl. Meth. Histoire Naturelle des Vers, par M. Bruguire, 1 vol. 4to and 4 vols. of Plates, forming part 10, 19, 21, 23, of the "Encyclopedie Méthodique." Paris 1789-1792.

Bloch. Histoire Naturelle des Poissons, en 6 parties, 8vo. Berlin, 1796.

Cramer. Papillons Exotiques, 4 vols. 4to. Amsterdam, 1779-1782.

Cuvier. Le Règne Animal, 4 vols. 8vo. Paris, 1817.

Chemnitz, Martini. Neus Systematisches Conchylein Cabinet, 11 vols. Nurnburg, 1781-1795.

Dill. A Descriptive Catalogue of Recent Shells. By F. W. Dillwyn, 2 vols. 8vo. London, 1817.

Edwards. A Natural History of uncommon Birds, &c.; and Gleanings of Natural History. By G. Edwards, 7 vols. 4to. 1763, &c.

Fab. Ent. Syst. Entomologia Systematica, emendata et aucta. J. C. Fabricius, 4 vols. 4to. Hafnia, 1792-1794.

Gen. Zool. General Zoology, commenced by Dr. Shaw, and continued by Mr. Stevens, 11 vols. 8vo. to 1819.

Gmelin Linn. Syst. Nat. C. Linné Systema Naturæ. Cura J. F. Gmelin. Lipsiæ, 1788-1793.

Godart in Encycl. Method. Encyclopedie Méthodique, t. 9. p. 1. 1819.

Gualtieri. Index Testarum Conchyliorum quæ adservantur in Musæo N. Gualtieri. Florentiæ, 1742.

Illiger. Prod. Systematis Mammalium et Avium, 8vo. Berolini, 1811.

Knorr. Les Delices des Yeux et de l'Esprit, 6 P., 4to. Nuremb. 1760, &c.

Klein Hist. Pisc. Historiæ Nat. Piscium promovendæ Missus, 6, 4to. Dantzic, 1740-49.

Linn. Syst. Nat. See Gmelin.

Linn. Trans. Transactions of the Linnean Society of London, 13 vols. 4to. 1791-1821.

Lister M. Lister Historia Conchyliorum, folio. Oxonii, 1770.

Lamarck Syst. Hist. Nat. des Animaux sans Vertèbres. Par le Chevalier de Lamarck, 6 vols. 8vo. Paris, 1815-1819.

——— *Anal. Mus.* Annales du Museum d'Histoire Naturelle de Paris, 4to. 1802-1821.

Lath. Synop. Suppl. A General Synopsis of Birds. By Dr. J. Latham, 3 vols. and 2 Supplements, 4to. London, 1782, &c.

—— *Index Ornith.* Index Ornithologicus, 2 vols. 4to. London, 1790.

Martyn Univ. Conch. The Universal Conchologist. By T. Martyn, 4 vols. 4to. London, 1784, &c.

Martini. See Chemnitz.

Pennant. British Zoology. By T. Pennant, 4 vols. 8vo. London, 1812.

Risso Icth. Ichtyologie de Nice, 1 vol. 8vo. Paris, 1810.

Rumph. Thesâurium Imaginum Piscium, &c., folio. Hagæ, 1739.

Seba. Albertus Seba Rerum Naturalium Thesauri, 4 vols. folio. Amsterdam, 1734-1765.

Say. Description of the Land and Fresh-water Shells of the United States. By Thomas Say. Philadelphia, 1819.

Shaw in Gen. Zool See General Zoology.

Temminck Pig. et Gall. Histoire Naturelle Générale des Pigeons et des Gallinaces. Par C. J. Temminck, 2 vols. 8vo. Amst. 1813.

——— *Manuel.* Manuel d'Ornithologie, 2d edit., 2 vols. 8vo. 1820.

Le Vaill. Hist. Nat. des Toucans et des Barbus. folio. Paris, 1806.

——— Hist. Nat. des Perroquets, 2 vols. folio. Paris, 1801.

White's Voyage. Journal of a Voyage to N. S. Wales, 4to. Lond. 1790.

Zoological Illustrations,

OR

ORIGINAL FIGURES AND DESCRIPTIONS

OF

NEW, RARE, OR INTERESTING

ANIMALS,

SELECTED CHIEFLY FROM THE CLASSES OF

Ornithology, Entomology, and Conchology,

AND ARRANGED ON THE PRINCIPLES OF

CUVIER AND OTHER MODERN ZOOLOGISTS.

BY

WILLIAM SWAINSON, F.R.S., F.L.S.,

MEMBER OF THE WERNERIAN SOCIETY OF EDINBURGH, ETC.

VERTEBROSA.

PART I.

London:

PRINTED BY R. AND A. TAYLOR, SHOE-LANE:

FOR BALDWIN, CRADOCK, AND JOY, PATERNOSTER-ROW; AND W. WOOD, STRAND.

1820-1.

PSARIS Cuvierii.

Cuvier's Psaris.

GENERIC CHARACTER.

Rostrum validum, crassum, conicum, basi rotundatum, versus apicem leviter compressum, culmine convexo non carinato; mandibulis emarginatis, superiore apice adunca. Nares basales, simplices, rotundæ, juxta marginem sitæ, basi paucis plumulis setaceis incumbentibus. Pedes simplices, tribus digitis anticis æqualiter fissis. Remiges spuriæ nullæ. Cauda brevis: rectricibus duodecim æqualibus.

Typus Genericus *Lanius cayanus*. Linn., Lath., &c.

Bill strong, thick, conic, the base rounded, towards the top slightly compressed, the top convex, not carinated; both mandibles notched, the tip of the upper hooked. Nostrils basal, simple, round, situated near the margin, the base with a few short incumbent setaceous feathers. Feet simple, the three fore-toes equally cleft. Spurious quills none. Tail short, of twelve equal feathers.

Generic Type *Lanius cayanus*. Linn., Lath., &c.

SPECIFIC CHARACTER.

P. olivaceus, subtus albidus; capite suprà nigro; occipite temporibus et colli lateribus cinereis; pectore lateribus tegminibusque infernis flavis.

Olive, beneath whitish; crown black; nape, sides of the head and neck pale cinereous; breast, sides, and under wing-covers yellow.

THE genus *Psaris* was first instituted with great propriety by Cuvier; and before the discovery of the species now made known, was supposed to consist of only one, the Cayenne Shrike of Latham, which with the present bird (named in honour of the first zoologist of the age) is found in Brazil. The figure is nearly of the natural size.

Total length five inches and a half. Bill blueish, three quarters of an inch from the angle of the mouth, and four-tenths from the nostrils, which are ovately round, rather large, and simple, being entirely devoid of an external membrane, but the

Pl. 32.

base is partially covered with small thick-set, short, setaceous feathers; between the eye and base of the bill are a few weak and short hairs; the upper part of the head, as far as the nape, is capped by deep-black, having a blueish gloss: between the nostrils and the eye, as well as on the chin and throat, the colour is white, which changes to a pale cinereous grey on the sides of the head and round the neck; the ears at their base and margin of the eye tinged with yellow; the rest of the upper plumage yellowish-olive. The under plumage on the lower part of the neck and breast, the sides, and the inner wing-covers are clear yellow, and from that to the vent white. Wings two inches long, the quills brown, margined externally with olive and internally with yellow; the first and second quill progressively shorter than the third and fourth, which are of equal length. Tail short, slightly divaricated; olive, with whitish marginal tips. Legs blueish-black; the three fore-toes are equally cleft, but a membrane will be found connecting them equally at the base nearly as far as the first joint.

Temminck must be mistaken in giving as a generic character to this genus, that the external toe is connected to the middle one as far as the first joint, and the inner toe cleft to the base; at least such is not the case either in my specimens of this bird or in those of the Cayenne Shrike: and they have been carefully relaxed in warm water, the best method of ascertaining such peculiarities.

21.

PROCNIAS hirundacea.

Swallow Fruit-eater.

Generic Character.

Rostrum breve, trigonum, basi latissimum, dilatatum, versus apicem contractum: mandibulis emarginatis; marginibus introflexis; mandibulâ superiore, tomiis curvatis, carinatis; inferiore rectâ, breviore. Nares latæ, basales, subnudæ; aperturis orbiculatis, approximantibus, apicem quam malam magis appropinquantibus. Lingua brevissima, angusta. Rictus amplissimi infra oculos aperientes. Pedes insidentes. Alæ mediocres.

Typus Genericus *Ampelis carunculata.* Latham.

Bill short, triangular, base very broad, dilated, towards the end contracted; both mandibles notched, the margins bent inward; upper mandible slightly curved and carinated above; lower mandible straight and shortest. Nostrils broad, basal, nearly naked, the aperture much nearer the tip than the gape of the bill. Tongue very short, narrow. Mouth very large, opening beneath the eye. Feet formed for perching. Wings moderate.

Generic Type *Carunculated Chatterer.* Latham.

Specific Character.

P. (in maribus) cærulea; fronte, jugulo, temporibusque nigris; corpore subtùs in medio albo, lateribus striis transversis nigrescentibus.

(Fem.) viridis; mento temporibusque griseis; corpore infrà flavescente, striis obscurè-viridibus transversis.

(Male) blue; front, throat, and temples black; middle of the body beneath white, the sides with blackish transverse striæ.

(Female) green; chin and temples grey; body beneath yellowish, transversely striated with dusky-green.

The birds of this genus are remarkable for the enormous width of their mouths, which in some species exceeds that of the Swallow family, thus enabling them with ease to swallow the large berries of the *Melastomæ* and other tropical shrubs, on which they alone subsist; not on insects, as Cuvier asserts. Although

Pl. 21.

in the construction of their bills they perfectly resemble the Swallows, their wings are not formed for long or rapid flight; and their feet are much stronger, and calculated for searching among branches for their food, in which situations I have frequently seen them. The term "*pedes ambulatorii*," or walking-feet, is applied too generally, and should be confined to the gallinaceous and Pigeon tribes.

This genus was formed by Count Hoffmansegg, and the present is the smallest species known: our figure is of the male bird. Total length about five inches and a half. The bill from the angle to the tip measures seven lines; but from the nostrils only three lines and a half. The middle of the body, vent, and under tail-covers in the male are pure white; in the female yellowish, with a line of olive-green down the middle of each shaft; the quills, wing-covers, and tail-feathers are black, margined in the male with blue, and in the female with green: the tail is slightly forked. The nostrils round and bare; the base of the bill has a few weak setaceous hairs. The legs resemble the true Chatterers, having the outer toe rather longer than the inner, and attached to the base of the middle.

This is a scarce bird, apparently not hitherto described; I met with it only three times in Bahia; but it appears more frequent in the southern provinces of Brazil, specimens having been sent me from Minas Geralis and Rio de Janeiro.

PROCNIAS melanocephalus.

Black-headed Fruiteater.

GENERIC CHARACTER.—See Pl. 21.

SPECIFIC CHARACTER.

P. olivo-viridis, subtus flavescens, striis fuscis transversis, capite omnino nigro.

Olive-green, beneath yellowish, with dusky transverse striæ. Head entirely black.

ANOTHER new and very rare bird of this singular genus, inhabiting, like all the other species, the tropical regions of America. I met with it in Brazil but twice in the forests of Pitanga, not far distant from Bahia; and my hunters were at a loss for its name, never having seen it before: the eyes in the fresh bird are of a beautiful crimson.

Its total length is nine inches and a quarter; the bill is nine lines from the gape to the tip, and four from the base of the nostrils, at which part the bill is not so proportionably broad as in the Swallow Berryeater (pl. 21.): the colour blueish-black, paler at the base: the whole head, sides, chin, and part of the throat are black, the feathers of the crown a little lengthened and pointed, giving a slight appearance of a crest: the wings and tail are dusky-black on the inner shafts and green on the outer; the whole of the upper plumage olive-green, and of the under pale greenish-yellow crossed with short dusky transverse lines from the breast downwards; under wing and tail-covers the same. Tail four inches from the base, slightly divaricated, and of twelve feathers. Wings four inches and a half, the first quill very short, the third, fourth and fifth of equal length. Legs black.

This was a male bird: the female I have not seen.

N. 37.

PROCNIAS cucullata.

Hooded Berry-eater.

GENERIC CHARACTER.—See Pl. 21.

SPECIFIC CHARACTER.

P. corpore, collo, pectore nigro cucullata; tergo fusco, alis caudaque nigris; tegminum apice, pectoris lateribus, et corpore subtus flavis; capite subcristato.

Head, neck and fore-part of the breast hooded with black; back brown, wings and tail black; tip of the wing-covers, sides of the breast and body beneath yellow; head subcrested.

I AM indebted for this new bird to Miss E. Yeates, who received it with a few others from some part of Brazil: it seems to connect the genera of *Ampelis* and *Procnias*, having the bill much less dilated at the base than any of the latter; it however has a close similitude to *Procnias melanocephalus* (Pl. 25.), which seems further removed from the true Chatterers.

Total length eight inches and three quarters. Bill in extreme length near an inch; the colour dark cinereous; the base furnished with bristles something resembling the Chatterers: the opening of the nostrils large, round, terminal, and nearly naked; the feathers on the crown lengthened; the whole head, neck, and fore-part of the breast black, bordered above by a narrow collar of yellow; back and scapulars brown, rump olive; sides of the breast, inner covers, and under parts uniform yellow; wing-covers black margined with olive, those on the shoulders tipt with brown, the rest with yellow; quills and tail black margined with olive. Wings four inches and three-quarters long, the first quill very short, the third longer than the second. Tail four inches long.

Pl. 37.

PHIBALURA cristata.
Crested Shortbill.

GENERIC CHARACTER.

(*Phibalura* Vieillot.)

Rostrum brevissimum, trigonum, latius quam altum; mandibula superiore culmine subcurvata carinata; inferiore recta; utrisque marginatis. Nares basales, simplices, subrotundæ, plumulis densis incumbentibus in totum obtectæ. Rictus ampli, infra oculos aperientes. Alæ attenuatæ, remigibus spuriis nullis. Cauda elongata, furcata, rectricibus duodecim. Pedes insidentes, digitis anticis æqualiter fissis, ad basin subconnexis.

Bill very short, triangular, broader than high; upper mandible above slightly curved and carinated; lower mandible straight, both notched. Nostrils simple, basal, roundish, entirely concealed by thick-set incumbent feathers. Mouth large, opening beneath the eye. Wings pointed; spurious quills none. Tail elongated, forked, of twelve feathers. Feet formed for sitting; the fore-toes equally cleft and slightly connected at their base.

SPECIFIC CHARACTER.

P. corpore supra nigro flavo variegato; subtus albo, fasciis nigris transversis; mento flavo, capitis crista rufa nigro variegato, alis caudaque elongata furcata, chalybeis immaculatis.

Above black varied with yellow; beneath white, with transverse black bands; chin yellow. Head crested, the feathers rufous, varied with black. Wings, and elongated forked tail raven-black, immaculate.

FOR this beautiful and extraordinary bird I am indebted to Miss E. Yeates, of the Dingle near Liverpool, who received it from South America. Its general habit clearly points it out as belonging to the *Baccavoræ* or Berryeaters, apparently connecting the genera *Procnias* and *Pipra*, where Temminck with much judgement has also placed it, in the new edition of his *Manuel d'Ornithologie* just received, and before reading which I had considered the genus as unpublished.

The total length is nine inches, of which the tail occupies four and a half. The bill is whitish, and is remarkably short, measuring only three lines from the nostrils to the tip, but three quarters of an inch from the angle of the mouth, which opens just under the eye: the plumage is singularly variegated: the crown of the head is furnished with a crest, which, when not elevated, is scarcely seen, and appears a deep glossy black mixed with grey and rufous; but when erected it is very conspicuous, and all the feathers are bright rufous tipt more or less with black; the upper sides of the head grey, the lower part and ears deep-black; the neck above is greyish-white, with blackish transverse lines: the back, scapulars, rump and tail-covers are varied transversely with olive, shining black, and bright yellow, each feather being olive at the base, black in the middle, and yellow at the tip. Beneath the feathers of the chin and part of the throat are somewhat lengthened, semi-setaceous, and of a bright yellow; the neck and breast are white, with two transverse lines of deep black on each feather; these lines diminish, and are broken into

spots on the body, and nearly disappear on the vent: the edges of the breast-feathers are tipt with yellow, which colour increases downwards on the vent and tail-covers, which latter are entirely yellow. The wings are four inches long, uniform deep black with a blue gloss, much pointed, and calculated for rapid flight. Tail the same colour, the exterior basal margins olive: all the feathers are narrow, pointed, and gradually lengthening, the middle pair being two inches three quarters longer than the outer pair, which exceed those next them by an inch. The feet are very pale yellow, and three-quarters of an inch from the knee to the claws, the three foremost of which are equally connected together (though slightly) nearly as far as the first joint; the outer and inner toes equal, and rather shorter than the hind-toe: claws slender and much compressed.

Whether this species is the same as the one mentioned by Temminck as existing in the French Museum under the name of *P. flavirostris*, it is quite impossible to say, as the description of that bird has never been published. This leads me to notice a custom several naturalists of the present day have lately adopted, of publishing names, and names only, of new or undescribed animals, which they then wish to be considered as permanently fixed, and as having thus secured to themselves all the merit of first describing. Now this at best is but a surreptitious path to fame, and in many instances bears the appearance of originating in a petty vanity, quite beneath the dignity of true science: it is easily fixing a name to an object which we have not before seen, or suspect may be new, without the trouble of investigating authors and comparing synonyms: the name may remain, but if it should afterwards be discovered as hasty and erroneous, its author is in no way amenable to the opinions and criticisms of others, for they cannot discover such mistakes when no clue is given them beyond a name, which may frequently be applicable to half a dozen species. If, on the other hand, the object is really new, the scientific world is still in the dark, for without a description the name conveys nothing. Besides this, it has a tendency to deprive those writers of their well-earned merit, who undergo the laborious but necessary investigation of books, the examining and comparing of specimens, and the construction of sound characters previous to their publishing a new addition to the great volume of Nature. Against this *scientific monopoly* a stand should be made, and all names either of families, genera, or species should be totally rejected, unless their meaning is clearly defined. Let those who run the race, receive the wreath; and not let it be snatched from the winning-post by another, who jumps from behind and claims it as his own.

On a careful examination of my specimen, I find the nostrils are not covered by a membrane, as observed by Temminck, but are open, obliquely and ovately round, and a narrow rim round the margin. That excellent ornithologist likewise remarks that the first and second quill-feathers are the longest; but my bird (which, however, is in full plumage) has the first and third of equal length and shorter than the second, which is longest. These nice distinctions lead me to suppose the species from which his generic character was taken, is distinct from this.

PLATYRHYNCHUS Ceylonensis.

Ceylonese Flat-bill.

Generic Character.

Rostrum breve, rectum, depressissimum, fermè trigonum; mandibulâ superiore ad apicem abruptè aduncâ, emarginatâ; inferiore rectâ, breviore; marginibus superioris inferiorem superplicantibus. Os et Nares longis rigidis vibrissis obtectæ. Nares, mediæ inter apicem et hiatum rostri. Caudæ plerumque æqualis, rectricibus duodecim. Pedes et Tarsi breves, graciles.

Typi Generici. Div. I. *Todus Platyrhynchos.* Gm. Div. II. *Muscicapa barbata.* Lath.

Bill short, straight, thin, very depressed, and nearly triangular; the upper mandible abruptly hooked at the tip, and notched; the margins folding over those of the under mandible, which is straight and shorter. Mouth and nostrils defended by long stiff bristles. Nostrils medial between the tip and gape of the bill. Tail mostly even, of twelve feathers. Legs and claws short, slender.

Generic Types. Div. I. *Todus Platyrhynchos.* Gm. Div. II. *Muscicapa barbata.* Lath.

Specific Character.

P. olivaceus, subtùs flavus; capite mentoque cinereis.

Olivaceous Flat-bill, beneath yellow. Head and chin cinereous.

The sober tints of this little bird accord more with those of Europe than of India, of which country however it is a native, having been sent from Ceylon to the British Museum: it is the only one I have yet seen, and appears hitherto undescribed.

The stiff bristles at the corner of the mouth are nearly the length of the bill, which is quite flattened: the tail is even, and the whole bird in every respect but colour closely resembles the bearded Flycatcher (*Musc. barbata* Lath.).

Cuvier and other modern zoologists have done much in distributing the Linnæan *Muscicapæ* into their natural families; but

as we are acquainted with a great number from descriptions only, the arrangement is by no means perfect.

The generic characters now given of the genus *Platyrhynchos* (very slightly noticed by Vieillot) will be found perfectly applicable to the separate divisions here formed; the first comprising the *Todus Platyrhynchos* of Gmelin, and a few others having the bill larger and more dilated than the second division, which includes the present species, together with *M. barbata, cærulea, cuneata,* and no doubt many others. The construction of the bill in all these birds will be found precisely the same, though more or less developed in each division, and even in the species; it thus becomes impossible to draw the line of demarcation without refining too much on generic distinctions. Their bills, although so broad, are by no means stout; thus enabling them to prey with greater readiness on the *Lepidoptera* and other large winged insects with soft bodies; while the long stiff bristles at the base of the bill seem intended to confine the resistance their prey would otherwise make by their wings. The illustrious Cuvier has well observed, that the true Flycatchers have the bill longer, narrowed, less compressed, and the tip but slightly bent.

CARDUELIS cucullata.

Hooded Seed-eater.

GENERIC CHARACTER.

Rostrum breve, validum, conicum, rectissimum; mandibulis subæqualibus; apice integerrimo, recto, acuto; mandibulâ superiore culmine convexâ; inferiore basi marginis angulatâ, utrinsecus subtusque convexâ.

Typus Genericus *Fringilla Canaria.* Lath., &c.

Bill short, stout, very conic, without any curvature above; both mandibles nearly equal, the tip entire, straight and sharp; upper mandible convex above: lower one at the base of the margin with an obtuse angle, the sides and under part convex.

Generic Type *Fringilla Canaria.* Latham, &c.

SPECIFIC CHARACTER.

C. aurantia: capite, gutture, fasciâ trans tectrices remigibus caudâque nigris; remigibus primoribus basi obliquè aurantio fasciatis.

Orange: head, front of the neck, bar across the wing-covers, quills and tail black; greater quills at their base obliquely barred with orange.

A RICHLY coloured little bird, much smaller than our Goldfinch, and approaching very near to the *Bouvreuil de Bourbon* of Buffon, from which, however, I think it quite distinct. The only one I have yet seen is in the possession of E. Falkner, Esq. of Fairfield near Liverpool, who received it with a few other rare birds from the Spanish Main.

Total length four inches. Bill blackish and very sharp. The whole head and forepart of the neck is black. The plumage of the body is a fine reddish-orange, dulleron the back and brightest beneath: wing-covers the same; the greater ones at their base black, which forms a bar: the quills are also black, the greater ones having at their base an oblique bar of orange, and some of the lesser ones slightly margined externally with white. Tail divaricated and black; some of the lateral feathers faintly mar-

gined with orange. Spurious wings black. Legs and claws brown.

The *Bouvreuil de Bourbon*, and the *B. du Cap de Bonne Esperance* of Buffon (*Pl. Enl. pl.* 204. *fig.* 1, 2.) appear to have been described as the different sexes of one bird (the Orange Grossbeak of Latham) on mere conjecture. I think them quite distinct, inhabiting different countries, and having all the appearance (in the figures) of being two male birds; for the females in this family seldom possess the rich colours of the male; and the figure of the last of these birds, has not the slightest habit of a female.

The present genus was formed by Cuvier, (though but very slightly defined,) and includes the common Goldfinch and Canary-bird.

PTEROGLOSUS sulcatus,
Grooved-bill Aracari.

GENERIC CHARACTER.

Rostrum capite longius, crassum, inane, cultratum, basuli margine incrassatum, maxillæ angulo frontali obtuso; tomia serrata: nares superæ in maxillæ basi: lingua angusta, pennacea. Cauda elongata, cuneata. Pedes scansorii. Illiger. Prod. p. 202.

Typus Genericus *Rumph. Aracari* Linn.

Bill longer than the head, thick, light, curved, thickened at the basal margin, the frontal angle obtuse, the margins serrated. Nostrils nearly vertical, situated on the base of the bill. Tongue long, slender, feathered. Tail elongated, cuneated. Feet scansorial.

Generic Type *Aracari Toucan* Lath.

SPECIFIC CHARACTER.

P. viridis, subtus pallidior; jugulo albescente, circa oculos cæruleus; rostrum duobus sulcis longitudinalibus incisum.

Green Aracari, beneath paler; throat whitish, round the orbits blue; bill with two lateral longitudinal grooves.

P. sulcatus. *Swainson, in Journal of Royal Institution, vol. 9. p. 267.*

ALL those species of the Linnæan Toucans having a long wedge-shaped tail, and the nostrils passing through the upper part of the bill, are comprehended by Illiger and other continental writers under this genus. They have been called by the French Aracari; which name I have retained as an English generic distinction. They inhabit the same country and situations as the real Toucans, which are distinguished by having a short, broad, and even tail, and the nostrils placed behind the bill.

A fine example of this very rare bird I first met with in the small collection sent to my excellent friend, E. Falkener, Esq. from the Spanish Main. I have since noticed another which was in Mr. Bullock's museum, and is now in the possession of Lord Stanley: these are the only two specimens known.

Pl. 44.

This bird was first described by me in the Journal of the Royal Institution near a year ago. When Professor Temminck was in England, I showed him the manuscript description and drawing which I had then made: he assured me he had never seen the bird before, otherwise than in Bullock's museum. A short time after, my account of it was published. I observe, however, that in the new edition of his Manuel he gives this name to a new bird of his own: no description however follows, and it is therefore impossible to say if the Professor intends it for this identical species.

We must postpone any further observations on this family, and conclude by giving the original description above alluded to.

Total length twelve inches, of which the bill in extreme length measures three. It is much curved, and more attenuated than any of the Aracaris, being thickest at the base; from which it narrows to a sharp point at the tip. The upper part is convex, and somewhat thickened; the sides are compressed, and the upper mandible has two broad slightly indented grooves on each side: the base has a few transverse wrinkles, and the serratures deep and unequal. The lower mandible half the depth of the upper, the sides concave, and the teeth less. The colour (in the dried bird) black; the base of the lower and the upper half of the superior mandible rufous, the base with a whitish marginal line. The nostrils are more lateral than usual, being placed in a line with the eye; the orbits naked and reddish brown, the feathers encircling which (particularly beneath the eye) are vivid cerulean blue. The whole upper plumage is parrot green, paler beneath, with a gloss of golden yellow on the cheeks and sides: throat dusky white. Wings short, five inches long, and rounded; inner shafts of the quills black, margined with whiteish. Tail cuneated, green, four inches and a half long, the four middle feathers equal. Legs dusky black.

45

RAMPHASTOS carinatus,

Sharp-billed Toucan.

Generic Character.

Rostrum capite longius, maximum, crassum, inane, cultratum, basali margine incrassatum; maxillæ frontali subtruncato transverso: Nares verticales, pone maxillæ basin sitæ; tomia serrata; lingua angusta, pennacea; cauda brevis, æqualis; pedes scansorii. Illiger. Prod. p. 212.

Typus Genericus *R. erythrorynchus* Lath.

Bill very large, longer than the head, thick, light, curved, and thickened at the basal margin; the frontal angle transversely sub-truncated, margins serrated. Nostrils vertical, behind the base of the bill. Tongue slender, long, and feathered. Tail short, even. Feet scansorial.

Generic Type *Red-billed Toucan* Lath.

Specific Character.

R. niger; gulâ flavâ; fasciâ pectorale tegminibusque inferioribus rubris; rostro viridi, apice rubro; mandibulâ superiore culmine carinato flavo, lateribus maculâ aurantiâ; inferiore cæruleo variegata.

Black; throat yellow; pectoral bar and under tail covers red; bill green, tip red; upper mandible carinated and yellow above, the sides with an orange spot; lower mandible varied with blue.

Yellow-breasted Toucan. *Edwards, pl.* 329.

Ramphastos Tucanus. Yellow-breasted Toucan. *Gen. Zool.* 8, 362, (*excluding the Synonyms.*)

No tribe of Birds appear so void of that symmetry of form that in general pervades the feathered creation, as the Toucans and Aracaris in the new, and the Hornbills in the old continent. A question naturally arises, why the bills of these birds should be so monstrously out of proportion, and what possible use they can be applied to. The elucidation of these questions is highly interesting, and calls for the most accurate observations to be made in their native regions. It will be sufficient for the present, however, to point out, with regard to the Linnæan Toucans, that the accurate observations and anatomical knowledge of my valued friend Dr. Traill, F.R.S.E., of Liverpool, have clearly proved that an immense number of nerves and fibres fill the cavity of these bills, all connected with the organs of smelling, which are in the highest state of development. A short notice on this subject will be found in the Linnæan Transactions; but as my

learned friend is pursuing his inquiries further on the subject, I shall for the present confine my remarks to the individual here illustrated, observing that no birds are so little understood, even in regard to the species, as these.

The indefatigable Edwards appears the first who noticed this bird. His description, though in the quaint style of the day, is clear and comprehensive; and his figure strengthens it, both being made from the living bird. Yet Dr. Latham has quite overlooked it as a variety of another species; and Dr. Shaw, although he copies Edwards's account, gives references which belong to other birds. It is not in the costly work of Le Vaillant, and indeed seems (from its excessive rarity) to have escaped the notice of all modern ornithologists. The perfect bill of the bird is, however, in my possession, minutely agreeing with Edwards's account; and also an original sketch in oil of another individual, by an unknown artist, with a note stating it was done from the life at Exeter 'Change. All these testimonies put the existence of the bird beyond any doubt.

Having seen only the bill, which is well described by Edwards, I shall close this article with such part of his description as appears necessary.

"The bill is very large, compressed sideways, having *a sharp ridge along the upper part*; the upper mandible is green, with a long triangular spot of yellow colour on each side, and the ridge on the upper part yellow; the lower mandible is blue, with a shade of green in the middle, the point is red, it hath about five faint dusky bars, which cross the joinings of the two mandibles. The iris of the eye is a fair green colour; round the eye is a broad space of naked skin of a violet colour: the throat and breast are of a bright yellow, below which is a bar of scarlet feathers; the covert feathers of the tail are white above, beneath of a bright red; the legs and feet are all of a blue or violet colour." Edwards says it was brought from Jamaica, but doubts its being rather a native of the continent: he says they are very rarely brought home alive.

The bill is full six inches long, and the whole figure on the same scale, both in this and in Edwards.

56.

RAMPHASTOS vitellinus.

Sulphur-and-white-breasted Toucan.

GENERIC CHARACTER.—See Pl. 45.

SPECIFIC CHARACTER.

R. niger, gulâ flavo-aurantiâ; lateribus auribusque albis; fasciâ pectorali tegminibusque rubris; rostro nigro fasciâ basali cæruleâ, culmine subcurvato convexo, lateribus incrassatis.

Black; throat yellowish-orange; the sides and ears white; pectoral bar and tail-covers red; bill black, with a blue basal belt, the top convex and but slightly curved, the sides thickened.

R. vitellinus. *Illiger* ———
Le Pignancoin. *Vaill. pl. 7.*
Var.? Le Grand Toucan à ventre rouge. *Vaill. pl. 6.*

THE descriptions of Dr. Latham, and the compilations of Dr. Shaw on the various species of Toucans, are so confused, and their synonyms so inaccurate, that it is quite impossible to quote them in reference to this bird; but which I am informed has already been distinguished by the celebrated Illiger as a distinct species, under the name here adopted.

Independent of colour, this differs from *R. Tucanus* in having the bill less curved, the top convex and obscure pink, not flat and blue. The belt at the base is always vivid blue (grey in the dead bird), not, as in *R. Tucanus*, of a rich yellow. This I have never met with in Brazil; the other is common from lat. 8 to 23° S. A drawing from the live bird by the late Sydenham Edwards (obligingly lent me by Lord Stanley) confirms others I have seen as to the colour of the bill, orbits, &c. It varies, however, in that of the throat, breadth of the red band, and in the tail-covers. A specimen I possess being somewhat larger, the breast is nearly white, and the upper tail-covers sulphur. In young birds the white on the sides is tinged with grey. I am inclined to consider the *Grand Toucan à ventre rouge* of Vaillant as a mere variety, having the red pectoral bar very broad.

In general size it is rather larger than the Brazilian Toucan. Our figure is on the exact scale of four-tenths to an inch. Its precise locality I am unacquainted with. We hope to enlarge more on this interesting genus in another publication.

Pl. 56.

PSITTACUS Cayennensis.
Cayenne gold-winged Parakeet.

GENERIC CHARACTER.

Rostrum breve, crassum, validissimum, ad basin cute tectum; mandibulâ superiore aduncâ; inferiore sub-recurvatâ, breviore. Nares rotundæ, nudæ, fermè verticales. Pedes scansorii.

Bill short, thick, very strong, covered at the base by a cere; upper mandible sharply hooked; under mandible obtuse, curving upwards, and much shorter. Nostrils round, naked, nearly vertical. Feet scansorial.

SPECIFIC CHARACTER.

P. viridis, alis spuriis aurantiis, remigibus exterioribus basi cæruleis, caudâ brevi cuneatâ.

Green Parakeet, with the spurious wings golden-orange: outer quills blue at their base. Tail short, wedged.

Le Perruche à tache souci. *Le Vaill. pl.* 58, 59. *p.* 169.

WE only thoroughly identified this beautiful little bird, by an inspection of the costly work of Le Vaillant on this family, in the Banksian Library: for the description of the orange-winged Parakeet of Dr. Latham is not applicable; and Dr. Shaw has persisted in the old error of considering this species a variety of the Toui Parakeet, although the question had been put at rest by the original description and sound reasons of Le Vaillant. There is a wide difference between naturalists who compile, and form their theories from books, and those who study nature, and think for themselves; and nothing will result from the first but mischief to the science, and perplexity to the student.

Our figure is from a specimen brought from Demerara by C. Edmonston, Esq.; another is in the possession of A. MacLeay, Esq. Though rare in our cabinets, M. Le Vaillant says it is common in Cayenne. He has given a beautiful figure of the female, which is entirely green.

Total length six inches. Plumage above entirely green, beneath paler and inclining to yellow; just under the lower mandible is a small snuff-coloured spot, and a very narrow line of the same in front just above the nostrils; the quills dark-green, the greater ones on their outside base are blue, with which the head is also tinged. The spurious wings are entirely of a rich and clear orange. Inner wing-covers green. Quills inside greenish-blue, except on each side the shafts, where there is a line of black. Tail short, cuneated, hardly projecting an inch beyond the wings, both above and below green: the interior margin dirty-yellow, the feathers pointed. Bill and legs flesh-colour.

Pl. 1.

PSITTACUS Vaillantii.

Le Vaillant's Parakeet.

Generic Character.

Rostrum breve, crassum, validissimum, ad basin cute tectum; mandibulâ superiore adunca; inferiore sub-recurvatâ, breviore. Nares rotundæ, nudæ, fermè verticales. Pedes scansorii.

Bill short, thick, very strong, covered at the base by a cere; upper mandible sharply hooked; under mandible obtuse, curving upwards, and much shorter. Nostrils round, naked, nearly vertical. Feet scansorial.

Specific Character.

P. viridis, alis spuriis aurantiis, remigibus exterioribus basi cæruleis, caudâ brevi cuneatâ.

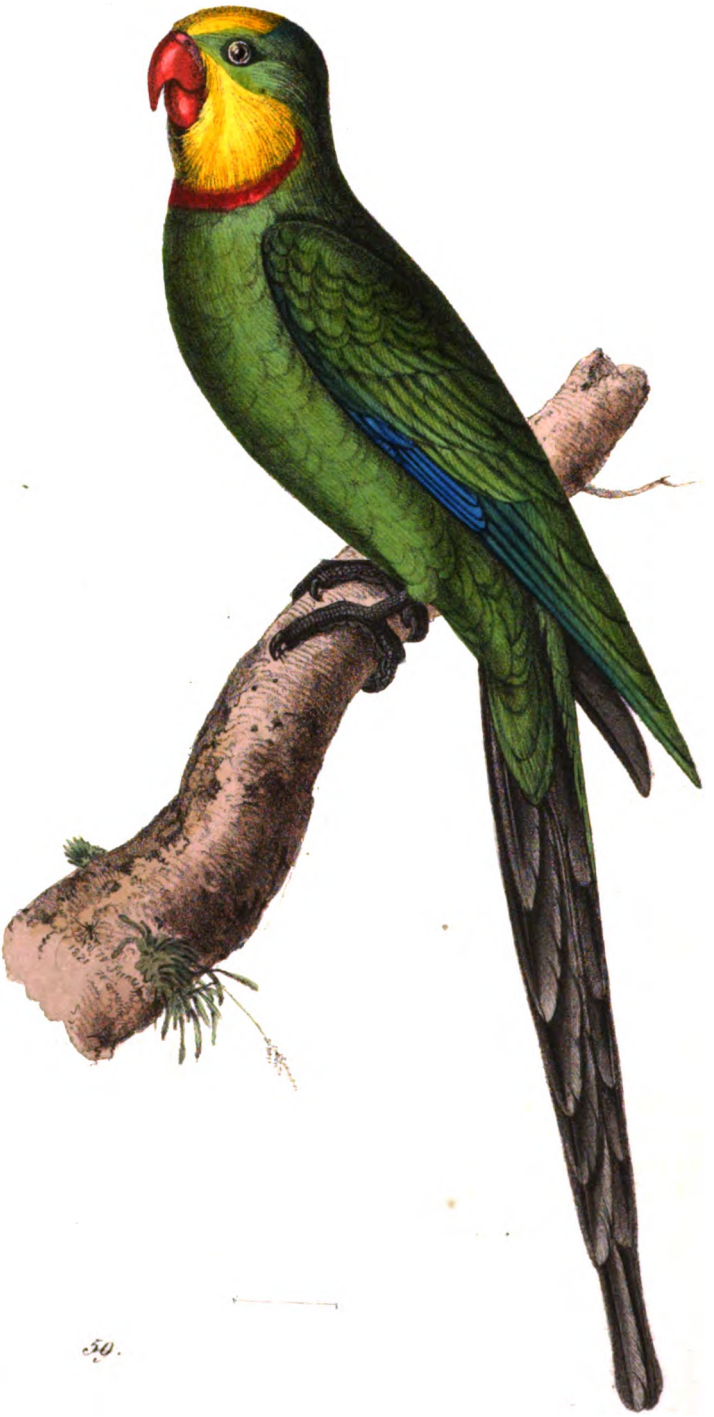
Green Parakeet, with the spurious wings golden-orange; outer quills blue at their base. Tail short, wedged.

The Parakeets form one of the most beautiful tribes of Birds inhabiting the tropical regions, to which luxuriant countries they are, with very few exceptions, confined. Among the numerous species so exquisitely figured by Le Vaillant, the present does not occur; I have therefore named it after that indefatigable and zealous ornithologist, who has spent both his life and fortune in producing a series of works which will ever remain a monument of national and individual honour.

This bird was the only specimen of its kind in a large collection made by C. Edmonston, Esq. in Demerara. Another I have since seen in the possession of A. MacLeay, Esq.: it comes nearest the Orange-winged Parakeet of Latham, but his description will not admit of their being referred to the same species.

Total length six inches. Plumage above entirely green, beneath paler and inclining more to yellow; just under the lower mandible is a small snuff-coloured spot, and a very narrow line of the same in front, just above the nostrils; the quills dark-

green, the greater ones on their outside base are blue. The spurious wings are entirely of a rich and clear orange. Inner wing-covers green. Quills inside greenish-blue, except on each side the shafts, where there is a line of black. Tail short, cuneated, hardly projecting an inch beyond the wings, both above and below green: the interior margin dirty-yellow. Bill and legs flesh-colour.



50.

PSITTACUS Barrabandii.

Red-collared Parakeet.

GENERIC CHARACTER.—See Pl. 1.

SPECIFIC CHARACTER.

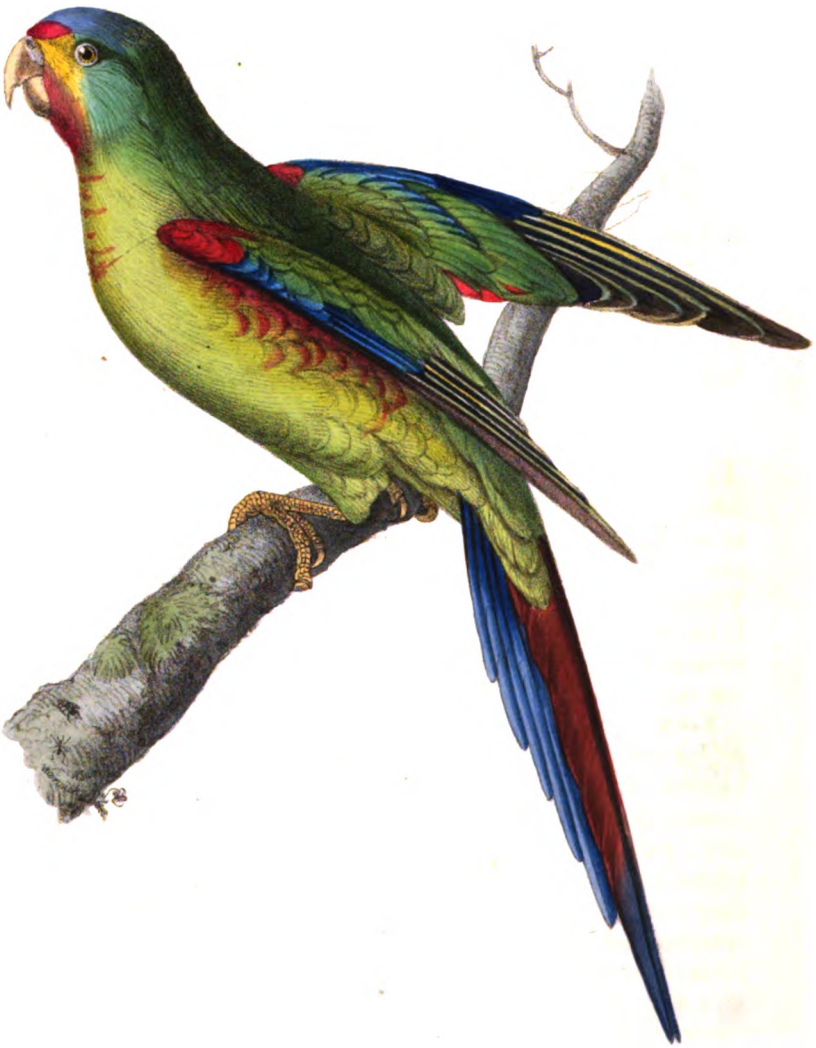
P. viridis, sincipite guláque flavis; torque coccineo circa medium cervicem extendente; rostro rubro; alis spuriis cærulescentibus.

Green, fore-part of the head and throat yellow; round the middle of the neck in front an orange-red collar; bill red; spurious wings blueish.

THE vast and little known region of New Holland has afforded us some of the most beautiful birds of this superb family, and among which the species now, as we believe, for the first time published, will stand conspicuous. It is from a fine skin in the possession of Mr. Leadbeater, and is named in honour of the late M. Barraband, the first ornithological painter that France or any other country has produced.

The tail is very long, measuring eight inches three quarters; the total length of the bird being near fifteen inches. The green which predominates over the plumage is bright and changeable, having a blueish tinge on the hind head, which is much darker and stronger on the outer margins of the quills and middle of the tail-feathers: the back and scapulars are tinged with an olive-brown; the spurious quills and their protecting covers are greenish-blue, appearing in some lights entirely of the latter colour; the inner margin of the quills and tail, as well as their entire under surface, deep brownish-black; but the tips of the tail-feathers beneath are much paler; the two middle feathers five inches longer than the outermost, and extending near two inches beyond any of the others; their extremities instead of being pointed are rather widened and rounded. Bill red; ears and space between the eye and bill green; fore-part of the head, chin, and half the neck, a clear orange-yellow, which is terminated by a narrow collar of a beautiful orange-red; the remaining under plumage pale-green; inner wing-covers darker. Legs black. The fourth, fifth and sixth quills notched at their tips.

Pl. 59.



62.

PSITTACUS discolor.
Red-shouldered Parakeet.

GENERIC CHARACTER.—See Pl. 1.

SPECIFIC CHARACTER.

P. viridis; fronte, mento, tegminibus inferioribus, maculâ cervicali, lateribus et scapularibus coccineis; humeris puniceis; vertice, tegminibus exterioribus remigibusque violaceis; rectricibus fulvo marginatis.

P. Green; front, chin, under wing-covers, and spots in the neck, flanks and scapulars crimson; shoulders dark-red; crown, external wing-covers, and lateral tail-feathers violet-blue; quills blueish-black margined with yellow.

P. discolor. Red-shouldered Parakeet. *White's Voyage, pl. at p.* 263.
La Perruche Banks. *Le Vaill. pl.* 50.

THIS is another of the splendid little Parakeets inhabiting the forests of New Holland; and vivid as the colouring may appear in our figure, it sinks into dullness when compared with the bird itself. Dr. Shaw was the first who described it in White's Voyage to New South Wales, where it is badly represented. It has been since figured by Le Vaillant, probably from a female or imperfect specimen, as the tail is represented by far too short, and the colours not quite agreeing with that in my collection.

Total length eleven inches. The upper plumage bright green, tinged with blue on the sides of the neck, lighter and yellowish beneath; the crown of the head sapphire or violet-blue, with a crimson belt in front, and a large patch of the same round the chin; paler spots of this colour are also in front of the neck, breast, flanks, and under tail-covers; the under wing-covers are deep crimson, as well as the inner shafts of some of the lesser covers outside; the shoulders dark blood-colour; the outer wing-covers deep-blue on the margin of the wings, gradually changing to a vivid blue, which blends with the green. Quills black glossed with violet, margined externally and internally with yellow. Tail near five inches long, the middle feathers dark rufous tipped with blueish; the rest more or less rufous at the base, and shining blue beyond. Bill and legs pale.

Pl. 62.

N. 2.

SITTA frontalis.

Blue Nuthatch.

GENERIC CHARACTER.

Rostrum rectissimum, acutum, compressum; utroque mandibulo ad apicem æque inclinato; apice integro cuneo compresso simili. Nares basales, ovales, apertæ, plumis setaceisi ncumbentibus extrinsecus tectæ. Pedes tribus digitis anticis; uno postico; interior minor; exterior ad basin medio connexus; hallux productus validus. Ungues compressissimi; antici subæquales; postico maximo. Cauda brevis, rectricibus duodecim subæqualibus.

Typus Genericus *S. Europæa.*

Bill very straight, sharp-pointed, compressed; both mandibles equally inclining to the tip, which is entire, and resembles a compressed wedge. Nostrils basal, oval, open, covered externally with incumbent setaceous feathers. Feet with three toes forward and one backward; inner toe very small; outer toe connected to the middle at its base; hind toe lengthened, strong. Claws much compressed; anterior nearly equal, posterior largest. Tail short, of twelve nearly equal feathers.

Generic Type *Sitta Europæa.*

SPECIFIC CHARACTER.

S. supra cærulea; supercilio, fronte, et remigibus lateralibus in medio nigris; subtus cinereo-fusca, aures lilacinæ, mento albo.

Nuthatch, above blue: line above the eye, front, and middle of the lateral tail-feathers black; beneath cinereous brown, ears lilac, chin white.

Orthorynchus frontalis. *Horsfield in Linn. Trans.*

THE present species is one of the many interesting birds collected in Java by my friend Dr. Horsfield: it was not, however, until I had described and engraved another specimen, sent to Sir J. Banks from Ceylon, that I discovered the species had already been included in the Doctor's account of the birds of Java, presented to the Linnæan Society, where he has described it under the name of *Orthorynchus frontalis.*

The specific name of its first describer is of course retained: with respect, however, to its generic situation, I must be allowed

to dissent from considering it as a distinct genus, merely from the prolongation of the hinder toe being somewhat more developed than in *Sitta Europæa* and *Carolinensis*, both which birds are now before me, and which in themselves differ in the relative proportion of this part: thus in *S. Carolinensis* the hind toe and claw is two-tenths of an inch shorter than the leg; in *S. Europæa* it is one-tenth shorter; and in the present species it just exceeds that of the leg: in every other respect not the slightest difference I apprehend will be observed, as the foregoing generic character has been drawn up from these three species.

Total length five inches. Size of the European Nuthatch. Bill, from the angle of the mouth to the tip, eight lines; front of the head velvet-black, continued in a stripe of the same colour over the eye, and terminating above the ear feathers: the upper plumage is of a rich blue, more brilliant on the head, and paler on the front, and external margins of the quills. Spurious wings and lesser quills black margined with blue. Inner wing-covers deep black; the under plumage is a light-brown, changing to lilac on the ears and sides of the neck, and tinged with cinereous on the flanks and vent: the chin is white; tail even, the two middle feathers blue, the rest more or less black, having the external margins and tips blue. The outer quill of the wings is short, the second and third longest and equal, the fourth rather less; the hind toe with the claw, measures one inch in a straight line.

Pl. 14.

PICUS rubiginosus.

Brown Woodpecker.

GENERIC CHARACTER.

Rostrum polyedrum, rectum, in apicem compressum, cuneatum, attenuatum. Nares basales, ovales, patulæ, plumis angustis recumbentibus tectæ. Lingua longissima, jaculatoria, apice sagittato. Cauda rectricibus validis, rigidis, acuminatis, 10, *intermediis duabus longioribus. Pedes scansorii.*

Typus Genericus *Picus viridis.*

Bill many-sided, straight, the tip resembling a compressed pointed wedge. Nostrils basal, oval, open, covered externally with narrow recumbent feathers. Tongue very long, retractile, the tip barbed. Tail-feathers ten, strong, rigid, acuminated; the two middle ones longest. Feet climbing.

Generic Type *Picus viridis.*

SPECIFIC CHARACTER.

P. suprà rubiginosus: vertice nigrescente; occipite rubro, subtùs fulvo, fusco-fasciato.

Above tawny rufous. Crown blackish; hind head crimson, beneath fulvous, with brown transverse bands.

THE Woodpeckers form a most natural family of birds, and are dispersed in every part of the known world, excepting the Polar regions. Eight species inhabit Europe, five of which are found in our own country. The largest however of these, the Great Black Woodpecker, is very rare; and even the others are less frequently seen than formerly, from the gradual diminution of our few remaining forests.

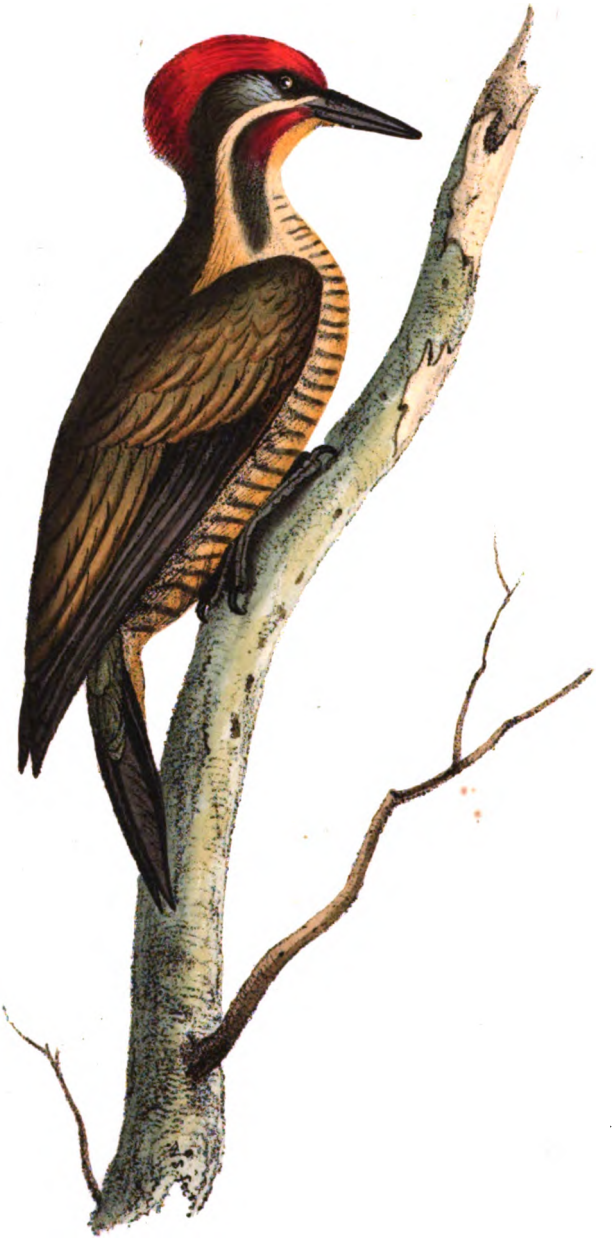
The present appears an undescribed species, and was sent from the Spanish Main to E. Falkner, Esq. of Fairfield. I have since seen the male, which, like many others of this genus, is distinguished by a patch of red below the eye.

Total length, eight inches and a half; bill one inch long, blackish; front and crown cinereous black; the hind head and

Pl. 14.

nape crimson; a dusky whitish line (beginning at the nostrils) includes the eye and ear-feathers; below this on each side blackish, with longitudinal whitish dots, which in the male is mixed near the bill with crimson; chin blackish, speckled with white. The general plumage above is uniform tawny rufous brown, becoming more olive on the rump. Under parts olivaceous yellow, crossed with numerous close bands of blackish brown. Quills with the inner web black, the margin pale yellow; shafts and outer web tawny; tail the same, the shafts and outer half black, excepting the last pair, which have yellowish shafts and dusky tips. Wings inside, pale orange. Legs and claws dusky green.

Two or three other individuals have since fallen under my observation: the male I saw at Mr. Leadbeater's, Animal Preserver, in Brewer-street, of whose liberality and integrity in every way, I can bear the most unqualified and cheerful testimony.



20.

PICUS Braziliensis.

Brazilian Woodpecker.

GENERIC CHARACTER.—See Pl. 14.

SPECIFIC CHARACTER.

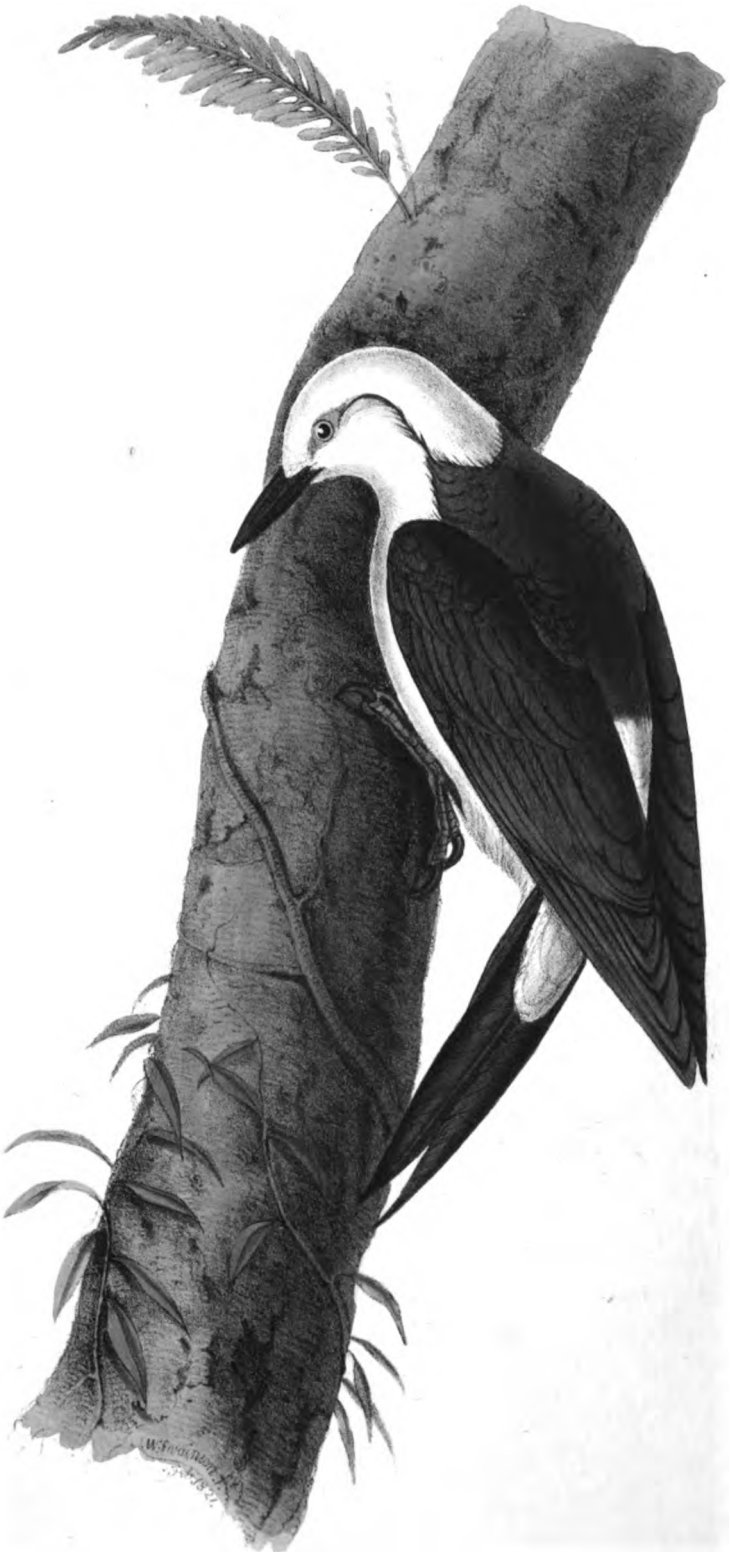
P. olivaceus, subtùs fulvus, nigrescente-fasciatus; capite subcristato, suprà rubro, utrinque lineis olivaceis, fulvis, et rubris.

Olive Woodpecker: beneath fulvous, with transverse blackish bands. Head sub-crested, above red, the sides with olive, yellow, and red streaks.

A NEW species of this already extensive family, inhabiting the interior of Brazil in the province of Bahia, where I met with it but once. It was, I believe, first described in a paper I sent to the Wernerian Society some time ago: the figure is less than the natural size.

Total length nine inches. Bill not quite an inch, and blackish. Irides yellow. Head slightly crested; the whole upper part crimson. Orbits and cheeks olive-brown; beneath this a narrow line of tawny-yellow begins at the nostrils and passes down the sides of the neck; next this is a similar stripe crimson on the jaws and olive beyond, leaving the chin and throat in front yellowish; the plumage above is tawny-olive. Quills black, within edged with rufous: all the under parts tawny-yellow, transversely banded with blackish lines; inner wing-covers yellowish. Tail three inches and a half long, the feathers black, unspotted, and tinged at their base with olive. Feet and claws lead-colour. The neck is very slender. The only one I have yet seen was a male.

Pl. 20.



PICUS bicolor.

Black and White Woodpecker.

GENERIC CHARACTER.—See Pl. 14.

SPECIFIC CHARACTER.

P. albus, collo supra, tergo, alis, lineaque temporali nigris, rectricibus nigris, basi maculisque marginis interioris albis.

White: neck above, back, wings, and line from the ears to the nape, black; tail-feathers black, with their base and spots on the inner margin white.

THE simplicity of colouring in the plumage of this bird will easily distinguish it from among the numerous and intricate species already known of this family. It is one of the new birds the recent investigations of Brazilian zoology have added to our museums. The individual here figured was sent me from the district of Minas Geraies.

Total length eleven inches and a half. Bill from the upper base to the tip one inch one line, and from the gape one inch four-tenths; the colour blueish-black; the upper mandible above sharply carinated and slightly curved; orbits (in the dead bird) yellowish-white; the whole of the head and nape, sides of the neck, rump and tail-covers, and all the under plumage pure white, with a tinge of yellow down the middle of the belly: a narrow black line commences at the ears, and is carried down on each side, joining the black of the upper neck; the wings and remaining upper plumage are of a uniform dark sooty black; the tips of the quills much paler and brownish. Wings six inches and a half long; the inside covers black. Tail four inches, and black banded with white at the extreme base; the two outer feathers on each side with alternate black and white bands on the inner web their whole length; feet and claws dirty-greenish: this was a female.

Pl. 38.

OXYRHYNCUS cristatus.
Crested Sharpbill.

GENERIC CHARACTER.

Oxyruncus Temminck.

Rostrum breve, rectissimum, basi trigonâ, ultra basin attenuatum, apice acutissimum; mandibulâ superiore supr ràotundatâ, utrisque integris. Nares basales, nudæ, membranâ partim tectæ, aperturâ lineari ad marginem rostri approximante. Pedes breves, validi, digito medio longiores; digitis anterioribus tribus, exteriore connexo, interiore fisso; halluce valido.

Bill short, very straight, base trigonal, beyond attenuated to a very fine point; upper mandible above rounded, both entire. Nostrils basal, naked, partially covered by a membrane; aperture linear, near the margin of the bill. Feet short, strong, a little longer than the middle toe; anterior toes three, the outer connected, the inner cleft; hind toe strong.

SPECIFIC CHARACTER.

O. *suprà olivaceo-viridis, subtùs flavescente-albus, maculis nigrescentibus; capite cristâ coccineâ incumbente; capitis lateribus lineis transversis flavescente-albis.*

Above olive-green, beneath yellowish-white, with blackish spots. Head with an incumbent crimson crest; sides of the head and neck with transverse yellowish-white lines.

AN elegant and (to the ornithologist) a highly interesting bird, considered with much judgement by Professor Temminck as a new genus, having the perfect bill and habit of the Wryneck, but totally unlike that bird in the position of its toes, which in this are not placed in pairs. The Professor has slightly described it, in the new edition of his *Manuel*, without a *specific*, but under the *generic* name of *Oxyruncus*, the spelling of which must be presumed as an error ot the press: no mention, however, is made of the beautiful crimson colour which adorns the crest.

Total length near seven inches. Bill eight-tenths in length from the gape; general colour of the bird olive-green, becoming nearly white on the under part, and on the transverse stripes on each side the neck, front and temples, where there are also obscure bands of black; crown with a concealed crest, which is vivid crimson at the base and blackish at the tips; inner margin of the covers, quills and tail blackish; inner covers yellowish; chin, neck and breast banded with blackish lines, which are broken into spots and stripes beyond.

Inhabits Brazil, but is very rare.

MELLIPHAGA auricomis,
Yellow-tufted Honeysucker.

GENERIC CHARACTER.

(*Melliphaga*, Lewin.)

Rostrum mediocre, capite plerumque longius, gracile, curvatum, acuminatum, attenuatum, ad basin altius quam latius, lateribus compressis; culmine carinato. Mandibula superior ad apicem emarginata; inferior lateribus compressis. Nares concavæ ad medium rostri porrectæ, membranâ tectæ, inter rictum et apicem longo fissu aperientes. Lingua longa, extensibilis, fibris cartilaginosis terminata. Pedes simplices, digito exteriore connexo, halluce pervalido.

Obs. *Cauda rectricibus* 12, *remigibus* 1 *et* 2 *spuriis; rostri margine aliquando subtilissime dentato.*

Typus Genericus *Certhia Novæ Hollandiæ* Lath.

Bill moderate, generally somewhat longer than the head, slender, curved, pointed and acuminated, the base higher than broad, the sides compressed, the top carinated; upper mandible notched at the tip, the under mandible laterally compressed. Nostrils concave, near half the length of the bill, covered by a membrane, opening by a long slit midway between the gape and tip. Tongue long, extensible, terminated by cartilaginous fibres. Feet simple; outer fore-toe connected; hind-toe very strong.

Obs. Tail-feathers twelve, first and second quills spurious; margin of the bill sometimes minutely toothed.

Generic Type *New Holland Creeper* Lath., &c.

SPECIFIC CHARACTER.

M. olivaceo fusca; vertice corporeque subtus flavescentibus; temporibus auribusque nigris; gulâ et pennis elongatis pone aures flavis.

Olive-brown: crown of the head and body beneath yellowish; temples and ear-feathers black; throat and lengthened feathers behind the ears yellow.

Muscicapa auricomis. M. olivacea, vertice corpore subtus maculaque aurium flavis, per oculos striga alba. *Lath. Ind. Orn. vol.* 2. *Suppl.* xlix. 1. *Gen. Zool.* 10. 2. *p.* 354.

Yellow-tufted Flycatcher. *Lath. Suppl.* 2. 215. *no.* 4. *Gen. Zool.* 10. 2. 354.

THE Yellow-tufted Honeysucker, although described by Latham, has hitherto remained unfigured; and I therefore select it as an excellent example of a tribe of birds which I think are peculiar to Australasia, and which seem to hold the same situation among the birds of that vast country as the Humming-birds occupy in South America, and the Sun-birds (*Cinnyris*, Cuvier) in Africa and India; all of which more or less derive their suste-

nance from the nectar of flowers, and which they extract on the wing by means of their long tubular tongues.

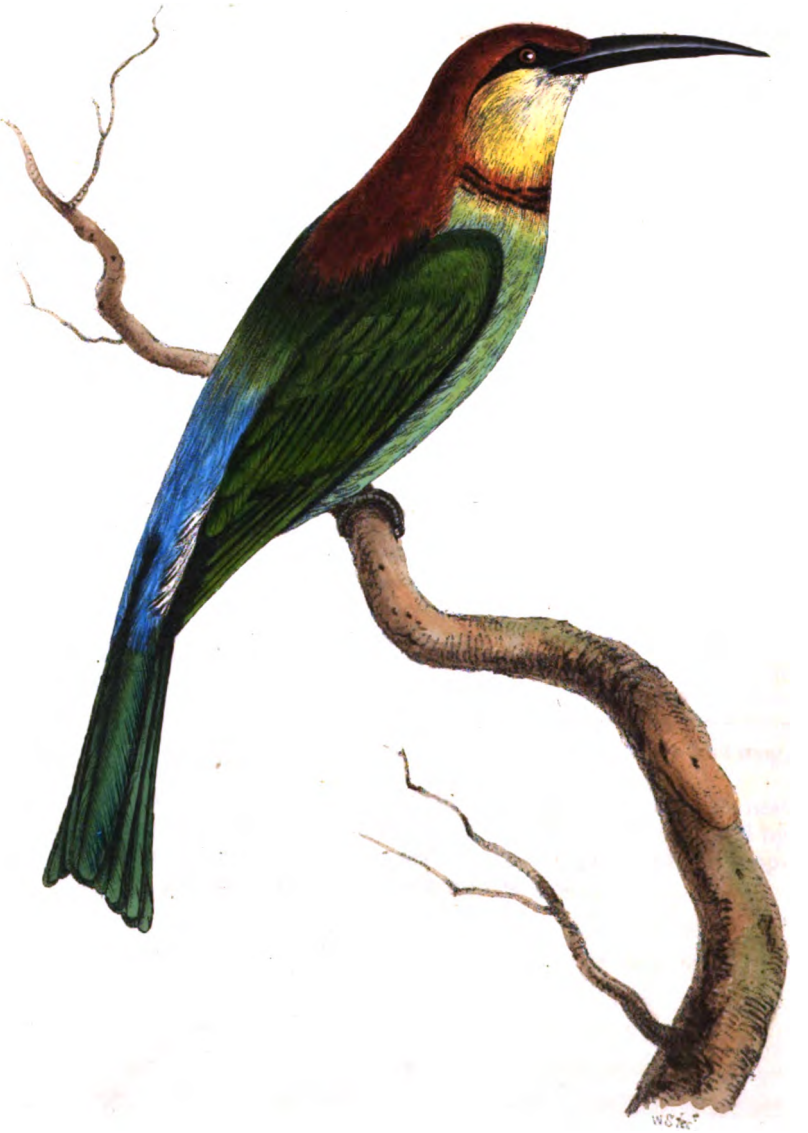
It is singular, that while our first ornithological writers were distributing the numerous species of these birds in their systems, under such of the Linnæan genera as they thought most adapted for their reception, a naturalist of a remote colony should be the first who, by creating a new genus, brought them all into their proper situation in systematic arrangement; one of the many proofs that Nature, and Nature only, is to be studied; and that no system, however ingenious or however applauded, can be considered as infallible.

By an error (no doubt of the press) in the specific character of this bird in Latham's Index, the eye stripe is called *white*, though in the description it is termed black. Mr. Stephens has copied this error into "General Zoology;" and his description of this bird, as well as numberless others, seems merely an abridgement or alteration of Latham's; a practice highly detrimental to science; for, when an original description cannot be obtained, it is much better, and safer, to copy without disguise that of another.

How far all the birds included by Temminck in this genus really belong to it, admits of very great doubt; I have therefore constructed the generic character from those birds of New Holland only which Lewin, who founded the genus, must have had before him.

Total length seven inches and a half; bill seven-tenths, the frontal feathers advancing half its length to the nostrils; those of the ears are lengthened, but the yellow tuft behind them is much more so; the feathers of the chin are small, thick-set, and ending in fine setaceous hairs curved outwards; the breast and body pale brownish-yellow. Quills and tail dark-brown, margined with deep-yellowish; the two lateral tail-feathers tipt with dirty white; plumage above olive-brown; front and crown of the head dark brownish-yellow; bill black; legs brownish, inner-toe very deeply cleft. Tail, from the rump, three inches and a half long, and slightly rounded.

Latham, who first described this bird, says, "it makes its nest on the extreme pendent branches of low trees or shrubs, and by this means escapes the plunder of smaller quadrupeds." It appears not uncommon in New South Wales.



Z. 2. 8.

MEROPS urica.

Javanese Bee-eater.

GENERIC CHARACTER.

Rostrum productum, læve, subcurvatum, compressum; apice acuto, basi trigono; culmine carinato. Pedes brevissimi, gressorii. Alæ attenuatæ.

Typus Genericus *M. apiaster*. Linn., &c.

Bill lengthened, smooth, slightly curved, terminating in a sharp point; the base triangular, the sides much compressed, the back carinated. Feet very short, gressorial. Wings pointed.

Generic Type *Merops apiaster*. Linn., &c.

SPECIFIC CHARACTER.

M. viridis, infra pallidior; capite, collo suprà rufo; mento, jugulo, sulphureis; lineâ temporali et torque colli nigris; tegminibus uropygioque cæruleis; caudâ subfurcatâ.

Green, beneath paler. Head and neck above rufous; chin and throat sulphur; line under the eyes, and collar round the neck, black. Tail-covers and rump pale blue. Tail slightly forked.

Merops urica. *Horsfeild in Linn. Trans.*

THE true Bee-eaters are confined to the old world, principally inhabiting Africa and Asia; one species only, the European Bee-eater, being known with any degree of certainty to be found in Europe; and this is occasionally seen in England. They are all gregarious, feeding on the wing, and in general migratory.

Most unwillingly I have again in this instance anticipated my friend Dr. Horsfeild in describing this bird, which he found in Java, and which I engraved after one sent from Ceylon, without knowing it had also fallen under his observation.

The figure is less than the natural size, which is nearly that of our European species. Bill an inch and a half long from the gape, and black. Nostrils small, basal, round, not sulcated,

partially defended by incumbent hairs; at the angle of the mouth is a row of short, stiff bristles; a black line commences from the nostrils, passes under the eye, and terminates with the ears. The upper part of the head, neck, and between the wings, rufous. The rump and upper tail-covers pale blue: the chin and throat sulphur tinged with rufous, where an irregular and narrow collar of black crosses the neck. The remaining under parts yellowish-green. Wings and quills fulvous green, the latter tipt with black, and all the inner shafts more or less rufous: the second quill longest, and the lesser quills and tail-feathers notched at their tips. Tail green, slightly forked; the tips and under side dusky-black, and three inches and a half long. Wings, when closed, four inches one line in length. Vent blueish-white.

The females in this genus may generally be distinguished by the two middle tail-feathers being but slightly or not at all elongated.

26.

ALCEDO azurea.

Azure Kingsfisher.

GENERIC CHARACTER.

Rostrum longissimum, rectum, attenuatum, altius quam latius, in totum compressum, mandibulis carinatis; marginibus lateralibus leviter inflexis. Nares basales, membrana tectæ, apertura nuda, lineari, obliqua; cauda plerumque brevissima. Pedes gressorii, digito antico interiore minimo aut nullo.

Typus Genericus *Alcedo ispida.* Linn.

Bill very long, straight and attenuated, higher than broad, compressed the whole length, both mandibles carinated, the margins slightly bent inwards. Nostrils basal, covered by a membrane; the aperture linear, oblique, and naked. Tail mostly very short. Feet gressorial, inner fore-toe small or wanting.

Generic Type *Common Kingsfisher.* Lath. Bewick, &c.

SPECIFIC CHARACTER.

A. corpore suprà, capitis lateribus colloque nitido cyaneis; subtus rufis; mento guloque albescentibus, alis nigricantibus; digito antico interiore nullo.

Body above, sides of the head and neck shining mazarine blue; beneath rufous: chin and throat whitish; wings blackish; inner fore-toe wanting.

Alcedo azurea. Azure Kingsfisher. *Lath. Synop. Suppl.* ii. *p.* 372.
Lewin's Birds of New Holland, fasc. i. *pl.* 1.

Alcedo Tribrachys. Tridigitated Kingsfisher. *Shaw in Gen. Zool.* viii. 1. 105.

THE Kingsfishers have such a general similarity of form, that the most casual observer is able to distinguish them: a very long straight bill, short wings, and (in general) a shorter tail with very small legs, are the prominent distinctions of such as are usually seen; and the richness of plumage that generally pervades them cannot be better exemplified than in our own beautiful species, the common Kingsfisher, not unfrequent in many parts of England.

These birds, hitherto placed in systems under one genus, nevertheless contain two distinct groups differing materially in the construction of that primary organ of supporting life, the bill; and in their physical distribution, or the countries they respectively inhabit, two most important considerations in the na-

tural arrangement of animals under the present elevated views of the philosophic zoologist, with whom the study of Nature consists no longer in the study of words, the retention of names, or even the accurate description of species.

These considerations have induced me to form these birds into two genera, the definitions of which are now given: those retained under the old genus of *Alcedo* appear to be scattered (though sparingly) in every part of the old and the new world. Their bills seem formed for swallowing their food more in an entire state, similar to the Herons. In each of these genera one species exists with only three toes, a remarkable circumstance, which in an artificial system would endanger their being united in a separate genus; but which, from the remarkable smallness of the inner toe in all the other species, cannot I apprehend point out any peculiarity either in their habit or economy: and this opinion I find is likewise entertained by Professor Temminck.

Total length seven inches and a quarter. Bill from the gape two inches one line, the upper mandible rather longest, and both with a slight appearance of a notch; the colour black. All the upper plumage, as well as the sides of the head, ears, and stripe beyond, fine ultramarine blue, more vivid on the rump and tail-covers, and duller on the tail, wing-covers, and lesser quill-margins; front blackish; from the nostrils to the eye a whitish line, and from the ears on each side the neck a whitish stripe, which almost forms a collar round the nape. Quill-feathers sooty black. All the under parts orange ferrugineous; throat and belly nearly white. Tail very short, nearly hid by the upper covers. Feet red, claws black. The inner fore-toe wanting, but a slight rudiment of it exists in my specimen.

Since writing the above, I find this bird is figured and described in a beautiful work commenced by Lewin on the birds of New Holland, which Mr. Brown, the learned possessor of the Banksian library, pointed out to me. I believe but a few copies are known. Lewin observes, "it inhabits heads of rivers, visiting dead trees, from the branches of which it darts on its prey in the water beneath, and is sometimes completely immersed by the velocity of its descent."

Dr. Latham has very well described it, but quite overlooked the construction of the feet.

50.

ALCEDO Asiatica.
Asiatic Kingsfisher.

GENERIC CHARACTER.—See Pl. 26.

SPECIFIC CHARACTER.

A. capite nigro, fasciis transversis cyaneis, posticè cristato; auribus cyaneis; mento, gulâ, strigâque laterali colli albescentibus; dorso nitidè cæruleo; corpore subtùs rufo.

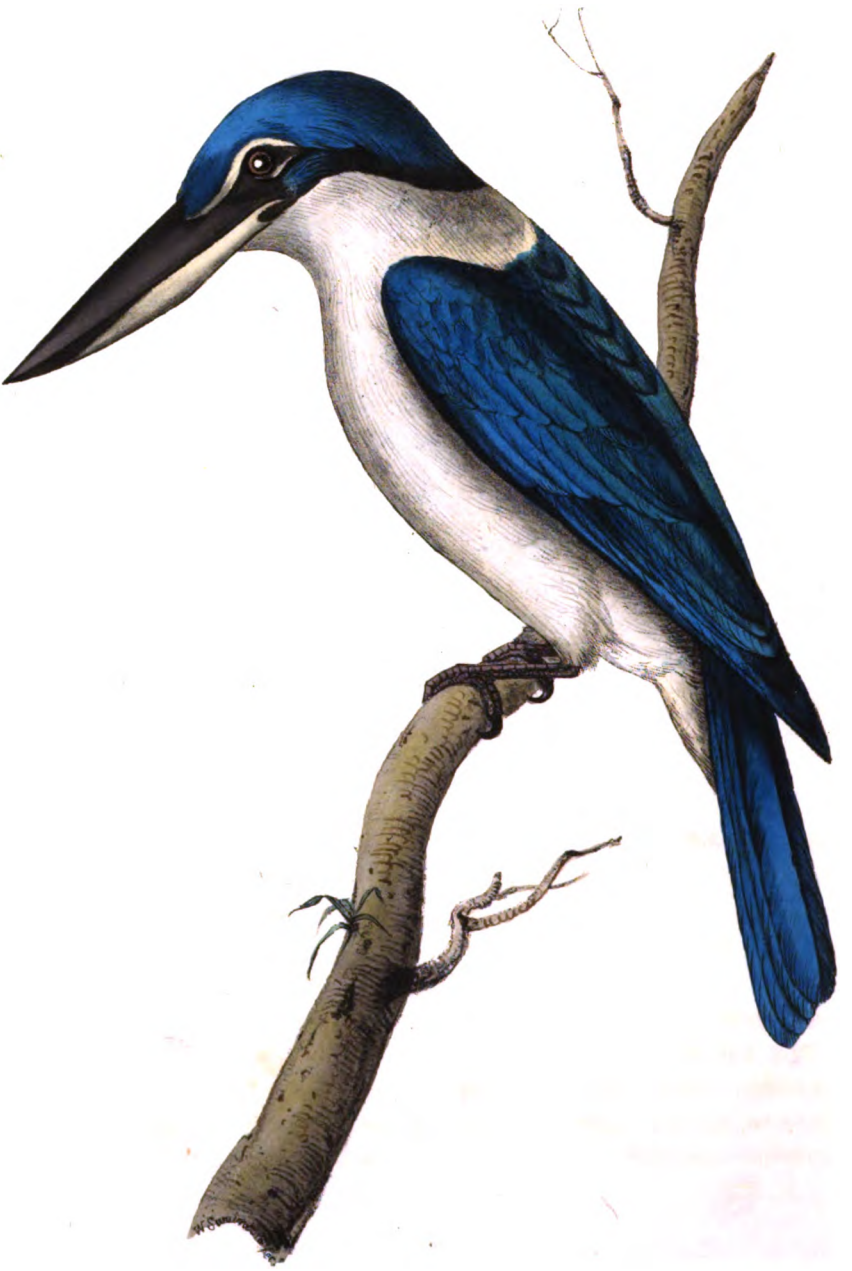
Head black, transversely banded with mazarine blue, the hinder part crested: ears blueish; chin, throat, and lateral stripe on each side the neck whitish; back shining light-blue; body beneath rufous.

THE general resemblance between this and the European Kingsfisher may have been the cause why it has remained hitherto unnoticed by ornithologists. It bears, however, on closer inspection, a strong and peculiar distinction in the crest at the back of the head, in being much smaller in size, and especially as inhabiting the hottest parts of India; while our own braves the cold of a Siberian winter.

Total length six inches, of which the bill from the angle of the mouth to the tip occupies one inch and three-quarters, and is black, with the under mandible paler; the ears and the upper part of the head and neck are blueish-black, transversely banded with somewhat crescent-shaped narrow bands of a rich deep blue, which are broken into spots on the crest and ears: from the base of the under mandible is a black stripe richly glossed with blue, and carried down on each side the neck, between which and the upper part is a whitish stripe beginning just behind the ears (this in the European species is rufous). The wing-covers, scapulars and lesser quills are blackish glossed with blue, the two former having a bright spot at the end of each feather; superior and greater quills entirely blackish; down the middle of the back, rump, and tail-covers, light and vivid blue, with a slight tinge of greenish; chin and throat cream-colour; line between the nostrils and eyes, margin of the shoulders, under wing-covers, and all the lower parts of the body, rufous; tail deep and obscure blue; legs red.

My specimen came from some part of India; I have met with others from the same place; and Dr. Horsfield has likewise observed it in Java.

Pl. 50.



27.

HALCYON collaris.

Collared Crabeater.

GENERIC CHARACTER.

Rostrum longissimum, rectum, validum, ad basin latius quam altius, lateribus tetragonis; mandibula superiore rectissima, ad basin rotundata; inferiore carinata, recurvata, margine superioris inferiorum obtegente. Nares basales, membrana tectæ, apertura nuda, lineari obliqua. Cauda plerumque mediocris. Pedes gressorii, digito antico interiore minimo aut nullo.

Typus Genericus *Alcedo Senegalensis.* Linn.

Bill very long, straight, thick, the base broader than high; the sides tetragonal: upper mandible very straight, the base rounded; under mandible beneath carinated and recurved, the margins covered by those of the upper. Nostrils basal, covered by a membrane, the aperture naked, linear and oblique. Tail mostly moderate. Feet gressorial: interior fore-toe small or wanting.

Generic Type *Crabeating Kingsfisher.* Latham.

SPECIFIC CHARACTER.

H. viridi-cærulea; corpore subtus, lunulaque cerviculi albis.

Greenish-blue. Body beneath and nuchal collar white.

Alcedo collaris. *Latham Index Ornith.* i. 250.

Sacred Kingsfisher, *Var.* D. *Latham Syn.* ii. *p.* 623.

Collared Kingsfisher. *Gen. Zool.* viii. i. *p.* 80.

REFERRING to the observations we have already made on Kingsfishers generally, it will be only necessary to observe, that the species now formed into the genus *Halcyon* appear entirely excluded from the American continent: their bills are much stronger, thicker, and more rounded than the genuine Kingsfishers, and the under mandible beneath invariably carinated and curving upwards. One of them (the *Alcedo Senegalensis* of Latham) is known to feed on crabs, the breaking and disjointing of which this structure seems admirably calculated to accomplish; and although some authors mention insects also as

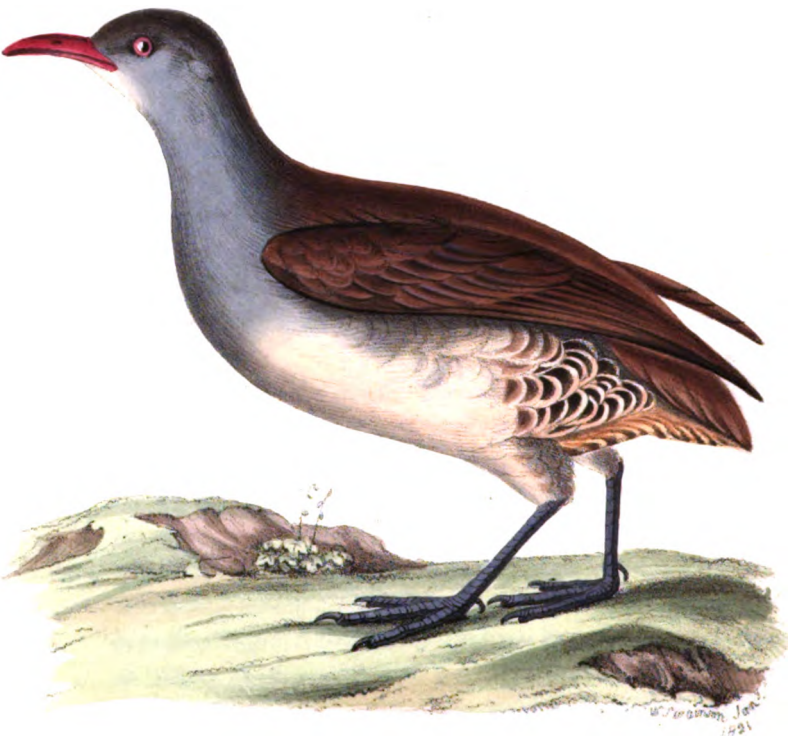
their food, I apprehend it is only in the absence of other larger prey more suited to the construction of their bills.

Total length eight inches and a half. Bill two inches three lines from the gape, and one inch three quarters from the nostrils; upper mandible and margin and lip of the lower, black, the rest yellowish-white. The general plumage above is pale and changeable greenish-blue, the green predominating on the scapulars, head and tail; the upper part of the neck is crossed by a white collar, separated from the green of the head by a narrow margin of black, which passes on the ear-feathers round the nape; a narrow whitish line runs from the nostrils to the eyebrows, and another very short one is beneath the eye; the whole of the under plumage white. Quills black edged with blue, the second, third and fourth equal and longest. Wings four inches and a quarter. Tail even, near three inches long, above blue-green, beneath black. Feet dusky; middle and outer claws much longer than the leg.

Inhabits Java and other parts of India, and is I believe unfigured. The line at the bottom of the plate is on the scale of an inch.

Since writing the above, Temminck's new edition of the *Manuel d'Ornithologie* has just reached me, in which I perceive he has continued the birds of this genus under that of *Alcedo*, observing that their plumage is always shining, and that he can find no characters for their geographic distribution: yet, notwithstanding the opinion of this eminent ornithologist, a close attention will I believe prove, first, that no species of Linnæan *Alcedo* bearing the characters of *Halcyon* have yet been discovered as natives of America; and secondly, that species of genuine *Alcedo* will be found with plumage quite devoid of any bright or shining colours. One or two exist in my own cabinet, but to which I cannot now refer.

The situation of *Halcyon* will be between *Alcedo* and *Dacelo*; from the last of which it is distinguished by its perfectly straight, acute, and entire upper mandible, which, on the contrary, in *Dacelo* is notched, the tip bent and obtuse.



TINAMUS Tataupa, *var.*

Tataupa Tinamou.

Generic Character.

Rostrum mediocre, depressum, latius quam altum, apice rotundato obtuso; culmine lato, excelso. Nares laterales, mediæ, ovatæ, patulæ, apertæ. Pedes tetradactyli, fissi; halluce brevissimo, insistente. Cauda nulla, aut brevissima, plumis uropygii obtecta. Alæ breves. Temminck, vol. iii. p. 747.

Typus Genericus *T. rufescens.* Latham.

Bill moderate, depressed, broader than high, tip obtuse, back broad. Nostrils lateral, medial, ovate, expanded and open. Feet four-toed, cleft; hind toe very short. Tail none or very short, concealed by the rump-feathers. Wings short.

Generic Type *T. rufescens.* Latham.

Specific Character.

T. corpore suprà fusco-rufo, immaculato; capite et collo fusco-nigro; mento albo; gulâ, collo, pectoreque cinereis; corpore infrà albescente; uropygio lateribusque posticis rufis aut nigris, pennis albo-marginatis.

Tinamou with the body above dusky-rufous, immaculate. Head and neck dusky-black; chin white; throat, neck and breast, cinereous; body beneath whitish; vent and flanks rufous or black, the feathers margined with white.

Tinamus Tataupa. *Temminck Pig. et Gall.* iii. *p.* 590 *et* 752. *Gen. Zool. vol.* xi. *part* 2. *p.* 416.

The Tinamous are entirely confined to the new world, where they seem to hold the same scale in creation which the Partridges do in the old continent. Our knowledge of these singular birds has been much increased by the writings of Professor Temminck, who has described twelve species. The present bird is nearly the smallest of its family: I found it only once in the interior of Bahia in Brazil, where it must be very rare, or frequent to particular districts only. Though differing in some re-

spects from the description of Temminck, I am inclined to consider it merely as a variety.

Total length (excepting the legs) eight inches and a quarter. The bill is one inch one line long from the gape, and, with the irides, is red. The head and neck above blackish cinereous; the crown much darker and tinged with brown, the rest of the upper plumage uniform reddish-brown; the edges of the wing-covers tinged with pale cinereous; the spurious wings and quills greyish-brown; the chin is white, changing on the throat, neck, breast and their sides to a pale lead-colour, which, on the body, again becomes white; the feathers on the flanks are blackish or rufous, beautifully margined all round by white, with another internal mark of the same kind; those on the vent are similarly marked, but on a pale rufous ground; the thighs are rufous-white; the under tail-covers rufous, marked by narrow undulated concentric lines of black, the ends whitish. The length of the legs (from the knee to the base of the middle toe) one inch two lines, and from that to the tip of the claw one inch. Legs blueish-purple. Hind toe very short, and elevated above the ground.

12.

GOBIUS Suerii.

Suerian Goby.

GENERIC CHARACTER.

Caput parvum. Oculi approximati. Pinnæ dorsales duæ, radiis flexilibus: ventrales conjunctæ, infundibuliformes. Branchiarum apertura contracta, membranâ 4-radiatâ.

Typus Genericus *Gobius niger*. Pennant.

Head small. Eyes approximating. Dorsal fins two, the rays flexible. Ventral fins united into the form of a funnel. Gill aperture contracted, the membrane four-rayed.

Generic Type *Gobius niger*. Pennant.

SPECIFIC CHARACTER.

G. olivaceus, caudâ atro-purpureâ. Capite, operculis, pinnâ dorsali et caudali longitudinaliter flavo-lineatis.

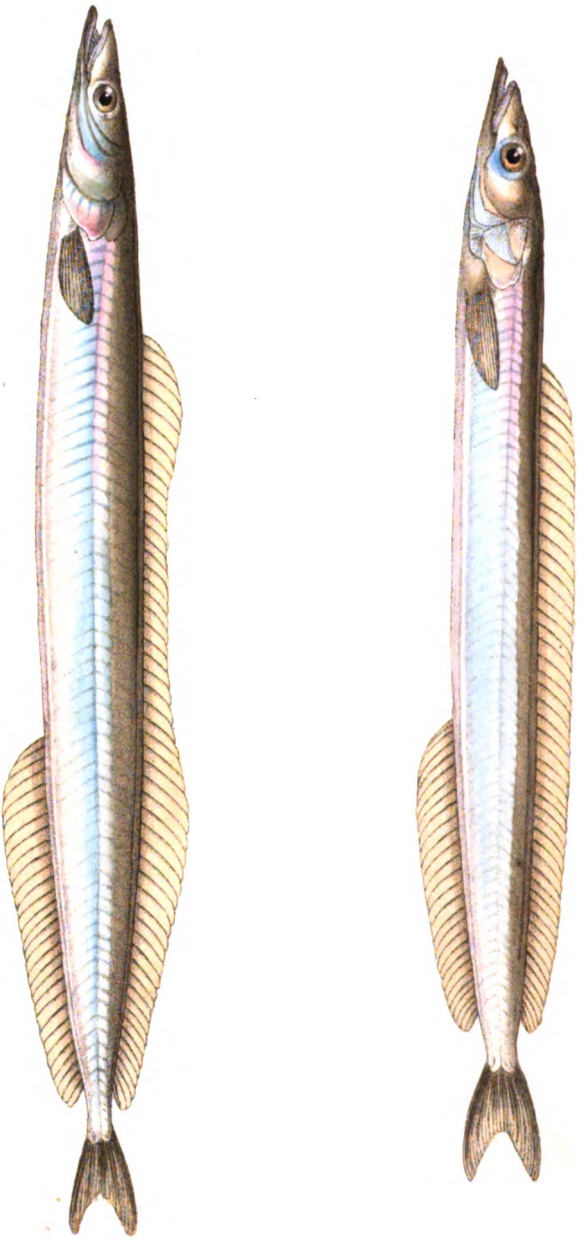
Olivaceous Goby. Tail obscure purple. Head, gills, dorsal and caudal fins with yellow longitudinal lines.

Gobius Suerii. *Risso Icth. p.* 387. *pl.* 11. *fig.* 43.

THIS beautiful little fish never exceeds the size here represented. It is not uncommon on the coast of Sicily in the spring months: it has likewise been discovered on the shores of Nice by Risso, who is its first describer: his figure, however, is so remarkably bad, that it would be impossible to recognise it but for his description: in fact, the fish is so delicate, that unless the fins are very carefully expanded in water their form and colouring will never be seen correctly. It has been named after M. C. A. Le Sueur (who accompanied Peron in the French circumnavigation), an able zoologist and most inimitable draftsman and engraver.

General colour pale olivaceous yellow, with a few obscure large spots along the body somewhat brighter. The head has four yellow oblique bands, between which, and behind the eye,

is a bright blue spot. Ventral fins blackish. The first dorsal fin is trigonal, and has the third ray lengthened and longest; the three last rays tipt with deep-black; the second fin is lengthened, broadest at the end, the membrane greyish-white with narrow longitudinal lines of yellow. Caudal fin lanceolate, pointed, blackish-purple, margined and marked with yellow lines parallel with the borders. Pectoral fin ovately rounded, with faint yellow transverse bands. Anal fin resembling the second dorsal, greyish, with the margin dull-purple. Scales large, very deciduous; lateral line invisible; lower jaw longest; teeth minute. Body and fins semi-transparent. The first dorsal fin has seven rays; the second fifteen; anal fifteen; pectoral twelve; caudal seventeen; ventral fourteen.



63.

AMMODYTES.
Sand-Lance.

GENERIC CHARACTER.

Corpus gracile, teretiusculum, polyedrum, elongatum, squamis vix conspicuis. Labium superius duplicatum; mandibula inferior angusta, acuminata. Membrana branchiostega septem-radiata. Pinna dorsalis corpore penè æqualis, radiis simplicibus flexilibus.

Typus Genericus *Ammodytes Tobianus.* Linn.

Body slender, roundish, many-sided, with minute scales. Upper lip doubled; lower jaw narrow pointed. Gill membrane seven-rayed. Dorsal fin nearly as long as the body, with simple flexible rays.

Generic Type *Sand-Lance.* Pennant.

AMMODYTES Siculus.
Sicilian Sand-Lance.

A. pinnâ dorsali sinuatâ, in medio angustatâ, pone anum altiore.

Dorsal fin sinuated, narrowed in the middle and broadest behind.

OF this genus, hitherto considered as possessing only a unique example, we were fortunate in discovering while in Sicily the new species now figured, and which early in the year visit the coasts near Palermo and Messina in prodigious quantities. There is no striking difference between this and *A. Tobianus,* excepting the extraordinary shape of the dorsal fin, which is invariably undulated and narrowed in the middle. It never grows to a size exceeding the figure, and is usually much less; while the British species is often found double the length. Like that, also, *A. Siculus* has the lateral line running close to the dorsal fin; for the fine line in the middle of the side, as Lacepede has well observed, is that only which connects the muscles. That author likewise mentions, that the jaws in *A. Tobianus* have minute teeth, but these I could never discover. The rays of the fins are, pect. 16; dorsal 56; anal 30.

AMMODYTES Tobianus.
Common Sand-Lance—upper figure.

A. pinnâ dorsali lineari, æquali.

Dorsal fin linear, equal.

Linn. Syst. Nat. vol. i. *p.* 1145. *Pennant* iv. *pl.* 28. *Bloch, pl.* 73. 2. *Lacepede,* ii. 275. *Klein Hist. Pisc. fasc.* iv. *tab.* 12. *f.* 10.

This, though a very common fish, has been figured by all authors as if the rays were spined and naked at their extremity; they are, on the contrary, soft and connected.

It abounds at certain times on many parts of our coasts. The number of rays stand thus: Pectoral 12; dorsal 51; anal 27.

Pl. 63.

SYSTEMATIC INDEX.

VERTEBROSA.

PART I.

ORNITHOLOGY.

ICHTHYOLOGY.

Zoological Illustrations,

OR

ORIGINAL FIGURES AND DESCRIPTIONS

OF

NEW, RARE, OR INTERESTING

ANIMALS,

SELECTED CHIEFLY FROM THE CLASSES OF

Ornithology, Entomology, and Conchology,

AND ARRANGED ON THE PRINCIPLES OF

CUVIER AND OTHER MODERN ZOOLOGISTS.

BY

WILLIAM SWAINSON, F.R.S., F.L.S.,

MEMBER OF THE WERNERIAN SOCIETY OF EDINBURGH, ETC.

ENTOMOLOGY.

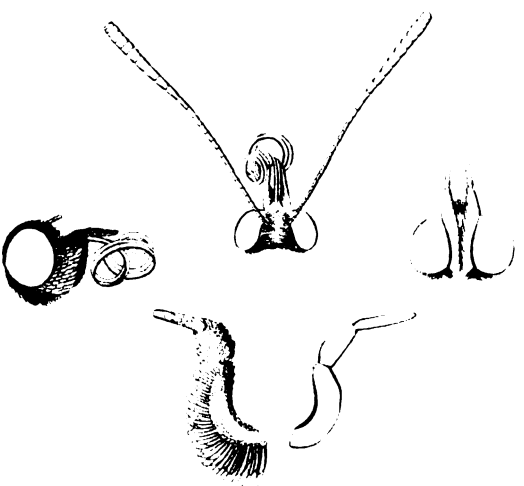
PART I.

London:

PRINTED BY R. AND A. TAYLOR, SHOE-LANE:

FOR BALDWIN, CRADOCK, AND JOY, PATERNOSTER-ROW; AND W. WOOD, STRAND.

1820-1.



5

COLIAS Statira.

GENERIC CHARACTER.

Palpi breves, curvati, compressi ad linguam, squamis dense tecti. Articulis tribus; primo longissimo, ad basin curvato, ultrà erecto; secundo erecto, brevi; tertio minimo, proclivi; apice nudo, obtuso. Antennæ breves, cylindraceæ, ad apicem nudam et abruptè truncatam sensim incrassatæ. Alæ anteriores trigonæ. Abdomen maris, ultimo articulo acuto, et subtùs tenui unco incurvato; valvis magnis, attenuatis, aduncis.

Typus Genericus *Colias Ebule.*

Palpi short, curved, compressed on the tongue, thickly covered with scales. Articulations three; the first very long, curved at the base, erect beyond; the second erect, short; the third minute, inclining forward; the tip naked, obtuse. Antennæ short, cylindric, gradually thickening to their tip, which is naked and abruptly truncate. Anterior wings trigonal. Abdomen of the male with the last joint pointed, and a slender incurved hook beneath: the valves large, attenuated and hooked.

Generic Type *Colias Ebule.*

SPECIFIC CHARACTER.

C. alis dilutè flavis, vel fulvis; anticis suprà, puncto medio margineque extimo, nigris; subtùs ferrugineis; posticis subtùs, singulis duobus niveis punctis inæqualibus; palpis productis.

Wings diluted yellow or fulvous; anterior with a black border and central dot, which beneath is ferrugineous; posterior beneath, each with two unequal snowy spots; palpi lengthened.—*Female.*

Papilio Statira. *Cramer, pl.* cxx. *fig. C. D.*

THE present insect is selected to illustrate a very elegant family of Butterflies, whose predominant tints are composed of orange, yellow, and white, variously blended and disposed in a greater or less degree throughout all the species. The generic characters above given will distinguish them as peculiar to the tropics, and principally those of South America; one or two species only being found in Africa, and five or six inhabiting India.

Pl. 5.

I have no doubt this is the *Pap. Statira* of Cramer; it is found only in Brazil, and has been erroneously considered by Godart and Latreille as a variety of *C. Jugurthina*, an Indian insect, and which in fact is not in itself a species, being no other than the female of *C. Alcmeone*, as an attentive examination of a vast number of both, collected in Java by Dr. Horsfield, enabled me to ascertain.

The extraordinary prolongation of the last joint of the palpi, and the white borderless spots beneath, which are never silvered, will distinguish this species through all the variations; in the ground colour of its wings, which in no two specimens are exactly alike, and one before me is nearly white; the lesser snowy dot is sometimes very obscure, and often wanting; but the prolongation of the palpi is even expressed in Cramer's figure above quoted.

I have examined about a dozen specimens, mostly captured by myself, and all have been females; and I strongly suspect future and more decided observations will prove *C. Evadne* to be the other sex: it has the palpi lengthened, though in a less degree; and the articulations of the antennæ in both insects will be found somewhat thickened at their termination when viewed under a magnifier, a peculiarity I have seen in no other species; and although I have examined near thirty specimens of *C. Evadne*, they have invariably proved to be males.

The palpi in this insect will be found at variance with the generic character now given; a striking proof that in a natural system no single part can be taken as an unerring criterion for generic distinction, without making it eventually an artificial one. The *Colias Drya* of Fabricius has the same formation of palpi, but is a totally different insect.

COLIAS Leachiana.

Leachian Colias.

GENERIC CHARACTER.—See Pl. 5.

SPECIFIC CHARACTER.

C. alis subrotundatis, integris, virescenti-albidis, anticis supra fulvis, margine punctoque medio nigris, singulis subtus maculâ centrali ferrugineâ. Encycl. Method.

(Male) wings slightly rounded, entire, greenish white; anterior pair above orange, at their tips, margin, and central dot black: each pair beneath with a central ferrugineous spot. Female ———?

C. Leachiana. *Godart in Encycl. Method.* vol. ix. p. 91.

IN size this insect is the largest of the genus yet discovered; it was first noticed by Godart, who has given it the name of my learned and valued friend, Dr. W. E. Leach, of the British Museum, whose talents are too well known to need any eulogium in this place.

It appears to inhabit both the northern and southern extremities of Brazil; for I have seen it in a box sent from Parà, and my specimens were captured in Minas Geraes by my friend Dr. Langsdorff. It is, however, a rare species; for I have only seen seven or eight specimens, and they were all males: the female, when found, will probably differ as remarkably as in most of this genus.

The opaque spot on the inferior wings above is very large; but the tuft of hair corresponding beneath the superior wings, is entirely wanting. It should be likewise observed, that although this insect in every outward respect resembles a genuine *Colias* (the type of which may be *C. Ebule*), it differs very materially in the terminal appendages of the abdomen; the last joint being the shortest, and scarcely pointed; and the hook, instead of being concealed beneath this segment, is exserted beyond it, and met by

two others, one at the base of each lateral valve: these valves are also much shorter, ovate, and not attenuated, although ending in an incurved hook. In the present ignorance in which a true knowledge of the Lepidoptera is involved, it is impossible to say how far these dissimilarities may point out natural groups; it is therefore of the highest importance to the science such facts should be noticed.

COLIAS Godartiana.

Godart's Colias.

GENERIC CHARACTER.—See Pl. 5.

SPECIFIC CHARACTER.

C. (Fem.) alis flavescente-fulvis, anticis supra margine puncloque rotunduto medio nigris, subtus argenteo rufo 3-fisso, posticis subtus puncto gemino argenteo margine nigro, uno quadrato; palpis productis.

(Female) Wings fulvous-yellow; anterior above with the outer margin and round central spot black, which beneath is silvery rufous and three-cleft; posterior beneath each with two silvery spots margined with black, one of which is quadrangular. Palpi lengthened.

AN inspection of a vast number of insects of this genus, with the possession of nearly all the species noticed by authors, convinces me that the insect now figured is perfectly distinct from any other. It is in the cabinet of Mr. Haworth, who obligingly lent it me for comparison and description, and is the only individual I have hitherto met with. The prolongation of the palpi, which is even more obvious than in *C. Statira,* is alone a specific distinction; and the form of the spots both on the upper and under side differs very much in character from that insect, with which it has the most affinity. It may be the *Papilio Drya* of Fabr. (omitting his references); but his description, whether intended for this insect or any other, is so vague that I can see no advantage in retaining it. Of the two bright silver spots beneath, one is oval, the other larger and quadrangular.

I have named it in honour of M. Godart, the intelligent coadjutor of M. Latreille in the entomological part of the *Encyclopédie Méthodique.*

Pl. 34.

COLIAS Pyrene.
White African Colias.

GENERIC CHARACTER.—See Pl. 5.

SPECIFIC CHARACTER.

C. alis albis; anticis suprà punctulo nigro subcentrali oblongo ad apicem approximante; posticis margine integerrimis; singulis subtùs puncto ocellari lineisque fulvis undulatis: sexibus similibus.

Wings white; anterior with a small, nearly central, oblong, black dot nearest the tip; margin of the posterior wings very entire, beneath all with a brown ocellate spot and undulated fulvous lines: both sexes alike.

UNDER the head of *Colias Pyranthe*, M. Godart has united the three insects described by Fabricius, as, *Pap. Pyranthe*, *Nepthe* and *Gnomia*, all bearing in their leading colours a very near resemblance to each other. Yet as this consideration alone appears to have decided this ingenious author in uniting them, without apparently noticing the nicer but more important characters of form, proportion, and real sexual distinction, as well as geography, I cannot but consider the question still remains doubtful; and although I am not at present prepared to offer an opinion as to the actual affinity between these three insects, I have little or no doubt that the one now figured is a really distinct species from either of the above, which all inhabit various parts of India. This, on the contrary, is from the interior of the Cape of Good Hope, from whence it was brought by Mr. Burchall, among whose insects I have seen about twenty unvarying specimens, but they were all males. I discovered however three or four of both sexes, varying in size, in Mr. Haworth's cabinet, and the perfect similarity in colour of the female with the other sex is very striking: it wants of course the little tuft of hair and opaque spot within the borders of the wings, so generally found in the male *Coliadæ*.

The distinctions of *Colias Pyrene* as a species rest on the areola of the anterior wings being considerably larger in proportion than in the others allied to it, thus making the black dot (which is always placed at the outer extremity of the areola) much nearer the tip than the base: these wings are also more sharply trigonal (in the male), and have only the slightest appearance of a black margin; the hinder wings are also perfectly entire, and not obtusely undulated as in those insects, and the sexes not differing in colour. Like most of the insects of this genus, the ocellate spots beneath vary considerably; sometimes they are silvery, at other times not; the anal valves in the male are short and obtuse, and the wings in the female not so sharply pointed.

Pl. 51.

COLIAS argante.
Orange Colias.

GENERIC CHARACTER.—See Pl. 5.

SPECIFIC CHARACTER.

C. (Mas.) alis aurantiis, suprà immaculatis, posticis subtùs atomis ferrugineis, plerumque puncto gemino argenteo.

C. (Fœm.) alis aurantio-flavis, anticis suprà, apice punctoque medio atris; posticis subtùs, puncto gemino argenteo atomisque ferrugineis.

C. (Male.) Wings bright-orange, above immaculate; posterior beneath with minute ferruginous dots, and generally two silvery spots.

C. (Female.) Wings golden-yellow; anterior above with a central spot and black marginal tip; posterior beneath covered with ferruginous dots and two silvery spots.

(*Male.*) Papilio Hersilia. *Cramer, pl.* 173. C. D.
——— argante. *Fab. Ent. Syst.* iii. *pt.* 1. *p.* 189.
Colias argante. *Godart in Encycl. Method.* 9. 92. *no.* 11.
(*Female.*) Papilio Cipris. *Cramer, pl.* 99. E. F.
Colias Cnidia. *Godart,* 93. *no.* 14.

No two insects can present a more striking dissimilarity than the sexes of this species; and it was only after a considerable degree of attention to the subject, in their native climate, that we were at last thoroughly convinced that *Colias argante* and *C. Cnidia* were, without the least remaining doubt, the male and the female of one species. I have had the same opinion communicated to me by my friend Dr. Langsdorff, whose long residence and observations in Brazil render his opinion of no small authority.

As both insects are well known, and their distinctions given in the specific character, it will be only necessary to observe, that the under surfaces of the wings in both sexes vary much both in the density of the minute dots, and short undulated stripes that spread over their surface; and that the silvery spots in some males are strongly marked, and in others quite obsolete: there is, in very fine individuals of this sex, a faint bloom of pink spread on the orange of the upper surface, which heightens the vivid yet chaste beauty of the insect. The females are not so common. I met with them both in northern and southern Brazil, and have seen them in collections from Parà directly under the equinoctial line.

Pl. 52.

J. Walter sculp.

LICINIA Melite.

GENERIC CHARACTER.

Antennæ graciles; clavâ elongatâ, fusiformi, compressâ. Palpi brevissimi, vix ultra caput producti, ad linguam compressi, squamis linearibus tecti, margine ciliati, articulo ultimo sub-nudo, secundo subæquali. Abdomen elongatum, gracile, in maribus 6-articulatum, articulo ultimo integro; valvis plerumque elongatis, attenuatis, apice acutis. Alæ anticæ (in maribus) angustæ, obtusè-attenuatæ, (in fœminis) latiores, obliquè rotundatæ. Alæ posticæ (in maribus) dilatatæ, longitudine anticis penè æquales; margine antico opaco, in fœminis breviores, suborbiculares.

Typus Genericus *L. Melite.* Nobis.

Antennæ slender, the club elongated, fusiform, and compressed. Palpi very short, hardly projecting beyond the head, compressed on the tongue, covered with scales and margined externally with long hairs, the last joint nearly naked and almost as long as the second joint. Body elongated, slender, in the male with 6 joints, the last entire. Valves generally elongated, attenuated, their tips acutely pointed. Anterior wings (in the male) narrow, obtusely attenuated; in the female broader, and obliquely rounded. Posterior (in the male) dilated, nearly as long as the anterior wings, the fore margin opaque; in the female shorter, and nearly orbicular.

Generic Type *L. Melite.*

SPECIFIC CHARACTER.

L. (Mas.) alis flavis; anteriore suprà nigrâ, fasciâ obliquâ flavâ, et lineâ basali transversâ, margine posteriore flavo. (Fœm.) Alis suprà albis; anteriore apice stigmateque marginali obliquo nigris; posteriore suprà nigro marginatâ, subtùs (in utroque sexu) flavescente, lineis duabus transversis fuscis.

Male. Wings yellow, anterior above black, with an oblique yellow band and transverse basal line; posterior margin yellow. Fem. Wings above white; anterior, with the tips and marginal oblique stigma black. Posterior, above margined with black; beneath (in both sexes) yellow, with two transverse brown lines.

Papilio Melite. *Fab. Ent. Syst.* 160, 494. *Cramer, tab.* 153. C. D.

THE remarkable size of the under wings in the male insects of this genus will distinguish them even to a casual observer as

Pl. 15.

forming a natural group. They are all natives of South America, where I discovered nine species. The females differ most strikingly, and have hitherto been mistaken by authors not only for distinct species, but as belonging to different genera.

Their natural situation will be among the *Pieridæ*, with whose general habit they accord.

The female of this species resembles *Pap. Licinia* of Cramer, except in having a short black stigma in the middle of the anterior border of the fore wings, pointing obliquely to the exterior margin. Cramer's insect, however, is the female of another undescribed species in my cabinet.

The under side of the posterior wings in both sexes is the same.

TERIAS Elvina.

Generic Character.

Antennæ breves, clavâ subtruncatâ, compressâ. Palpi brevissimi curvati, vix ultra caput producti, ad linguam compressi, densis squamis imbricatis in totum tecti, apice nudo. Abdomen elongatum, gracile, in maribus 6-articulatum, articulo ultimo duobus uncis incurvatis approximantibus; valvis latis, incrassatis, truncatis, aduncis. Alæ utroque sexu similes; latæ, obtusæ, rotundatæ, integerrimæ.

Typus Genericus *Papilio Hecabe.* Linnæus.

Antennæ short, the club somewhat truncate and compressed. Palpi very short, curved, hardly projecting beyond the head, closely compressed on the tongue, entirely covered with close imbricate scales, the tip naked. Body elongated, slender, in the male six-jointed, the last with two approximating incurved hooks; valves broad, thickened, truncate, and hooked. Wings in both sexes alike, broad, obtuse, rounded, very entire.

Generic Type *Papilio Hecabe.* Linnæus.

Specific Character.

T. alis subdiaphanis, sulphureis, subtùs immaculatis. Anticis suprà apice nigris, posticis (in maribus) margine antico basi gibbosis. Fœm. ——?

Wings sub-diaphanous, pale sulphur; beneath immaculate. Anterior, above with a black marginal tip; posterior (in the male) with the fore-margin gibbous at the base. Female ——?

Pieris Elvina. *Godart in Encycl. Method. p.* 158. *no.* 67.

THIS is one of the smallest of Butterflies, and from the extreme delicacy of its form seems to sanction with truth the poetic idea of living "but for a day." It is found in Brazil, inhabiting only the deepest forests, as if fearful its little life would be endangered by the scorching rays of a tropical sun: in these sombre shades it is seen to fly slowly and feebly near those spots where a ray of the sun has partially entered the thick canopy of foliage above, which is frequently fifty or sixty feet from the ground.

Pl. 22.

The genus I have now placed it in belongs to the *Coliadæ*, and appears to connect that family with the *Pieridæ*: their distinctions are obviously marked and very constant in all the species I have yet seen, and which are tropical: of these, seven I discovered in Brazil; three or four more are natives of the southern extremity of North America; and Dr. Horsfeild has four or five from Java. I know of none from Africa. Their size in general is very small.

I think this species is the *Pieris Elvina* of Godart; although the insect he mentions as the female is in reality that of his *Pieris Neda*. The true female I have never seen; I suspect it will want the gibbous curve on the hinder wings of the male, which sex is, indeed, not common, and is generally much smaller, and sometimes half the size only, of the figure.

Papilio Nicippe of Cramer (tab. 210. fig. C. D.) strictly belongs to this genus, though placed in that of *Colias* by Godart, as well as his *Pieris Agave, Hecabe,* and doubtless many others not now before me.

DRUSILLA Horsfeildii.

Generic Character.

Antennæ mediocres, clavâ productâ, gracili, cylindraceâ. Palpi breves, compressissimi, obtusi, remoti, linguam non attingentes; lateribus utrisque hirsutissimis, articulis obtegentibus. Abdomen (in maribus) 7-articulatum: 1mo longissimo, ultimo simplici, truncato, suprà integro, subtus unco incurvato, valvis nullis. Alæ anticæ (in maribus) basi posticâ dilatatæ, fasciculum in alas posticas obtegentes.

(Obs. *Alæ integerrimæ, subdiaphanæ, posticæ magnæ, orbiculares. Pedes antici spurii; antennarum articuli basales ad apicem incrassati.*)

Typus Genericus *Papilio Jairus.* Fabr.

Antennæ moderate, the club lengthened, slender, cylindric. Palpi short, much compressed, obtuse, remote, not touching the tongue, covered equally on both sides with thickset hairs concealing the joints. Abdomen (in the male) 7-jointed, the first very long, the last simple, truncate, and entire above, without valves, and with an incurved hook beneath. Anterior wings (in the male) dilated at the posterior base, concealing a tuft of hair on the inferior wings.

Generic Type *Papilio Jairus.* Fabr.

(Obs. Wings very entire, sub-diaphanous. Hinder wings large, orbicular. Fore-legs spurious. Basal articulations of the antennæ thickened at the end.)

Specific Character.

D. alis anticis angustatis, fuscis, concoloribus; margine posteriore et exteriore æqualibus: posticis albidis; margine exteriore fusco, suprà uni-ocellato, subtus bi-ocellato.

Wings, anterior, narrowed, the posterior and exterior margins equal, uniform brown; posterior cream-coloured, with a brown margin, one ocellate spot above, and two beneath.

This new and elegant insect was discovered by my worthy friend Dr. Horsfeild (after whom I have named it) in the interior of Java: it forms a part of the extensive collections made there by this zealous naturalist for the East India Company, and

Pl. 11.

which will make a most important addition to our present confined knowledge of the productions of that interesting island: indeed these collections exceed in extent, preservation, and value, any which have been brought to this country.

The general resemblance of this species with *Papilio Jairus* of Fabricius is so great, that it might pass on a cursory view as a mere variety, did not the form of the anterior wings at once point out the difference. In the present insect the posterior and exterior margins are of equal length, giving a narrow appearance to the wings, much resembling some of the true *Papilionidæ*; but in *P. Jairus*, these wings are much broader, more obtuse, and the length of the posterior margin much greater; other minor differences exist in the colouring and markings. My valued friend A. H. Haworth, Esq., F.L.S., &c. possesses a fine pair of the true *P. Jairus* in his rich and extensive collection; and the liberality with which it is constantly and freely opened to me, deserves my warmest thanks.

From these two species I have formed the present genus, the characters of which will distinguish it from that of *Hætera* (Fabr.), a scanty genus confined to South America; and this seems to occupy its place in India: both will come in the natural family of *Hipparchiæ*. Only one specimen (a male) exists in Dr. Horsfeild's collections; I could not therefore dissect the mouth, &c. On the inner borders of the inferior wings is a lengthened tuft of fine hairs: the *anus* beneath has on each side an obtuse lengthened process, partially attached, and which appears to supply the place of the lateral valves. It is represented on a sprig of

GÆRTNERA *racemosa*,

which, although differing slightly from the figure of Dr. Roxburgh's Coromandel Plants, p. 19. t. 18, Dr. Horsfeild considers as the same plant. The Javanese name is *Kakas*.

28.

HESPERIA Haworthiana.

Haworth's Hesperia.

Generic Character.

Antennæ mediocres vel elongatæ, rectæ, graciles; clava subterminali, brevi, crassata, cylindracea; unco abrupto, brevi, acuminato. Palpi in fronte compressi, incurvati, lateribus convexis vel angulatis, articulo ultimo erecto, verticali. Alæ (sedentes) erectæ.

Divisiones.

I. *Palpi lati, in fronte compressissimi. Antennæ breves, clava crassissima.*

II. *Palpi pene quadrati, crassissimi. Antennæ elongatæ.*

III. *Palpi articulo ultimo longiore, gracile. Antennæ mediocres.*

Typus Genericus *Hesperia Comma* Auctorum.

Antennæ moderate or elongated, straight, slender, the club nearly terminal, short, thick, cylindric, ending in an abrupt, short and pointed hook. Palpi compressed, incurved in front of the head, the sides convex or angular; the last joint erect, pointing vertically. Wings when at rest erect.

Divisions.

I. Palpi broad, very compressed in front. Antennæ short, the club very thick.

II. Palpi nearly square, very thick. Antennæ elongated.

III. Palpi with the last joint lengthened, slender. Antennæ moderate.

Generic Type *Hesperia Comma* of Authors.

Specific Character.

Hesp. (Div. 2.) alis suprà nigrescente-fuscis, basi nitido-cæruleis, anticis fascia mediali hyalina, posticis subtus fuscis, lineis duabus longitudinalibus viridi-flavis; pedibus fusco-aurantiis.

Hesperia (Div. 2.). Wings above blackish-brown, the base shining blue; anterior with a medial hyaline band; posterior beneath brown, with two longitudinal yellow-green lines. Legs brownish-orange.

THE celebrated Latreille, the father of modern Entomology, has well observed, that the immense number of insects crowded to-

gether in the genus *Hesperia* contain many natural genera, but which the paucity of species generally found in cabinets prevents us from discriminating. Having for a long time paid attention to this family, and possessing near 300 species in my own cabinet, I have had the opportunity of attempting their elucidation; and the above generic character is applied to those insects only which I propose considering genuine species of the genus *Hesperia*, and which will comprise near 170 species.

I have named this new, undescribed and very rare insect, in honour of my esteemed friend A. H. Haworth, Esq. F.L.S., &c., well known by the benefits his writings have conferred on the sister sciences of entomology and botany. The only two insects I ever saw of this species I captured in the southern part of Brazil.

HESPERIA Itea.

GENERIC CHARACTER.—See Pl. 28.

SPECIFIC CHARACTER.

Hesp. (Div. 2.) alis supra nigrescente-fuscis, subtus pallidioribus basi fulvis, anticis macula flava tri-fissa, posticis subtus margine exteriore et linea longitudinali fulvis, femoribus rufis.

H. (Div. 2.) Wings above blackish-brown, beneath paler, base fulvous. Anterior with a three-cleft yellow spot. Posterior beneath with a fulvous outer margin and longitudinal line. Thighs rufous.

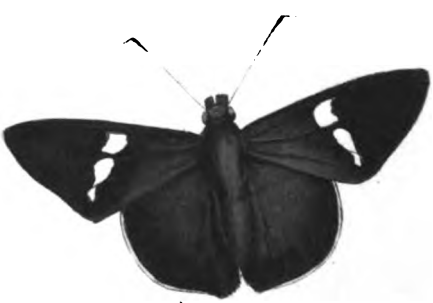
THE descriptions left by Fabricius of this as well as many other extensive families of *Lepidoptera*, are in general so vague and short, that unless a figure is quoted to elucidate them, it becomes totally impossible to ascertain the precise species intended. Such is the case with the present insect, which will not agree with any described by Fabricius, or figured by Cramer.

During my travels in Brazil I never met with this species, but am indebted to my liberal friend Dr. Langdorff, Russian Consul-general at Rio de Janeiro, for the specimens I possess, as well as a number of other rare and fine insects of this family, which were then not in my own collection.

On each side of the palpi adjoining the eye are two yellowish round dots, and another behind: the posterior wings above have a narrow whitish margin, the colour beneath much paler; but the nerves on this, as well as at the tips of the anterior wings, are blackish-brown; the legs at the base and the tarsi are black.

This is a male insect; the other sex I have not seen.

Pl. 39.



HESPERIA Cynisca.

GENERIC CHARACTER.—See Pl. 28.

SPECIFIC CHARACTER.

Hesp. (Div. 2.) alis nigrescente-fuscis, subtus obscurioribus; anticis supra fasciâ flavâ trifissâ (in feminis albâ); posticis subtus immaculatis, castaneo-fuscis, margine exteriore flavo.

Hesp. (Div. 2.) Wings blackish-brown; anterior above with a three-cleft yellow band, which in the female is white; posterior beneath immaculate, chesnut-brown, margined externally with yellow.

THE different sexes of this insect will appear so strikingly dissimilar to those who are familiarised only with the nice distinctions that separate the species of European *Lepidoptera*, that this affinity by such may be doubted; nevertheless, observations in their native country, and the close examination of several specimens, will we are persuaded confirm the fact.

The male insect is distinguished (like all the *Hesperidæ*) by having the eyes considerably larger, and the anterior wings more narrowed than in the other sex: in this species the bands on their wings assume the form of three yellowish spots, adjoining which, on the inner side, is a semi-lunular villous mark, an almost constant indication (where it exists) of this sex. The straw-coloured border beneath the posterior wings is narrower and darker than in the female; but in both it forms a slender marginal fringe on the upper surface. Legs deep rufous; antennæ black; the club beneath and lunule round the eye straw-coloured.

Inhabits South Brazil, but is not common.

Pl. 40.

33.

33.

TAMYRIS Zeleucus.

GENERIC CHARACTER.

Antennæ arcuatæ, clava terminali, crassata, lineari, obtusa, in fœminis graciliore attenuata. Palpi in fronte convexe-compressi, supra linguam obvenientes, articulo ultimo minutissimo, crassato obtuso, approximante, proclivi. Alæ breves, sedentes horizontaliter divaricatæ.

Antennæ arcuated; the club terminal, thick, linear, obtuse; more slender and attenuated in the female. Palpi compressed convexly on the front of the head, meeting above the tongue; the last joint very minute, thick, obtuse, approximating and bent forward. Wings short, when at rest horizontally divaricated.

SPECIFIC CHARACTER, ETC.

T. Alis chalybeis concoloribus, margine albo; capite apiceque corporis sanguineis.

Wings uniform blueish-black, with a slender white margin. Head and top of the body bright red.

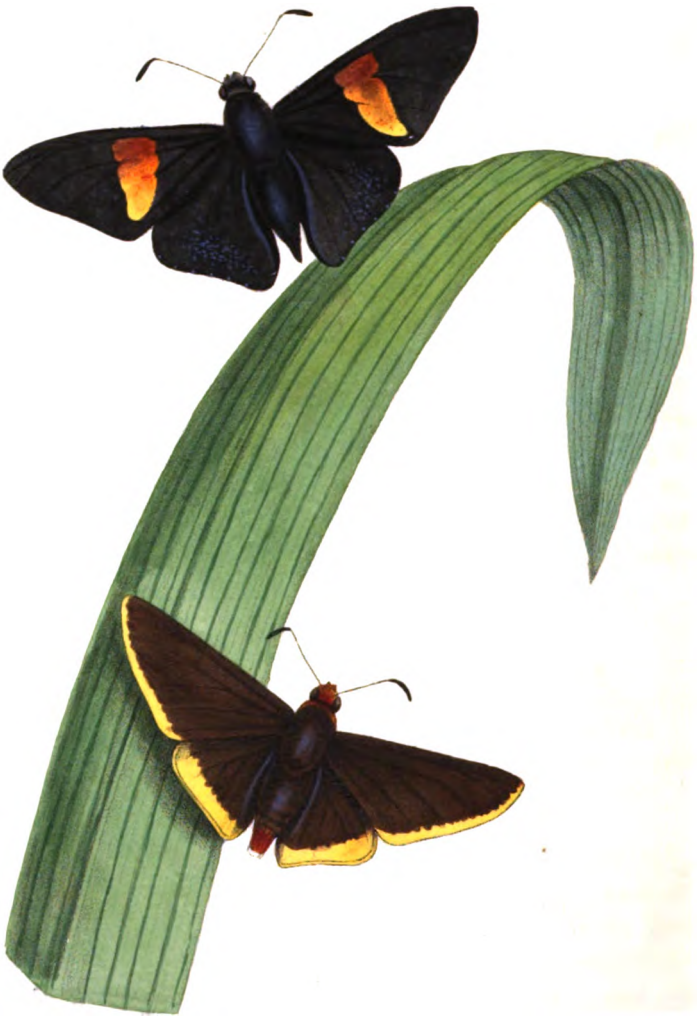
Hesp. Zeleucus. *Fab. Ent. Syst.* 3. *pt.* 1. *p.* 346. *no.* 317.

THIS insect is the most common (although hitherto unfigured) of a striking natural group belonging to the *Hesperidæ*; it has therefore been selected as the best example for the genus I have now formed them into. I have not seen more than twelve or fourteen species, and these were all from different parts of South America, to which I have no doubt the genus is exclusively confined. The club of their antennæ is very thick, obtuse, and without any terminal hook. The bright red at the end of the abdomen (improperly called by Fabricius the tail) is most conspicuous in the female, which is also larger and having the wings more obtuse, of which the upper and under surfaces are both alike.

The insects of this family fly with amazing rapidity (as is shown by the thickness of their thorax, and the sharpness in the make of their wings), generally frequenting openings of thick woods and alighting on leaves where the sun strikes: I seldom saw them on flowers. Their wings when at rest are half expanded in a horizontal direction. Their metamorphosis is unknown.

This individual species is scarce in the northern parts of Brazil, but common in the southern provinces.

Pl. 33.



TAMYRIS Nurscia.

GENERIC CHARACTER.—See Pl. 33.

SPECIFIC CHARACTER.

T. alis nigris, anticis suprà fasciâ centrali rufescente, infrà punctis duobus ad basim albidis; posticis infrà cæsiis, cinereis, basi nigris lineâ obsoletâ albidâ; margine nigro.

Wings black; anterior above with a central reddish band, and two white basal dots beneath; posterior beneath grey and cinereous; base black with an obsolete white line; margin black.

THE marginal fringe of the lower wings in this species has a few white dots between the nerves, and the upper surface is sprinkled or powdered in the middle with blueish-green atoms; on the under surface of the anterior wings the lower part of the band is orange, the upper bright rufous; and within the black margin of the posterior wings is a large blueish spot, and two or three whitish dots on the sides of the thorax. It seems nearest allied to *Hesp. Celsus* of Fabricius, which is only slightly described from Mr. Jones's unpublished drawings.

TAMYRIS Laonome.—*lower figure.*

SPECIFIC CHARACTER.

T. alis utrinque similibus, concoloribus fuscis, margine communi aurantiacis; capite anoque rubris.

Wings in both sexes alike, uniform brown, with a common margin of orange; head and tail red.

The under surface of this insect (a female) perfectly resembles the upper: it will approach near to *Hesp. Amiatus* of Fabricius, which no doubt belongs to this genus.

For both these interesting insects, not to be found in Fabricius, I am indebted to the liberality of my friend Professor Klug, Director of the Royal Museum at Berlin: no note accompanied them, I therefore conclude they are undescribed, and probably inhabiting South America.

Pl. 61.

ISMENE Œdipodea.

Generic Character.

Antennæ cylindraceæ, juxta medium crassissimæ, versus apicem subulatæ, articulis numerosis brevissimis pene detectis. Palpi crassi squamosi, fronte obtusâ, lateribus compressis, marginibus exterioribus ciliatis, articulo ultimo nudo, producto, subhorizontali, lineari, compresso. Oculi (in maribus) magni. Corpus (in maribus) 7-articulatum, articulo ultimo suprà appendice transverso truncato subemarginato terminante, subtùs duobus uncis recurvis obtusis, fasciculo tectis; articulo 1mo et ultimo brevissimis: (in fœminis) articulo ultimo producto, subacuminato.

Antennæ cylindrical, thickest near the middle, the terminal half subulate; articulations numerous, very short, hardly perceptible. Palpi thick, scaly; frontal side obtuse; lateral sides compressed; the margins externally fringed with hair; the last joint naked, lengthened, nearly horizontal, linear, compressed. Eyes (in the male) very large. Body (in the male) of seven joints, the last with a transverse, slightly emarginate, truncate appendage above; and two obtuse recurved hooks below, concealed by a tuft of hair; the first and last segment shortest. Body in the female with the last joint lengthened and pointed.

Specific Character.

I. alis suprà fuscis, basi nitidè-cæruleâ, posticis aurantio marginatis, subtùs rufo-fusco nebulosis, basi puncto nigro: anticis (in maribus) basi aurantiis, maculâ nigrâ tomentosâ.

Wings above fuscous, shining blue at their base; posterior margined with orange; beneath clouded with rufous and brown, and a black dot at the base of the posterior wings. Anterior wings (in the male) orange at the base, and a large velvet-like spot of black.

The resplendent and changeable azure blue which ornaments the body and part of the wings in this very singular insect, can be but ill expressed in the figure. It is one of the many new and interesting subjects in entomology discovered in Java by Dr. Horsfeild; and by his kindness and liberality I am enabled to add the figures of the caterpillar and chrysalis, which were

Pl. 16.

copied out of a fine series of drawings made in Java under his own eye: they do not appear to differ in their formation from others of this family, although the perfect insect possesses such striking and peculiar generic characters; one of the many facts which prove the impossibility of making the *Larvæ* a primary consideration in forming the genera of Lepidoptera.

This is a rare insect, I have therefore been obliged to leave the generic character imperfect, as the dissection of the mouth, &c. would destroy the specimen. The posterior margin in the wings of the male is sinuated; in the female it is nearly straight; the underside of the wings in both sexes is the same; the anterior pair reddish-brown, paler in the middle; the tip and posterior margin whitish: inferior wings reddish-orange towards the inner margin, with an obsolete central curved band of the same, and a black dot at the base of the inferior wings. The head, palpi, and thorax are margined with orange, less conspicuous in the female.

Our knowledge of the genus *Hesperia* of Latreille (under which the present insect would come) is little more than what was known of *Scarabæus* twenty years ago; nor has Fabricius even noticed one half of the species figured by Cramer. The larva feeds on

GÆRTNERA *Javensis*

Foliis ovatis, obtusè-acuminatis, caule volubili ramosissimo, ramulis diffusis, deflexis,

a new species, discovered in Java by Dr. Horsfeild, who has distinguished it by the above specific character. He informs me the natives give it the name of *Kakas-rambat*, which last word signifies twining or trailing. In the inflorescence and fruit it differs not from *G. racemosa*.

60.

THYREUS Abbottii.

GENERIC CHARACTER.

(*Familia Sphingidis* Latreille.)

Antennæ lineares, in medio incrassatæ, in maribus extrinsecus ciliatæ, (sub-barbatæ) in fœminis simplices, filiformes, mucrone obtuso arcuato sensim terminantes. Palpi breves, obtusi, in utroque sexu similes. Alæ opacæ, angulatæ. Abdomen crassum, barbatum.

Antennæ linear, thickened in the middle, externally ciliated in the male, simple and filiform in the female, gradually ending in an arcuated, obtuse hook. Palpi short, obtuse, alike in both sexes. Wings opaque, angulated. Abdomen thick, bearded.

SPECIFIC CHARACTER.

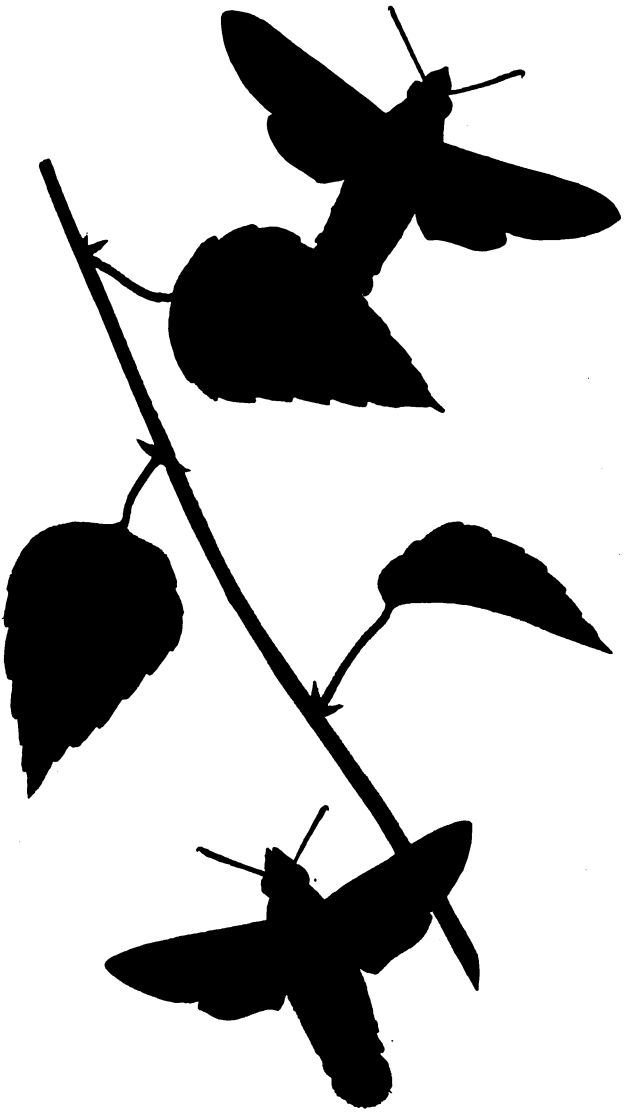
T. alis angulatis, anticis testaceis, fusco umbratis et obliquè lineatis; posticis flavis, margine lato nigro.

T. Wings angulated; anterior testaceous, with lineated brown shades and oblique lines; posterior yellow, with a broad black border.

A LOVELY insect, which is unfigured, and, as far as we can ascertain, undescribed by any author. It appertains to the Linnæan genus *Sphinx*, which can be viewed (from the immense diversity and great number of the species) only as a family containing many and striking natural genera: in modern arrangement it is most nearly allied to the *Sesiæ* of Fabricius, from which, as it strikingly differs in the formation of the palpi and antennæ, I have separated it.

I have named this insect to commemorate the exertions of Mr. Abbott, well known as having furnished the materials for that beautiful work the Lepidopterous Insects of Georgia, edited by Sir James Edward Smith. And from the unpublished drawings of this zealous collector, the larva and pupa have been figured. Mr. Abbott writes that it is a rare species in Georgia, and feeds on the grape. The female differs not in colour from the male, which is here represented.

Pl. 60.



MACROGLOSSUM assimilis.

GENERIC CHARACTER.

Antennæ subfusiformes, sursum versus sensim crassescentes, apice unco brevissimo gracili incurvato abruptè terminato, in maribus sub-barbatæ, in fœminis simplices et graciliores. Palpi porrecti, crassi, articulo ultimo acuto. Alæ opacæ, integræ. Abdomen crassum, barbatum.

Typus Genericus *Sphinx stellatarum.* Linn.

Antennæ subfusiform, gradually thickest towards the end, the tip abruptly terminating in a very short slender incurved hook; ciliated in the male, simple and more slender in the female. Palpi porrected, thick, the last joint pointed. Wings opaque, entire. Abdomen thick, bearded.

Generic Type *Sphinx stellatarum.* Linn.

SPECIFIC CHARACTER.

M. alis suprà fuscis; anticis fasciis duabus obsoletis, puncto nigrante terminali, posticis in medio, tribus maculisque lateralibus abdominis aurantiacis.

Wings brown; anterior with two darker obscure bands, and a terminal blackish dot; middle of the posterior wings, and three lateral spots on the body, orange.

THIS genus was instituted by Scopoli many years ago, and differs principally from *Sesia* by having opaque wings, and from *Thyreus* by the very great difference in the construction of their antennæ. Many exotic species are known, but only one is found in Europe (*Sphinx stellatarum* of Linn.), which likewise inhabits our own country, and to which this our insect is very nearly allied.

Though by no means uncommon in collections, I cannot find this species either figured or described, nor indeed am acquainted with its locality. The under figure is of the male; the upper of the female; which differs only in the wings being rather broader, and in having one segment in the body less than in the other sex.

Pl. 64.

SYSTEMATIC INDEX.

ENTOMOLOGY.

PART I.

DIURNES.

CREPUSCULARES.

GENERAL ALPHABETIC INDEX

OF

LATIN AND ENGLISH NAMES

TO

VOLUME I.

GENERAL INDEX

TO

VOL. I.

IN THE ORDER OF PUBLICATION.

ADDENDA ET CORREGENDA.

Pl. 2. line 6, *for* Setaceisi numbentibus *read* setaceis incumbentibus.
4, between *postico* and *interior* insert *digitus*.
for minor *read* minimus.
6, *for* "postico maximo" *read* "posticus maximus."
17, *for* aures lilacinæ *read* auribus lilacinis.
erase Orthorynchus frontalis, Horsfield in Linn. Trans.
second side line 10, cancel.
— 5. — 4, *for* nudam et truncatam *read* nudum et truncatum.
— 7. — 6, *for* utrinsecus *read* utrinque.
6 from the bottom, *for* dulleron *read* duller on.
3 from the bottom, *for* oi *read* on.
14, *between* tectrices *and* remigibus *insert* a comma.
— 8. — 6, *for* Horsfeild *read* Horsfield, and wherever this occurs.
— 11. — 5, *for* articulis *read* articulos.
second side, 10 lines from the bottom, *for* Hipparchiæ *read* Hipparchidæ.
— 13. — 16, *for* claws *read* toes.
— 17. — 6, *for* basilari *read* basali.
— 20. Add to the synonyms. *P. Braziliensis, Swains. in Wern. Trans.* 3. *p.* 291.
— 21. Obs. MM. Temminck and Lagier had just before us, and without our knowledge, published this bird under the name of Procnias Ventralis, (Pl. 5.) by which name in right of priority it should stand in the system.
— 25. *for* Fruit-eater *read* Berry-eater.
— 27. — 6, *for* inferiorum *read* inferiorem.
— 31. — 18, *for* variegato *read* variegatâ.
after furcata *dele* the comma.
19, *after* chalybeis *insert* a comma.
— 32. — 6, *for* adunca *read* adunco.
— 33. — 1, Add to the synonyms *Hesp. Zeleucus.* Obs. *Donovan's Indian Insects*, where that author has figured it by mistake as a native of India.
— 35. Add to the synonyms, Seba Pl. 49. fig. 21, 22, 41.
— 36. *for* Achatinia *read* Achatina.
— 6 and 7, *for* columella margine *read* columella margineque.
— 41. Obs. another specimen of A. pallida quite agreeing with this, is in Mr. Dubois' cabinet.
— 42. — 6, *for* base *read* basi.
next page, line 12, *dele* "and *Cimbium* (Melons)".
— 45. — 4, *after* maxillæ *insert* angulo.
— 46. in the Latin specific character, *for* "basi rotundato" *read* "basi subcontracto," and in the English *for* "rounded" *read* "slightly contracted at the base."
— 46. — 3, on the back page *for* Broederip *read* Broderip.
— 47. Obs. Bulimus *aureus*, in Mr. Spurrett's valuable cabinet is another specimen of this shell minutely agreeing with that here described.
— 49. — 6, *for* supr arotundatâ *read* supra rotundatâ.
— 50. Obs. This bird Dr. Horsfield tells me is his *Alcedo meninting* described in the Linn. Transactions.
— 53. 2d line from the bottom, *for* where *read* were.
— 63. Obs. The *Ammodytes cicerelus* of my friend Professor Rafinesque must be different from *A. siculus*, as he makes no mention in his figure or description of the peculiarity of the dorsal fin.
— 64. *for* M. assimilis *read* M. assimile.

Zoological Illustrations,

OR

ORIGINAL FIGURES AND DESCRIPTIONS

OF

NEW, RARE, OR INTERESTING

ANIMALS,

SELECTED CHIEFLY FROM THE CLASSES OF

Ornithology, Entomology, and Conchology,

AND ARRANGED ON THE PRINCIPLES OF

CUVIER AND OTHER MODERN ZOOLOGISTS.

BY

WILLIAM SWAINSON, F.R.S., F.L.S.,

MEMBER OF THE WERNERIAN SOCIETY OF EDINBURGH, ETC.

CONCHOLOGY.

PART I.

London:

PRINTED BY R. AND A. TAYLOR, SHOE-LANE:

FOR BALDWIN, CRADOCK, AND JOY, PATERNOSTER-ROW; AND W. WOOD, STRAND.

1820-1.

HELIX auriculata.

Eared Helix.

GENERIC CHARACTER.

Testa orbicularis vel globosa. Spira depressa vel paululum elevata. Apertura integra. Labium exterius marginatum. Operculum nullum.

Shell orbicular or globose. Spire depressed, or but slightly elevated. Aperture entire. Outer lip margined. Operculum, none.

SPECIFIC CHARACTER.

H. testâ depressissimâ, ferrugineo-marmoratâ et bifasciatâ, umbilico magno, profundo, aperturâ auriformi; labio exteriore incrassato, margine interiore dente obsoleto.

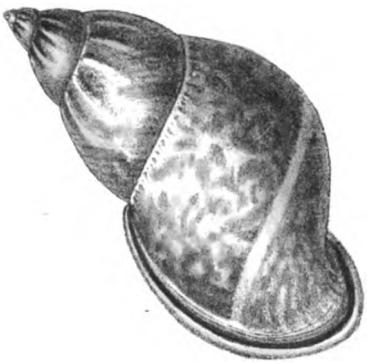
Shell much depressed, marbled and doubly-banded with ferrugineous. Umbilicus large, deep. Aperture ear-shaped. Outer lip thickened, reflected, with a gibbous obsolete tooth within.

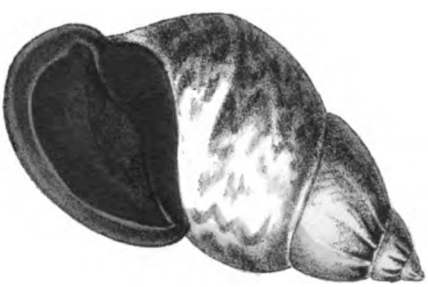
A SHELL no less remarkable for its form than its extreme rarity. The mouth bears a most striking resemblance to the human ear; and the only specimen known in this country is the one here figured, from the cabinet of Ch. Dubois, Esq., who obligingly favoured me with it for examination; neither does the exquisite work on the Land Shells, by M. de Ferrusac, now publishing at Paris, contain this species among the numerous matchless figures already given of this family.

In the present uncertainty respecting the natural groups of the genus *Helix*, as left by Lamarck, I have preferred for the present following the example of Cuvier and de Ferrusac, in placing it with that family, in preference to adopting the ill-defined and palpably artificial distribution of them by D. de Montfort, or of forming a new genus for its reception.

The variegations in its colouring are better seen in the figures than described. The whole shell is slightly marked with obsolete longitudinal striæ; the umbilicus is very deep, and the tooth does not extend externally beyond the margin of the lip.

Pl. 9.





Pl. 4.

[illegible] are it necessary [illegible]
[illegible]on of shells mixed [illegible]
[illegible]rrangement preser[illegible]
[illegible]*limus* is formed [illegible]
[illegible]*ulta*: thus we see [illegible]
[illegible] land-snail put in [illegible]
[illegible]*rta*; the one [illegible] h [illegible] the depths of [illegible]
[illegible] of ocean!

BULIMUS melastomus.

Blackmouthed Bulimus.

Generic Character.

Testa ovalis, vel oblongo-ovalis. Spira elevata. Os integrum, sub-ovale. Columella lævis, simplex. Labium externum crassum, reflexum. Internum ultra medium cavo-inflexum. Operculum nullum.

Shell oval or oblong-oval. Spire elevated. Mouth entire, sub-oval. Column smooth, simple. Exterior lip thick, reflected. Interior lip beyond the middle inflected, and hollowed beneath. Operculum none.

Specific Character.

B. testâ oblongo-ovatâ, albâ, cinereo marmoratâ, spiræ anfractibus longitudinaliter plicatis, labio exteriore complanato; aperturâ nigrâ.

Shell oblong-ovate, white, marbled with cinereous. Spiral whorls longitudinally plaited. Outer lip flattened; aperture black.

THE genus *Bulimus* was long ago formed by Scopoli out of the heterogeneous mixture of shells thrown together in the Linnæan genus *Helix**, &c.: it comprehends some of the larger and most beautiful of the exotic land shells, among which the present species will stand conspicuous both in beauty of colouring and excessive rarity. While travelling among the forests of Brazil, in the province of Bahia, I found the shell here figured one morning on the leaves of a *Solanum*. I not only searched myself, but promised as a reward to any of my Indians who would bring me another, a two-bladed Birmingham knife!—the greatest tempta-

* Were it necessary at this time of day to point out the unnatural separation of shells intimately connected with each other, which the Linnæan arrangement presents, it would be sufficient to observe, that the genus *Bulimus* is formed of shells scattered in the old genera of *Turbo*, *Helix*, and *Bulla*: thus we see in Mr. Dillwyn's Catalogue, the large pink-mouthed African land-snail put in the same genus with our English *Bulla lignaria*, and *aperta*; the one inhabiting the depths of forests, and the others the depths of ocean!

tion they could have!—but in vain; for I never saw another before or since.

There are many peculiar characters presented in this species independent of its colour: the spiral whorls are strongly plaited longitudinally about half their length, and marked very slightly (but sufficiently distinct) with several oblique indented striæ; the principal whorl has a row of indented and unequal sulcations near the suture, and a slight appearance of elevation along the white transverse band; the outer lip is thick, broad, and flattened beneath; but the margin is reflected back, and forms a prominent rim on the upper surface. The shell, when viewed closely, appears rough with minute scale-like elevations, very much resembling shagreen.

BULIMUS zonatus.

Zoned Bulimus.

GENERIC CHARACTER.—See Pl. 3.

SPECIFIC CHARACTER.

B. *testâ lævi conicâ; spiræ anfractibus quinque; ultimo aliquantulum distorto; albis duabus fasciis ferrugineis inæqualibus; anfractu basilari rufo duabus albis fasciis; aperturâ albâ.*

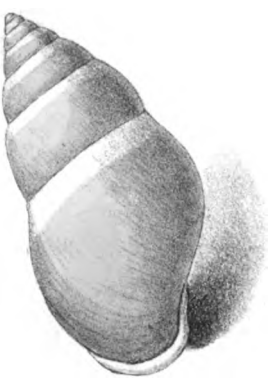
Shell smooth, conic, of five volutions, the last somewhat distorted; white, with two unequal ferrugineous bands; body whirl rufous, with two white bands. Aperture white.

A SMALL though very elegant shell, seldom seen in Collections; nor do I find such a description of it as will identify the species. One figured by Martini, at *tab.* 134, *fig.* 1215, comes near it, but differs sufficiently for a specific distinction.

Its precise locality is unknown: a fine specimen exists in my father's collection, who thinks it came from the East Indies; and this is the only one I have yet seen.

The aperture is more round than ovate, and is less than one half the total length of the shell; the outer lip much reflected, and the transverse bands on the spiral whirls nearly obsolete.

Pl. 17.



BULIMUS citrinus,
Citron Bulimus.

GENERIC CHARACTER.—See Pl. 4.

SPECIFIC CHARACTER.

B. *testâ obovatâ; spirâ conicâ, in medio sub-crassatâ, aperturâ longiore: spirâ anfractibus* 6 *in suturam depressis; labio exteriore basi rotundato; umbilico subclauso.*

Shell obovate; spire conic, slightly thickened in the middle, longer than the aperture, and of six volutions depressed on the suture; outer-lip rounded at the base; umbilicus nearly closed.

Bulimus citrinus, *var.* B. *Bruguiere Encycl. Meth.* 314. *no.* 27. *Martini* 9. *tab.* 110. *fig.* 930.

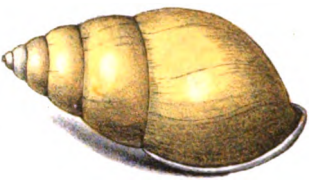
THIS variable species is perhaps the most beautiful and delicate in its colouring of all the terrestrial snails; yet, although figured by several of the older writers, so little justice has been done it, that we make no apology for introducing it into the present work, both on this account, and for the purpose of giving such a discriminative specific character as may lead to the inquiry, how far all the numerous varieties mentioned by authors really belong to this species or not. As far as my own observation goes, I have found that the thickened spire, the depression of the whorls on the suture, and the narrowness or contraction of the mouth at the base, afford the only constant characters; for, in regard to colour and the situation of the mouth, both appear subject to great variation, the latter being as often reversed as regular. Martini's is the only figure that can be safely quoted for this variety.

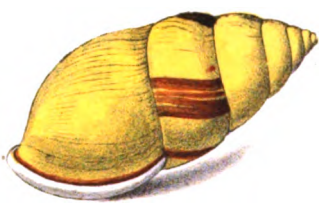
I am indebted to Mrs. Bolton, of Storr's-hall, Windermere, for the loan of this and several other rare shells: it formerly belonged to Mr. Jennings, and appears an old shell, being heavy in proportion, the umbilicus thickly closed up, and the outer-lip

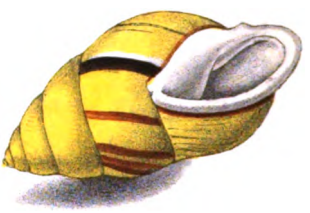
very thick. Another I have seen at Mrs. Mawe's, and one is in the British Museum: but the finest specimen in colour and preservation is in the possession of my friend W. J. Broederip, Esq., of Lincoln's-Inn: from this it seems the spiral whorls are finely and delicately marked by transverse elevated striæ, while those on the basal volution are striated transversely, though in a less regular manner.

Bruguiere mentions that this species is generally found in the South American islands, Cayenne, and Guiana.

Mr. Dillwyn has given the new name of *aurea* to this shell, in addition to the five others under which different authors have described it. Such changing of names and multiplication of synonyms, without strong reasons, are very objectionable. I have retained that of *Bruguiere*, as being the only author who has placed it in its proper genus.







BULIMUS citrinus (*var.* perversu).

Reverse, banded Citron Bulimus.

GENERIC CHARACTER.—See Pl. 4.

SPECIFIC CHARACTER.—See Pl. 46.

SYNONYMS.

Martini, vol. 9. *tab.* 934 & 5. *Knorr,* 4. *tab.* 28. *fig.* 4, 5. (bad.)
Bulimus citrinus, *var.* B. *Bruguiere,* 314. 27.

A FINE pair of this beautiful and rare variety is in the collection of Mr. C. Dubois, to whom I am indebted on this and many other occasions, for the facilities he has afforded me in prosecuting the present work: one of these is now figured; it differs in no respect from that in the last plate, except in being reversed and having the umbilicus not so completely closed; a character which, perhaps, exists only in very old shells. The other specimen is also reversed and banded, though in a different manner.

BULIMUS aureus.

Golden Bulimus.—upper and lower figures.

SPECIFIC CHARACTER.

B. testâ obovatâ, spirâ conicâ, anfractibus 5 *convexis, suturâ simplici, umbilico aperto.*

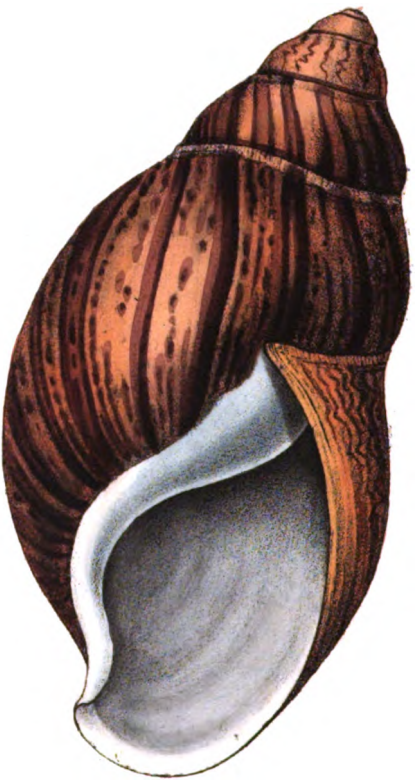
Shell obovate; spire conic, of five convex volutions; suture simple; umbilicus open.

Lister 34. 33. *Martini* 9. *tab.* 110. 928. 929?

Having seen but a single specimen of this shell, I have placed it as a distinct species, not without some doubts, and principally for the purpose of calling the attention of conchologists to a more rigid examination of the specific distinctions of this family (unconnected with colour) than has heretofore been done. The re-

gular convexity of the whorls, not in any degree compressed at the suture, the want of that thickened appearance on the spire, and of the contraction at the base of the mouth (all which characters I have found in the varieties of *B. citrinus* to be constant), afford a specific distinction which future observations must confirm or annul. Bruguiere notices a variety of *B. citrinus* which is entirely yellow, a most beautiful specimen of which is in the British Museum, and which possesses (as well as the excellent figure of Gualtieri) all the specific characters I have given to *B. citrinus*, but not of the present shell. Lister's figure, on the contrary, is rude, though very characteristic of this; and Martini's representation, here cited, also appears the same.

Mr. Dubois, in whose collection this specimen exists, is unacquainted with its locality.



30.

ACHATINA marginata.

Marginated Achatina.

GENERIC CHARACTER.

Testa ovata, vel oblongo-ovata, spira elevata, apertura subovale. Columella lævis, simplex, ad apicem truncata; labium externum tenue, internum inflexum integrum; umbilicus nullus.

Typus Genericus *Bulla Achatina.* Linn.

Shell ovate, or oblong-ovate; spire elevated; mouth nearly oval. Columella smooth, simple, truncated. Outer lip thin; inner lip entirely inflexed. Umbilicus none.

Generic Type *Bulla Achatina.* Linn.

SPECIFIC CHARACTER.

A. testa ovato-oblonga, strigis inæqualibus ferrugineis; spira ad apicem obtusa, 5-voluta; sutura depressa linea sulcata marginali.

Shell ovate-oblong, with irregular ferrugineous stripes; spire obtuse at the top, of five volutions; the suture depressed, with a marginal indented line.

Lister 579. *fig.* 34. *Gualt. pl.* 45. B. *Knorr, vol.* iv. *tab.* 24. 1. (badly coloured.)

THE largest shells hitherto discovered as inhabiting the dry land belong to this genus, instituted by the celebrated Lamarck, but still divided by the strict followers of Linnæus between the *Bullæ* and *Helices*, with a singular infelicity of even artificial arrangement. The simple characters peculiar in a greater or less degree to all, will readily distinguish them; and I apprehend most of the species of the first division (which includes the present) will be found to inhabit only the African continent, while *Bulla virginea* and the smaller shells placed in the second division are found principally in the new world; where also two or three gigantic species of *Bulimus* occupy the place of the larger African *Achatinæ*.

Of these, the shell now figured is one of the rarest, and has

Pl. 30.

hitherto been overlooked as a variety of the Linnæan *Bulla Achatina*; the colour of both is subject to much variation; but this will be found at best a most indecisive and vague character for specific distinction when unaccompanied by others more important and connected with the formation of shells. I have therefore not hesitated in making this a distinct species, from having had the means of examining at different times near twenty specimens, all of which presented the following characters. Spire of five whorls, the last or terminal one very small and flattened; the apex obtuse; the suture depressed, as if flattened on the shell, and margined by one or sometimes two indented lines, parallel, and at the top of each whorl. In the colour of its mouth it varies in sometimes having a tinge of rose-colour at the base and top of the spire, but the mouth is more generally white. The body whorl is more or less ventricose; the outer lip is a little reflected, and the whole shell, when full grown, much thicker and heavier than any of the other species. The epidermis is yellowish-brown, beneath which the shell is nearly white, beautifully marked with broad remote stripes of chesnut, with others more slender (and sometimes broken into spots) between. I have another specimen which agrees tolerably with Lister's figure in being more than usually ventricose, and which I think is accidental. The only constant variety appears to be that figured by Knorr, ii. tab. 3. fig. 1. having the spire entirely rose-colour.

The marginal line and the correct number of whorls in the spire are well expressed in the figures of Lister, Gualtieri and Knorr. The first of these figures is accidentally more ventricose; the second, like all the other figures of Gualtieri, is defective at the apex; and Knorr's I suspect has been outrageously coloured from the real pink-mouthed *Achatina*.

It inhabits the coast of Guinea; and I am informed the animal is eaten by the natives.

ACHATINIA perversa.

Reverse Achatina.

GENERIC CHARACTER.—See Pl. 30.

SPECIFIC CHARACTER.

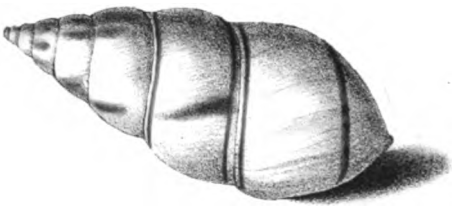
A. (Div. 2.) testâ aperturâ perversâ: spirâ productâ, 7-volutâ, apice truncato; albida strigis nebulosis cinereis; linea transversa in basali anfractu; columna margine labii exterioris castaneis, apertura intus alba.

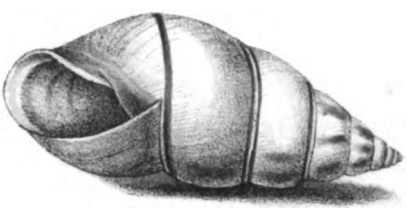
Aperture reversed: spire lengthened, of seven volutions, the apex truncated, whiteish with clouded cinereous stripes; central band on the basal volution, pillar, and margin of the outer lip chesnut; mouth within white.

REVERSE shells, or such whose mouth when viewed in front is on the left side, are generally held in much estimation by collectors. This deviation from the usual form of shells is sometimes accidental, as in our common garden Snail and several others; while in some species it appears a constant, and therefore a specific distinction. Such I apprehend is the case with the shell now figured, a rare and very elegant species, apparently not noticed by any writer; two or three existing in the British Museum and one in my father's cabinet are all the specimens I have hitherto seen. The latter (here figured) came from Bahia in South America. The whole shell is very finely marked with longitudinal striæ, and the colouring better seen than described: the buff tinge at the base is occasioned by the remaining epidermis.

This shell belongs to the second division of the genus *Achatina* as mentioned at Plate 30, having the aperture much shorter than the spire and the base nearly entire. *Bulla virginea* of Linn. seems to connect the two divisions, having the lengthened spire of one and the truncated base of the other.

Pl. 36.





J. ..i

ACHATINA pallida,
Pale Achatina.

GENERIC CHARACTER.—See Pl. 21.

SPECIFIC CHARACTER.

A. (div. 2.) *testâ cinereo-albâ, fasciis duabus angustis fuscis, spirâ elongatâ rectâ, anfractibus 7 sub-ventricosis, labio interiore roseo, columellâ basi rectâ, integrâ, aperturâ ovato-oblongâ.*

A. Shell cinereous-white, with two narrow brown bands, spire elongated, straight; volutions seven, slightly ventricose, inner lip rosy, base of the columella straight, entire, aperture ovate-oblong.

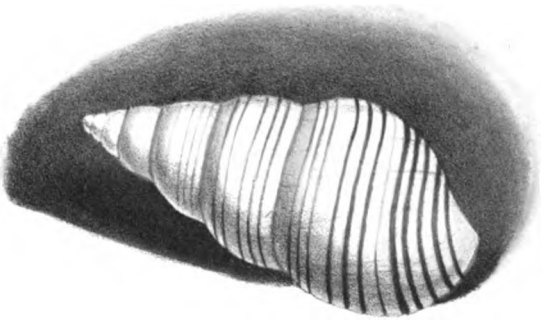
THE species of this and one or two other genera of land-shells are subject to such variability in their colouring, that it becomes extremely difficult to ascertain which are species and which varieties. The shell now figured might, on a cursory glance, very well pass for one of the Protean varieties of the Linnæan *Bulla fasciata;* but a comparison with that shell will at once point out the strong specific difference that exists between them in the formation of the mouth. In this, the lower half of the inner lip, or more properly the pillar, is nearly straight; the base entire, or without any notch or truncated appearance: whereas in the true *A. fasciata,* the inner lip at the base is very much curved inward, and notched before it joins the outer lip. The mouth is also short and broad: whereas in this it is much more oblong, and the base round. Other more obvious characters exist in the form of the whorls, spire, and more particularly in the colour, of these two shells; but these are in comparison of minor importance.

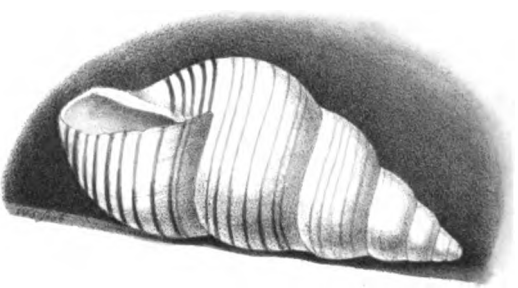
I regret having but one example of this shell, as it prevents me from tracing how far the characters here detailed hold good

in other specimens. They are such, however, as, I think, fully to justify the propriety of considering it a species.

Its locality is unknown.

I have little doubt more than one species exist among the supposed varieties of the true *Bulla fasciata* of Linn., which I take to be the shell figured by Lister.





ACHATINA crenata.

Green hair-streaked Achatina.

GENERIC CHARACTER.—See Pl. 30.

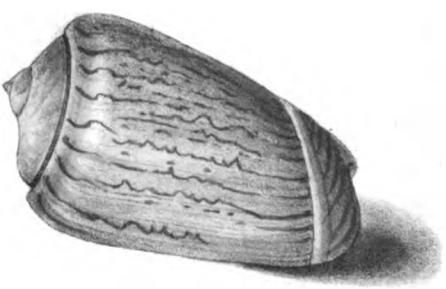
SPECIFIC CHARACTER.

A. (Div. 2.) testâ albâ, fasciis viridibus capillaribus; spirâ elongatâ, subattenuatâ, anfractibus 6 convexis, labio exteriore crenato; basi subtruncatâ.

Shell white, with capillary green bands; spire elongated, sub-attenuated, of six convex volutions; outer lip crenated; base slightly truncate.

A FEW specimens of this most delicate and beautiful shell were found by my brother, Mr. J. T. Swainson, jun. in the island of Cuba; nor am I aware of its having by any other means reached our cabinets, excepting a distinct variety which occurred in Mrs. Angus's, and is now (together with a young one of the same) in Mr. Dubois's collection. This has, in addition to the green bands on the spire, a row of bead-like cinereous spots at the base of the first and second spiral whorl; and others of a longitudinal square form on those whorls nearest the tip, which, with the inner lip, is slightly tinged with pink. The form of the shell also is shorter; but the general contour, and particularly the crenated mouth, common to both, clearly proves it can be considered only as a distinct variety. The specimen we have figured agrees with all those sent at the same time, in having not the slightest appearance of spots, though in a perfect state of preservation. The little notches on the margin of the lip are always placed at the commencement of each of the green lines; the base of the column is straight, and slightly truncated before it joins the outer lip.

Pl. 58.



OLIVA Braziliana,

Brazilian Olive.

GENERIC CHARACTER.

Testa cylindrica, polita; spira conica, acuminata, brevissima; labium exterius simplex, interius incrassatum, tumidum; columella plicis numerosis gracilibus; apertura base truncata, emarginata.

Typus Genericus *Voluta Porphyrea* Lin.

Shell cylindrical, polished, spire conic acuminated, very short; outer lip simple, inner lip thickened, tumid, columella with numerous slender plaits, aperture at the base truncatedly emarginate.

Generic Type *Voluta Porphyrea* Lin.

SPECIFIC CHARACTER.

O. testâ coniformi, latâ; aperturâ effusâ, labio interiore tumidâ callositate super spiram extendente.

Shell coniform, broad; aperture effuse, tumid callosity on the inner lip large, and spreading over the spire.

Oliva Braziliensis. *Martini p.* 130, *tab.* 147 & 8, 1367 & 8.

Oliva Braziliana. *Lamarck.*

Voluta pinguis. *Dill.* 516. 36.

No family of shells possess characters more strikingly obvious to common observers than the Olives; and yet, although in our English terminology no one would ever think of calling them *Volutes,* we still shrink from giving them that distinguishing appellation in Latin which we every day use and acknowledge in our own language. The strict followers of Linnæus, by thus rejecting generic distinctions, which at once convey a definite idea of form and structure, contribute to render systematic arrangement less expressive of ideas than the common nomenclature of our sale catalogues: a striking proof of the pertinacity with which we cherish those particular doctrines we first imbibed, although an unbiassed reasoning and an attentive observance of nature would convince us of their fallacy.

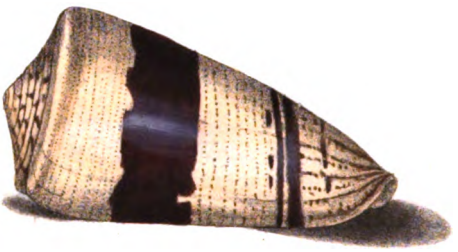
Pl. 42.

The great Linnæus, at the time he formed that system which laid the foundation of systematic nomenclature, had not the materials for gathering and combining those natural genera which the immense discoveries made since his death have given us a knowledge of. He accordingly arranged those few shells known to him, in large, and for the most part natural, groups. That of *Voluta* I consider as one of these last (excepting the first division); but the great accession of species now known, and which is still increasing, has long ago induced the principal Continental writers to divide this very extensive family into the following genera: *Marginella* (Date shells), *Oliva* (Olives,) *Mitra* (Mitres), *Turbinellus* (Turnip shells), *Voluta* (Volutes), and *Cimbium* (Melons); all possessing not only clear but natural characters; inasmuch as, by such an arrangement, those interesting links and ramifications that connect this family with the *Bullæ, Cones, Cowries, Murices,* and other genera, can be traced; and which perhaps affords the most fascinating and intellectual source of contemplation and study the science can bestow.

The peculiarity of this species will distinguish it among this numerous and intricate family. The basal suture is deeply channeled; those on the spire covered by the polished callosity which spreads from the inner lip.

Mr. Dillwyn has adopted the unpublished name of Solander, although the shell had long ago been described and named by Martini and Lamarck. I consider this as contrary to that principle of nomenclature which awards a preference to priority of publication; and I have therefore restored the name of those authors who have this undoubted claim. Mr. Dillwyn's description is very clear and good.

I cannot learn from what particular part of Brazil this species has been received.



63.

CONUS Augur.

Girdled Cone.

GENERIC CHARACTER.

Testa univalvis, turbinata, s. inversè conica, convoluta; apertura longitudinalis, angustata, edentata; basi effusa; spira brevissima.

Typus Genericus *Conus marmoratus*, &c. Linn.

Shell univalve, turbinated, inversely conic, convolute; aperture longitudinal, narrow, not toothed; base effuse; spire very short.

Generic Type *Conus marmoratus*, &c.

SPECIFIC CHARACTER.

C. testâ glabrâ, fulvo-albidâ, fasciis latis nigro-castaneis, lineisque transversis punctatis; spirâ obtusâ, convexâ, striatâ, depressâ.

Shell smooth, fulvous-white, with broad dark chesnut bands and transverse lines of dots; spire obtuse, convex, striated, depressed.

C. augur. *Lamarck Annal. Mus.* xv. 277. *Encycl. Méth.* 333. 6.

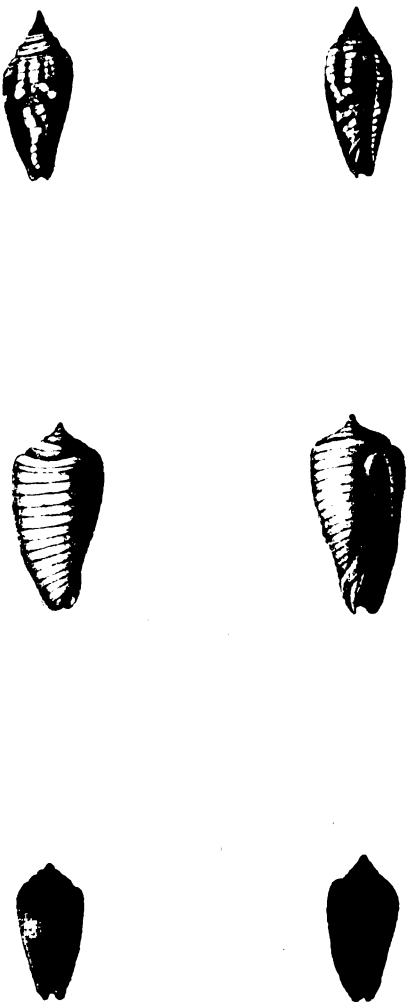
Conus magus. *Gmelin* 3392. 57. *Martini* ii. 58. 641.

THE Girdled Cone is conspicuous among the beautiful shells of this extensive family, by the broad and rich chesnut bands, which are either two or three in number, and more or less broken into spots; in high-coloured shells the minute lines of dots between them are also of the same colour. It is not a common species, and inhabits the Asiatic ocean.

This is the *Conus Magus* of Gmelin and Martini, and of our sale catalogues: this error has originated from Gmelin having described two distinct shells, *C. Augur* and *C. Magus*, under the latter name.

I have not referred to Lister's figure 755. 7, being doubtful of its affinity; and those of Martini and Bruguieres are very bad.

Pl. 65.



24.

CONŒLIX.

GENERIC CHARACTER.

Testa coniformis; spira brevissima; labium exterius simplex; columella plicata; apertura linearis, angusta, spirâ longior.

Typus Genericus *Conælix lineatus*. Nobis.

Shell coniform. Spire very short. Outer lip simple. Columella or pillar plaited. Aperture linear, narrow, longer than the spire.

Generic Type *Conælix lineatus.*

CONŒLIX marmoratus.

Marbled Conælix—upper figures.

SPECIFIC CHARACTER.

C. testâ striis transversis, remotis, capillaribus; spirâ subproductâ, acuminatâ; anfractibus in medio lineâ sulcatâ; labio exteriore crenato.

Shell with remote capillary transverse striæ. Spire slightly produced, acuminated; the whorls with a central indented line. Outer lip crenated.

THE rare little shells composing the group I have now formed into the genus *Conælix*, seem to have escaped the observation of modern systematic writers. They form a beautifully defined link connecting the Cones with the Volutes, strictly so termed, and their generic characters seem to be very constant and clear. The present species varies more or less in the regularity of its tessellated markings. The inside of the mouth is brown, and the pillar has five plaits. Several specimens are in the Banksian Cabinet, from the Pelew Islands. The figures are enlarged to one half more than the natural size.

CONŒLIX lineatus.

Lineated Conælix—middle figures.

C. testâ lævi, albescente, lineis transversis, fulvis, capillaribus; spirâ depressâ, apice prominulo; columellâ 6-plicatâ.

Shell smooth, whitish, with transverse capillary fulvous lines. Spire depressed, the apex prominent. Pillar six-plaited.

Pl. 24.

Figured of the natural size. The volutions of the spire are somewhat convex; the coloured lines are not indented. Inhabits the South Seas?

CONŒLIX punctatus.

Punctured Conœlix—lower figures.

C. testâ fulvo-albescente, striis transversis capillaribus, intrà minutè punctatis; spirâ brevi; columellâ 5-plicatâ.

Shell cream-colour, with capillary transverse striæ, which are minutely punctured. Spire short. Pillar five-plaited.

Inhabits Otaheite: from the Banksian Collection. The figures are on the same scale as *C. marmoratus*.

These are the only three species which I have myself seen. Another is figured in *Chemnitz* x. *tab.* 150. *fig.* 1415 and 6. Mr. Humfreys informs me he has seen at different times five or six others, all of a small size.

Fig. 3.

MITRA zonata.

Zoned Mitre.

GENERIC CHARACTER.

Testa inæqualiter fusiformis, spirâ productâ attenuatâ, labio exteriore intus edentulo. Columella plicata.

Shell unequally fusiform. Spire lengthened, attenuated. Outer lip simple, not toothed within. Columella plaited.

SPECIFIC CHARACTER.

M. epidermide luteâ, fulvo-marmoratâ, anfractibus infernè basi nigris, columellâ quinque-plicatâ. Linn. Trans. xii. *p.* 338.

Mitre, with the epidermis marbled with brownish-yellow; volutions at their base black; columella five-plaited.

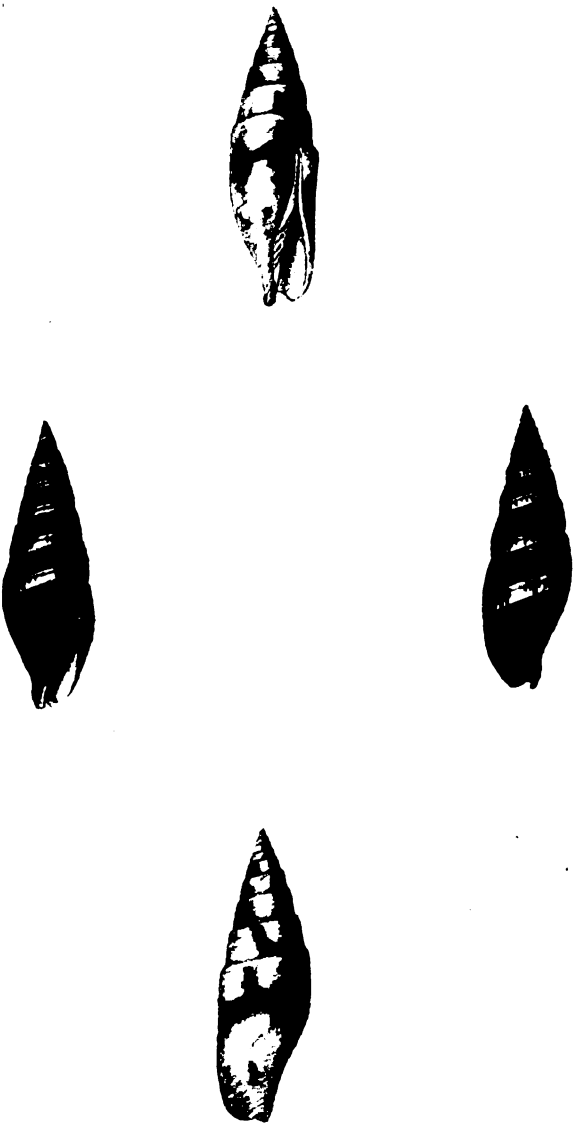
Mitra zonata. *Marryat in Linn. Trans. vol.* xii. *pl.* 10. *fig.* 1. 2.

THIS unique and beautiful Mitre has been already described by Captain Marryat in the Linnæan Transactions: the figures, however, are uncoloured, and give a very indifferent idea of the graceful symmetry of its form. My friend Dr. Leach, with his usual liberality, permitted me to draw the accompanying figure of it at the British Museum, where it is now deposited.

It appears to have been taken near Nice in the Mediterranean, adhering to a sounding-line, in very deep water; a very singular locality, since nearly all the Mitres have generally been supposed to inhabit the tropical seas, or at least far from the coasts of Europe. It should, however, be remarked, that *Cypræa lurida*, an Asiatic shell, I have found on the shores of Greece: and C. Ulysses, in his travels in the kingdom of Naples, enumerates several shells as inhabiting the warm shores of the Tarentine Bay, which are generally known only as natives of the Red Sea and Indian Ocean. These facts, with many others, prove the

physical distribution of *Molluscæ* to be less decidedly marked than almost any other class of animals.

This genus is included with that of *Voluta* by Linnæus and our own writers, although long ago justly separated by the continental zoologists.



Pl. 18.

MITRA contracta.

Contracted Mitre—upper figure.

GENERIC CHARACTER.—*Pl.*

SPECIFIC CHARACTER.

M. (Div. 3.) testâ sublævi; margine superiore anfractuum prominente, anfractu basali in medio contracto.

Shell nearly smooth; upper margin of the volutions prominent; basal whorl contracted in the middle.

AN undescribed species, for the loan of which I am indebted to Mr. G. Humphrey, of Leicester-street, whose knowledge as a collector, and integrity as a dealer, have gained him respect and confidence through a long life: and it is no less singular than true, that many genera of modern authors, now universally adopted, were formed by him near twenty-five years ago (under different names) in the *Museum Calonianum*, printed in 1797.

Shell one inch and a half long, and smooth; the base and spire with faint remote grooves; the spiral whorls are scarcely convex, and their upper margins prominent. Outer lip thick, effuse, slightly reflected below, and contracted above. Pillar five-plaited; colour yellowish white, with two or three waved longitudinal bands of orange, and a few others broad and remote on the spire. A finer specimen I have since seen with Mr. Humphrey's was one inch three quarters long, the ground-colour pure white, the aperture orange, and the bands rich orange-chesnut.

Pl. 18.

MITRA australis.

New Holland Mitre.

M. (Div. 2) testâ lævissimâ; spirâ elongatâ; anfractibus basi castaneo-fuscis; fasciâ albâ in basali anfractu, centrali. Columellâ 4-plicatâ.

Shell very smooth. Spire elongated, chesnut-brown; base of the spiral volutions with a whitish band, which is central on the basal whorl. Pillar four-plaited.

Dead shells of this new Mitre were received from Van Dieman's Land by Mr. Humphrey: it is perfectly destitute of striæ, excepting a few faint ones at the base: the mouth, which is smooth inside, appeared in the few specimens he had, to be unformed; it is, however, sufficiently distinct from any other.

MITRA vittata.

Ribbon Mitre.

Character Genericus.

Testa inæqualiter fusiformis, spirâ productâ attenuatâ; labio exteriore intùs edentato. Columella plicata.

Divisiones.

I. *Apertura angusta, linearis, suprà angulata, infrà subcontracta.*

Mitræ vulpecula, plicata, &c.

Obs. *Testa plerumque longitudinaliter plicata, æqualiter fusiformis, labio exteriore lævi leviter undulato, interiore ad apicem intrà crassato; gulâ striatâ.*

II. *Apertura suprà acuminata, infrà angusta, extrinsecus curvata.*

Voluta mitra-abbatis. Chemnitz, &c.

Obs. *Testa plerumque spirâ elongatâ, aperturâ ad basin angustatâ, siphone superiore parvo aut nullo.*

III. *Apertura suprà acuminata, extrinsecus recta, infrà rotundata, dilatata, vel effusa.*

Mitræ papalis, episcopalis, &c.

Obs. *Testâ plerumque lævi ad basin obtusâ, truncatâ, labio exteriore margine crenato, gulâ lævi.*

Generic Character.

Shell unequally fusiform; spire lengthened, attenuated; outer lip simple not toothed within. Columella plaited.

Divisions.

I. Aperture narrow, linear, above angulated, below a little contracted.

Mitræ vulpecula, plicata, &c.

Obs. Shell generally longitudinally plaited, equally fusiform; outer lip smooth, slightly waved; top of the inner lip much thickened within; throat striated.

II. Aperture above pointed, below narrowed, externally curved.

Voluta mitra-abbatis. Chemnitz, &c.

Obs. Shell generally with an elongated spire, the aperture below narrowed; upper syphon or channel small or wanting.

Pl. 23.

III. Aperture above pointed, externally straight, below rounded, widened or effuse.

Mitræ papalis, episcopalis, &c.

Obs. Shell generally smooth, the base thick and truncated; margin of the outer lip crenated; throat smooth. The smaller shells of this division connect the genera *Mitra* and *Colombella* (Lamarck).

SPECIFIC CHARACTER.

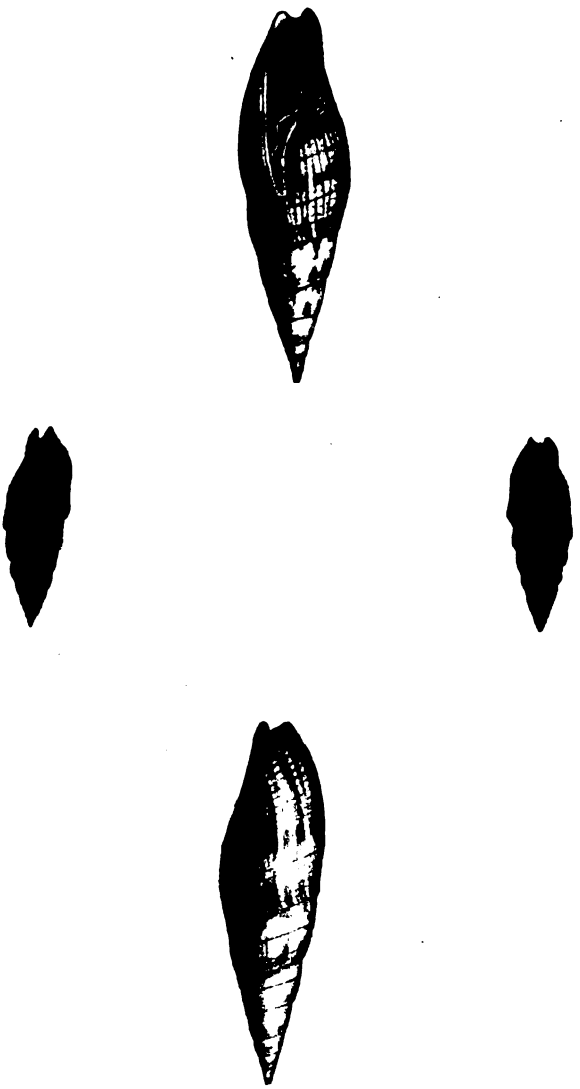
M. testâ angustâ, basi cancellatâ; spirâ plicis carinatis; interstitiis sulcis transversis confertis; columellâ 4-plicatâ; gulâ 4 aut 5 striis remotis.

Shell narrow, base cancellated. Spire with carinated plaits, the interstices with slender, crowded, transverse grooves. Pillar of four plaits; throat with four to five remote striæ.

THIS superb shell is figured from a matchless specimen brought home by that illustrious and lamented patron of science, the late Sir J. Banks, from the Pacific Ocean: it is now, together with his entire collection of shells and insects, in the Museum of the Linnæan Society.

It is of great rarity, and the present specimen far exceeds in size any I have yet seen. A very perfect one exists in my father's collection which measures only two inches one line long: it differs slightly in wanting the lower white band and its inferior border: there is also an additional small plait between the second and third, a variation not uncommon in the Linnæan Volutes, and which lessens the importance of this character as a specific distinction.

It is unfigured, and I believe undescribed, unless perhaps in Solander's MSS. In its small state it may have been overlooked as one of the numerous varieties of *M. vulpecula*; but the sharp angulated plaitings, the cancellated base, and the numerous faintly-grooved lines on the spire, as well as the more slender and lengthened form, will at once distinguish it: its colours also are very striking and dissimilar.



MITRA cancellata.

Basket Mitre—upper figure.

GENERIC CHARACTER.—See Pl. 23.

SPECIFIC CHARACTER.

M. (Div. 2.) testa fusiformi, cancellata; striis longitudinalibus incrassatis, spira aperturaque æqualibus; columella 5-plicata; spira sublævi.

Shell fusiform, cancellated, the longitudinal striæ thickened; spire and aperture of equal length; pillar five-plaited; spire nearly smooth.

ANOTHER undescribed species of this elegant family, and of great rarity, in the private collection of Mr. G. Humfreys. The whole of the body whorl and commencement of the spire is cancellated. The longitudinal striæ are crowded, thickened, and slightly elevated, giving a crenated appearance to the suture: the transverse striæ slender, and filling up the interstices. The spire is nearly smooth and a little bent: the ground colour very light orange, with three darker interrupted bands on the body: whorl separated by two slender lines of the same colour; the spiral whorls have only two bands and a line between; the upper margins slightly compressed on the suture; the outer lip within smooth.

Pl. 29.

MITRA rigida.

Ribbed Mitre—middle figures.

SPECIFIC CHARACTER.

M. testa costis longitudinalibus, elevatis, linearibus, integris, interstitiis lævibus ad basin granulatis; spira producta; columella 4-plicata; apertura brevi.

Shell with elevated, longitudinal, obtuse, entire ribs, the interstices smooth, the base granulated; spire lengthened; pillar four-plaited; aperture short.

Equally rare, and from the same collection as the preceding. In habit it approaches nearest to *M. exasperata* of Chemnitz, but has not the ribs angulated or their interstices striated, and is much more narrowed at the base than in that shell, which I have seen: the outer lip is also smooth; the inside strongly striated. This shell was formerly in the collection of Mr. Keate, the elegant author of the "Sketches from Nature."

MITRA bifasciata.
Double-banded Mitre.

GENERIC CHARACTER.—See Pl. 23.

SPECIFIC CHARACTER.

M. (Div. 1.) testâ lævi, castaneo-fusca concolore, anfractu basali fasciis duabus angustis flavescentibus, spirâ unifasciatâ aperturâ lævi.

Shell smooth, uniform chesnut-brown, with two narrow yellowish bands on the basal whorl, and one on the spire; aperture smooth.

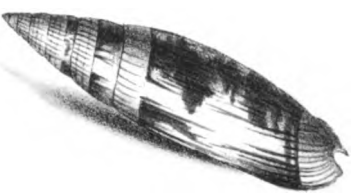
Voluta caffra. *Martini* iv. *tab.* 148. *fig.* 1369.
Knorr. vol. v. *tab.* 19. *fig.* 4, 5.

THIS most elegant shell has been figured from one of the specimens that belonged to the late Mr. Jennings, who was well known to spare neither expense nor assiduity in procuring the most select and matchless specimens of every species; so much so, indeed, that such as are known to have been in his possession generally bear a higher price. One of these is now in my father's cabinet, the other in that of Mrs. Bolton, of Storr's-hall, Windermere. I have seen both, and they appear equally fine.

I cannot help considering this as a distinct species from *Mitra caffra* (*Voluta caffra* Linn.), with which it has hitherto been placed only as a variety: it is much larger, the volutions more convex, but compressed on the suture, and the whole shell (except near the point) perfectly smooth: the beak or channel likewise, which in *M. caffra* is short and nearly straight, is in this lengthened and recurved. The mouth is very narrow (occasioned by the outer lip being thick and slightly inflexed) and smooth within, the terminal volutions slightly plaited, and the base of the shell grooved.

The figures of Knorr and Martini are very bad, and give no correct idea of the shell, except its colour.

Pl. 35.



Pl. 18

MITRA casta,

Chesnut-banded Mitre.

GENERIC CHARACTER.—See Pl. 23.

SPECIFIC CHARACTER.

Mitra (Div. 3.) testâ albâ, lævi, olivæformi, spirâ aperturâ breviore, anfractibus supra tenuiter reticulatis, basi epidermide castaneam fasciam formante, in anfractu basali centralem et latam.

Shell white, smooth, olive-formed, spire shorter than the aperture, the volutions finely reticulated above, the lower half with the epidermis forming a chesnut band which is central and broad on the basal whorl.

Voluta casta. *Chemnitz* 10, *p.* 138, *vig.* 20 C D.—*figura mala.*
Martyn Univ. Conch. i. *tab.* 20.
Dillwyn Catalogue, vol. i. *p.* 554, *no.* 127.

ALL the writers I have been able to consult, uniformly describe this species as having a coloured band on the white ground of the shell. In the Banksian cabinet are two fine specimens, and which have enabled me to ascertain that this brown band is nothing more than an epidermis, or external coating, with which the shell is only partially covered—a circumstance of very rare occurrence; and which, being removed, proves the real colour of the shell to be of a uniform polished white. This, together with its excessive rarity, and the opportunity of giving original figures, has induced me to include it in this work, although it exists both in those of Martini and Martyn above quoted. I have neither seen nor heard of specimens being in any other collection, besides the two above noticed; and which no doubt were collected by their late lamented possessor on some of the South Sea islands. A striking affinity exists between this and *M. zonata* figured at the third plate of this work.

Pl. 48.

MITRA olivæformis.

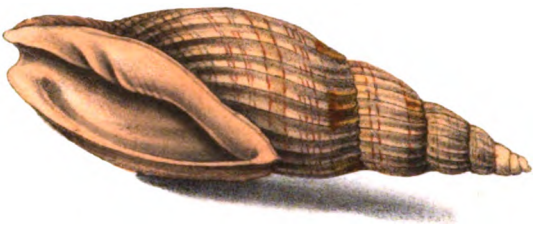
Olive-shaped Mitre.

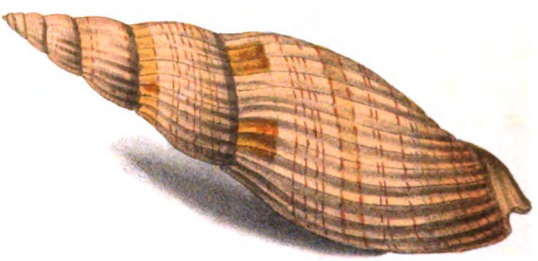
M. testâ olivæformi, glabrâ, nitidâ, spirâ brevissimâ, longitudinaliter rugatâ, striâ centrali transversâ; columella 4-plicatâ.

M. Shell olive-shaped, smooth, polished, spire very short, longitudinally wrinkled, with a central transverse stria, pillar four-plaited.

I introduce the description of this diminutive and undescribed shell from its affinity with the last, and as forming a most interesting transition from the Mitres to the Olives: agreeing with the former in the structure of the pillar and the sculptured spire, and with the latter in its general form and *prima facie* appearance. Its perfect resemblance, in fact, to a small olive, may have occasioned its being hitherto overlooked. The spire is slightly wrinkled and striated; the teeth on the pillar very near each other, slender, and four in number. The colour pale yellowish; the mouth darker, and the tip and base purple. The whole shell is scarcely half an inch long.

It was received from the South Seas.





MITRA lyræformis.

Harp Mitre.

GENERIC CHARACTER.—See Pl. 28.

SPECIFIC CHARACTER.

M. testâ costis regularibus, carinatis, approximantibus: columellâ striatâ, juxta basin triplicatâ: spirâ subattenuatâ; apice subpapillosâ.

Shell with regular, carinated, approximating, longitudinal ribs. Pillar striated, three-plaited near the base. Spire somewhat attenuated. Apex slightly papillary.

THIS beautiful and highly interesting shell has been generally considered *unique* among the collections in this country. It was originally in the possession of the late Mr. Jennings, and, I am informed by Captain Laskey, was on first being received, in a much finer state. Mr. Jennings had it cleaned, and in so doing many of the delicate transverse striæ were partially obliterated, and the sharp ridges on the longitudinal ribs worn down, as indeed was apparent from a drawing Captain L. had made of the shell previous to this unmerciful cleaning. It however still remains a very fine shell, and is now in the cabinet of Mrs. Bolton, of Storr's-hall, to whom I am obliged for the opportunity of now publishing it.

The figure and specific character will sufficiently point out its distinctions. The body-whorl is smooth, but strongly granulated at the base; the spire delicately striated between the ribs; the two last whorls before the apex are close, thick, and somewhat papillary; the apex itself small and sharp. The upper part of the inner lip has some faint obsolete teeth, but the base has three very strong ones.

It connects in the most beautiful manner the two genera of *Mitra* and *Voluta*. Its country is unknown.

Pl. 54.

MITRA lugubris.

White-banded Mitre.

GENERIC CHARACTER.—See Pl. .

SPECIFIC CHARACTER.

M. testâ inversè pyriformi, fuscâ; sulcis transversis intus punctatis; anfractibus supernè obsoletè plicatis, fasciâque albâ ornatis; labio exteriore tenui, margine crenatâ; columellâ 4-plicatâ; basi albâ, truncatâ.

Shell inversely pear-shaped, brown, with transverse sulcated grooves, punctured within; volutions above obsoletely plaited and banded with white; outer-lip thin, margin crenated; pillar four-plaited; base white, truncated.

WE have had much difficulty in the investigation of this species: for its characters cannot be reconciled with any of those contained in Lamarck's Monograph of the genus in the *Annales du Museum*. With regard to the unnamed figures in the old authors, it bears the closest resemblance to that of *Gualtieri*, tab. 32. G, which Lamarck quotes for his *M. crocata*; but then his description is not at all applicable to our shell; and Mr. Dillwyn's synonyms of the Linnean *V. nodulosa* (where he has also included *M. crocata*), we are satisfied comprises two or even three distinct shells.

This was named by Dr. Solander from the specimen in Mr. G. Humphrys's collection here figured: it is exceedingly rare, and its locality unknown. In form it resembles a *Buccinum*; the transverse grooves are broad, strongly defined, and have large and deep excavated dots within them; the upper part of each whorl has an appearance of irregular plaits, which makes the suture uneven, and takes off something from the smoothness of the lower part of the whorls, but the shell is in no way granulated.

Pl. 66.

MITRA ferruginea.

Thick-lipped Mitre.

SPECIFIC CHARACTER.

M. testâ nubilâ, maculisque ferrugineis interstinctâ; costis transversis, elevatis; labio exteriore crasso, obtusè crenato; columellâ 4-plicatâ.

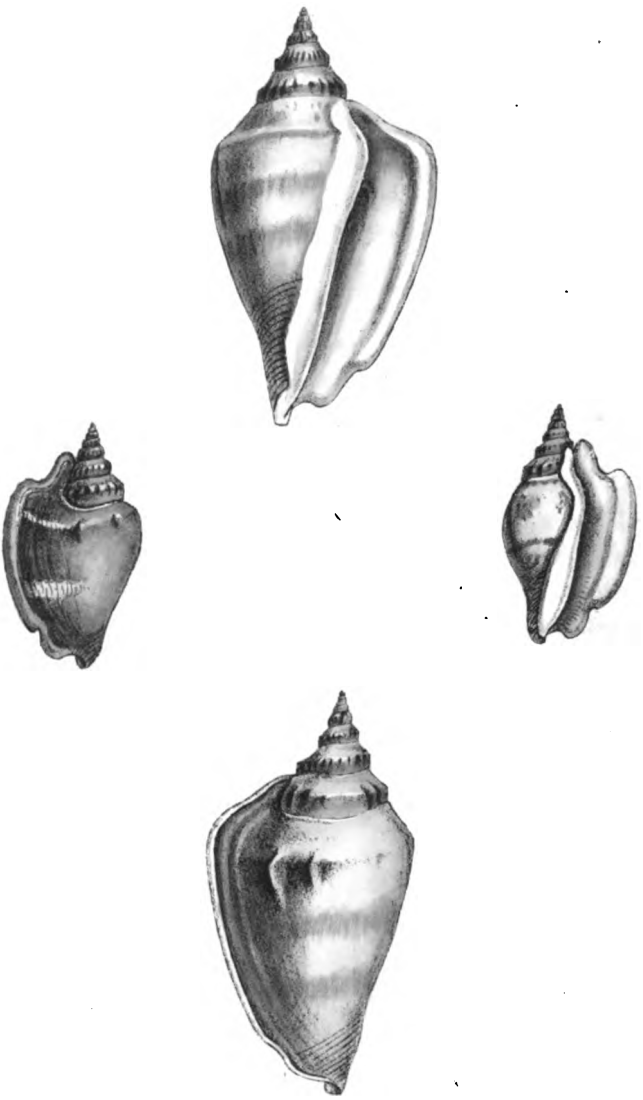
Shell clouded and spotted with ferrugineous, with transverse elevated ribs; outer lip thick, obtusely crenated; pillar four-plaited.

M. ferruginea. *Lam. Ann. du Mus. vol.* 17. *p.* 200.

Young. Vol. vitulina. *Dill.* 553.—*Martini* 4. 149. 1380 & 1.

Variety more elongated. Vol. abbatis. *Dill.* 557. *Chemnitz* 11. *t.* 177. 1709 & 10.

This (a common shell) can be no other than the *M. ferruginea* of Lamarck, though neither that author nor any other has noticed its primary distinguishing character, that of the uncommon thickness of the outer lip at the margin, which is also divided into convex obtuse crenations; in young shells this is not apparent; such is Martini's figure. Mr. Dillwyn has changed Lamarck's name to *Vitulina* for this, and given the name of *Abbatis* to the variety more lengthened, figured by Chemnitz; but which, from specimens now before us, we consider with Lamarck only as a variety, possessing all the essential characters here given to both.



STROMBUS.

GENERIC CHARACTER.

Testa ventricosa: basis canali brevi, truncato vel emarginato; labium exterius simpliciter alatum, ala ad basin inferne emarginata; suprà dilatata.

Animal marinum, carnivorum, trachelipodum; corpore spirali; pede compresso ad cervicis basin inferiorem. Leach in Zool. Misc. vol. i. p. 51.

Typus Genericus *S. pugilis.* Linn.

Shell ventricose; base with a short canal, which is either emarginate or truncate; external lip dilated into a simple wing, notched at the base, and prominent above.

Animal marine, carnivorous; body spiral, with a compressed foot at the inferior base of the neck.

Generic Type *S. pugilis.* Linn.

STROMBUS minimus.

Little Strombus—central figures.

S. testâ nodosè plicatâ; spirâ subtilissimè striatâ; labio interiore reflecto, incrassato, suprà obtusè-acuminato; exteriore intrà lævi, suprà altè-lobato, anfractui secundo spirali adjuncto.

Shell with nodulous plaits; the spire finely striated; inner lip thickened and reflected, and obtusely pointed above. Outer lip smooth within, deeply lobed above, attached to the second spiral volution.

Lister 859. 15. *Chemnitz. tab.* 156. *fig.* 1491, 1492. *Rumph. tab.* 36, P. *Gualtieri, tab.* 32, G.

Strombus marginatus. *Dillwyn's Cat.* p. 665. no. 18.

A PRETTY and diminutive species, scarcely ever more than one inch three lines long. The spire long in proportion, and occupying half an inch: when in perfection the colour is a deep chesnut, minutely broken into finely serrated darker lines, with one, two, or three interrupted bands of white on the body whorl, the spire, and margin of the outer lip paler; there are two or three nodules above; and the spiral volutions have the carinated row of tubercles usual in the *Strombi*, and are besides finely striated transversely. The base of the shell is more deeply and distinctly striated; both the lips are much thickened, tumid, white,

and highly polished; terminating above in obtuse points on the second spiral whorl, leaving a narrow ascending channel between; the inside of the aperture is a fine yellow.

Inhabits the Indian seas, but is not common.

By some unaccountable oversight, Mr. Dillwyn has very well described this shell, but under the name and supposition of its being the *S. marginatus* of Linnæus; though a few pages after he brings all the true synonyms referring to his shell, under a description purporting to be that of *S. minimus*, but which in reality is more applicable to our next species. Why this writer should doubt the correctness of Gmelin, Chemnitz, &c. respecting the true *S. marginatus* of Linnæus, does not appear, particularly as he has substituted for it a well known species. I have little doubt myself they all mean one and the same shell, which is nothing more than a scarce variety of *S. accinctus*, now before me, with which Linnæus's original description pretty well agrees.

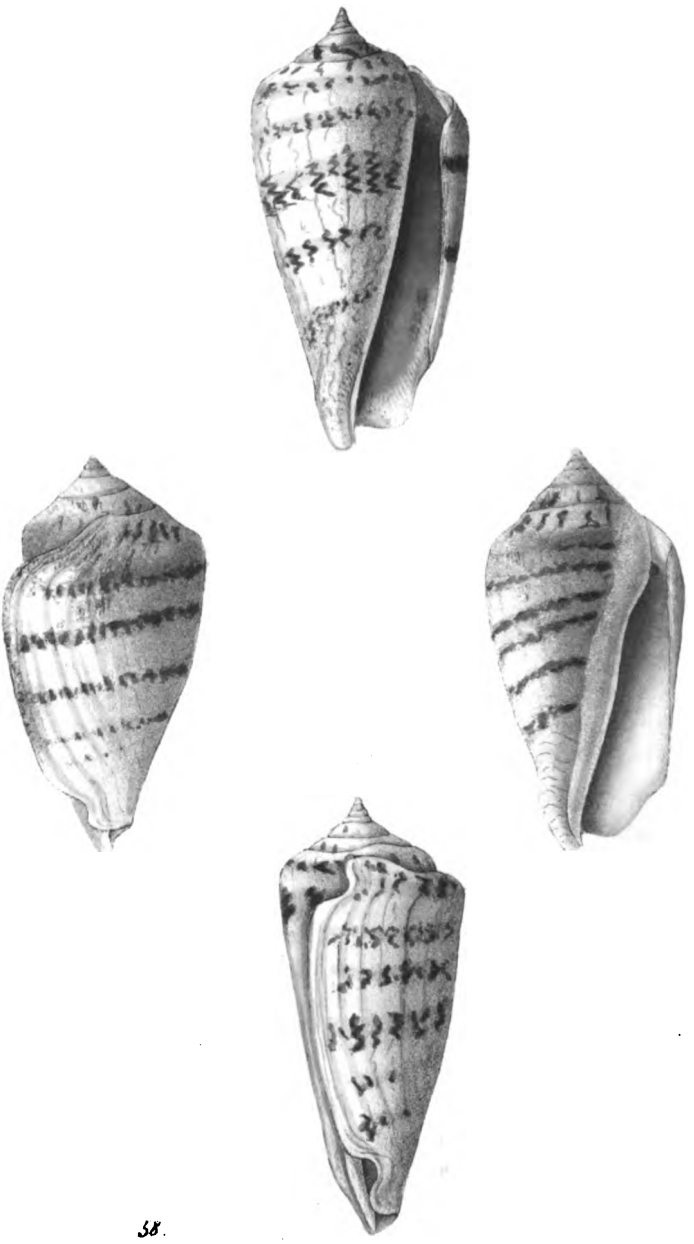
STROMBUS variabilis.

Variable Strombus—upper figure.

S. testâ nodosè plicatâ, spirâ striis nullis; labio interiore simplice, exteriore reflecto, intrà lævi, suprà leviter lobato.

Shell with nodulous plaits, the spire not striated. Inner lip simple. Outer lip reflected, smooth within, and slightly lobed above.

Shell two inches and a quarter long, the spire occupying little more than half an inch. The ground colour generally is white with numerous undulated short lines of a darker colour, sometimes crossed by four or five obsolete whitish bands: it approaches very near *S. minimus*, but is easily distinguished by being in general much larger, by having the inner lip not at all thickened above, the outer lip very slightly lobed, and only advancing on the first volution of the spire: it varies, however, amazingly in colour. There is a small variety, having a brown spot beneath, from India; and others (labelled from the So. Seas) in the Banksian collection, also small, are purplish-brown, with three or four well-defined bands of white: the aperture is always pure white.



58.

STROMBUS cylindricus.

False Scarlet-mouthed Strombus—

Upper and under figures.

GENERIC CHARACTER.—See Pl. 10.

SPECIFIC CHARACTER.

S. testâ coniformi, spirâ brevissimâ ad basin depressâ, anfractibus convexis inæqualibus, labio exteriore suprà lobato, intùs striato; interiore sub-obsoleto, albo.

Shell coniform; spire short, depressed at the base, the whorls convex and unequal; outer lip lobed above, and internally striated; inner lip nearly obsolete, white.

Lister 850. 5. (bad.). *Gualt.* 31. 1. *Knorr*, vi. *tab.* 15. 3.

Strombus luhuanus *Linn.* *Martini*, x. *tab.* 157. 1499. 1500.

Young. Lip above entire, inside smooth, whorls tuberculated. *Lister*, 849. 4. a? *Knorr*, vi. *tab.* 17. 2.

WE introduce this common shell for the purpose of pointing out those characters which induce us to consider it more as a distinct species than as a variety of *S. Luhuanus* of authors; and this consists not so much in the colour of the inner lip, as in the almost total absence of that important part, which this shell invariably exhibits through all its growths: it is therefore, I think, contradictory to the meaning of the word to term that variable which is found to be constant, particularly where the point of distinction rests on a marked difference of *formation* no less than of colour, though both shells are common to the Oriental seas. Minor differences exist, in the mouth of this always being pink, the inner lip white, and the outer lip but slightly lobed (or cut out) above: in *S. Luhuanus* the mouth is deep scarlet, inner lip black and highly polished, and the outer lip deeply notched above; the two former characters, indeed, begin to show themselves at a very early growth of the shell.

STROMBUS Persicus.

Persian Strombus—middle figures.

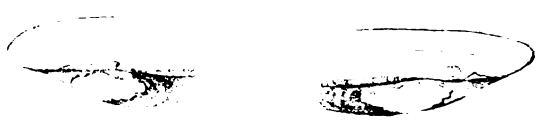
SPECIFIC CHARACTER.

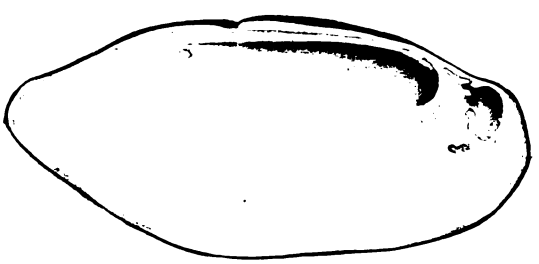
S. testâ sub-coniformi, brevi; spirâ conicâ, æquali; labio exteriore prominente, suprà sinuato, intùs glabro; interiore polito, albo.

Shell somewhat coniform, short; spire conic, equal. Outer lip prominent, sinuated above, smooth within; inner lip polished, white.

Allied, but sufficiently distinct from the last; the mouth is always smooth and white. It is a local species: a few received from the Persian Gulf are all I have yet seen, some where young, but no other variation was observable.

Pl. 53.





UNIO nasutus.
Rostrated River-Mussel.

GENERIC CHARACTER.

Testa transversa, æquivalvis, non affixa; natibus decorticatis, suberosis; impressio muscularis postica composita. Dens cardinalis unicus, brevis, irregularis, simplex aut bipartitus, substriatus; dentes laterales duo, elongati, compressi, infra pubem producti.

Typus Genericus *Mya Pictorum.* Linn.

Shell transverse, equivalve, not affixed, the tops decorticated. Posterior muscular depressions double. Cardinal tooth one, short, irregular, simple or double, striated; lateral teeth two, elongated, compressed, and prolonged beneath the corslet.

Generic Type *Mya Pictorum.* Linn.

SPECIFIC CHARACTER.

U. (Div. 2.) testâ transversim elongatâ, margine dorsi rectâ, anticè angulatâ obliquè attenuatâ, extremitate subtruncatâ.

Unio (Div. 2.). Shell transversely elongated: dorsal margin straight; anterior side angulated, obliquely attenuated, the extremity slightly truncated.

Lister, tab. 151. *fig.* 6.

Unio nasutus. *Say in Encycl. Am. Conch. pl.* iv. *fig.* 1.

THIS is one of the most natural genera in the modern systems of conchology, as it includes all fresh-water bivalves having two rough cardinal teeth in one valve and one in the other. The colours of all are more or less dark-brown, sometimes radiated with green; but the specific characters rest on the contour of the shell and the proportion of the teeth.

There can be no doubt this shell is the *Unio nasutus* of Say, who refers to the figure of Lister. The *Unio nasuta* however of Lamarck I apprehend will be found different, as he seems to think; his shell also is purple inside with short thick teeth; indeed so much uncertainty hangs on the shells of this genus, that the species can only be fixed by ample descriptions and very correct figures. The figure is from a shell in the Linnæan Society's cabinet. Mr. Say says it is common in the Delaware River, North America.

SOLEN ambiguus.

Ambiguous Solen.

GENERIC CHARACTER.

Testa bivalvis, æquivalvis, transversissimè elongata, utroque latere hians. Dentes cardinales parvi, fragiles, numero variabiles, rarò divaricati. Ligamentum externum; animal ad extremitatem anteriorem pede subcylindraceo; ad posteriorem siphone brevi duos alteros conjunctos continente. Lamarck.

Typus Genericus *Solen Vagina* Pennant.

Shell bivalve, equivalve, very transversely elongated, open at both ends. Cardinal teeth small, fragile, variable in number, and rarely divaricated. Ligament external. Animal with a sub-cylindrical foot at the anterior end, and at the other a short tube containing two others united together. *Lamarck.*

Generic Type *Solen Vagina* Pennant.

SPECIFIC CHARACTER.

S. testâ lineari, crassâ, rectâ, pallidâ, obscurè radiatâ; cardinibus unidentatis, margine anteriore sub-approximantibus.

Shell linear, strong, straight, pale, obscurely radiated. Cardinal teeth one in each valve, placed near the anterior extremity.

Solen ambiguus. *Lam. Syst. vol.* iii. *p.* 452. *no.* 7.

UNDER the genus *Solen* (vulgarly called Razors or Pods) are comprehended a variety of shells having the common character of both extremities open or gaping when the valves are together, yet differing materially in their form, teeth, and general appearance: some are long, slender and straight; others more or less curved; a few short and oval, or with one end only lengthened. Modern writers have, however, retained nearly all these in the genus as left by Linnæus; and this method for the present is more desirable than that of creating a multiplicity of genera. Dr. Turton, in his very useful Conchological Dictionary, enumerates thirteen species as found on the British coast, including the *Solen Novacula* of Montagu, which the Doctor suspects is not truly a species. The original specimens which Montagu described I have carefully inspected at the British Museum, and have no doubt in my own mind they are in reality no other than *S. Siliqua* with one of the cardinal teeth broken off; a circumstance which, from their fragility, frequently happens, even in opening the recent shell.

Solen ambiguus was first described by Lamarck, who says it is from North America. Two or three specimens are in my possession; but it is a rare species, much thicker, and with larger teeth than any other; the epidermis is pale-brown, and in some parts obliquely lineated.

Pl. 55.

SYSTEMATIC INDEX.

CONCHOLOGY.

PART I.

GASTEROPODES (Univalves).

ACEPHALIS (Bivalves).

Zoological Illustrations.

VERTEBROSA.

PART II.

HALCYON cinnamominus,

Cinnamon Crabeater.

GENERIC CHARACTER.—See Pl. 26.

SPECIFIC CHARACTER.

H. cæruleo viridis; pileo, collo, plumesque totis subtùs pallidè cinnamominis; auribus viridibus; nuchâ torque nigro gracili ornatâ.

Blue-green; upper part of the head, neck, and all beneath, pale cinnamon colour; ears green; round the nape a slender black collar.

As far as I can ascertain, this beautifully coloured bird is quite new, and hitherto undescribed. It is in the possession of Mr. Leadbeater, of Brewer Street, by whom it was received from New Zealand; and who gave me the opportunity of now publishing the accompanying figure and description.

The two extreme points of difference in the Linnæan kingfishers, are seen in the *Alcedo Ispida,* and *A. gigantia;* the last of which has been made into the genus *Dacelo.* It will, nevertheless, be found, that from among the birds left in the old genus, there are a great number, (of which, indeed, this bird is a striking example,) which are much nearer allied to *Dacelo* than to *Alcedo,* where they now stand. It will appear, therefore, more natural to consider *Halcyon* and *Dacelo* as one genus—which may be called by either name, but which must be distinguished by the characters herein given to *Halcyon,* inasmuch as the generic definition of *Dacelo* (founded on one bird) will be found too restricted to comprehend all.

Total length ten inches; bill two and a half from the gape, and one and a half from the nostrils; the tip of the upper mandible with a slight inclination downwards, and with an appearance of a notch; the whole head, neck, and under plumage, of a delicate fawn colour; under wing covers the same; the remaining upper plumage, with the wings and tail, changeable blue green; ears sea green and dusky, united to a narrow black nuchal collar; wings four inches long, and the tail, which is even, three and a quarter; the hind head is slightly crested, and the feet pale brown.

Pl. 67.

68.

POGONIAS rubrifrons,

Red-fronted Toothbill.

GENERIC CHARACTER.

Rostrum mediocre, crassum, validum, basi latiore quam altiore, vibrissis longis incumbentibus tectâ, lateribus ultra basin compressis, culmine arcuato, subcarinato; mandibulæ superioris margine dentibus 1 *vel* 2 *armato, mandibulæ inferioris marginem obtegente. Nares approximantes, parvæ, rotundæ, per rostri basin perforatæ. Pedes scansorii, digitis posticis versatilibus.*

Typus Genericus *Buceo Dubius* Lath.

Bill moderate, thick, strong, the base broader than high, with long incumbent bristles, the sides beyond compressed, the top arched, and slightly carinated; upper mandible with one or two strong teeth on each side, the margin folding over that of the lower mandible; nostrils approximating, small, round, perforated through the base of the bill. Feet scansorial. Hind toe versatile.

Generic Type *Doubtful Barbut* Lath.

SPECIFIC CHARACTER.

P. niger; sincipite juguloque rubris; alis et caudâ fuscis; tegminum margine externo albo, remigum fulvo.

Glossy black; forepart of the head and throat red; wings and tail brown; external margin of the covers white, and of the quills yellow.

THE Linnæan Barbuts, comprehended by Latham under one genus, contain three distinct groups of birds; which, from their peculiar characters, no less than their geographic position, have now received generic distinctions. The first of these (which are still retained under the old genus,) are natives of Asia; the next in affinity were first characterized by Illiger under the name of *Pogonias*, and are distributed on the African continent; while the prototype genus in America is *Tamatia* (Cuvier), in which continent not any of the two preceding have been found: thus each quarter of the globe lying within the tropics have their corresponding groups of a family, possessing a general, but at the same time an individuality of character.

I am obliged to Mr. Leadbeater for the opportunity of figuring this new and rare species, which he believes to have come from Sierra Leone. Its total length was six inches; the under-covers of the wings white; the tail two inches long, the feathers broad and even.

Pl. 68.

POGONIAS hirsutus,

Hairy-breasted Toothbill.

GENERIC CHARACTER.—See Pl. 68.

SPECIFIC CHARACTER.

P. supra fuscus, maculis sulphureis, subtus sulphureus maculis nigris interstinctus, capite juguloque nigris; pectoris plumis elongatis, pilis setaceis terminatis.

Above brown, spotted with sulphur; beneath sulphureous, with black spots; head and chin black; feathers of the breast lengthened, and ending in long setaceous hairs.

I HAVE before observed, that this genus of birds was first characterized under the name of *Pogonias*, by Illiger, in 1811; some years after (1815), M. Vieillot changed the name to *Pogonia*, without taking any notice of Illiger's denomination, and Dr. Leach has followed Vieillot without probably being aware of the plagiarism; Vieillot's name must, however, be expunged, as Mr. Brown has some time back affixed the name of *Pogonia* to a remarkable genus of plants.

Total length about seven inches; bill blueish black, one inch two lines long, and large in proportion; the tooth in the middle very prominent; behind the eye is a short white stripe, and another much longer begins from the under mandible, and goes half way down the neck; the chin and part of the throat, together with the head and neck above, deep black, which changes to a dark brown on the back, wings, covers, and tail; a small round sulphur spot is on the tip of each feather of the hind head, back, and lesser wing covers; the quills pale brown, margined with sulphur; the under plumage is greenish sulphur, closely spotted with blackish; the most extraordinary peculiarity of this bird consists in the feathers of the breast, which are more rigid than the others, pointed, and the shaft of the lower ones ending in fine incurved setaceous hairs, many of which are near an inch long. The probable use this particular formation is intended for, it is impossible to conjecture.

Mr. B. Leadbeater, to whom I am often obliged for the inspection of rare subjects, received this from Africa, and it is the only individual of the species I ever heard of.

Pl. 72.

78

PICUS affinis,

Golden-naped Woodpecker.

GENERIC CHARACTER.—See Pl. 14.

SPECIFIC CHARACTER.

P. supra aureo-fuscus, subtus pallidus, fasciis nigris transversis ornatus; capite (in maribus) rubro; nuchâ colloque supra aureis; tectricibus secundis fulvo maculatis; caudâ nigrâ, fasciis fulvis ornatâ.

Above, orange brown; beneath, pale, with transverse black stripes; head (in the male) red; nape and neck, above, golden yellow; lesser wing covers with yellowish spots; tail black, with yellowish bands.

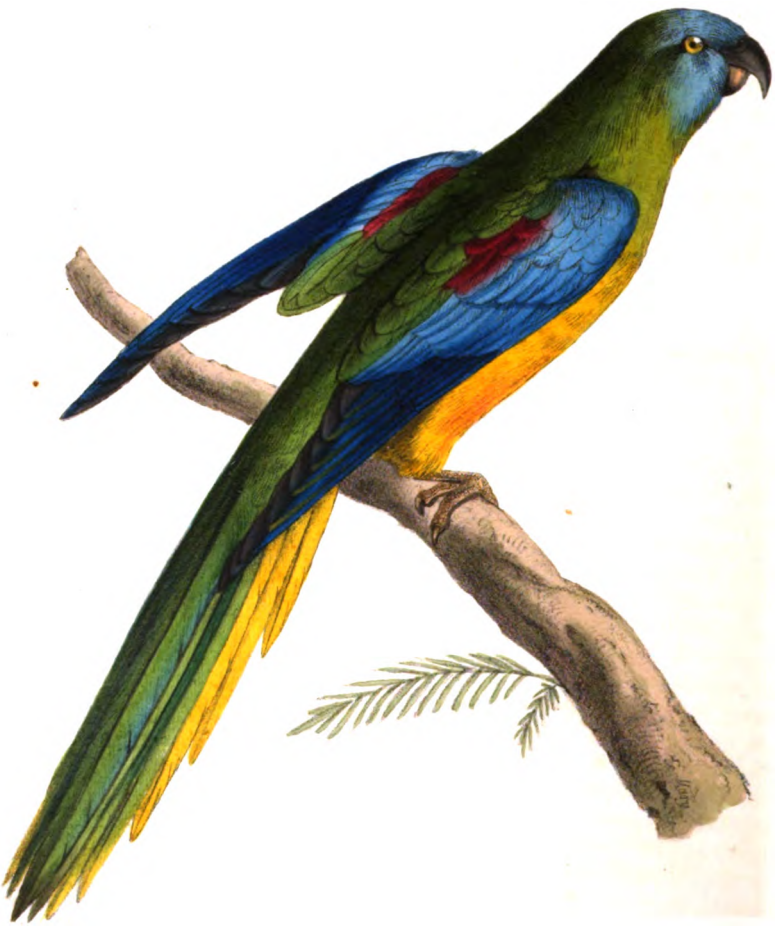
ORNITHOLOGISTS have either entirely overlooked this bird, or have slightly noticed it as a variety of *Picus icterocephalus*, the golden-headed Woodpecker, from which it is nevertheless quite distinct.

Total length near seven inches; bill blackish horn colour, and one inch long from the gape; the feathers on the upper part of the head are short and pointed; the tips bright red; the base black; on the hind head they are longer, and change to a bright golden yellow, which spreads round the nape; the ear feathers and front of the head are greyish brown, striped down the middle with whitish, and in some there is an appearance of a whitish line over the eye, joining the nape. The upper parts of the body and wings are of a rich golden brown, with indistinct brighter spots; the lesser wing covers have a whitish spot at the top of each, forming two bands; quills on the inner shaft black, with white spots. Under plumage grey, tinged on the breast with rufous, and banded with brownish black; tail short, black, with interrupted transverse bands of obscure olive.

The female has the head blackish, the feathers tipt with dull white; the ears darker; the plumage above more olive, the spots brighter, and the bands on the body grey, paler, and more indistinct than in the male. The feet in both sexes are greenish, and the wings three inches and a half long.

It inhabits Brasil, but is not common; I found it both in the Province of Bahia, and that of Rio de Janeiro.

Pl. 78.



73

PSITTACUS pulchellus,

Turcosine Parrakeet.

GENERIC CHARACTER.— See Pl. 1.

SPECIFIC CHARACTER.

P. macrourus, suprà viridis, subtùs fulvus; sincipite, genis, tegminibusque cyaneis, remigibus cæruleis; rectricibus lateralibus fulvis.

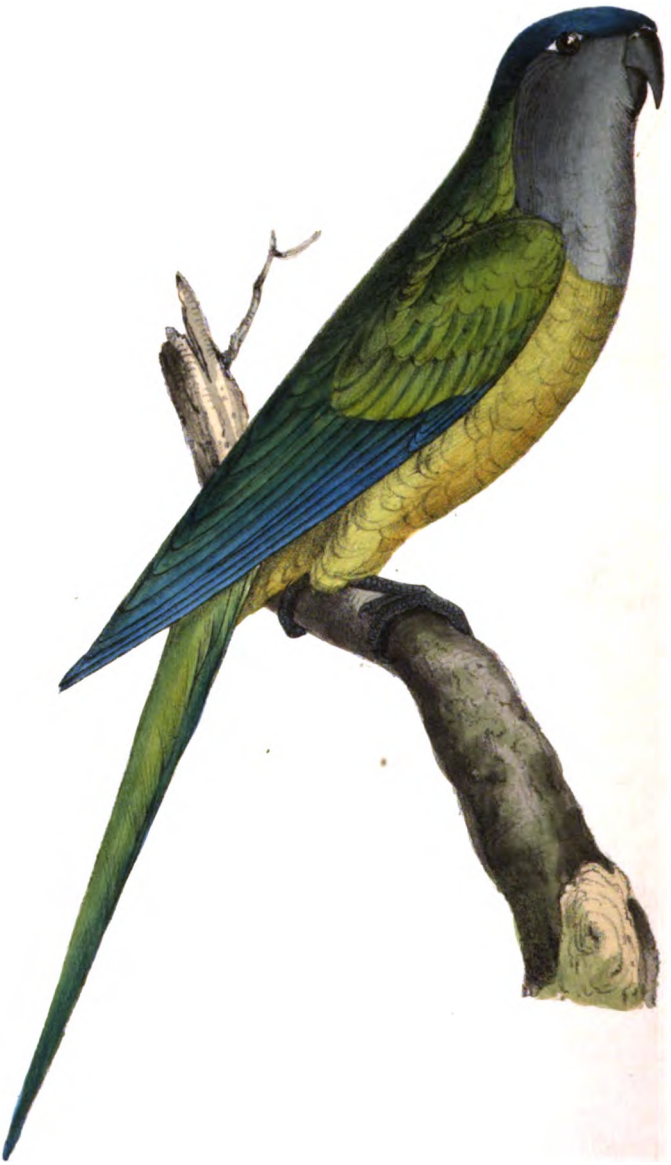
Long-tailed Parrakeet, green above; yellow beneath; forepart of the head, cheeks, and wing covers light blue; quills deep blue; lateral tail feathers yellow.

Shaw, Naturalist's Misc. 3. *pl.* 96. *Latham, Suppl.* 2. *p.* 88. *no.* 14. *La Perruche Edwards, Le Vaillant, pl.* 68. (female). *Gen. Zool.* 8, 470.

IT is impossible to represent this superbly coloured little creature in its full beauty, though the figure will not be found very defective. The only representation of the male is in the Naturalist's Miscellany, where it cannot be recognized, and Le Vaillant's is of the female, which differs considerably from the other sex. It is a rare species, and peculiar to New Holland.

Length nine inches, with the tail, which is near four inches and a half; the upper part of the plumage olive green, not so bright as is usual in this tribe; the front of the head is a most brilliant turcosine blue, which spreads on the cheeks, nearly to the ears, and then mixes with the green; the shoulders and lesser wing covers of the same colour, graduating to a deep mazarine blue on the greater covers, spurious wings, and quill feathers, which latter are all deep black beneath, as well as on their interior shafts; at the base of the shoulders is a large irregular patch of dull red, partially hid by the scapulars; the under plumage is yellow, tinged with olive on the throat and breast, and verging towards orange on the belly; tail feathers narrow and pointed, mostly green, with the inner shafts blueish, and margined with black; the three outer on each side nearly yellow, the next tipt only with that colour; under the wings brilliant blue, the greater covers and quills deep black; bill very small; upper mandible without a notch, and blackish; lower very convex, and, with the legs, flesh colour.

The female figured by Le Vaillant is much less brilliant in all its colours, and without the red mark on the shoulders.



PSITTACUS murinus,
Grey-breasted Parakeet.

GENERIC CHARACTER.—See Pl. 1.

SPECIFIC CHARACTER.

P. viridis, genis, auribus, gulâque cinereis; vertice, remigibus rectricium que marginibus sub-cœruleis.

Green; sides of the head, ears, and throat, grey; crown, quills, and end of the tail, bluish.

P. murinus. *Gmelin.* 1. 327. *no.* 80. *Lath. Ind. Orn.* 1. p. 101.

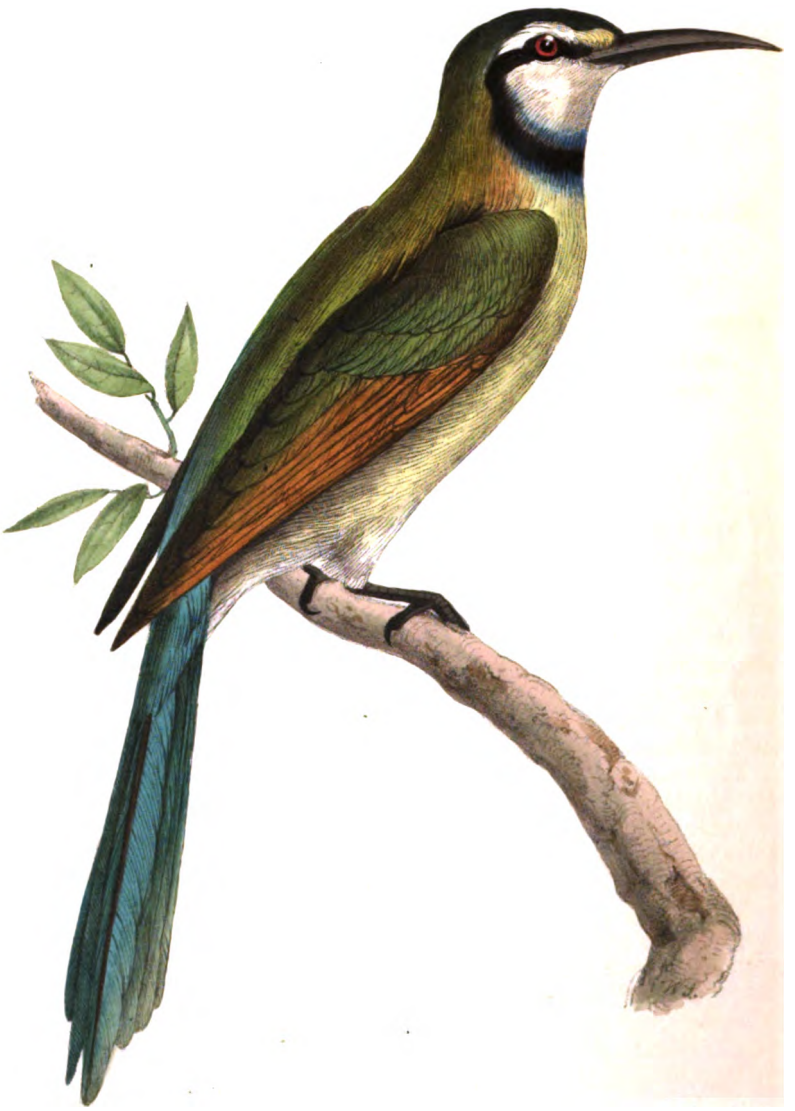
Grey-breasted Parrakeet. *Lath. Syn.* vol. 1. 247. *Gen. Zool.* vol. viii. p. 456.

THOSE of our readers who visited Leamington during the last season, may have observed this noisy little creature uttering its discordant cries at the door of a small house near the pump-room. I borrowed it for a day from the good woman to whom it belonged, and thus made the drawing and description with the bird before me.

Dr. Latham observes on this species, that excepting where the grey colour pervades, "the rest of the body is olive green, excepting the quills, which are deep green;"—this may be the female. He adds a quotation from Pernetty, who describes a bird from Monte Video, something near this; but which, from having a very long tail, a flesh-coloured bill, &c. may probably be distinct.

The live bird could not be conveniently measured, but it is rather larger than the red-shouldered Parrakeet, (figured at pl. 62.) The skin round the eye white, and the irides hazel; the whole upper part of the plumage is a beautiful grass green, changing according to the light into different shades; the top of the head, the quill feathers, and end of the tail, greenish blue, in some lights appearing quite blue; the sides of the head, ears, and throat, as far as the breast, bluish grey; all the remaining under plumage yellowish green, with a shade of orange in the middle of the body and vent; bill and legs dark grey; this latter colour is so unusual in this tribe, that I at first thought it indicated an imperfect plumage, but I have now seen it at two different seasons of the year without any variation whatever. It is probably a South American species.

Pl. 89.



MEROPS Savignii,

Black-capped Bee-eater.

GENERIC CHARACTER.—See Pl. 8.

SPECIFIC CHARACTER.

M. viridis, subtus albescens, uropygio caudâque cæruleis; vertice, strigâ oculari, fasciâque latâ collari nigris; mento, superciliisque albis; rectricibus mediis elongatis.

Green; beneath whitish; rump and tail blue; crown of the head, eye stripe, and broad band across the neck, black; chin and eye-brows white; two middle tail feathers lengthened.

THIS Bird was pointed out to me by Professor Temminck as described by Le Vaillant in his work on this family, under the name here given; on this authority, therefore, I have been obliged to rest, for I have in vain turned over the catalogues of all the public libraries in the metropolis, in the hope of seeing the work, and ascertaining the fact. The book is modern, and, though expensive, one of standard excellence; but a princely fortune is necessary to purchase such a library as a student should have access to.

Total length eight inches and a half; size rather less than the common bee-eater; the crown in young birds is greenish, in some a dull brown, and in others deep black, margined in the front and sides of the head with a line of white; the ears black, uniting to a broad band across the neck of the same colour, which is margined on the lower part with beautiful sea blue; the nape of the neck, inner covers, and quill feathers, greenish fawn colour; the lesser quills tipt with black; the rump, tail, and outside of the quills next the body changeable greenish blue; the back and upper covers green beneath; the chin is white; the body tinged with greenish, and the under tail covers with blue: the tail three inches long, and in such specimens as have the two middle feathers lengthened, three and a half; bill and feet black.

Inhabits Sierra Leone, and other parts of Africa.

Pl. 76.

N.º

TROCHILUS niger,

Black Humming Bird.

Generic Character.

Rostrum elongatum, rectum vel arcuatum, flexile, gracillimum, ad basin depressum, mandibulâ superiore inferiorem amplectente et tantùm non obtegente. Lingua jaculatoria, bifida, tubulata. Nares basales, membranâ tectæ, aperturâ in longum fissâ. Pedes sedentes, minimi. Alæ longissimæ, subarcuatæ, remigibus prioribus longissimis, cæteris gradatim brevioribus.

Typus Genericus *T. Moschitus* Linn.

Bill long, straight or curved, flexible, very slender, the base depressed, the upper mandible folding over, and almost covering the lower. Tongue long, extensible, bifid, and tubular. Nostrils basal, covered by a membrane, and opening by a long slit. Feet sitting, very small. Wings very long, curved, the outer quill longest, the rest gradually becoming shorter.

Generic Type *Ruby-crested Humming Bird* Lath.

Specific Character.

T. niger; auribus aliquando rufis; tectricibus, caudâ uropygioque colore subviridi nitidis; rectricium lateralium nivearum apicibus colore chalybeio tinctis.

Black; the ears sometimes rufous; wing covers tail and rump glossed with green; lateral tail feathers snowy, tipt with steel blue.

Like the resplendent jewels of the earth, the Humming Birds are the living gems of the air. United to the most delicate form, these fairies of creation have the dazzling effulgence of every tint that sparkles from the ruby, the topaz, the sapphire, and the emerald, lavished on their plumage; they seem created but for our admiration, to sport in the ardent beams of a tropical sun, and to feast on the nectar of the sweetest blossoms; and, like sparks of many coloured fire, they shoot from flower to flower, exulting in their little life of brightness and pleasure.

To return, however, to that now before us, it should be observed, that it is the only species whose plumage does not in any way accord with that of the rest of its brethren. No author appears to have described it, although I met with it very frequently in Brazil: a specimen in the British Museum has the ears reddish brown, but this seldom occurs. The figure is of the size of life. All the species are natives of tropical America.

Pl. 82.

83

TROCHILUS falcatus,
Sickle-winged Humming Bird.

GENERIC CHARACTER.—See Pl. 82.

SPECIFIC CHARACTER.

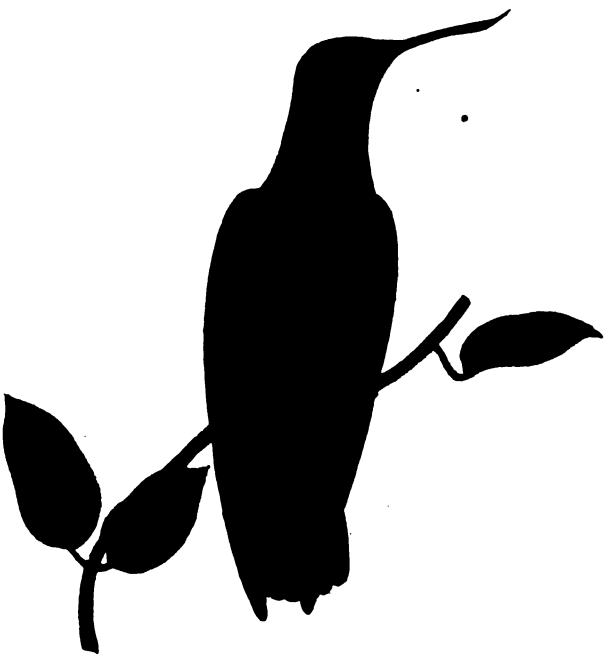
T. viridis, gulâ pectoreque nitidè cæruleis; corpore anoque cæruleo-viridibus; rectricibus paribus, rufo-cinnamominis; remigibus exterioribus falcatis, scapis dilatato-compressis.

Green; throat and breast shining blue; body and vent blue green; tail even, rufous cinnamon; exterior quills falcated, the shafts dilated and compressed.

NOTHING can exceed the dazzling brilliancy of colours united in this little creature. It is, however, more remarkable from the extraordinary construction of its wings, the outer quills of which are greatly curved, and the shafts dilated to a most disproportionate size; a similar structure occurs also in the Broad-shafted H. B. of Dr. Shaw, (*T. latipennis.*) That it is intended to fulfil some important office in their economy, will admit of no doubt, for in wisdom are all things made; conjecture must, however, in numberless instances, supply our want of real knowledge; and it may not be improbable that such additional strength in the wings has been given them as a defence against the small birds of prey, (*Lanii.* Lin.) which abound in tropical countries.

The figure is the size of life; bill curved from the base, with a black stripe between that and the eye; plumage above deep shining green, most brilliant on the sides of the neck; ear feathers blue green; chin and throat of a most brilliant deep violet blue, changing in some lights to purple, becoming greenish on the breast, and blended with the green of the neck; all these feathers are disposed like scales; vent golden green, with two tufts of downy white feathers round the thighs. Tail even, the feathers broad and truncately rounded, of a rufous cinnamon colour, tipt with a purple black bar; the middle feathers darkest, and glossed with green.

Of this rare and unrecorded species, a fine example existed in Mr. Bullock's Museum, which was purchased to enrich that of Paris: another, more imperfect, was sent Mr. Falkner from the Spanish Main. The male of *T. latipennis* is undescribed, Dr. Shaw having only seen the female; both sexes, however, are in my possession. The plant introduced in the plate (*Clitoria Plumieri*) is a native of Brazil.



105.

105.

TROCHILUS recurvirostris,

Recurved-bill Humming Bird.

GENERIC CHARACTER.—See Pl. 82.

SPECIFIC CHARACTER.

T. aureo-viridis, jugulo smaragdino; pectore medio corporeque nigris; rectricibus lateralibus subtùs topazinis; rostro recurvo.

Golden green; throat shining emerald green; middle of the breast and body black; lateral tail feathers beneath topazine; bill recurved.

THE extraordinary formation in the bill of this beautiful little creature, is without parallel in any land bird yet discovered, and presents in miniature a striking resemblance to that of the Avoset. It is almost impossible to conjecture rightly the use of this singular formation; but it appears to me not very improbable, that the principal sustenance of the bird may be drawn from the pendent *Bignoniæ*, and other similar plants, so common in South America, whose corollæ are long, and generally bent in their tube; the nectar, being at the bottom, could not be reached either by a straight or incurved bill, though very easily by one corresponding to the shape of the flower.

The figure is the size of life. Bill black, depressed along the whole length, but more especially at the tip, which is rounded, thin, obtuse, and recurved in both mandibles; the under of which, towards the middle, has a convex swelling, which gives the recurvature a stronger appearance. All the upper plumage and body beneath golden-green; the throat, to the breast, shining with scale-like feathers of a vivid emerald-green. From the breast to the vent is a stripe of black down the middle; thighs white; tail even, the two middle feathers dull greenish-blue, the rest above obscure coppery-brown, but beneath of a rich shining topaz colour.

I believe this bird is *unique;* I purchased it at Mr. Bullock's sale, and that gentleman received it from Peru. It presents so much of the genuine habit of the *Trochili*, that I have retained it under that genus; for, though the bill is differently formed, that exception does not point out any important difference from the general economy of those birds.

Pl. 105.

107.

TROCHILUS ensipennis,

Blue Sickle-winged Humming Bird.

GENERIC CHARACTER.—See Pl. 82.

SPECIFIC CHARACTER.

T. (div. curvirostræ) aureo-viridis, mento juguloque cæruleo-violaceis; rectricibus paribus; alis falcatis, remigum primorum scapis dilatato-compressis.

Curved-bill Humming Bird, golden-green; chin and fore part of the throat violet-blue; tail even; wings falcated, greater quills with the shafts dilated and compressed.

I HAVE already offered some observations on the remarkable construction in the wings of *T. falcatus*, figured at pl. 83; and the bird now before us is another unrecorded species, possessing exactly the same formation. I was at first inclined to believe this bird was the male of the *T. latipennis*, (or *l'Oiseau Mouche à larges tuyaux* of Buffon), from the under plumage in that species being uniform grey, a common indication of the female Humming Birds; but a further comparison of the two has proved this supposition to be erroneous. They differ, not only in colour, but in their bills; in that of *T. latipennis*, the curvature is so slight, that it may be almost called straight; whereas in this, the curve is very apparent. I have little doubt future observations will show, that these singular quill-feathers, now known to exist in three species of this family, are peculiar only to the male birds.

This extremely rare bird is in my own collection, and is not improbably *unique;* the figure is strictly of the natural size; the plumage, above and below, is a uniform deep green, with a metallic reflection; half way down, the throat is dark violet blue; tail even, and very broad, the middle feathers obscure green, the next pair raven or bluish-black, and the others white, with a black base.

The progress which has been made towards ascertaining the geographic distribution of animals, leaves no doubt that this bird is an inhabitant of either the Continent or Islands of South America; but of what particular country is unknown.

90

PTEROGLOSSUS inscriptus,
Lettered Aracari.

GENERIC CHARACTER.—See Pl. 44.

SPECIFIC CHARACTER.

P. fusco-viridis, capite gulâque nigris (feminæ castaneis;) uropygio rubro; abdomine flavo; rostri fulvi culmine, basi et apice nigris; marginibus dentatis, lineis nigris inscriptis.

Obscure green; head and throat black, (in the female chesnut;) rump crimson; body yellow; bill fulvous, the top, base, and tip, black; the margins dentated, and marked with black lines resembling characters.

I WAS put in possession of this rare and unknown bird, by the dispersion of the most magnificent assemblage of natural productions that ever marked the zeal of an individual, or ornamented the capital of this kingdom. Mr. Bullock's Museum is now scattered; yet the objects it comprised were deemed worthy of enriching the public repositories of every nation in Europe; who sent their learned men to purchase with avidity, and share in the spoils of a Museum, the dispersion of which will be long regretted by the learned, the inquiring, and "the many."

Total length, twelve inches and a half; bill, from the angle of the mouth to the tip, two inches three tenths long, and eight tenths across the base; the colour (which appears little changed from that in the live state) is deep straw, or buff yellow; the top of the upper mandible and tips of both are black; parallel with the marginal base of the upper, is a black line, which is very broad on that of the lower; the edges of both are serrated, and marked by short black lines, somewhat resembling oriental characters; at the base of the bill there is an elevated rim of deeper yellow; the ears, chin, and throat are deep chesnut, margined in front with a narrow line of black, (which parts in the male are entirely black;) the crown of the head and neck above also black, changing to a dark bluish green on the wings, back, and tail; the rump crimson, and the greater quills blackish; from the breast to the vent straw-coloured yellow, with a greenish cast; the thighs and flanks olive; tail wedged, near five inches long; the orbits appear to have been black, and the feet green.

Mr. Bullock informed me he had the two sexes of this bird sent him from the interior of Guyana.

Pl. 90.

108.

RAMPHASTOS Dicolorus,
Yellow-billed Toucan.

GENERIC CHARACTER. — See Pl. 45.

SPECIFIC CHARACTER.

R. niger, gulâ aureâ; fasciâ pectorali latâ tegminibusque rubris; rostro viridi-flavo, basi fasciâ nigrâ transversâ ornatâ; mandibulæ superioris margine laterali rubro; culmine plano.

Black; throat golden-yellow; broad pectoral band and tail-covers red; bill greenish-yellow, the base with a transverse black band, and the lateral margins of the upper mandible red; the top flat.

R. dicolorus. *Gm. p.* 356. *Lath. Ind. Orn. p.* 135. 2. *Turton. vol.* i. 211.

Yellow throated Toucan. *Lath. Syn.* 1. 325. *Turton.* 1. 211. *Brisson. Orn.* 4. *p.* 411. *pl.* 31. *f.* 1. *Buffon Pl. Enl.* 269.

Le petit Toucan à ventre rouge. *Vaill. H. N. des Toucans, pl.* 8. *(optimè).*

THIS is the smallest species of the genuine Toucans yet known, inhabiting, though sparingly, the northern and southern extremities of tropical America. It is a species which seems to have been well understood by Linnæus and the older ornithologists, though none of them have described the form or peculiarities of the bill; it is probably owing to this omission, that Dr. Shaw has created an imaginary species in *General Zoology*, under the name of *R. pectoralis;* compounded of the descriptions he gathered of this bird, and the Linnæan *R. tucanus*. Dr. Latham's description is also inaccurate; nor is it improved in the new edition of his Synopsis, probably from not having himself seen the bird. Of the figures, there is a masterly delineation by Barraband, in Le Vaillant's work, but those of Buffon and Brisson are not to be trusted.

Total length about sixteen inches: bill three and a half; it is shorter and much thicker along the back, than that of any other species; this part also is broad, and quite flat; the serratures of the margin small, and the upper mandible only edged with a line of red; the sides are compressed, and the colours greenish-yellow; the orbits chesnut-red, and the feet (as in all the Toucans when fresh) delicate fine blue.

Dr. Langsdorff favoured me with a specimen of this rare bird, shot by himself in Southern Brazil; the sexes have been dissected by that able naturalist, but to which the one here figured belongs, I am unacquainted.

Pl. 108.

CINNYRIS chalybeia,

Lesser collared Creeper.

Generic Character.

Rostrum elongatum, gracillimum, arcuatum, apice acutissimo, integerrimo, ad basin depressum, lateribus compressis, marginibus inflexis, subtilissimè dentatis; mandibulâ inferiore convexâ. Lingua jaculatoria, tubularis, furcata? Nares basales, breves, nudæ, ovatæ, membranâ fissâ, juxta rostri marginem et basin aperiente, tectæ. Remigum penna prima brevissima, secunda pennis 4 proximis paribus brevior.

Ob.—*Maris cauda pennis elongatis 2 ornata, hypochondriorumque pennæ longiores.*

Typ. Gen. *Upupa Promerops* Lin.—*Certhia famosa* Lin.

Bill lengthened, very slender, arched, the base depressed, the sides compressed, the tip very sharp and entire, the margins bent inwards and minutely dentated; under mandible beneath convex. Tongue retractile, tubular, forked? Nostrils basal, short, and broad, covered by a naked oval membrane which opens by a slit near the margin of the bill. First quill feather very short; the second shorter than the four next, which are of equal length.

Ob.—Male generally with long feathers in the tail, and the side feathers under the wings rather lengthened.

Generic Types. *Cape Promerops, and Shining Creeper.* Lath.

Specific Character.

C. aureo-viridis, alis caudâque fuscis; fasciis pectoralibus 2 connexis, anticâ chalybeiâ, posticâ angustâ rubrâ; caudæ tegminibus superioribus chalybeis.

Golden green, with brown wings and tail, and narrow pectoral band, bordered above by another of steel blue; upper tail covers blue.

Certhia chalybeia. *Lin. Gmelin.* 475. *Ind. Orn.* 1. 284. *Brisson.* 3 *tab.* 32. *f.* 1.?

Le Soui-manga à collier. *Vieill. Grimp. p.* 40. *pl.* 13. 14.

Collared Creeper. *Latham, Syn.* 2. 709. *Gent. Zool.* 8. 196.

This splendid family may be considered as the Humming-birds of the old world, inhabiting (I think exclusively) the tropical regions of Africa and Asia. To the personal observations of M. Vaillant we owe the first, and indeed the

only detailed account, of their real economy, and which this enterprising ornithologist remarked during his travels in Africa, and published in his work on the birds of that continent; a work which will be valued and consulted when most of the systems framed by closet naturalists will be forgotten.

M. Vaillant records a singular fact respecting these birds: which is, that the males only assume their rich and vivid colours during the season of courtship; at other times they are scarcely to be known from the females, whose plumage in general is very plain. Another bird, very nearly resembling this, has been figured by M. Vaillant under the name of *Le Sucrier à Plastron rouge* (Ois. d'Af. pl. 300.); his reasons, however, for separating them, are, I think, sufficient, at least until more forcible ones are adduced than mere conjecture. Our figure is the size of life; on each side the breast is a tuft of yellow feathers; the back, neck, and head shining golden green, changing in various lights. The female is said to be the *Certhia Capensis* of Lin., which is greyish brown above, and paler beneath.

The different generic names which have been given to these birds by modern systematic writers, require some elucidation. They were originally placed by Linnæus among the *Certhiæ;* out of this genus Illiger formed another by the name of *Nectarinia*, in which he included not only these birds, but many others allied to them. From this genus of Illiger's, Cuvier separated a part under the generic appellation of *Cinnyris*, a genus which comprised those species of Illiger's *Nectarinia* only which are found in the parallels of latitude of the old world. So far these changes can be understood; but Professor Temminck, without noticing this previous arrangement, places the birds belonging to Cuvier's genus *Cinnyris*, under his own modification of Illiger's *Nectarinia*, while to the *Nectarinia*, as characterized by Cuvier, he gives the generic name of *Cœreba*. This last change has introduced great confusion; for the student must bear in mind, that Cuvier's genus *Nectarinia* corresponds to Temminck's *Cœreba;* that *Cinnyris* of Cuvier is *Nectarinia* of Temminck; and finally, that all these are included under Illiger's original genus *Nectarinia!* M. Vieillot has still further added to this unfortunate multiplicity of names, by giving that of *Mellisuga* to Cuvier's *Cinnyris*. This may truly be termed a war of words. In the meantime, as Cuvier was the first who, by giving the name of *Cinnyris*, designated the *Sucriers* of Vaillant, and those *only*, his definition and generic name to these birds should unquestionably supersede all others.

TAMATIA macrorhynchos.
Greater pied Puff-bird.

Generic Character.

Tamatia. *Cuvier.*—Capito. *Viell. Tem.*

Rostrum validum, compressum, sub-rectum; mandibulâ superiore ad apicem obtusè aduncâ, emarginatâ, superioris margine inferioris marginem obtegente. Nares basales sulcatæ, aperturâ terminali, rotundâ parvâ, plumis rigidis incumbentibus tectâ. Frons, rictus, et mentum vibrissis rigidis, elongatis, armati. Pedes scansorii, versatiles; digiti exterioris elongati articulo primo cum digito exteriore connexo. Rectrices 12, *lineares, subrotundatæ.*

Typus Genericus *Bucco tamatia* Linn. Lath.

Bill strong, compressed, nearly straight; the tip of the upper mandible curved, notched, and obtuse; the margin folding on that of the lower mandible. Nostrils basal, sulcated; the aperture terminal, round, small, hid by bristly incumbent feathers. Chin, front, and gape, with strong lengthened bristles. Feet scansorial, versatile; the outer toe long, and connected by the first joints to the inner toe. Tail feathers 12, linear and slightly rounded.

Generic Type *Spotted-bellied Barbut* Latham.

Specific Character.

T. niger; fronte, gulâ, jugulo, caudæque apice albis; abdomine albo vel fulvo; fasciâ pectorali nigrâ.

Black; front, throat, forepart of the neck, and tips of the tail feathers, white; body white or fulvous; pectoral bar black.

Bucco macrorhynchos. *Gmelin* 406. *In. Orn.* 1. 203. *Gen. Zool.* vol. ix. p. 33.

Greater pied Barbut. *Lath. Syn.* 2. p. 498.

There is something very grotesque in the appearance of all the Puff birds; and their habits, in a state of nature, are no less singular. They frequent open cultivated spots near habitations, always perching on the withered branches of a low tree; where they will sit nearly motionless for hours, unless, indeed, they descry some luckless insect passing near them, at which they immediately dart, returning again to the identical twig they had just left, and which they will sometimes frequent for months. At such times the disproportionate size of the head is rendered more conspicuous by the

bird raising its feathers so as to appear not unlike a puff ball; hence the general name they have received from the English residents in Brazil; of which vast country all the species, I believe, are natives. When frightened, their form is suddenly changed by the feathers lying quite flat; they are very confiding, and will often take their station within a few yards of the window; the two sexes are generally near each other, and often on the same tree.

Total length rather more than eight inches; bill, one inch and three quarters from the gape, and half an inch less from the nostrils; it is very strong, thick, black, and slightly compressed; the tip of the upper bifid; the bristles at its base covering the nostrils are long and incurved, and those situated at the base, under the eye, very stiff; the upper part of the head black, the feathers much lengthened; the sides, front, ears, and forepart of the throat white, uniting at the back of the head into a narrow collar. The whole of the remaining plumage above is black, glossed with greenish; across the breast a black bar, which separates the white of the throat from the buff colour which tinges the abdomen and vent; the flanks are marked with dusky transverse stripes; the tail is slightly rounded and three inches and a half long, some of the feathers with a very fine line of white at their tips; all the quill feathers have the base half of their inner shafts white, as well as the greater covers inside, the lesser being black; legs and claws blackish.

I am disposed to consider this bird only as a variety of the *Greater pied Barbut* of Dr. Latham, differing in having the plumage on the under part of the body pale ferruginous, or buff colour, instead of white, as in the specimens he described from Cayenne; mine are from Southern Brazil, where the species is not uncommon.

This genus includes the American species of the Linnæan Barbuts; the birds connecting this group with the cuckows are arranged by Vieillot in a separate genus, named by him *Monassa;* which I think should be retained, as it is of much importance to designate strongly connecting links between families apparently very opposite.

100.

XENOPS genibarbis,
Whiskered Xenops.

GENERIC CHARACTER.

Xenops. (*Hoffmansegg. in Illiger. Prod.* p. 213).

Rostrum mediocre, rectum, acutum, valdè compressum, inversè cultratum, i. e. *culmine recto, gonyde recurvâ ascendente. Nares basales, laterales, ovatæ, parvæ, patulæ. Lingua—? Pedes mediocres, congrui. Digiti antici basi coadnati, laterales subæquales. Hallux digitum medium æquans.* Illiger.

Bill moderate, straight, acute, much compressed, and inversely curved; the top of the upper mandible being straight, and the edge of the lower ascending or recurved. Nostrils basal, lateral, oval, small, and covered by a naked membrane. Tongue—? Feet moderate, claws united at their base, the lateral ones nearly equal; the hind claw as long as the leg and the middle toe.

SPECIFIC CHARACTER.

X. suprà fusco-rufa, infrà griseo-fusca; mento, superciliis maculisque jugularibus et pectoralibus albentibus; maculo infra aures niveo; remigum secundorum nigricantium basi fulvâ, apicibus marginibusque rufis.

Above reddish-brown, beneath grey-brown; chin, eyebrows, and spots on the throat and breast, whitish; beneath the ears a snowy spot; lesser-quills blackish, the base fulvous, the tips and margins rufous.

Xenops genibarbis *Illiger Prod.* p. 218. (1811.)
Neops ruficaudus *Vieillot. Orn. Elem.* p. 68. (1816.)

A VERY extraordinary and not inelegant little creature, having a bill totally different from any other bird. Its general habit evinces a close connexion with the *Sittæ*, particularly those of New Holland; some of which have their bills (which are slender) slightly inclining upwards, thus forming a connexion between *Xenops* and the straight billed *Sittæ* of the old world.

The figure is of the male, and its natural size; the head dark brown with pale spots; the back of a reddish tinge, and the rump and tail rufous; tail much rounded, and of twelve feathers; the three outer and the two pair in the middle entirely rufous, the other pair having the inner shafts black; the greater quills black; the last having an internal bar of pale fulvous. Beneath the eye a spot of white downy feathers, with a dusky border above and below; there is a little difference between this and Illiger's bird, but it may be only sexual.

Inhabits Brazil, but is rare.

Pl. 100.

106

CURSORIUS Temminckii,

Black-bellied Courier.

Generic Character.

Rostrum mediocre, ad apicem compressum, mandibulis arcuatis, basi depressâ, apice acuto, integro. Nares basales, ovatæ, aperturâ elongatâ, laterali. Pedes longi, digitis tribus anticis omninò divisis, interioribus brevissimis, ungue medio pectinato. Remigum penna prima longissima.—Typus Genericus *Cursorius Europæus*, Lath.

Bill as long as the head; both mandibles arched, and towards the end compressed; base depressed, the tip acute and entire; nostrils basal, oval, the aperture oblong and lateral; legs long, with three toes in front entirely separated, the inner toes very short, the middle with the claw serrated; wings with the first quill longest.—Generic Type *Cream-coloured Plover* Latham.

Specific Character.

C. colore columbino; vertice pectorequeis ferrugine; torquibus nuchalibus 2; torque inferiore, remigibus, abdomineque medio nigris; torque superiore abdominisque lateribus albis.

Cream-coloured brown; top of the head and breast ferruginous, nuchal collar double; the lower, with the quills and middle of the body, black; the upper, and the sides of the body, white.

Dr. Latham first instituted this genus, of which two species were then known; M. Le Vaillant discovered another in Africa; and I am happy in now adding a fourth from the same country, in the possession of Mr. Leadbeater. No ornithologist has paid greater attention both to the natural affinities, and to the illustration of the genera allied with these birds, than Professor Temminck; and I therefore feel pleasure in naming this bird in honour of that excellent ornithologist, from whom whenever I have differed, it has been from the sole wish of eliciting truth. Total length from the bill to the tail eight inches; bill one inch from the gape, and half from the end of the nostrils; the colours of the bird are best seen in the figure; the middle of the body, and the quill feathers, deep black; legs three inches from the naked thigh to the tip of the middle toe, the claw of which is serrated internally; tail round; the middle feathers not spotted; the two next with a black dot near the tip, which, in the next pair, is further broken into two white dots; the outer pair white. These birds inhabit the arid tracts of Africa, at a distance from the sea, and run amazingly swift. One species has occasionally visited England.

Pl. 106.

P. cancromus of Professor Temminck, differing only from this bird in having a yellow crest, leads me to believe they are sexes of the same species; this being the female bird. The tail in the male appears to be somewhat longer, but this may be an error of delineation, and the description has not yet been published.

The figure is of the natural size, and below is an outline of the bill and nostrils; these latter are depressed, and the base covered with thickset feathers; the aperture is naked, round, and piercing the membrane in a lateral direction, midway between the ridge and margin of the bill, and at the end of the nasal membrane. The plumage above fulvous brown: darker, and tinged with reddish on the margin of the quills and tips of the wing covers: spurious quills and stripe beneath the eyes black: the upper part of the ears are also black, the lower half whitish yellow; chin and throat whitish; breast and body beneath pale fulvous brown; tail remarkably short, and not projecting beyond the wings; upper mandible black, lower white.

Since the publication of the remarks on this genus at Plate 14, a further consideration of the subject induces me to adopt the opinion of Professor Temminck, in placing the *Todus Platyrhynchos*, Gm., and its allies, under a distinct genus; or, in other words, of detaching from this group the second division annexed to my former definition of this genus. Still, however, the close affinities I have there pointed out, render the generic situation of several of these birds very doubtful; because the transition from one to the other is so gradual that even the most accurate set of generic characters, founded on the bill, will not clearly define the limits between the *Platyrhynchus* and *Muscipeta*. Their anatomy might do so, but on this subject we are quite ignorant.

I can gather nothing from the characters which Dr. Horsfield has given in the Linnæan Transactions of his new genus *Eurylaimos;* which does not perfectly agree with those of *Platyrhynchus*. It appears to have precisely the same formation of bill, nostrils, legs, &c. as *P. cancromus*, but in a higher state of development; thus strengthening the opinion I have above expressed.

PLATYRHYNCHUS cancromus. fem.

Short-tailed Flatbill.

Generic Character.

Platyrhinchos, Temminck. *Sw. Zool. Ill.* (div. I.) Vol. i. pl. 13.

Rostrum tenue, breve, valdè depressum, frontis latitudinem superans, mandibulæ superioris abruptè aduncæ, et ad apicem emarginatæ, marginibus dilatatis, et inferioris margines superplicantibus. Nares medii, basi membranâ pennis minutis instructâ obtectâ, aperturâ parvâ, rotundâ, terminali, tantùm non nudâ. Rictus ampli, ad mandibulæ superioris basin vibrissis rigidis armati. Pedes sedentes, graciles, digitis lateralibus imparibus, digito exteriore ad medii digiti articulum primum annexo, halluce valido.

Bill thin, short, very much depressed, broader than the front of the head; the upper mandible abruptly hooked and notched at the tip; the margins dilated, and folding over those of the under mandible; nostrils central, the base covered with a membrane having minute feathers, the aperture small, round, terminal, and nearly naked; mouth large, armed above with stiff bristles; feet sitting, slender; lateral toes unequal, exterior united to the middle as far as the first joint; hinder claw strongest.

Specific Character.

P. (fem.) suprà olivaceo-fuscus, infrâ pallidè fulvus; jugulo albo; genis pennisque spuriis nigris; strigâ ante et pone oculum, maculoque auriculari albentibus.

(Female) above olive-brown; beneath pale fulvous; throat white; ears and spurious quills black; stripe before and behind the eye, and spot on the ears whitish.

Platyrhinchos cancromus. (male?) *Temminck* and *Laugier*. *Pl. Col. Pl.* 12. *f.* 2.

The remarkable breadth of the bill, and the extreme shortness of the tail, in this bird, render it a very singular little creature. Though a native of Brazil, I never met with it during my travels in that country; and the only specimen I have yet seen belongs to Mr. Leadbeater. The figure of

116.

MUSCIPETA barbata,

Whiskered Flycatcher.

Generic Character.

Rostrum latum, valdè depressum, lateribus aliquando dilatatis, culmine prominente, mandibulæ superioris apice adunco, plerumque emarginato, marginibus mandibulæ planæ inferioris margines superplicantibus. Nares basales, membranâ obtectæ, aperturâ terminali, ovatâ, vibrissis longis armatâ.

Ob. Pedes mediocres vel breves, digito exteriore ad medii articulum secundum annexo, interiore et medio ad basin modò annexis.

Bill broad, much depressed, the sides sometimes dilated, ridge prominent; tip of the upper mandible hooked, and mostly notched, the margins folding over those of the under mandible, which is flat; nostrils at the base of the bill covered by a membrane; the aperture terminal, oval, and defended by long stiff bristles.

Ob. Feet moderate or short; the external toe united to the middle as far as the second joint, the inner and middle toes united only at their base.

Generic Types (*Tem.*) Todus plumbeus, Muscicapa borbonica, Flabellifera, &c.

Specific Character.

M. Supra olivacea, subtus fulva, aureâ cristâ (maribus) insignis; jugulo albido; uropygio pallidè flavo; caudâ nigrâ.

Above olivaceous, beneath fulvous, (male,) with a golden yellow crest; throat whitish; rump pale yellow; tail black.

Muscicapa barbata. *Gmelin.* i. 933. *Lath. In. Orn.* 2, *p.* 488. *n.* 86. *mas.*

Whiskered Flycatcher (male). *Lath. Syn.* 364.

I once shot a pair of these little birds in the forest of Pitanga, about twenty leagues west of Bahia: this is the only instance which I know of their having been found in Brazil. The same bird appears, however, more frequent

Pl. 116.

in Cayenne, according to the older ornithologists. But whether the bird described by them as the female be really such, admits of great doubt, because Dr. Latham (probably on the authority of Buffon) describes it as having a smaller bill, and a few short hairs, instead of long bristles, at the base; the crown with a spot of yellow, a longer tail, &c. None of these are, in general, sexual distinctions, and, moreover, are at complete variance with the female here figured. The sexes I ascertained by dissection. It follows, therefore, that either the bird found in Cayenne is a distinct species, or that the bird described as its female is not such in reality. This latter supposition I apprehend is nearest the truth.

The figures are of the natural size, the upper representing the female, and the lower the male bird: the head of the former is entirely destitute of the crest which distinguishes the latter; in every other respect the resemblance is uniform. This crest, when not erected, is concealed, being nearly covered by the olive feathers around it. When erected, however, it discloses a stripe down the middle of the head of deep straw-coloured feathers, some of which are tipped with olive. The upper mandible of the bill is triangular, and much hooked, notched, and depressed; the colour is black, the perforations of the nostrils are rather large, and would be naked, were they not partially covered by numerous stiff bristles, which spring from the base of the bill and angle of the mouth; between the eye and bill a pale stripe. The plumage above is dull olive green, with a broad band of very pale yellow across the rump. Wings and their covers brown; tail and upper covers blackish; beneath, the plumage is yellowish, the chin almost white, and the breast and vent tinged with ferruginous; the two first quill feathers are progressively shorter than the third and fourth, which are equal, and longer than the others. Legs and claws short, slender, and pale.

This bird would obviously belong to the second division which I had proposed in my former remarks on *Platyrhynchus*, and it is in every respect allied to *P. Ceylonensis*, *Pl.* 13. My reasons for disturbing this previous arrangement have been already given; and, until a complete investigation is made of the immense genus of Flycatchers, I concur with M. Temminck in the distribution which he has proposed; viz. the arrangement of the European species under the old genus of *Muscicapa*, and of the exotic under that of *Muscipeta*; the characters of which, however, are very imperfect: they are, indeed, at variance with this bird, which has the outer and middle toe connected only to the *first* joint, and the inner toe cleft to the base.

117.

NECTARINIA cyanocephala,

Blue-headed Nectarinia.

Generic Character.

Nectarinia. *Illiger. Cuvier.* Cœreba *Brisson. Temminck.* Certhia. Motacilla *Linn.*

Rostrum longius, gracile, acutum, sub-arcuatum, basi crassâ, lata, trigonâ, lateribus compressis, mandibulâ superiore apicem juxta leviter emarginatâ. Nares basales, ovatæ, breves, membranâ nudâ, in medio ovatè fissâ tectæ. Lingua longa, bifida, apice fibroso, haud extensibilis. Remigum pennæ primæ tres vix pares. Cauda mediocris, emarginata, rectricibus 12, *sub-paribus.*

Bill slender, acute, slightly curved, of variable length, base thick, broad, trigonal, the sides compressed; upper mandible near the tip slightly notched; nostrils basal, oval, short, covered by a naked membrane, in the middle of which is an oval aperture; tongue long, bifid, not extensible, the tip fibrous; the three first quills of nearly equal length, and longer than the rest; tail moderate, emarginate, of 12 nearly equal feathers.

Generic Types, Div. 1. *Certhia cyanea, cayana.* Div. 2. *Certhia spiza, &c.* Linn.

Specific Character.

N. (mas.) cyanea; jugulo, dorso, caudâ alisque nigris, remigibus margine cyaneo ornatis. (Fem.) Viridis; capite, genis scapulisque cærulescentibus; jugulo cano.

(Male.) Changeable blue; throat, back, tail, and wings black; the quills edged with blue. Female green; head, cheeks, and scapulars bluish; throat grey.

Male.

Motacilla cayana. *Linn. Gmelin,* 1. 990.
Sylvia cayana. *Lath. In. Orn.* 2. 545. *Gen. Zool.* 10. 655.
Pepit bleu de Cayenne? *Brisson, Ois. vol.* 3. *pl.* 28. 1.
Cayenne Warbler. *Lath. Syn.* 4. 502. *Gen. Zool.* 10. 655.
Sylvia Cayenensis cærulea. *Brisson, Orn.* 1. *p.* 455.

Female.

Motacilla cyanocephala. *Gmelin,* 1. 990.
Sylvia cyanocephala. *Lath. In. Orn.* 2. 546. *Gen. Zool.* 10. 684.
Pl. 117.

Sylvia viridis. *Brisson, Orn.* 1. *p.* 455.
Le Pepit verd. *Brisson, Ois.* 3. *pl.* 28. *f.* 4.
Blue-headed Warbler. *Lath. Syn.* 4. *p.* 503.
Blue-headed Creeper? *Lath. Syn.* 2. *p.* 727.

FEW birds require more illustration than this very beautiful though common species; described by most ornithological writers, but hitherto so little understood, that the two sexes stand as distinct species in a family of birds to which they have, in reality, no natural affinity. According to the Linnæan system it should have been rather placed with the Creepers than the Warblers; an error which has been continued by every subsequent writer, even by Professor Temminck, whose skilful and accurate perception of natural affinities is, in general, so remarkably correct.

That these two birds, however dissimilar in colour, are the sexes only of one species, repeated dissections in their native country have put beyond all doubt; and that it is a genuine *Nectarinia* (or *Cœreba* of Temminck) will appear from submitting it to a rigorous comparison with the characters the Professor himself has laid down for that genus.

Its habits are no less perfectly the same as the rest of the *Nectariniæ;* it is one of the commonest birds of Brazil, and appears spread over the whole extent of that country. It frequents the same trees as the Humming-birds, hopping from flower to flower, and extracting the nectar from each; but this is not done on the wing, because its formation is obviously different from the Humming-birds, which, on the contrary, poise themselves in the air during feeding. The shortness of the bill has evidently given rise to this bird being placed with the Warblers; but this organ is not shorter in proportion than it is in *Nectarinia spiza,* (*Certhia spiza* of Latham).

I am unacquainted with the other varieties of this species mentioned by authors. Of the bird here described, I have never seen any variety, either in Brazil or in our museums. The young males, as usual before moulting, have the colours of the female; one of them, in an intermediate state, is in my possession. As both the figures are of the size of life, and accurately coloured, a fuller description is unnecessary. The rich sky-blue of the male, in some lights, becomes greenish, and in others dark blue. The bill, like that of all the genuine *Nectariniæ,* is slightly notched a little way from the tip, and the base is much broader than high.

SYSTEMATIC INDEX.

CONCHOLOGY.

PART II.

69

THECLA Galathea,

Red-bordered Hair-streak.

GENERIC CHARACTER.

Antennæ clavo elongato, compresso, obtuso terminatæ. Palpi exserti, recti, approximantes, squamis obtecti, imberbes, articulo ultimo nudo, gracili, acuto. Oculi semicirculares. Alæ anticæ trigonæ; posticæ dentatæ, caudatæ, lobo ad angulum analem obtuso, concavo, quem sedentes vibrant, instructæ. Thorax validus. Abdomen gracile.

Typus Genericus *Papilio Betulæ, &c.* Lin.

Antennæ ending in a lengthened, compressed, and obtuse club. Palpi excerted, approximating, covered with scales, but without hairs, the last joint naked, slender, acute. Eyes semi-circular. Anterior wings trigonal, the hinder dentated, generally tailed, with an obtuse concave lobe at their anal angle, which is generally in motion when the insect is at rest. Thorax strong; body slender.

Generic Type *Papilio Betulæ, &c.* Lin.

SPECIFIC CHARACTER.

T. alis fuscis, colore violaceo nitidis, posticis caudatis, margine rubro, subtus maculo nigro lunulâque rubrâ ornatis; lobo anali suprà ærato, subtus nigro.

Wings brown, glossed with violet; posterior tailed, with a red margin, beneath with a black spot and red lunule, anal lobe above bronzed, beneath black.

THE beautiful little Butterflies included by Fabricius in this genus, are scattered over all parts of the world, but are most numerous within the tropics, and particularly in South America, for in Brazil alone I collected near 120 species. They are an obvious and very natural family, though the species are as yet but little understood, and not one half of them described. I have observed a singular peculiarity in a great many of these insects, which is, that when they are at rest in the sun, the lower wings are constantly in a quick vibrating motion up and down, as if the insect was rubbing them together, more particularly where the two lobes (or obtuse tails) of the under wings meet, though what purpose this is intended to accomplish remains unknown.

The upper surface of the wings in the greatest number of the *Hair streaks* (as they are aptly called by English collectors) are of various shades of vivid blue, so that the species can only be ascertained from the under markings, which are usually very striking and delicate: they are all of a small size.

This is an African species, and both sexes are in the cabinet of my friend Mr. Haworth.

Pl. 69.

LICINIA Amphione.

GENERIC CHARACTER. — See Pl. 15.

SPECIFIC CHARACTER.

L. alis integris, suprà nigris; anticarum basi maculo aurantiaco, triradiato, medio fasciâ flavâ, apice maculo flavo ornatis; posticis strigâ aurantiacâ, margine ferrugineo; antennarum clavis albis.

Wings entire, above black; anterior with a three rayed orange spot at the base, and a central bend and terminal spot of yellow; posterior with an orange stripe and brownish margin; club of the antennæ white.

Papilio Amphione. *Cramer, pl.* 232. *f.* EF.
Pieris Amphione. *Godart in Ency. Meth.* vol. 9. p. 165. (Female.)

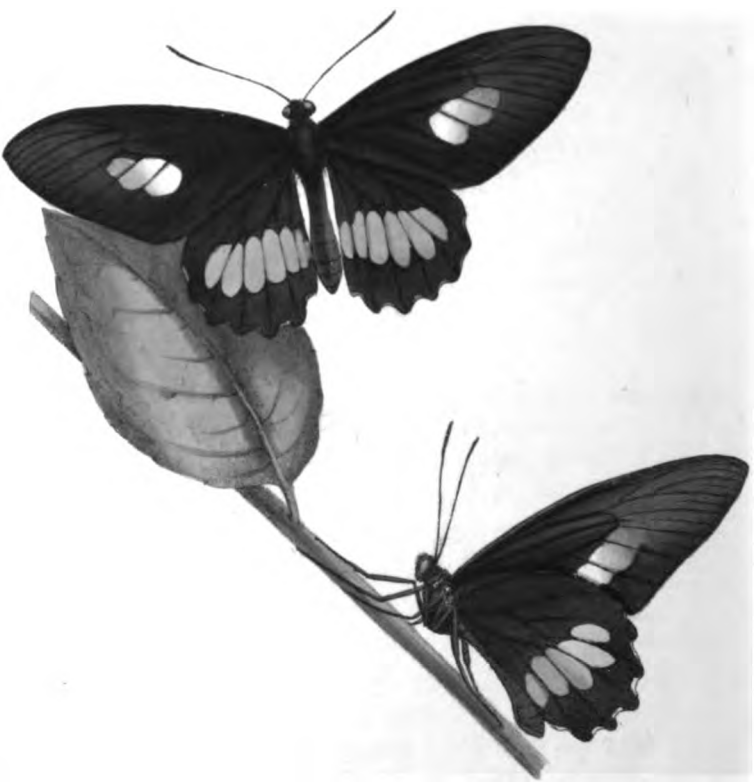
THIS is the only species among those I have united under the genus *Licinia*, which has any shade of red mixed in the colouring, all the others being variegated only with white, yellow, and black. It is a native of Brazil, and Godart mentions of Guyana and the Antilles: though not common, it is sometimes frequent in local situations, preferring the borders of deep forests, and flying very slowly. I had the means of fully ascertaining the two sexes, of which the two upper figures are of the male, and the lower one the female. There can be no doubt the latter is the *Pieris Amphione*, so admirably described by M. Godart, who, however, makes no mention of the black marginal spots on the under side of the posterior wings, represented in Cramer's figure, which may therefore be a variety. More difficulty, however, exists in ascertaining if the male is distinct from *P. Laia*, of Godart: the figures of Cramer, in general, are so inaccurate, as always to excite a doubt in cases of nice discrimination; Godart's description, nevertheless, perfectly agrees with Cramer's figure: if it was, therefore, drawn up from the insect itself, there can be little doubt that *Laia* is distinct from *Amphione;* if, on the other hand, M. Godart made his description only from Cramer's figure, the question remains in its original uncertainty.

The club of the antennæ is white, tipt with pale brown. The under side of the female very closely resembles the upper, excepting that the black stripe on the lower wings is broken;

and there are irregular blotches of white at the tips of both wings, but no marginal spots, as represented by Cramer.

It will be found that *Licinia* is the connecting genus between those of *Danais* and *Pieris*, of Latreille, and that the transition between the last of these and *Colias* is strongly marked by that of Terias, (*Zool. Ill. pl.* 22).

What with the inaccuracy of figures, and the almost universal neglect with which the most eminent entomologists have passed over this beautiful order, the natural arrangement and affinities of the *Lepidoptera* still remain in the greatest obscurity; and it is recommended to those who may object to the additional generic distinctions I have made, to examine, in the first instance, the relative validity they bear in essential character to the innumerable genera that are continually created in the *Coleoptera*, *Hymenoptera*, and *Diptera*.



92

PAPILIO,

Butterfly.

Generic Character.

Antennæ gracilcs, clavis elongatis, obtusis, sub-arcuatis, rarò compressis. Palpi brevissimi, reflexi, remoti, linguæ basin vix obtegentes, articulo ultimo obtuso, minimo. Pedes antici longi, articulo secundo infrà gibbo.

Sectiones.

I. Græci.

Pectore maculis sanguineis carente.

a. Ecaudati, *alis inferioribus elongatis, basi angustâ.*

b. Percaudati, *alis fasciis fulvis vel viridibus ornatis, inferioribus caudi, elongatis, angustis, instructis.*

c. Caudati, *alis inferioribus caudis obtusis, patulis, instructis.*

* *Alis fulvo fasciatis.*

** *Alis nigricantibus.*

d. Dentati, *alis inferioribus dentatis.*

e. Orbiculares, *alis inferioribus brevibus, orbicularibus.*

II. Trojani.

Pectore maculis sanguineis insigni.

a. Ecaudati, *alis inferioribus elongatis, basi latâ.*

b. Caudati, *alis inferioribus caudis obtusis, patulis, instructis.*

c. Dentatis, *alis inferioribus dentatis.*

d. Orbiculares, *alis inferioribus brevibus, orbicularibus.*

Generic Character.

Antennæ slender, the club elongated, obtuse, slightly arched, and rarely compressed. Feelers very short, reflected, remote, hardly covering the base of the tongue, the last joint obtuse and minute; anterior feet long, with a gibbous appendage on the under part of the second joint.

Pl. 92.

SECTIONS.

I. *Greeks.*

Breast without sanguineous spots.

a. Tailless; lower wings elongated, and narrow at the base.

P. Sarpedon. Nereus C. *Macleayanus* G.

b. Long tailed; wings generally banded with yellow or green.

P. Codrus. Simon. Antheus. Podalirius. Machaon, &c.

c. Tailed; lower wings with obtuse patulous tails.

* Wings varied with yellow bands.

P. Torquatus. Thoas. C. *Ilioneus* (Donovan) *&c.*

** Wings generally dark, without bands.

P. Troilus. Paris. Severus. Pammon, &c.

d. Dentated; lower wings dentated, without tails.

P. Ægeus et Erechtheus. Don. *Amphitryon. Drusius. Demolius* C.

e. Orbicular; lower wings short, orbicular.

P. dissimilis. Similis C. *Assimilis* (Drury). *Polydamas?* Lin.

II. *Trojans.*

Breast with sanguineous spots.

a. Tailless; lower wings elongated and broad at the base.

P. Memnon. Polymnestor. Agenor. Hector. C.

b. Tailed; lower wings with obtuse patulous tails.

P. Polydorus. Romulus. Coon, &c.

c. Dentated; lower wings dentated.

P. Evander. (Godart.) *Amosus?* C.

d. Orbicular; lower wings short, orbicular.

P. Priamus. Panthous. Amphrisius, Harmonia et Cressida (Donovan.)

FROM the earliest ages, the Butterfly appears to have attracted the admiration of mankind; and we find it celebrated by their poets as figurative of gaiety and pleasure, and by their sages as an emblem of the human soul. It has been interwoven in one of their most beautiful allegories, and has

been consecrated in our own days by several poets, though by none with such exquisite taste and moral feeling, as by the venerable Historian of the Medicii.

So few of those insects, generally called Butterflies, were known to Linnæus, that he included them all in one genus, dividing them, for the most part, into natural groups. Fabricius continued this arrangement, with little variation, and has left us the description of near 1,150 species! Yet before his death, this laborious naturalist saw the absolute necessity of dividing this immense genus into many others, and left among his MSS. a sketch of his proposed arrangement, published afterwards by Illiger, and partially adopted (we venture to think also very imperfectly) by M. Latreille.

The insects which are therefore now left under the old genus *Papilio*, are principally found out of Europe, and are remarkable for their richness of colouring and immense size. M. M. Latreille and Godart have described, with great precision, 146 species: it is, however, to be regretted, that they have adopted no sections or divisions to assist the student in his search after any particular species, among this extensive number. The great disadvantage of this is very obvious, and it has induced me to attempt something like a natural distribution of those insects, which, with every care to avoid an unnatural separation of kindred groups, I am fully aware, in some cases, is very artificial, and it is only offered until a greater knowledge of the larvæ, &c. will enable us to fix on more substantial characters than those I have adopted. This, however, will be a work of time; and until then, I think some guide to the ready knowledge of the species, however objectionable, is better than none.

Much might be said on the affinities which connect this with several other genera. Among the most striking is that existing between them and the *Noctuæ* (*N. Patroclus* Fab.) by means of *Pap. Leilus* Lin. which thus stands between the night and the day-flying Lepidopteræ. Many of the insects placed in our division of *Græci caudati*, are allied to *Danais* Lat. by the larva of both having retractile hornshaped processes, and the two genera seem still further connected by *Papilio similis* and *dissimilis* in one group, and by *P. Priamus* in the other; while the clear winged species from New Holland seem to indicate an affinity with the *Heliconiæ*.

The laborious and important investigations of M. Savigny into the structure of the mouth of these insects are too well known, to require a more particular notice in this slight sketch of the subject.

Pl. 92.

PAPILIO Polymetus.

SPECIFIC CHARACTER.

P. (*Trojani orbiculares*) *alis atris; superis fasciâ breviori* (*fœminæ albâ*) *anticè albâ, posticè cyaneâ, inferis dentatis, maculâ coccineâ quadripartitâ.*

Papilio (T. orb.) wings black, superior, with a short white band, which is blue at the base (in the female entirely white); inferior dentated, with a four cleft crimson spot.

Papilio Polymetus. *Godart in Ency. Meth.* vol. ix. p. 35. *no.* 28.

FIRST described by M. Godart; unless, indeed, it may not hereafter prove a variety of *P. Lycander* (Cramer, Pl. 29. C. D.) which approaches as near to the male, as *P. Hippason* does to the female. The first sex is here represented at the upper and under figures; the middle is of the female, which M. Godart has not described. It is a native of Brazil; I found it at Bahia only in certain woods, and subsequently met with a variety in the province of Rio Janeiro, differing only in being much larger.

Pl. 92.

93

PAPILIO Pandrosus.

SPECIFIC CHARACTER.

P. (*G. Caud.*) *alis atris, fasciâ communi posticarumque lunulis marginalibus flavis; his caudatis, punctorum rubrorum striga intermediâ.* G.

Pap. (*G. Caud.*) wings black; with the common band and marginal lunules on the lower wings, yellow; lower wings with obtuse tails, and a row of red dots between the nerves.—*Godart.*

Pap. Pandrosus. *Godart. En. Meth. vol.* ix. *p.* 62. *No.* 101.

M. GODART has anticipated me in the first publication of this, and a great many other newly discovered Brazilian insects; it has, however, not been figured; and I take this opportunity of expressing my doubts, whether this and the next are not sexes of the same species, rather than two, permanently distinct. I have not, at this particular time, the means of referring either to my notes or my collections, by which the recollection I have on the subject might be in some way confirmed; and, until this is done, it is much better retaining the two insects as distinct species: the figures of both will show their very close resemblance, in every thing but the bands on the upper surface of the wings. I found them common in the province of Rio de Janeiro.

Pl. 93.

PAPILIO Torquatus.

SPECIFIC CHARACTER.

P. (*G. Caud.*) *alis atris; anticis fasciis duabus, posticis disco lunulisque marginalibus, flavis: his caudatis, punctorum rubrorum strigâ intermediâ.* — Godart.

P. (*G. Caud.*) Wings black; two bands on the anterior wings, and marginal lunules on the posterior, yellow; lower wings with obtuse tails, and a row of red dots between the nerves.

P. Torquatus. *Cramer, pl.* 177. *fig. a. b. Godart. En. Meth.* v. 9. *p.* 62.

IT is singular that Fabricius appears to have overlooked this species, sufficiently well figured by Cramer to point out its leading characters, though very inferior to the beauty of the insect. M. Godart has, however, recorded it in his account of this superb genus in the *Encyclopédie Méthodique;* and the minute and clear descriptions which this able entomologist has given throughout that work, merit the highest eulogium. Our own figures will, however, render a detailed description in this place unnecessary.

M. Godart says, this insect is found both in Guiana and Brazil. In the latter country, I met with it only in the province of Rio de Janeiro, where it is common.

Pl. 94.

PAPILIO Evander.

GENERIC CHARACTER.—See Pl. 92.

SPECIFIC CHARACTER.

Pap. (Tro. dent.) Alis dentatis, nigris; posticis suprà maculis quinque violaceo-chermesinis; anticis subtùs fasciâ albidâ, transversâ, mediâ. Godart.

Pap. (Tro. dent.) Wings dentated, black; posterior above with a five-cleft, violet-crimson spot; anterior beneath with a transverse, central, whitish band.

P. Evander. *Godart, En. Meth. vol.* ix. *p.* 32. *no.* 18.

BOTH sexes of this newly described insect are here, for the first time, figured; that above is of the male, and beneath is represented the under side of the female. The crimson spots (which finely relieve the brownish velvet-like black on the upper surface of the wings) are, in some lights, most beautifully glossed with changeable violet, and appear either darker or paler according to the position in which the insect is viewed.

Southern Brazil is, undoubtedly, more rich in this splendid family than the northern provinces of that vast country. I never saw this species except in Rio Janeiro, where it is common: nor do I know of any other, belonging to the division of *Trojani*, which have the lower wings sharply dentated, and with an appearance of obsolete *acute* tails; a character more developed in the female of this species than in the male.

Pl. 101.

102.

PAPILIO Nox.

GENERIC CHARACTER.—See Pl. 92.

SPECIFIC CHARACTER.

P. (Troj. orb.) Alis immaculatis fuscis, inferis orbiculatis, ecaudatis; fronte, strigâ laterali subthoracicâ anoque rubris.

P. (Troj. orb.) Wings immaculate, brown; lower orbicular, not tailed; front, lateral stripe on the thorax beneath, and tip of the body red.

THE colours of this insect are unusually sombre, and present a striking contrast to the gaudy tints by which the majority of these gay creatures are ornamented; it is so far remarkable, but it is more interesting to the entomologist, as being an unpublished addition to this genus. It was discovered in Java by Dr. Horsfield; and the drawing was made from an unique specimen which I observed while engaged in a long and laborious arrangement of the Linnæan *Papilionidæ*, (as they now appear at the India House,) collected by that zealous naturalist for the India Company.

Between the nerves of the anterior wings (which are remarkably large) are parallel central stripes, of a darker brown; a character common to many Indian species, but not found, I believe, in any of those from the New World.

Pl. 102.

109.

PAPILIO Harrisianus.

GENERIC CHARACTER.—See Pl. 92.

SPECIFIC CHARACTER.

P. (Troj. caud.) Alis atris, subtùs maculis basalibus coccineis notatis, anticis suprà maculo coccineo basali fasciâque albâ, posticis obtusè caudatis fasciâ marginali maculis coccineis sex insigni, fasciâque mediâ albâ ornatis.

Pap. (Troj. caud.) Wings black; anterior above with a red basal spot and white band; posterior obtusely tailed, with a marginal band of six crimson spots, and central white spot.

I CAN find neither figure nor description of this very rare Papilio. It does not accord with any contained in MM. Latreille's and Godart's recent monograph of the genus. It was purchased at the sale of the late Mr. Francillon's cabinet, by N. A. Vigors, Esq., whose valuable collections in every branch of Zoology are always open to the scientific inquirer. It is nearly allied to Pap. *Tros, Agavus, Ascarius,* and *Lysithoüs* (Godart), particularly to the latter; yet it is obviously distinct from either. These affinities lead me to think that it is a South American insect. The figures will render any addition to the specific character unnecessary.

I have named this insect to commemorate a most assiduous and observing entomologist of the last age, Moses Harris, whose memory will be long cherished by our Aurelians, and to whom the scientific are indebted for the very accurate and excellent figures contained both in his own works, and in those of Drury; indeed, he appears the only English artist who has faithfully represented the short and nearly concealed *palpi* peculiar to this genus. The son of this excellent artist*, still follows the profession of his father, and, inheriting his abilities, deserves every encouragement that the small circle of English entomologists, as well as others, can give him.

* Mr. Moses Harris, artist, 28, Mansion-House Street, Kensington.

SPHINX Ello.

GENERIC CHARACTER.

Antennæ prismaticæ, in utroque sexu ad medium leviter crassescentes, externè breviter piloso-biciliatæ, mucrone arcuato, producto, sensim terminantes. Palpi breves, obtusi. Lingua elongata, convoluta, distincta, et in pupâ aliquando porrecta. Alæ sub-integræ. Abdomen elongatum, conicum, ano acuto, imberbi.

Typus Genericus *Sphinx Convolvuli* Linn.

Antennæ three sided, in both sexes slightly thickened in the middle, externally ciliated with double tufts of short hairs, and ending in a gradually lengthened arcuated hook. Palpi short, obtuse. Tongue long, convolute, distinct, sometimes porrected in the pupa state. Wings nearly entire. Abdomen lengthened, conic; the tip pointed, and not bearded.

Generic Type *Sphinx Convolvuli* Linn.

SPECIFIC CHARACTER.

S. alis subdentatis, cinereis (in maribus lineis fuscis variatis); posticis rufis, margine nigro; abdomine pallido, cingulis atris circumdato.

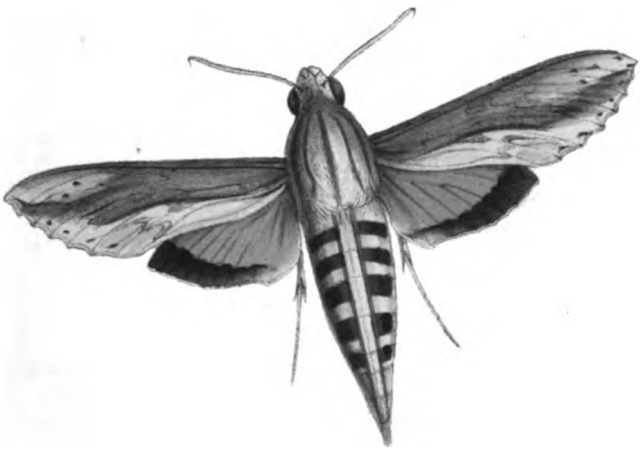
Wings slightly dentated, cinereous (in the male variegated with brown lines); posterior rufous, with a black margin; abdomen pale, with black belts.

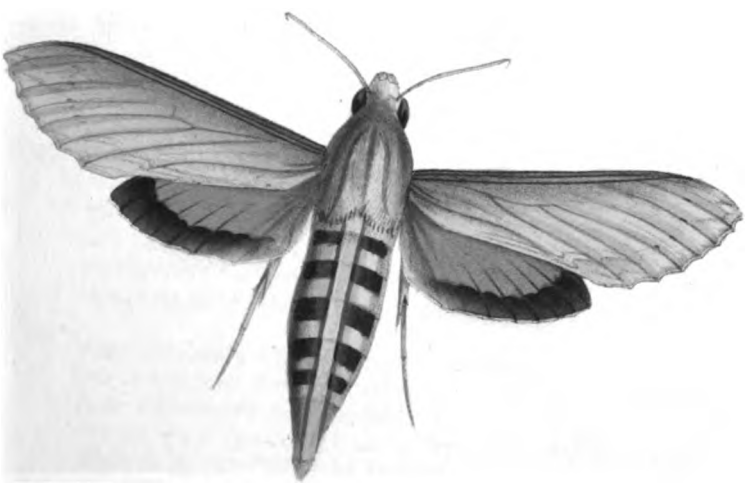
Gmelin 5. 2375. 13. *Fab. Ent. Sys.* 3. 362. *no.* 21. S. Ello. *Drury*, vol. i. p. 59. *pl.* 27. *fig.* 3. (*male.*) *Cramer*, *pl.* 301. D.

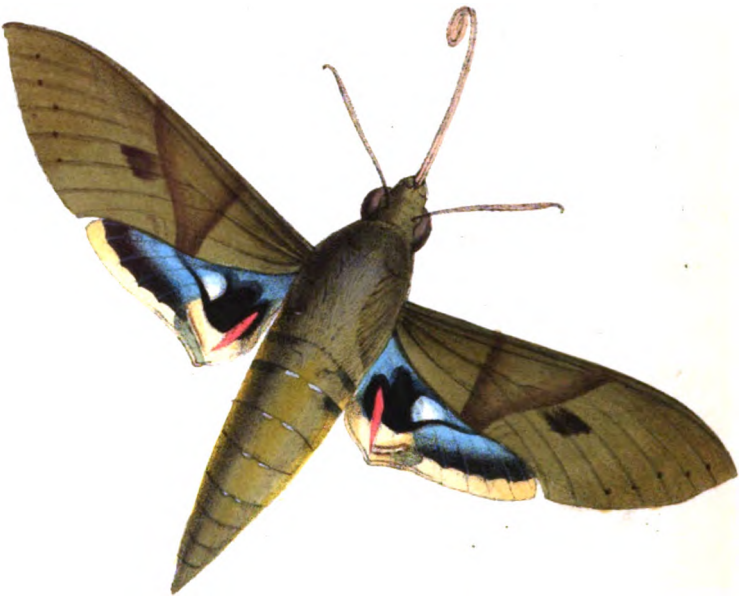
It is in all things better to understand few subjects well than many imperfectly; knowledge may be extensive, but it cannot be sound, if it is at the same time imperfect; and, applying this observation to the present article, it becomes as desirable, where necessary, to illustrate an insect known to Linnæus, as to regard only the accession of new species.

The two insects figured were received from Jamaica by my friend Dr. Leach, and there can be no doubt they are the sexes of one species. The upper is a male, and agrees with Drury's figure and description; the lower insect is a female, of which no representation has been published: as for Cramer's figure, if intended for the former, it is really so bad that it can hardly be quoted as an authority, and it appears to have misled Fabricius, in thinking that the female insect had a brown stripe on the anterior wings, whereas that character is more applicable to the male.

The insects I propose retaining under this genus are such as have the body lengthened, pointed, and not bearded at the tip; the antennæ but slightly thickened in the middle, and the terminating hook gradual, arched, and not very acute: these comprehend the first section of Latreille's genus, *Sphinx*, and are by him again divided into two groups, the one having the wings entire, the other angulated.







8 7

SPHINX Labruscæ,
Wild Vine Hawk-moth.

GENERIC CHARACTER.—See Pl. 81.

SPECIFIC CHARACTER.

S. alis integris; anticis virescentibus, fasciâ triangulari centrali maculoque fusco ornatis; posticis medio cæruleo-nigris, margine fulvo; abdominis lateribus punctis quinque niveis.

S. Wings entire; anterior greenish, with a central triangular band and black spot; posterior bluish black in the middle, the margin fulvous; sides of the body with five snowy spots.

S. Labruscæ. *Gmelin*, p. 2380. 14. *Fab. Ent. Sys.* 3. p. 377. *Cramer, pl.* 184. *a.*

LINNÆUS has well observed, that the great distinctions of his three genera of Lepidoptera, were, that Butterflies are seen on the wing only during the day; Hawk-moths, or Sphinxes, at the rising and setting of the sun; and Moths during the night. The insects of Europe, indeed, offer but few exceptions to these characters; but the habits of certain exotic tribes, in each of these families, partake both of one and the other in a remarkable manner. Thus, among the butterflies, there is a genus in South America (hitherto unnoticed), which fly only during the dusk of evening: a number of the Linnæan Hawk-moths prefer the meridian heat of the sun; and there are not wanting several moths which are only seen during the same period of the day.

The insect, however, before us, is of that tribe to which the remark of Linnæus is strictly applicable; and, although included in the *Systema Naturæ*, has remained without any correct representation, for it would be difficult to delineate a worse figure of it than that given by Cramer. Besides the row of five snowy white spots on each side of the body, there are four pair of others, more dusky, down the middle, and five small black dots near the outer margin of the fore wings; the colour of all beneath is a buff yellow, with two faint dusky oblique bars, and the middle of the fore wings sea green.

I have received this species from Jamaica; in its larva state it appears to feed on the wild vine.

BOTIS,
Gauze-wing.

GENERIC CHARACTER.

Antennæ setaceæ. Alæ trigonæ, insecto sedente, cum corpore triangulum subhorizontale efficientes, superiores margine externo recto. Palpi quatuor exserti. Lingua conspicua. Latreille, *Gen. Ins.* 4. p. 229.

Typus Genericus *Ph. Urticata* Lin. &c.

Antennæ setaceous. Wings trigonal, forming a nearly horizontal angle with the body when the insect is at rest. The outer margin of the anterior wings straight. Palpi four, exserted. Tongue conspicuous.

Generic Type *Ph. Urticata* Lin. &c.

Botys. *Latreille.*

BOTIS marginata,
Pink-margined Gauze-wing.

B. alis hyalinis, stramineis, apicibus margineque flexuoso rubro-purpureis.

Wings hyaline; pale fulvous; the margins and tips with a waved reddish purple border.

P. Marginata. *Cramer, pl.* 400. I. — P. Simiata. *Fab. Ent. Sys.* 3. 208.

THERE appears no end to the immense number of species referrible to this genus, which will perhaps be found the most extensive tropical group of all the Linnæan *Phalænidæ*. Of these, near eighty species I found in Brazil; Dr. Horsfield has brought a great many from Java; near fifty are found in North America, and I have little doubt that the whole number existing in the cabinets which I have inspected may amount to about three hundred and fifty. The thorough investigation of these is a work of no ordinary labour; and, until this is done, it appears most advisable to let the generic distinction remain, as given by Latreille, though there can be no doubt that among them distinct groups will be detected.

Cramer's figure will not indicate even the genus, and Fabricius describes the body as white; the tip ferruginous; in this it is yellow, tipped with red.

Mr. Haworth obliged me with this insect, which Fabricius notes as African.

BOTIS bicolor,
Black and White Gauze-wing.

B. alis anticis fuscis, punctis duabus angulatis transversis albis; posticis ad basin albis.

Anterior wings, brown, with two transverse angulated white spots; posterior white at the base.

FROM the same collection as the preceding; the margin of the thorax and body are white. I apprehend it is an American species, which is distinct from any figured by Cramer, the principal author on the Exotic Lepidoptera.

Pl. 77.

SYSTEMATIC INDEX.

VERTEBROSA.

PART II.

ORNITHOLOGY.

Zoological Illustrations.

ENTOMOLOGY.

PART II.

STROMBUS mutabilis,
Little pink-mouthed Strombus.

GENERIC CHARACTER.—See Pl. 10.

SPECIFIC CHARACTER.

S. anfractu basali nodoso; spirâ brevi tantum non lævi; lineâ sulcatâ suturæ paralleläl; labio exteriore supra gibbo, margine recto, interiore crasso, cum exteriore striato; apertura pallidè rubicundâ, basi truncatâ.

Basal whirl nodulous; spire short, nearly smooth, with a sulcated line parallel with the suture; outer lip above gibbous, the margin straight; inner lip thick, both striated; aperture flesh colour; base truncated.

Seba, tab. 61. *fig.* 26 & 27, 32 & 33, 54. *tab.* 62. *fig.* 42 & 43? *Martini* 3. *tab.* 77, 799. *fig.* 78, 807. *Knorr.* 2, 14. *fig.* 3. *Rump.* 37. W.

THE specific distinction given by Linnæus to *Strombus urseus* is so loose, that his followers have referred all the small species of this genus to the numerous varieties he has quoted, though few will doubt that many permanent species have been thus overlooked; among these the one now characterized is an example, the most striking distinctions of which are in the spire being never plaited, and always much shorter than the mouth, which latter is either nearly white, or of a flesh colour; in its external colouring no two specimens will be found alike. It is not an uncommon shell from the East Indies, and seldom grows larger than the figure.

STROMBUS dilatatus,
Winged Strombus — middle figures.

S. testâ transversè striatâ; spirâ mediocri, plicis numerosis gracibus; labio exteriore dilatato, rotundato, crassissimo, reflexo; interiore suprà crassescente, medio lævi; aperturâ striatâ.

Shell transversely striated; spire moderate, with slender numerous plaits; outer lip dilated, rounded, very thick, and reflected; inner lip thickened above, smooth in the middle; aperture striated.

AN undescribed species, and of the greatest rarity, for I have never seen any other specimen, than one in my own cabinet, although perfect in form, it is obviously faded in colour; yet it is too remarkable to be mistaken for any other of this interesting family, which requires so much illustration.

Pl. 71.

74

ACHATINA fasciata,

Chesnut-banded Achatina.

GENERIC CHARACTER. — See Pl. 30.

SPECIFIC CHARACTER.

A. testâ albâ fasciis latis lineisque castaneis ornatâ; spirâ elongatâ, crassescente; labio interiore semi-circulari, intus depresso; columellâ truncatâ, emarginatâ.

Shell white, with broad chesnut bands and lines; spire elongated, thickened; inner lip semi-circular, depressed within; columella truncated, emarginate.

Bulla fasciata. *Gmelin* 3430, 25. *Martini* 9. *tab.* 117, 1004 to 6. *Lister* 12, 7. *Seba, tab.* 39. *fig.* 62 to 74. *Gualtieri, tab.* 6. *fig.* C.

HAVING figured two or three species allied to this shell, it appears advisable to subjoin a more particular notice of it, and to point out those characters by which it may be detected through its numerous variations: this has been endeavoured in the specific character now formed, and appears to rest principally on the inner lip, which is always semicircular, down which, if closely examined inside, there is a depression as if it had been pared down with a knife; the base of the pillar also is so strongly truncated as to appear notched, and the broadest part of the mouth is always in the middle; these characters have been very ill attended to in all the figures above quoted, of which Seba gives no less than eleven, which vary only in the disposition and number of their bands.

Gualtieri's figure at *tab.* 6. *fig.* D, is an admirable representation of *A. pallida*, which, not having his work before me at the time, I could not quote; the other at C is a very good one of the present shell. The upper drawing is from one in my own cabinet; the lower is in the possession of Mr. C. Dubois, who is continually adding to his fine and valuable collection.

It is almost unnecessary to contradict the opinion of some writers who have fancied this a *fresh-water* shell. It is not uncommon, but seldom seen in perfection.

8/4

ACHATINA emarginata,
Notched Achatina.

GENERIC CHARACTER.—See Pl. 30.

SPECIFIC CHARACTER.

A. (div. 2.) testâ productâ, sub-flavâ, fasciis viridibus flavisque ornatâ; aperturâ ovato-rotundatâ, albâ; labio exteriore medio inciso; basi emarginatâ.

Ach. (div. 2.) Shell elongated, cream colour, with green and yellow bands; aperture ovately rounded, white; outer lip notched in the middle; base emarginate.

A NEW and very delicate species, which may have been overlooked as a variety of *A. virginea*, from which it differs in the comparative length of the basal whorl, which in that is remarkably short, in being a much more elongated shell, in the mouth being oval, but above all, in having a conspicuous notch in the middle of the outer lip, where the green band commences; the aperture (excepting the inner lip) is pure white. It is in Mr. Dubois' possession, and its country unknown.

ACHATINA vittata,
Ribbon Achatina — middle figures.

A. (div. 2.) testâ ovato-oblongâ, crassâ, albente, vittis nigris fuscisque angustis ornatâ; aperturâ ovatâ, sub-contractâ; columellâ tantùm non rectâ; basi subtruncatâ.

A. (div. 2.) Shell ovate-elongated, thickened, fulvous white, with narrow black and brown bands; aperture oval, slightly contracted; pillar nearly straight; base sub-truncated.

Gualtieri, tab. 6. *fig.* A.

ALTHOUGH unnamed, this shell is obviously the same as that figured by Gualtieri, who also describes it very tolerably. This figure, however, is quoted by Gmelin and others for *A. virginea;* from which shell it is quite distinct: it is a thickly formed shell, the base slightly truncated, and the aperture very narrow, and reddish brown; the outer lip within is thickened. From the same collection as the last.

Pl. 84.

85

IANTHINA fragilis,

Common Oceanic Snail—upper and lower figures.

GENERIC CHARACTER.

Testa subglobosa, tenuis, fragilis. Spira depressa. Labium exterius medio emarginatum. Columella ultra aperturæ basin producta. Animal marinum, vesiculâ solidâ pede suppositâ instructum.—Cuvier.

Shell subglobose, thin, brittle. Spire depressed. Outer lip notched in the middle. Base of the pillar projecting beyond the aperture. Animal marine, with a solid vesicle, placed under the foot.—*Cuvier.*

SPECIFIC CHARACTER.

I. testâ pallidâ, anfractu basali angulato; basi complanatâ, striatâ, violaceâ; aperturâ latiore quam longiore; labio exteriore profundè emarginato.

Shell pale; body whirl angulated; the base flattened, striated and deep violet; aperture broader than long; outer lip deeply emarginate.

Helix Ianthina. *Gm.* 3645. *Lister.* 572. *fig.* 23. 24. *Turton.* C. D. *p.* 58. *Gualt. tab.* 64. 0. *Mart.* v. *t.* 166. *fig.* 1577.—8?

Ianthina fragilis. *Bruguiere. Ency. Meth. pl.* 456. *fig.* 1. *a. b.*

THE singular shells of this genus float on the surface of the ocean, where they principally live. Gmelin remarks that the animal emits a phosphoric light; and Captain Cook observed that it is oviparous, and discharged, on being touched, a liquor of the most beautiful purple. Dr. Turton and Mr. Dillwyn have recorded several British localities for this shell; and the former notes having seen it alive, but without giving any original account of the animal. The extreme brittleness of the shell is such, that, although common, it is very rarely seen so perfect as here represented, from shells in my own cabinet. All the figures I have seen are very defective.

IANTHINA globosa.

Globular Oceanic Snail—middle figures.

I. testâ ventricosâ, basi productâ; aperturâ longiore quam latiore; labio exteriore leviter emarginato.

Shell ventricose, the base lengthened; aperture longer than broad; outer lip slightly emarginate.

THE notch, which in *I. fragilis* extends the whole length of the lip, in this, is very slight, and nearly central. Mr. Dubois has enabled me to figure it from specimens in the greatest perfection; it is much less common than the last.

Pl. 85.

88

MITRA caffra,

Brown white-banded Mitre. — middle figures.

GENERIC CHARACTER. — See Pl. 23.

SPECIFIC CHARACTER.

M. (div. 1.) fusiformis, rufo-fuscata, albo fasciata, lævis, spirâ plicato-striatâ, basi rugosâ, columellâ quadriplicatâ.—Lamarck.

Shell fusiform, reddish brown, with whitish bands; smooth; spire plaited and striated; base rugose; pillar 4 plaited.

Voluta caffra. *Gmelin.* 3451. *Martini* 4. *tab.* 148. *f.* 1370.? *Dill. p.* 545.

Mitra caffra. *Lamarck. Ann. du Mus.* vol. vii. p. 208. *no.* 30.

IT is not improbable that *Mitra bifasciata, (Zool. Ill. pl.* 35.) may eventually be considered only a variety of the shell here figured, which accords much closer with the characters given of the Linnæan *M. caffra,* than any other; the two shells, however, at the first glance, have a widely different appearance; yet not more so, than the smooth and plaited varieties of *Strombus vittatus Lin.* I have therefore retained the character given by Lamarck, as the best method to be followed in doubtful cases. In this shell, the plaits commence half-way round the body whirl; they are obtuse, crowded, and not angulated near the suture; the striæ between are fine and decidedly marked; the base half of the shell strongly grooved; the suture rather compressed; the channel short and not recurved, and the aperture striated.

MITRA crassa,

Thick Mitre — upper and lower figures.

M. (div. 3.) testâ lævi, mediâ crassâ, fuscâ, fasciâ angustâ sub-albâ ornatâ; spirâ striatâ, striis intus punctatis; labio exteriore dentato; columellâ 5 plicatâ.

Shell smooth, thick in the middle, brown, with a narrow whitish band; spire striated, the striæ with internal punctures: outer lip crenated; pillar 5 plaited.

A SPECIES evidently unknown to Lamarck; the upper margin of each whorl is thick and projecting; the striæ on the body whorl are nearly obsolete, but on the spire become deep, remote, and having internally minute hollow dots; the inner margin of the exterior lip is strongly crenated, the aperture smooth, and the pillar with five strong teeth. I believe it was brought from the South Seas.

113.

MITRA pertusa. var.

Cardinal Mitre — large spotted variety.

GENERIC CHARACTER. — See Pl. 23.

SPECIFIC CHARACTER.

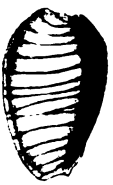
M. sect. 3. *Testâ ovato-acutâ, albâ; striis transversis puncticulatis ornatâ, anfractu basali crasso, tesseris parvis plurimis spadiceis vittato, tesserisque majoribus bifasciato; labio exteriore denticulato.*

M. Shell ovate-acute, white, with transverse punctured striæ; the basal whorl thick, with numerous bands consisting of small, and two of large tessellated spots; outer lip toothed.

MUCH uncertainty exists respecting the shell which Linnæus intended for his *Voluta pertusa,* owing to the inaccuracy of the synonyms, which refer to species widely different from each other; the majority of authors have, however, considered it to be the shell figured by Born and Martini, under that name, and recently by myself in *Exotic Conchology*. As a species, it is principally distinguished by the rows of irregular brown spots which are always disposed in transverse bands, running into larger blotches adjoining the suture, and near the base of the body whorl, which is thick and obtuse; the lesser spots are mostly tessellated or quadrangular, but in size they vary considerably in different individuals, and even in the same shell; this has induced Lamarck to separate them into two species, but which, for reasons to be hereafter given, appears to me unnecessary.

The variety here figured is very rare, nor have I seen more than two examples; it differs only from the usual varieties in having the spots remarkably large. In a future plate this species will be further illustrated, and the correct synonyms of all the varieties then given. Inhabits various parts of the Asiatic ocean.

Pl. 113.



MARGINELLA,
Date Shell.

GENERIC CHARACTER.

Testa ovata. Spira brevissima aut nulla. Labium exterius crassissimum, margine interiore crenato. Columella plicata. Basis subintegra. Animal capitatum, capitis fronte profundè emarginato; oculis ad tentaculorum 2 subulatorum basin externam adsitis; tubâ jugulari simplici; pede magno, foliaceo, ponè attenuato; penulâ dilatutâ, testæ latera obtegente.

Typ. Gen. *Volutæ perspicula, glabella, prunum, &c.* Lin.

Shell oval. Spire very short or concealed. Exterior lip very thick, with the internal margin crenated. Pillar plaited. Base nearly entire. Animal capitate; head notched in front, with lengthened, pointed tentacula, at the external base of which are the eyes; neck with a simple tube; foot large, foliaceous, pointed behind; mantle dilated, and folded over the sides of the shell.

Generic Types *Vol. perspicula, glabella, prunum, &c.* Lin.

LAMARCK first separated the shells comprised in this genus from the Volutes of Linnæus; their principal distinction rests in the formation of the outer lip, which has a very thick margin, more or less toothed on the inner rim; the base likewise is nearly entire, and the inner lip quite wanting.

By these peculiarities, the *Date Shells* are easily known from the *Volutes* on the one hand, and the *Cowries* on the other; and the invaluable researches of M. Adanson, who has described and figured the animals of each of these genera, has established this distinction on the most solid principles; it will, however, be interesting to trace, by the shells only, how beautifully this arrangement is developed.

The *Marginellæ* may be divided into two sections; the first bearing in form and habit a strong resemblance to the *Cyprææ*, and the second gradually losing these indications, and acquiring those of the spiral *Volutæ*. Among the first are several species, which, like the Cowries, appear destitute of any spire (as in *M. cingulata*); this part, however, begins to show itself in other successive species very progressively, until it becomes elevated and defined in *M. glabella*. This shell may be considered the passage to the second division, in which the species lose the simple oval form of the first, and acquire a contracted base and pointed spire, perfectly resembling *Voluta undulata Lam.* and its allies. The extreme developement of these characters is shown in *M. faba*.

This genus must, then, be considered as connecting those of *Cypræa* and *Voluta* (Lam.); excepting one, the whole of the species are very small; and as the three here selected to illustrate these remarks are frequently seen, and have

been often described under other names, little more is necessary than to detail their specific characters.

MARGINELLA cingulata,
Banded Date Shell — upper figures.

M. testâ ovatâ, albidâ, lineis aurantiacis fasciatâ; spirâ obsoletâ, umbilicatâ; columellâ 6 plicatâ.

Shell oval, whitish, banded with orange lines; spire obsolete, umbilicated; pillar 6 plaited.

Voluta cingulata. *Dill.* 525. 56. *Lister.* 803. *f.* 9. *Martini*, 2. *t.* 42. *f.* 419 *and* 20. *Gualt. t.* 25. *c.*? 28. *b. Adanson*, *t.* 4. *f.* 4.

I AM happy to record Mr. Dillwyn as the first systematic writer who separated this from *Mar. persicula*, which has reddish spots, and is quite a distinct species. The present is a pretty, though common shell, and observed by Adanson in great plenty on the African coast.

MARGINELLA prunum,
Grey Date Shell — middle figures.

M. testâ ovatâ, griseâ, immaculatâ; spirâ parvâ, conicâ; aperturâ fuscâ; columellâ 4 plicatâ.

Shell oval, grey, immaculate; spire small, conic; aperture brown; pillar 4 plaited.

Voluta plumbea. *Sol. MSS. L'Egouen. Adanson, tab.* 4. *f.* 3.

V. prunum. *Gm. p.* 3446. 33. *Martini*, 2. *t.* 42. *f.* 422 *and* 3. *En. Meth.* 376. 8. *Lister*, 817. 28. (young.) *Dill.* 530. 69.

THE plaits are very strong, and, together with the outer lip, white; equally common, and from the same country, as the last.

MARGINELLA faba,
Fly-spot Date Shell — lower figures.

M. testâ ovatâ, plicatâ, fulvâ, punctis fuscis ornatâ; spirâ conicâ; basi emarginatâ; columellâ 4 plicatâ.

Shell oval, plaited, fulvous, with brown dots; spire conic; base notched; pillar 4 plaited.

V. faba. *Gm.* 3445. *Lister*, 812. 22. *Martini*, 2. *t.* 42. *f.* 431? 432, *and* 3. *En. Meth.* 377. 1. *Gualt.* 28. *Q. Dill.* 528. 63.

THE whorls of this pretty shell are plaited into little nodules; it is usually very small. The supposed variety figured by Martini, and mentioned by Mr. Dillwyn, I am inclined to believe, may be a distinct species.

PALUDINA,
River Snail.

GENERIC CHARACTER.

Testa ovata, spiralis, tenuis, umbilicata. Apertura semi-orbicularis, ad labii anterioris apicem subangulata. Operculum corneum.

Animal fluviatile, branchiatum, viviparum, rostro brevissimo; oculis ad basin externam tentaculorum acutorum 2 appositis; pedis margine antico duplici; lateribus anticè alis parvis instructis; alâ dexterâ involutâ in canalem per quem aqua in tracheam introducitur.

Typus Genericus *Helix vivipara*, Lin.

Shell ovate, spiral, thin, umbilicated. Aperture nearly orbicular, slightly angulated at the top of the inner lip. Operculum horny.

Animal fluviatile, branchiated, viviparous; rostrum very short; eyes placed at the external base of two pointed tentacula; anterior border of the foot double; on each side the fore part of the body a small wing; that on the right side is folded into a channel, by which the water is introduced into the respiratory canal.

Generic Type *Viviparous Snail* Pennant.

THE common Shell above quoted, inhabiting many of our rivers, will serve as an excellent example of this genus, which is not numerous, and confined to fresh waters; the animals, inhabiting the European species, appear to have been thoroughly investigated by the continental naturalists; and from their account of its singular construction, the above description has been framed. Science should make no distinction of persons or countries; but it is rather mortifying to observe, that these important discoveries in the organization of animals, are pursued with zeal and ability by foreign naturalists, while most of our own content themselves with expatiating on its impossibility, and even go so far as to hint its uselessness, because we can never become acquainted with the animals of *all* the species of shells in our cabinets: so far this latter part of the argument is most true; but, to ascertain, for instance, the animal of the Cowry, it is surely not requisite we should see those of *all* the species (near 80 in number), before we venture to describe it? any more than it is necessary completely to dissect *every* species of Locust before we pronounce it to be one. Science would, indeed, receive incalculable and lasting benefit, if those of our conchologists who reside near the coast would pay greater attention to the inhabiting animals, and less to the shells, of their neighbourhood; for the first would supply that information they acknowledge is so desirable, and the latter would prevent our indigenous Catalogue from being crowded with many dubious, and even foreign shells.

Pl. 98.

English conchologists appear not to be aware of the vast number of testaceous animals which are now known. Among those truly eminent men who have prosecuted this study, M. Adanson stands foremost, in having minutely described all those he found on the African coast; in the magnificent work of Poli nearly all the Mediterranean bivalves are exquisitely figured; and those of the land and fresh water will receive complete illustration from M. Ferrusac. Cuvier, Lamarck, Say, and even our own countrymen, Dr. Leach and Montague, have all contributed, more or less, to form a mass of information which it is full time should be employed as the basis of natural classification.

PALUDINA elongata,
Long-spired River Snail—upper and lower figures.

P. testâ olivaceo-fuscâ, fasciis castaneis ornatâ; spirâ productâ, attenuatâ, aperturâ multo longiore; apice acuto.

Shell olive brown, with chesnut bands; spire lengthened, attenuated, much longer than the aperture; tip acute.

INHABITS the rivers of India. It is rather thicker than most of the others, and the umbilicus nearly obsolete.

PALUDINA unicolor,
Olive River Snail—side figures.

P. testâ subventricosâ, totâ olivaceâ; apice acuto; spiræ et aperturæ longitudine æquali; umbilico clauso.

Shell subventricose; uniform olive; apex of the spire acute; aperture and spire of equal length; umbilicus closed.

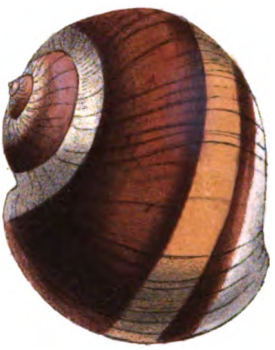
DISTINGUISHED from the *Helix vivipara* of authors, by having a less convex, and more pointed spire, hardly any umbilicus, and no bands. Inhabits China.

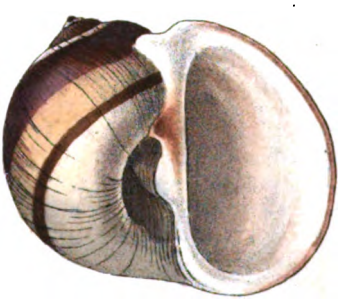
PALUDINA carinata,
Carinated River Snail—middle figures.

P. testâ parvâ, olivaceâ; spirâ aperturâ longiore, apice obtuso, rufo; anfractu basali medio leviter carinato; umbilico obsoleto.

Shell small, olive; spire longer than the aperture; the tip obtuse, rufous; basal whorl slightly carinated in the middle; umbilicus obsolete.

A DISTINCT species, which is never found larger than the figure. I once saw near 100, which had been picked up on the banks of the Ganges; the spire is rather lengthened, always obtuse, and the umbilicus even less than the last.





NATICA spadicea,
Banded Natica.

GENERIC CHARACTER.

Testa subglobosa seu ovalis, umbilicata. Spira depressa, brevissima. Columella umbilici medio terminans. Apertura semiorbicularis, operculo corneo vel testaceo clausa. Animal marinum, pede maximo; oculis ad basin duorum tentaculorum simplicium positis.

Typus Genericus *Nerita Glaucina* Pennant.

Shell nearly globose, or oval, umbilicated. Spire depressed, very small. Columella terminating in the middle of the umbilicus. Aperture semi-circular, operculum either horny or testaceous. Animal marine, with a large foot; the eyes placed at the base of two simple tentacula.

Generic Type *Nerita Glaucina* Pennant, &c.

SPECIFIC CHARACTER.

N. testâ sub-globosâ, fuscâ, albo fulvoque fasciatâ, juxta suturam striatâ; labio exteriore suprà leviter emarginato; umbilico magno, aperto; columellâ obsoletè terminante.

Shell sub-globose, striated near the suture, brown, banded with white and fulvous; outer lip above slightly emarginate; umbilicus large, open; pillar termination nearly obsolete.

Martini 5. *pl.* 187. *fig.* 1872 & 3. *fig.* 1874 & 5? *pl.* 188. *fig.* 1896, 8 & 9. *Seba, pl.* 38. *fig.* 66. *pl.* 41. *fig.* 14, 15.

THE Shells of this genus are composed of such of the Linnæan *Nerits* as are umbilicated, from which latter they essentially differ, both in the organization of the animal and the construction of the shell, which is either closed by a shelly or horny operculum.

The species are numerous, and are found both in temperate and tropical seas; two or three inhabit our own coasts, but by far the greater number are found in the Asiatic Ocean. They are subject to variation in their colour; and this, joined with a general resemblance in form, has rendered the discrimination of the species very difficult. I have, however, remarked, that the various modifications of the umbilicus, and the termination of the pillar (which is indicated in many species by an elevated ridge or rib within the umbilicus) is a certain and constant indication, presenting the same peculiarity through all the individuals of a species, even in the young state. This termination of the pillar has been mistaken for the inner lip, which, on the contrary, is always above the umbilicus, which, if closed, is not closed by the lip, but by the thickened termination of the pillar or columella.

The two most striking varieties are here figured of this species, which is sufficiently described in the specific character. I believe it is found both in the Mediterranean and Red Seas.

NATICA mustelina,

Belted Natica — upper figures.

GENERIC CHARACTER.—See Pl. 75.

SPECIFIC CHARACTER.

N. testâ subglobosâ, mustelinâ concolore, obsoletè rugatâ, fasciâ levatâ basin cingente; spirâ depressâ, apice acuto; umbilico magno, aperto; columellæ basi gracili, levatâ.

Shell sub-globose, uniform, fulvous-brown, obsoletely wrinkled, base with an elevated belt; spire depressed, the tip acute; umbilicus large, open; pillar termination slender, elevated, and central.

THE elevated belt at the base affords an excellent distinction to this species. The specimen in my cabinet is the only one I have seen. Locality unknown.

NATICA sordida,

Brown Natica — middle figures.

N. testâ subglobosâ, fuscâ, spirâ prominente; aperturâ intus fusco-purpureâ; umbilico parvo, labio interiore paululùm tecto; columellâ obsoletè terminante.

Shell sub-globose, brown; spire prominent; aperture within purplish brown; umbilicus small, partially covered by the inner lip; pillar termination obsolete.

THIS Shell is both undescribed and apparently unfigured; the spire is more elevated than usual; the umbilicus small; and the termination of the pillar not seen: it is not uncommon, and is often much larger than here represented, but I am unacquainted with its locality. The little decision in the figures given by authors of these shells, renders it hazardous to quote them with certainty.

NATICA melastoma,

Black-mouthed Natica — lower figures.

N. testâ depressâ, fuscâ; spirâ complanatâ minimâ; ore intus atro-purpureo; umbilico magno, clauso labio interiore rufo.

Shell depressed, brown; spire flattened, very small; mouth within purplish black; umbilicus large, closed up by the inner lip, which is rufous.

IN colour this bears a close resemblance to the last, but the shell is flattened beneath, and the spire very short and depressed; the umbilicus large, but, in general, quite closed up by the thickness of the pillar, united to the inner lip. In some specimens a narrow crescent-shaped groove is left on the outside margin. Its habitat is unknown.

Pl. 79.

NATICA punctata,
Spotted Natica.

GENERIC CHARACTER.—See Pl. 75.

SPECIFIC CHARACTER.

N. testâ ovato-globosâ, crassâ, albâ, strigis undatis punctisque castaneis ornatâ; umbilico magno, aperto, simplici; columellæ basi obsoletâ.

Shell ovate-globose, thick, white with waved stripes and minute chesnut dots; umbilicus large, open, simple; base of the pillar obsolete.

Nerita punctata. *Martini* 11. *pl.* 197. *f.* 1903 *and* 4. *Seba, pl.* 38. *f.* 33? *Gualt. pl.* 67. *f. M. and T. (good.)*

Gochet. *Adanson Sen. pl.* 13. *f.* 4.

THE undulated brown lines in this shell, are sometimes broken into three irregular bands of either lines or spots, between which are numerous minute dots; in other varieties these dots are only round the suture, and in some totally wanting. Its most constant character rests on the umbilicus, which is rather large, very deep, and without any appearance of the base of the pillar. The mouth is also more contracted than usual. It is said by Adanson to be common on the coast of Senegal; and this observing naturalist adds, that the operculum is testaceous, of a pure white, and marked with numerous concentric grooves at the upper angle.

NATICA effusa.

N. testâ depressâ, albâ, maculis castaneis ornatâ; spirâ brevissimâ; columellæ basi crassâ, planâ, ad labium interius sinu annexâ.

Shell depressed, white, with chesnut spots; spire very small; umbilicus large, open, spreading; base of the pillar thick, flat, and united to the inner lip by a sinus.

IN form, and sometimes in colour, this shell bears a close resemblance to the oval variety of N. mamilla (*Nerita mamilla Lin.*); but, the umbilicus, instead of being entirely closed up, is remarkably open, very deep, and the pillar forming an elevated ridge within; colour in the shells of this genus is a very secondary, and, in many cases, a most fallacious guide for the discrimination of the species; for this is sometimes pure white, and I have specimens of *N. mamilla* entirely orange. This is a rare shell, probably from India.

Pl. 104.

111.

CYPRÆA tessellata,

Mosaic Cowry.

Generic Character.

"*Testa lævigata, ovata, convexa, marginibus involutis, apertura longitudinalis, angustata, utrinque dentata, ad extremitates effusa. Spira minima, obtecta.*"— Lam. Ann. du Mus. vol. 16. p. 443.

Animal marinum (Pectinibranchi). Penula dilatata, testam omnino obtegens. Tentacula depressa, subulata. Oculi juxta tentaculorum basin externam adsiti. — Adanson, H. N. du Senegal.

Shell smooth, oval, convex, the margins turned inward; aperture longitudinal, narrow, toothed on both sides, the extremities effuse. Spire minute, concealed. — *Lamarck.*

Animal marine; mantle dilated and folding over the whole shell. Tentacula depressed, subulate, at the external base of which are the eyes. — *Adanson.*

Specific Character.

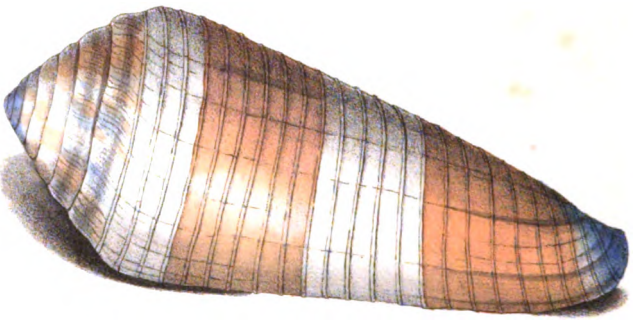
C. testâ obtusâ, gibbâ, aurantiacâ, ad latera tesseris albis fuscisque alternis tessellata.

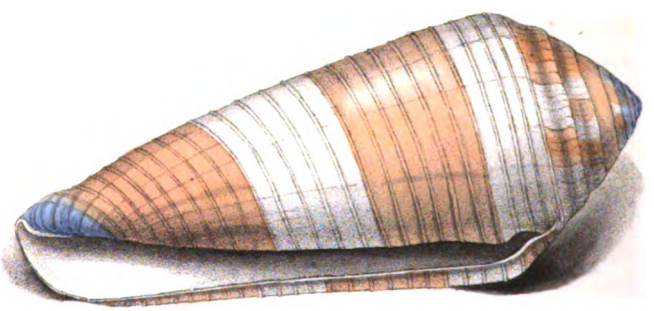
Shell obtuse, gibbous, orange, the sides with alternate tessellated spots of white and brown.

Amidst all the changes in systematic arrangement which Conchology has, of late years, undergone, the *Cyprææ* remain untouched; indeed, they present such a uniformity of character, that the most superficial observer cannot mistake them. A few species of Ovula, however, bear a strong resemblance to the genus, but may be known from not having teeth on each side the mouth. The Cowries are without exception the most beautiful of all shells, whether the richness and harmony of their colours, or the exquisite polish of their exterior, is considered; but (like many other things of more consequence) their beauty is depreciated by their frequency. The indefatigable Lamarck has described sixty-six species, only one of which inhabits the European seas. Adanson has furnished a minute account of the structure of the animal, and Bruguiere has given long and interesting details of its economy.

Mrs. Mawe is in possession of this very beautiful little shell; a string of them were presented her as coming from New Zealand: that which formed the centre was the only perfect specimen, and from that the figures were taken.

Pl. 111.





CONUS terebra,

Screw Cane.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. cylindraceo-elongatus, albidus, striis transversis elevatis, fasciique binis flavescentibus, spirâ crassâ obtusâ. Lam.

Cylindric elongated; whitish, with two yellowish bands, and transverse elevated striæ; spire thick, obtuse.

Conus Terebellum. *Gmelin*, p. 3390. 44. (omitting the varieties). *Martini* 2. *tab.* 52. *fig.* 577. *Seba*, 42. *fig.* 13. (uncoated). *Ency. Meth.* 339. *fig.* 1.

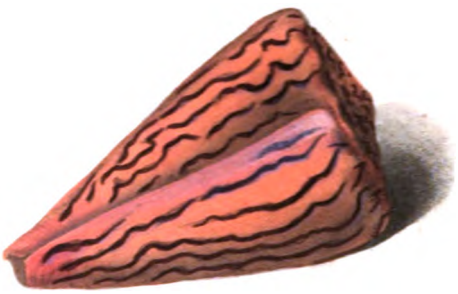
Conus Terebra. *Lamarck. Annal. du Mus.* vol. xv. p. 427. *no.* 144. *Var.* A, without bands.

Ency. Methodique, 339. *fig.* 2.

THOUGH this is not an uncommon Shell, it is rarely seen so large as that now represented from the cabinet of Mrs. Bolton of Storrs. Of this extensive genus Lamarck has written a valuable account in the Annals of the French Museum, where he has rightly pointed out the mistake of Gmelin in placing as varieties of this species, one or two other very distinct shells: the colour of the bands is not always certain, for I have seen specimens in which they were of a dark brown; but the very thick spire, and slender form of the body whirl, with the distant, regular, and greatly elevated striæ, renders it a species not easily mistaken, though in general form it comes very near to *C. nussatella*, and two or three others; the spiral volutions are deeply concave, and the tip and base tinged with violet.

It is a native of the Indian seas.

Pl. 70.



CONUS Princeps,

Prince Cone.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. conicus, coronatus, roseus; lineis fusco-purpureis longitudinalibus subramosis; spirâ convexâ.—Lamarck.

Coronated Cone, rosy, with brownish purple longitudinal lines, which are sometimes branched; spire convex.—*Lamarck.*

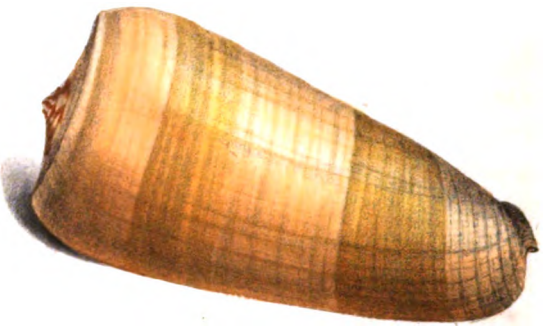
Conus Princeps. *Gmelin.* 3378. (omitting var. β and γ.) *Turton.* 4. 313. (omitting var. 2. and 3.)

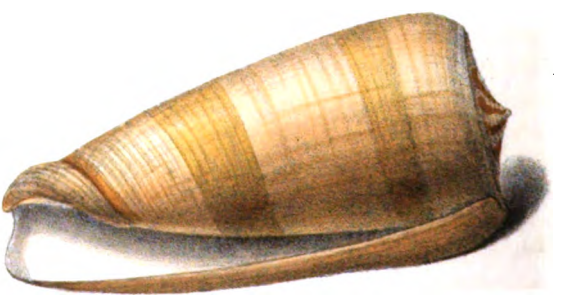
Conus regius. *Martini*, vol. x. *pl.* 138. *fig.* 1276. *Brug. no.* 12. *Ency. Meth. pl.* 318. *fig.* 3. *Lamarck, Ann. du Mus.* p. 31. *no.* 10.

THE Cones are remarkable both for their beauty and the very high value attached to many of the varieties. They are likewise a very numerous family, and, with three or four exceptions, are all inhabitants of tropical latitudes, particularly the Indian Ocean. Bruguière and Lamarck have each written very able descriptions of the species, of which the latter enumerates 179 recent, and 9 found only in a fossil state.

This is a shell of great rarity and beauty. Dead and injured specimens are often seen, in which the deep reddish brown colour is bleached to a pale rose, and the base worn round. Of the live shell I have never seen more than two or three; and the finest of these is here figured from Mr. Dubois' cabinet: it is a native of the Asiatic Ocean.

I see no reason why the original name of Linnæus for this shell should have been changed, although, under it, he has evidently included other species quite distinct; (his var. β. being *C. ebræus*): indeed, it too often happens, that in making those alterations absolutely necessary in the present state of the science, the spirit of innovation oversteps the justice due to those, whose labours first laid the foundation of our own knowledge.





CONUS cinctus,
Purple tipped Admiral Cone.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. testâ suprà carinatâ, fulvâ, fasciis duobus albidis ornatâ; spiræ brevis, maculatæ, basi depressâ, anfractibus concavis sulcis duobus insculptis, suturâ alveatâ; basi granosâ, purpureâ.

Shell above carinated, fulvous, with two whitish bands; spire short, spotted, the base depressed; the whorls concave with two depressed lines; suture channelled; base granulated, purple.

THIS is a very beautiful, and, at the same time, very rare shell; it formerly belonged to Mrs. Angus, at whose sale it passed into the cabinet of Mr. Dubois. Its general appearance resembles very much that of *C. Maldivus Lam.* known to our collectors by the name of the Spanish Admiral: the spire will, however, at once distinguish it; each volution is strongly concave in the middle, in which part are two or three delicate indented lines, very near each other, and following the volutions; the suture also is sufficiently open to be termed channelled; the spire is quite flattened at the base, (forming a sharp ridge round the top of the body whorl), and only prominent near the tip. In the Spanish Admiral Cone, the spire is quite smooth, the whorls being flat, and in all the specimens I have seen, (and they are many), the suture is quite closed up, though Lamarck (probably mistaking the present shell) says, "spirâ canaliculatâ;" the base, moreover, is narrowed, smooth, and black; not gibbous, granulated, (or striated,) and purple, as in this shell.

A variety in my own cabinet presents some differences; the base is but slightly granulated, and the tip not purple; these are, however, subordinate characters, and constitute it only a variety.

I shall take an early opportunity of pointing out the differences between *C. generalis* and *Maldivus*, two shells even more likely to be mistaken for each other than those abovementioned.

Pl. 110.

CONUS carinatus,

Carinated Cone.

GENERIC CHARACTER. — See Pl. 65.

SPECIFIC CHARACTER.

C. testâ sub-cylindraceâ, carinatâ, fulvâ; spiræ depressæ, concavæ, maculatæ, apice acuto, anfractibus valdè concavis, striis numerosis subgranosis insculptis; basi obtusâ, striatâ, cingulo gibbo circumdatâ.

Shell nearly cylindrical, carinated, fulvous; spire depressed, concave, spotted, tip acute, the whorls very concave, with numerous subgranulated striæ; base obtuse, striated, with a gibbous belt.

ANOTHER rare and remarkable shell of this numerous genus, from the same collection as the Cone last described. I believe it to be hitherto unfigured, and unknown to any writer; for I cannot reconcile it with any of Lamarck's descriptions of species not yet represented.

I know of no other specimen than the very fine one in Mr. Dubois' cabinet. The shell is heavy; the body whorl contracted at the upper part, where the margin is sharply carinated; the spire much depressed and concave; each volution is also concave, and has from three to four fine grooves, which occupy its full extent, and which appear minutely granulated; but this is only caused by the longitudinal lines of growth: the tip of the spire acute; the base is wider in circumference than usual, with a gibbous belt marked by elevated striæ, in other respects the shell is smooth; the base of the aperture is effuse, the bands on the body whorl pale and not well defined, and the spire slightly spotted. It is doubtless an inhabitant of the Asiatic ocean.

Pl. 112.

114.

CONUS pulchellus,

Orange Admiral Cone.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. *testâ aurantiacâ, fasciis albis interruptis ornatâ; spiræ subdepressæ, anfractibus suturam juxta simpliciter sulcatis; suturâ alveatâ; basi granosâ, purpureâ.*

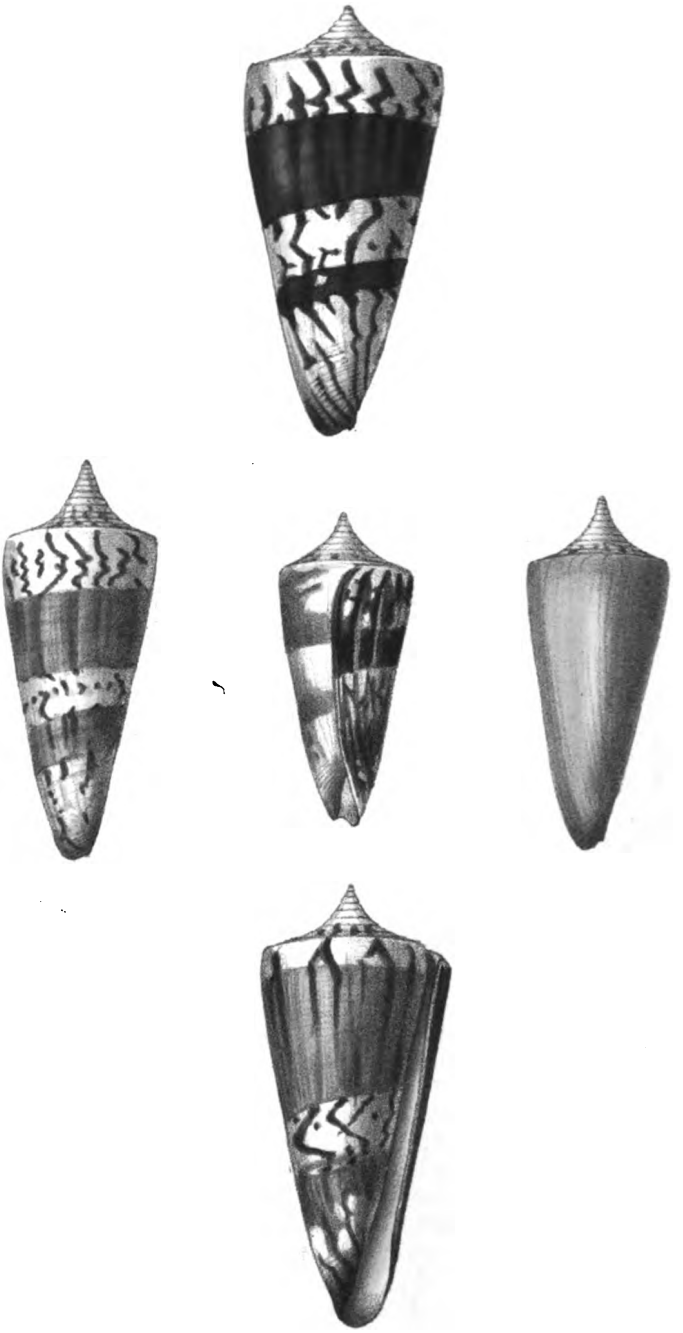
Shell orange, with two interrupted white bands; spire slightly depressed, the volutions with a single groove near the margin; suture channelled; base granulated and purple.

I CANNOT find this very beautiful shell enumerated among the new and unfigured species known to Lamarck; and the representations given by the oldest conchologists of this intricate family, are too inaccurate to be cited without much risk.

In form it approaches nearest to *Conus vitulinus* of Bruguiere, having the spire not quite depressed, each volution being slightly raised above the last, gradually to the apex; the upper margin of the body whorl is convex; each volution of the spire has a broad and deep groove nearest the upper edge, which thus becomes elevated, while the convexity of the lower part of the whorl forms a channel round the suture, which separates it from the next; this formation of the spire is very remarkable, and unlike what I have seen in any other Cone. Another distinguishing character is, that the whole shell is crossed by very faint, broad, and almost imperceptible punctured lines, very near each other; in some parts discernible with the naked eye, in others almost obliterated by the longitudinal lines of growth: the granulations towards the base are very sharp and nearly white, and the base itself crossed with rough, thick-set, elevated striæ. No doubt the colour of this species will be found to vary, when more specimens are discovered. The only one I have ever seen, came with some other very rare shells from Amboyna, and is in my own collection.

If the descriptions of C. *canaliculatus* (Malacanus Brug.) be correct, (for it is a shell I have not seen), it must be quite distinct.

Pl. 114.



118.

CONUS Generalis,

Flambeau Cone.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. *testâ gracili, fuscâ, fasciis albidis strigis undatis longitudinalibus interruptis ornatâ; spiræ productæ apice acuto, anfractibus concavis, lævibus; basi nigrâ.*

Shell slender, brown, with white bands, interrupted by longitudinal stripes; spire produced, the tip acute, whorls concave, smooth; base black.

Conus Generalis. *Gmelin, p.* 33. 75. *var. a. Dillwyn,* 359. *var. a. Martini, vol.* 2. *p.* 58. *f.* 645, 646. *(dark variety) f.* 648 *to* 652. *(pale varieties). Gualt.* 20 *f.* G.

Conus Generalis. *Brug. p.* 642. *Lam. Ann. vol.* 15. *p.* 363.

IT becomes necessary to figure this elegant, but not uncommon Cone, in order to show the young conchologist the little importance that should be attached to *colour* in the discrimination of species: the figures will likewise point out more fully the distinctions between the present shell, *C. maldivus*, and *C. cinctus;* three species, whose close affinity require illustration.

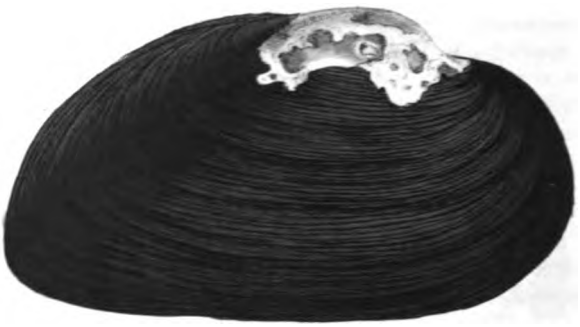
These relative distinctions may be comprised in a few words; they rest principally on the spire, which in *C. generalis* has the upper half much lengthened, slender, and acuminated: in *C. maldivus* the spire is thick and much shorter: the whorls in both these species are quite plain, and nearly flat: the spire of *C. cinctus* resembles the last in form, but is deeply concave and striated. These characters are, I think, very satisfactory as specific distinctions.

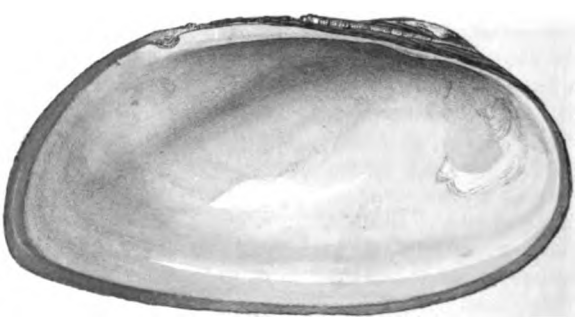
On the other hand, some attention to these shells lately, has convinced me that many of the species formed both by Bruguiere and Lamarck should be more correctly considered as varieties; inasmuch as their specific distinctions rest, for the most part, on *colour* alone: this appears, indeed, to be the leading character selected by these eminent conchologists, and to which, therefore, they have attached the greatest importance. From this opinion, however, I completely dissent; on the principle, that no character which

is variable can, with any consistency, be made use of to express permanent distinctions, when not supported by peculiarity of formation or sculpture. The great art in framing the description of a species consists in singling out those characters alone which are most permanent, and exist in every variety of that species; for, when once a character is found to be variable, it no longer becomes a distinction by which a species can be recognised. I consider, therefore, formation and sculpture as the only certain characters of species, and that variation of colour should alone distinguish varieties.

It is therefore not surprising that the specific characters given by MM. Bruguiere and Lamarck, and resting principally on the colours of these shells, are frequently obscure, and always long; two inevitable evils attending every attempt to describe minutely the colour, form, and disposition of the markings of shells. In justice, however, to these great naturalists, it should be observed, that in this attempt they have done that best which no writer has ever done well.

The spire of *C. generalis* is generally spotted, and the white band on the margin of the body whorl, more or less crossed by broad waved stripes of a dark brown. It is an inhabitant of many parts of the Indian Ocean.





.96.

ANODON rugosus.

Wrinkled Horse Mussel.

Generic Character.

Testa transversa, plerumque tenuis. Cardo linearis, edentulus. Lamina cardinalis glabra, aliquando levata, anticè sinu sub ligamento desinens. Impressiones musculares 3. *Ligamentum externum. Animal fluviatile.*

Typus Genericus *Mytilus Anatinus* Lin.

Shell transverse, generally thin. Hinge consisting of a simple marginal lamina without teeth, smooth or slightly raised, terminating at the anterior end in a curve or sinus below the ligament. Muscular impressions three. Ligament external. Animal fluviatile.

Generic Type *Duck Mussel* Pennant.

Specific Character.

A. testâ ovato-oblongâ, crassâ, convexâ, anticè obliquè rotundatâ; intus fulvâ, margine rufo; margine cardinali leviter curvato, infra umbones crasso.

Shell ovate-oblong, thick, convex, anterior obliquely rounded; hinge margin slightly curved and thickened beneath the umbones; inside fulvous, with a reddish margin.

The shells now arranged under the kindred genera of *Unio* and *Anodon* are exclusively fluviatile, or inhabitants of fresh water, and are dispersed both in the old and the new world. In the Linnæan system, the first, being furnished with teeth, are placed among the *Myæ;* and the latter, from having none, are arranged with the *Mytili.* Two common shells, in our own rivers and ponds (*Mya pictorum,* and *Mytilus anatinus Lin.*), will readily present to the student the characters by which they are severally distinguished. The shells of the present genus bear such a general resemblance to each other, and are so simple in their construction, that a corresponding minuteness of discrimination is requisite to characterize the species; I have, therefore, selected for this purpose the modification of the upper margin to which the ligament is attached, and which in other shells forms the bases of the

Pl. 96.

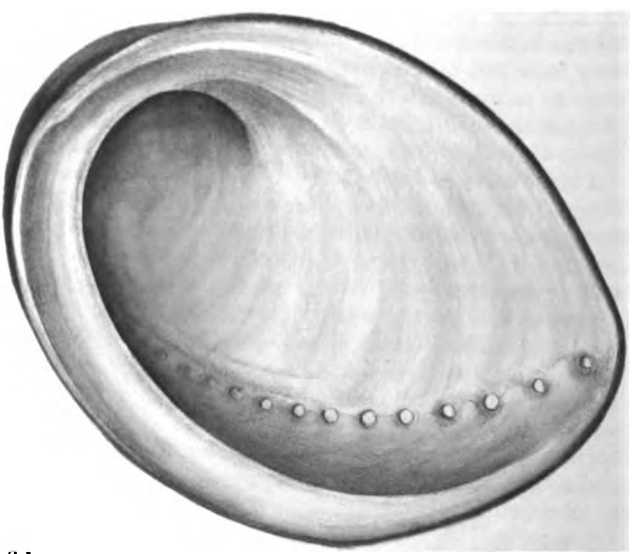
teeth. This I have termed the hinge margin. The form of the notch or sinus which terminates this part will also be found of much importance in discriminating the species; for no shells vary more in their form, thickness, or convexity than these do, according to their locality, age, or other circumstances.

Shell transverse, oval; rather thick and ventricose; both extremities obtuse; the anterior side (from the umbones to the exterior margin) obliquely rounded; umbones prominent; hinge margin rather thick, slightly curved, and swelled immediately under the umbones; sinus short, abrupt, curved; epidermis coarse, black, and much wrinkled; inside stained with yellow, and having a narrow reddish rim or margin.

For this species, now, I believe, first made known, I am indebted to G. C. Bainbridge, Esq. of Liverpool, who received several specimens from the United States. It appears to have been unknown to Mr. Say, who has published an account of the land and river shells of North America.

The student might be led to suppose, that the two genera of *Unio* and *Anodon* are strongly characterized; for the first includes many of the most ponderous bivalves yet discovered, and the second some remarkably thin and brittle. Among the *Uniones* are shells furnished with hinges of the greatest force, while most of the *Anodons* are perfectly destitute of any; nevertheless, the gradations by which these characters approach each other are very remarkable, and some shells which partake of both have been arranged in separate genera. Of these, the best defined are *Hyria* Lam. and *Dipsas* of Leach; the one allied nearest to *Unio*, but having the cardinal teeth assuming the appearance of lateral or lamellar teeth; the other more resembling the Anodons, but furnished with a strongly defined and elevated lamellar tooth, extending the whole length of the hinge. Between these two genera should be placed another of Lamarck's, called by him *Iridinia*, which has likewise only a simple lamellar plate, but broken into a great number of crenated teeth. The observing Mr. Say has likewise proposed another under the name of *Alasmodonta*, which, however, I shall take another opportunity of noticing.

I have ventured to exchange the ungrammatical name of *Anodonta*, given by Bruguiere to this genus, for *Anodon*, at the suggestion of the learned Dr. Goodall, Provost of Eton College.



80

HALIOTIS Californiensis,

Small-holed Californian Ear-shell.

Generic Character.

Testa univalvis, depressissima, lata, auriformis. Discus admodum perforatus. Spira minuta, depressa. Apertura testam magnitudine penè æquans, intus margaritifera.

Typus Genericus *H. Tuberculata* Linn. &c.

Shell univalve, greatly depressed, broad, ear-shaped, the disk with many perforations. Spire minute, depressed. Aperture nearly as large as the shell; inside pearly.

Generic Type *H. Tuberculata* Linn. &c.

Specific Character.

H. Testâ ovali, lævi, obscurè thalassinâ; labio exteriore supra immarginato, interiore lato, complanato, foraminibus numerosis, minutis, orbicularibus, lævibus.

Shell ovate, smooth, obscure sea green; outer lip above immarginate; inner lip broad, flat; perforations numerous, very small, orbicular and smooth.

The Ear-shells are strangely characterized by their peculiarity of form, perforated holes, and rich pearly interior. They are found in both temperate and tropical seas; but the definitions hitherto given by conchologists are so imperfect, that they have left our knowledge of these shells nearly the same now, as in the time of Linnæus. Seventeen species only are enumerated in Mr. Dillwyn's work; although thirty-four have fallen within my own observation the last few months.

The difference between this and the common black Californian Ear, consists in its being a much deeper and smoother shell, always narrowest at the base, the outer lip not having (as in that) a prominent curve or gibbosity where it joins the spire; but principally in the perforations, which in this are always half as large, and doubly numerous; it is also generally a much smaller, and less common species: the spire is always deeply tinged with pink. The genus *Padollus*, of Montford, resting entirely in the unevenness of the outer lip, without any knowledge of the animal, appears to me an unnecessary distinction, for such is the character of all young shells, and also of mature ones, whose outer surface is rugged or uneven.

Pl. 80.

108.

AMPULLARIA fasciata,

Banded Apple Snail.

GENERIC CHARACTER.

Testa globosa, umbilicata. Spira depressa vel brevissima. Apertura integra, magna, ovata. Operculum testaceum vel corneum. Animal fluviatile.

Shell globose, umbilicated. Spire depressed or very short. Aperture entire, large, oval. Operculum shelly or horny. Animal fluviatile.—Generic Type *Helix ampullacea* Lin.

SPECIFIC CHARACTER.

A. testâ ovato-globosâ, olivaceâ, fasciis obscuro-purpureis angustis ornatâ; spirâ brevi, levatâ, apice acuto; labii margine tenui; umbilico mediocri.

Shell ovate globose, olive, with narrow bands of obscure purple; spire short, elevated, the tip acute; margin of the lip thin; umbilicus moderate.

Am. fasciata. *En. Meth. pl.* 457. *f.* 3. *f.* 4. *(reversed and young).*
Helix ampullacea. *Linn. Lister*, 130. *f.* 30. *Seba, t.* 38. *f.* 1 *to* 6, 58, 59. *Chemnitz*, 9. *t.* 128. *f.* 1135. *Gualt. t.* 1. R.

In the selection of generic characters, sufficiently important to separate Ampullaria from Paludina, great difficulty at present exists; as the fundamental principle on which they should be founded (the formation of the animal) is entirely wanting. It is only known that these shells, like the Paludinæ, are furnished with an operculum. The absence or presence of this organ has been found of the first generic importance; though the substance of which it is composed, as well as the form it assumes, can be considered only as indicating specific distinctions. This is proved from the fact, that among the Naticæ some have horny, and some shelly, opercula: in Phasianella, this part is, in some species, almost flat, in others remarkably convex; in *Turbo, Lam.* its form is even more variable, and in the present genus a similar uncertainty exists. One species alone has been positively described as having this part shelly, while in two others the operculum is as certainly known to be horny; to these last may be added a third, found by myself in the lakes of Pernambuco in Brazil, but to which I have not immediate access. The shells here figured were, however, received from the same place by Mrs. Mawe, and, I think, are of the identical species. The spire is sometimes worn, and the whole shell very thin.

Several fossil shells of this genus are mentioned as existing in the extinct volcanoes of Ronca, in bituminous marl near Pont St. Esprit, &c. as quoted (on the authority of the lustrious Cuvier) by Mr. Bowdich.

SYSTEMATIC INDEX.

ENTOMOLOGY.

PART II.

ADDENDA ET CORRIGENDA.

Pl. 67. line 5, for "*plumesque*" read "*plumisque.*"
16, for "*gigantia*" read "*gigantea.*"
— 69. — 11, for "excerted" read "exserted."
— 70. — 2, for "*Cane*" read "*Cone.*"
5, for "*fasciique*" read "*fasciisque.*"
24, for "renders" read "render."
— 71. — 7, for "*apertura*" read "*aperturâ.*"
16, for "*urseus*" read "*urceus.*"
11 from the bottom, for "*gracibus*" read "*gracilibus.*"
— 91. — 16, for "and Godart mentions" read "and according to Godart."
— 92. — 13, for "*caudi,*" read "*caudis.*"
8 from the bottom, for "*c.* DENTATIS" read "*c.* DENTATI."
— 92. third page, line 3, for "Medicii" read "Medici."
10, for "*Danäis*" read "*Danaus.*"
fourth page, line 10, *dele* "not."
— 95. — 12 from the bottom, after "*angustâ*" add a comma.
second page, line 14 from the bottom, for "*Nectarinia*" read "*Nectariniæ.*"
— 115. second page, line 10 from the bottom, after "between the" add "genera."
line 5 from the bottom, for "*Eurylaimos*" read "*Eurylaimus.*"
— 117. — 6, for "lata" read "latâ."

In the Systematic Index to Vol. I. Conchology, Part I., for "*Acephalis*" read "*Acephali;*" and at the head of the list of errors, for "Corregenda" read "Corrigenda."

Zoological Illustrations,

or

original figures and descriptions

of

new, rare, or interesting

animals,

selected chiefly from the classes of

Ornithology, Entomology, and Conchology

&c.

By William Swainson.

Vol. III.

(4 prem. calg.).

121.

CINNYRIS Javanica,

Javanese Creeper.

GENERIC CHARACTER. — See Pl. 95.

SPECIFIC CHARACTER.

C. supra nitidè purpureo-ærata, subtus olivaceo-crocea; scapulis, uropygio, strigâque laterali a rostro ad pectus descendente nitidè violaceis; jugulo castaneo; caudâ nigrâ.

Above glossy metallic purple; beneath olive yellow; scapulars, rump, and lateral stripe from the bill to the breast, shining violet; throat chesnut; tail black.

Nectarinia Javanica. *Horsefield in Linn. Tran. vol.* 13. i. *p.* 167.

UNDER the full conviction that nature has defined, in the most complete manner, the geographic limits of the various tribes of birds subsisting on vegetable juices, I am particularly anxious to rectify any mistakes that may shake this hypothesis, in which I find myself supported, in the fullest manner, by the opinion of Professor Temminck, in the last edition of his *Manuel.*

Dr. Horsefield, in his account of the birds of Java, describes two species under the names of *Nectarinia Javanica* and *Pectoralis.* It happens, however, that specimens of both these birds are in my own cabinet, and have enabled me to ascertain that they are both decided species of *Cinnyris,* perfectly agreeing with the characters laid down by Cuvier, Temminck, and myself, for this group. It is difficult to say how this oversight has occurred, because Dr. H., just before, introduces the genus *Cinnyris,* and describes under it two new species. In short, no doubt remains in my own mind, that *Cinnyris* is a genus as strictly confined to the tropical latitudes of the *old,* as *Nectarinia* is to the *new* world.

The figure is the size of life; the outline of the bill will illustrate the generic characters, of which one of the most important is the nostrils. Nothing can exceed the richness and variety of tints with which this splendid little creature is ornamented; particularly on the head, which is glossed alternately with lilac, sea-green, and violet, and appears as if covered with some metallic substance; the blue on the wings, back, and edges of the tail is very deep, shining, and glossed with purple; all the wing-feathers are edged with olive, and some of the lesser quills with chesnut.

Pl. 121.

129.

MELLIPHAGA torquata,
White-collared Honeysucker.

GENERIC CHARACTER. — See Pl. 43.

SPECIFIC CHARACTER.

M. olivaceo-fulvâ, infra albâ; capite auribusque nigris; torque nuchali lunato, albo; superciliorum cute rubrâ.

Fulvous olive, beneath white; head and ears black; nape with a white crescent, skin of the eyebrows red.

Black-crowned Honeysucker. *Lewin's Birds of N. Holland, pl.* 24.

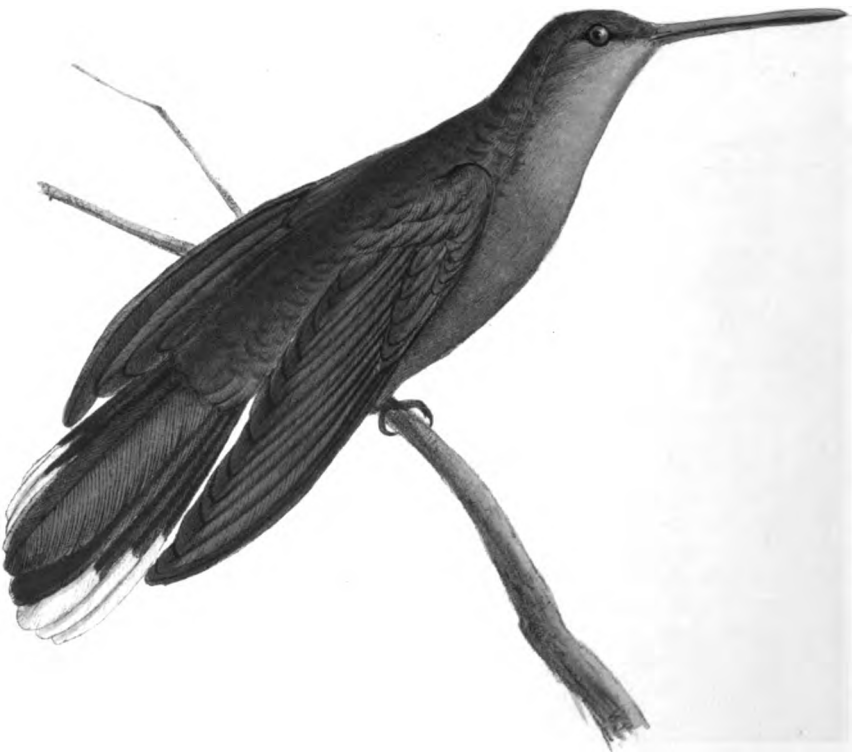
AN elegant, though not a richly coloured bird; remarkable for the bright red of the skin above the eyes, and the milk-white collar at the back of the head. It is from New Holland, and, like others of its tribe, derives its nourishment chiefly from the nectar of flowers; as more particularly mentioned in my first observations on this genus at pl. 43.

The figure is of the natural size: excepting the crown and sides of the head (which are deep black), the whole upper plumage is olive yellow: the shoulders, quills, and tail brown; the two latter margined with olive, but the exterior quills with white: the throat, breast, and collar round the nape pure white; skin of the eyebrows red.

The Lunated Creeper of Dr. Shaw (*Le Fuscalben of Vieillot, Certh. pl.* 61. *p.* 122.) is, I apprehend, a distinct species. It is described as being *cinnamon brown* above, with a bright red spot of *feathers behind* the eye. In the temperate climate of New Holland, that variation from the usual colouring of particular species, so frequent in tropical birds, is seldom met with; neither can these two birds be sexes of one species, because Lewin, who wrote on the spot, particularly remarks that the female of this is like the male; he further adds, it is found near Paramatta, and the Hawkesbury river, in thick bushy woods.

Lewin's figure is so excellent, that I should not again have represented this bird, had not the plate been prepared previous to the publication of his work. The outline figure of the bill will show more clearly the uncommon length of the nostrils, a character which is peculiar to this genus.

Pl. 129.



131.

TROCHILUS latipennis,

Grey Sickle-winged Humming Bird,

Male and Female.

GENERIC CHARACTER.—See Pl. 82.

SPECIFIC CHARACTER.

T. viridi-aureus, subtus canus; remigum primorum (in maribus) scapis dilatato-incurvatis; rectricium pennis 4 mediis viridibus apice nigro, lateralibus albis basi nigrâ; rostro vix recto.

Golden green, beneath grey; greater quills (in the male) with the shafts dilated and incurved. Four middle tail-feathers green tipped with black, lateral feathers white with a black base; bill nearly straight.

T. latipennis. *Lath. In. Orn.* 1. *p.* 310. *Gen. Zool.* 8. 1. 318.
T. campylopterus. *Gm. Sys. Nat.* 499. *n.* 65.
L'O. mouche à larges tuyaux. *Vieillot Ois. D'or. p.* 21. *p.* 59.
Broad-shafted H. Bird. *Lath. Syn. v.* 2. *p.* 765. *Gen. Zool.* 8. 318.

THE opinion I expressed on the unusual formation of the wings in two species of Humming-birds, figured at pl. 83 and 107, appears to receive the fullest confirmation from the birds here represented. One of these (pl. 131) is clearly the *T. latipennis*, or Broad-shafted Humming-bird of authors; while the other presents not the slightest difference except in the shafts of the quills, which, instead of being thickened and dilated, are of the ordinary size.

Not having myself dissected these birds, I cannot decidedly say they are male and female; but I think no reasonable doubt can remain that such is the fact, and that these singular quill-feathers are characteristic only of the male sex.

Both the birds are represented the size of life, and may be included in one description: the upper plumage obscure blueish green, glossed with a coppery or golden tinge and shaded with brown, the plumage beneath entirely grey; ears and sides of the neck the same, the latter with some spots of greenish. Tail large, even, and broad; the two middle feathers green, tipt (in the male) with blackish; the next pair black, with the base green, and the extreme points whitish; the remainder black, with their ends more or less white. Wings violet brown, the shafts of the three outer quills, in the male, dilated and compressed, but simple in the female. Said to inhabit Cayenne. Although the bill of this species is all but straight, it belongs naturally to the curved-bill division.

Pl. 130, 131.

138.

MALURUS garrulus,
Noisy Soft-tail Warbler.

Generic Character.

Rostrum validius, breve, totum valdè compressum, altius quam latius, culmine prominente plumas frontales dividente et ad apicem aliquandò emarginatum, vix incurvo. Nares basales membranâ tectæ, aperturâ laterali. Alæ brevissimæ, rotundatæ, remigum 3 primorum longitudine proximorum 4 longitudinem superante. Cauda plerumque longa, cuneata, radiis mollibus, decompositis. Pedes validi, digito exteriore ad digiti medii basin annexo. Hallux validus.

Ob. Rostri basi vibrissis setaceis sparsis instructâ. Tem.

Bill rather strong, short, much compressed its whole length, higher than broad, the ridge prominent, dividing the frontal feathers, and bent at the tip, which is sometimes notched. Nostrils basal, covered by a membrane, the aperture lateral. Wings very short, rounded, the three first quills shorter than the four next. Tail generally long, cuneated, the radii soft and decomposed. Legs strong; the outer toe connected to the base of the middle toe. Hind claw strong.

Ob. Base of the bill with setaceous hairs. *Temminck.*

Generic Types—Turdus brachypterus. *Lath.* Le Flûteur. *Vail. Ois. d'Af.* 3. *pl.* 112. *f.* 2. Le Capolier. *Do. pl.* 129. *pl.* 130. *f.* 1.

Specific Character.

M. fuscus, infrà albescentibus; plumis frontalibus rigidis, acuminatis, rufis; strigis ante et pone oculos albescentibus; caudâ mediocri, rotundatâ.

M. brown, beneath whitish, feathers on the front of the head rigid, pointed, and rufous; lines before and behind the eye whitish: tail moderate, rounded.

The colours of this bird are altogether plain; but it is remarkable for its very singular nest, which is so large, as to form a feature in the woodland scenery of Bahia, the only part of Brazil where I observed it: the nest is built in low

trees, formed externally of dried sticks, without any neatness, and is usually three or four feet long, resembling at a distance a thick twist of bean stalks thrown in the branches by accident: sometimes two of these nests appear as if joined together, and there is an opening on the side, besides one at the top. The sexes are generally seen near the nest, uttering a shrill, incessant, monotonous chirp, particularly in the morning and evening. I never could bring myself to tear one of their nests to pieces, merely to see its construction.

All the birds of this genus are stated by Professor Temminck to be natives either of the old world, or of the southern hemisphere; but the observations I have made, lead me to think otherwise. Two of the generic types M. Temminck has given, are the same as those I have selected; these birds are now before me; the other (*Le Capolier,*) is so like the species here figured, that (judging from Le Vaillant's plate) they might easily pass for the same bird. Two other species, with characters perfectly resembling *M. garrulus,* are likewise found in Brazil.

From a consideration, therefore, of the affinities and habits of these birds, I conceive they may constitute a very natural genus, closely allied to *Sylvia,* having very compressed bills, short wings, russet coloured plumage, with soft and generally long tails, and building rather large and cylindrical nests. On the other hand, if the whole of the birds mentioned by P. Temminck are retained in the genus, I apprehend it will become entirely artificial; inasmuch as it will include not only the birds above mentioned, but the *Motacilla superba,* and a large non-descript bird from New Holland, the size of a thrush, which in habit, though not in characters, resembles a shrike.

M. Vieillot first proposed this genus, but his definition is so short and obscure, that little can be gained from it.

The slight sketch in the distance, introduced in the plate, will give some idea of the singular nest of this bird.

139.

SYLVIA plumbea,

Grey-backed Warbler.

GENERIC CHARACTER.

Rostri recti, tenuis, basi altiore quam latiore, mandibulâ superiori aliquando emarginatâ, inferiori rectâ. Nares basales, laterales, membranâ partim tectæ. Crura longiora digito medio, qui digito exteriori ad basin annectitur. Ungue posteriore mediocri, digito posteriore breviore et arcuato. Remigum pinnâ primâ brevissimâ aliquando caret. Tectrices remigibus multo breviores. Temm.

Bill straight, slender, base higher than broad; superior mandible sometimes notched, the inferior straight. Nostrils basal, lateral, partly covered by a membrane. Legs longer than the middle toe, which is united to the exterior toe at the base; hinder claw moderate, shorter than the toe, and curved. Wings; the first quill very short, or wanting, greater covers much shorter than the quills. *Temminck.*

Generic Types—*Turdus arundinaceus.* Lath. *Sylvia locustella. Luscinia. Trochilus. Regulus.* (Temminck.)

SPECIFIC CHARACTER.

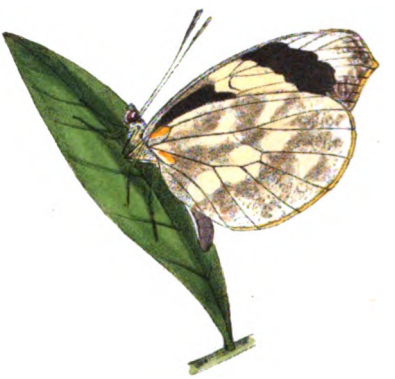
S. cæruleo-grisea, infra aurea; dorso olivaceo; tectricium apicibus albis.

Blue grey, beneath golden yellow; back olive; wing-covers tipt with white.

THERE is an elegance of shape, and a harmony of colouring, in the Warblers, that render these delicate little birds very interesting. The species are exceedingly numerous, and are spread over most parts of the world; several abound in our own woods and hedges, and the "sacred bird" of our childhood, the Robin Redbreast, is among the number. That now before us is a native of Brazil, from whence it was received by Mr. Leadbeater; I never met with it myself. The first quill feather is hardly shorter than the three next, which are all of equal length; the tail-feathers are even, and rather pointed; their colour black, margined with grey; the two outer with a white spot on the inner web; the under wing and tail-covers white.

I have made no material alteration in Prof. Temminck's definition of this overgrown genus, being convinced it might lead to confusion, while the generality of the birds composing it remain so little known.

Pl. 139.



124.

LICINIA Crisia.

GENERIC CHARACTER. — See Pl. 15.

SPECIFIC CHARACTER.

A. mas. Alis anticis falcato-acuminatis, fuscis, fasciâ mediâ margineque postico flavo; posticis infra flavescentibus colore griseo variis, basi maculis 4 fulvis.

Fem. Alis infra albentibus colore griseo variis; anticis integris, supra fuscis, fasciâ mediâ margineque postico albentibus; posticarum basi maculis 4 fulvis.

Male. Anterior wings angulated, brown, with a central band and hind margin yellow; posterior beneath yellowish marbled with grey, base with 4 fulvous spots.

Female. Anterior wings entire, above brown, with a central band and hind margin whitish; all the wings beneath whitish marbled with grey; base of the posterior with 4 fulvous spots.

Pieris Crisia. *Godart. En. Méth. p.* 197. *Male. Drury, v.* 3. *pl.* 37. *f.* 1. 2?

THE extraordinary difference existing between the sexes of exotic Lepidoptera, and particularly among the Butterflies, (*Papilionidæ* Lin.) is a subject which hitherto has received but little attention; nor am I aware of any entomological writer who has described those characters which absolutely distinguish the sexes: characters which, I am persuaded, will hereafter be found of the first importance in a natural arrangement of these insects. But in the prosecution of this desirable object, the naturalist, as far as regards foreign Lepidoptera, will have to encounter serious obstacles; many individuals must be examined of each species, and some of these dissected. It falls to the lot of few to pursue their inquiries in the native regions of these insects. Collections in this country are very few, and some of these are not always open to the scientific labourer; neither can specimens be sacrificed for dissection, where there are not more than two or three individuals of a species.

This is in general a very rare insect; observed for the first time by Dr. Langsdorff and myself early in June (the tropical autumn), in a wood adjoining the Organ Mountains at Rio de Janeiro. From its local abundance, we were able to ascertain the sexes. The two upper figures are of the male, and the lower of the female insect.

Pl. 124.

125.

PAPILIO Nireus.

GENERIC CHARACTER. — See Pl. 92.

SPECIFIC CHARACTER.

P. (*Gr. Ecaud.*) *Alis nigris, fasciâ communi maculisque viridibus; posticis dentatis breviter caudatis; his subtùs fasciâ subargenteâ, marginali, nervis divisâ.* Godart.

P. (Gr. Ecaud.) Wings black, with spots and a common band of green; posterior wings dentated, obsoletely tailed, beneath with a silvery marginal band, divided by the nerves.

P. Nireus. *Fab. Sys. Ent.* 3. *p.* 36. *Godart Ency. Méth.* 9. 1. *p.* 48. *Drury* 2. *pl.* 4. *fig.* 1. 2. *Cramer, p.* 187. A.B. (*mas.*) *pl.* 378. F.G. (*fem.*)

I HAVE figured this insect, principally because it will fully illustrate the first section (*a.*) in the arrangement of this beautiful family proposed at plate 92. The two divisions there adopted, after the manner of Linnæus, (*Græci* et *Trojani*) I am fully aware, are purely artificial; but the facility this distribution will give to the student, in searching after a particular species, is so obvious, that it need hardly be pointed out.

I have only had the opportunity of examining the individual from which the figure was taken. It is a male, having the anal valves rather lengthened and obtuse, with a small hook between them, which projects from the last segment of the abdomen. This circumstance proves the error of Cramer, in having mistaken the sexes of this species, both of which he seems to have figured. That which I apprehend is the female (Cramer, pl. 378, fig. F.G.) I have not myself seen. The blue-green on the upper surface of the wings is very resplendent and changeable, and the palpi and thorax beneath are covered with numerous whitish spots.

On the under side of the inferior wings, near their base, is a paler band, rayed with the nerves, and in some lights shining with a pale silvery reflection.

Mr. Smeathman sent this species from Sierra Leone, in Africa, to Mr. Drury. The locality, therefore, of India, given by Linnæus and Fabricius, must be incorrect.

132.

MACROGLOSSUM annulosum,

Upper figure.

GENERIC CHARACTER. — See Pl. 64.

SPECIFIC CHARACTER.

M. alis nigris, anticis fasciis 2 hyalinè maculatis ornatis; abdominis nigri, segmento tertio niveo.

Wings black, anterior with two bands of hyaline spots; abdomen black, the third segment snowy.

AN elegant insect; so closely allied to *Sphinx Tantalus, Lin.* (*Drury, v.* 1. *pl.* 26. *f.* 5.) as to excite a doubt if it should be considered as a separate species. Drury's figure and description, however, of that insect, induce me to think they are most probably distinct. *S. Tantalus* is without the two bands of hyaline spots, and is much smaller in size.

In this insect are three small, white, snowy dots, on the sides of the lower segments of the abdomen, and the same beneath: the anal segment is grey; with the margin, and spot in the middle, black. Inhabits Brazil, but is a rare insect.

MACROGLOSSUM fasciatum,

Lower figure.

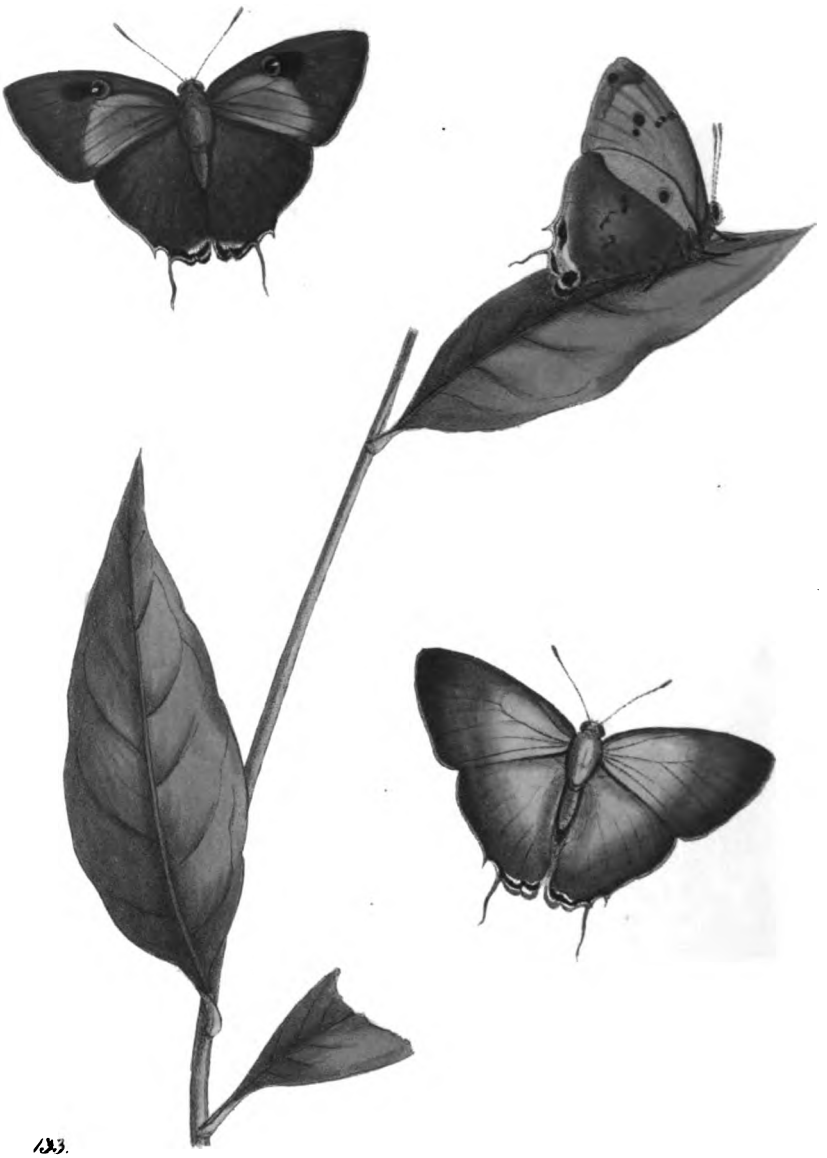
M. alis nigricantibus, anticis fusco variis, posticis strigâ aurantiacâ centrali ornatis; thorace grisea; corporis lateribus, maculis aurantiacis, nigris et pallidè fulvis insignibus; antennis gracilibus; unco producto.

Wings blackish, anterior variegated with brown, posterior with a central orange stripe; thorax grey, sides of the body with orange, black, and pale yellow spots; antennæ slender, hook lengthened.

Sphinx ceculus. *Cramer, pl.* 146. *f. G.*

THIS is another Brazilian species, much more frequent than the last. In Cramer, at pl. 146, g. is figured an insect under the name of *Ceculus*, which no author appears to have quoted; but which (miserably inaccurate as it is), I have no doubt the artist intended as a representation of this insect; particularly as Cramer's description, though short, is very applicable. The colours beneath are uniform dark brown; the thorax, legs, and base of the wings, whitish; near the exterior margin of the superior wings is a small white dot, and two others on each side of the middle segments of the body.

Pl. 132.



133.

THECLA Macaria,

Chesnut-spotted Hair-Streak.

GENERIC CHARACTER.—See Pl. 69.

SPECIFIC CHARACTER.

T. alis supra fuscis; anticis ad basin cæruleis, infra ferrugineis, punctis 2 mediis nigris ornatis; posticis infra castaneis, anticè pallidioribus, maculo nigro ad basin ornatis.

Wings above brown; anterior blue at the base, beneath ferruginous, with two central black spots; posterior beneath chesnut, paler on the fore part, with a black spot near the base.

I HAVE selected this insect as one of the rarest among a vast number of species of this elegant tribe, collected during my travels in Brazil. Two specimens of the male, and one of the female insect, were captured in the woods near Pernambuco, in lat. 8° 12′ S.

The male insects, in the majority of the *Hair-Streaks*, have either a velvet or eye-like spot in the middle of the anterior wings, adjoining their outer margin; these spots are without lustre, and frequently appear as if caused by being rubbed: the colours, likewise, on the upper surface of the wings in the males, generally differ from those of the females.

Wings brown; anterior, with the half next the base blue; central spot blackish, enclosing an obscure eye-like spot margined with grey, the pupil black with a white dot. Posterior wings two-tailed; exterior tail very short, interior lengthened; anal angle two-lobed, margin whitish. Anterior wings beneath, pale chesnut brown, tips chesnut; in the middle are two black dots, one of which is small; above these are three others, which form a short transverse line united to the margin. Posterior wings beneath, dark chesnut; with two central blackish dots in the middle; below are two undulated brown lines, parallel to the posterior margin; the anterior margin pale, with a large black dot near the base; anal angle, clouded with grey and tipt with a black spot: another spot is also at the base of the exterior tail. In the female, all the wings above are brown, with a pale blue base; but the under surface, except in being paler, resembles that of the male.

Pl. 133.

137.

PAPILIO Polybius.

GENERIC CHARACTER.—See Pl. 92.

SPECIFIC CHARACTER.

P. alis nigris; anticis maculo albo centrali; posticis dentato-caudatis maculo rubro centrali nervis diviso; abdomine strigâ laterali; thorace punctis flavis subtùs, ornatis.

P. *(Tr. caud.)* wings black; anterior with a central spot of white; posterior dentated and tailed, with a central red spot, divided by the nerves; stripe on each side the abdomen and spots on the thorax beneath, yellow.

AN insect neither described nor figured by any author. To my liberal friend, Dr. Langsdorff, I am indebted for the two specimens in my own cabinet, collected by himself in the interior of Minas Geraes, or the Diamond district of Brazil. I am not aware of the insect having been found in any other part of that vast country.

An unusual character is presented in this species, alone sufficient to distinguish it from any other contained in the division to which it belongs. This consists in the thorax beneath being spotted with yellow, and the body, on each side of the under surface, having a narrow yellow stripe; the basal margin of the inferior wings is also yellow. Strictly speaking, these yellow spots would remove it from the section *Trojani*, but it would then be improperly separated from *P. Lysithoüs*, *Agavus*, and others to which it is, in every respect, closely allied.

Pl. 137.

119

AMPULLARIA globosa,

Round Apple Snail.

GENERIC CHARACTER.—See Pl. 103.

SPECIFIC CHARACTER.

A. testâ globosâ, lævissimâ, olivaceâ; spirâ depressâ; aperturæ margine crasso, fulvo, sulcato; umbilico parvo, contracto, juxta basin posito; operculo testaceo.

Shell globose, very smooth, olive; spire depressed; margin of the aperture thick, fulvous, grooved; umbilicus small, contracted, placed near the base; operculum shelly.

Helix Ampullacea. *var. Gmelin, p.* 3626. *no.* 43. *Chemnitz,* 9 *tab.* 128. *fig.* 1133. 1134. *p.* 105.

THIS is the most common of the two shells of this genus, which have their mouths closed by a shelly operculum. It is well described by Chemnitz, and his figures are very tolerable; yet, like all the authors of that period, he considered it as a variety of *Helix ampullacea*. From all these supposed varieties it is, nevertheless, quite distinct; the spire is more depressed than that of any other species, and the umbilicus is placed near the bottom of the inner lip: the whole shell is very smooth, and, although generally of a uniform yellowish olive colour, is sometimes marked by narrow bands of purple brown. The margin of the outer lip is slightly reflected, and the colour, beneath the epidermis, almost white. It is a native of the rivers of India.

From the remarks on this genus, made at Plate 103, the fact of their opercula being either shelly or horny, is sufficiently established. These formations, however, there is every reason to suppose, may generally be detected by the following indications. In such species as have a shelly operculum, the margin of the aperture is thickened all round, and has a parallel internal groove for its reception: the probable use of this groove I have detailed elsewhere. On the other hand, in those species which are known to have horny opercula, this margin and groove do not exist; and that part of the shell which is between the top of the aperture and the

umbilicus, is thin and unprotected. This latter formation is by far the most frequent, and leads to the conclusion that the majority of these shells have their opercula horny.

On the distinctions between this genus and *Planorbis*, little need be said. The principal difference consists in the latter having no operculum; but another, and a very remarkable one, (which seems to have escaped all writers,) is, that the shells of the latter genus are destitute of any columella. The *Planorbis cornu-arietis* of Lamarck, has been removed by Mr. G. Sowerby to this genus. This shell, it is true, appears to be intermediate between one and the other; but the only affinity which it bears to *Ampullaria*, is in the oval form of the aperture; while it is allied to *Planorbis* by its discoid form, want of the columella, and being universally described as without an operculum: the preponderance of evidence is clearly in favour of the situation originally assigned to it by Lamarck.

The characters, therefore, given to the genus *Ampullaria* by Mr. G. Sowerby, will be found incorrect. There was no necessity for explaining, much less for altering, (in this instance,) the masterly definitions of Cuvier and Lamarck. With regard to the second species given by Mr. Sowerby to illustrate this genus, he is no less in error; for the real *A. rugosa*, of all authors, is a strikingly distinct shell from that which he has figured under this name. This will be sufficiently obvious by referring to the figures either of Lister, Chemnitz, or Lamarck.

Having offered these remarks on a subject to which I have paid some attention, I wish to refrain from pointedly noticing other errors and misconceptions into which Mr. G. Sowerby has fallen; rather wishing that greater experience, and more matured judgment, may lead him to do this himself, prior to the publication of the system of Conchology which he has announced.

120

AMPULLARIA corrugata,

Wrinkled Apple Snail.

GENERIC CHARACTER.—See Pl. 103.

SPECIFIC CHARACTER.

A. testâ globosâ, corrugatâ, olivaceâ; spiræ prominentis, acutæ, anfractibus ventricosis; aperturæ margine crasso, fulvo, sulcato; umbilico parvo, juxta labii interioris mediam posito; operculo testaceo.

Shell globose, wrinkled, olive; spire prominent, acute, the whorls ventricose; margin of the aperture thick, fulvous, grooved; umbilicus small, linear, near the middle of the inner lip; operculum shelly.

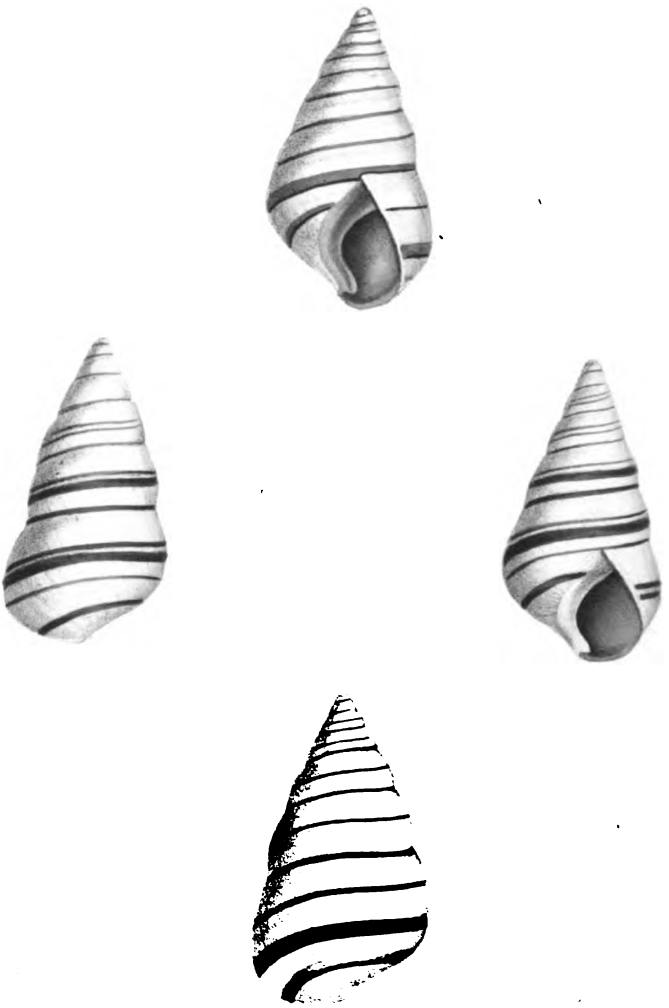
Helix Ampullacea. *Linn. Gmelin, p.* 3626.

Ampullaria rugosa. *Sowerby, Genera of Shells, fas.* 4. *fig.* 1. 2.

THE annexed figures of this hitherto undefined species will clearly show its distinction from *Amp. globosa,* (pl. 119); and the specific characters now framed for these two shells, will, I think, sufficiently distinguish them from each other.

In comparison with *A. globosa,* this (even in the young state) is a wrinkled, not a smooth shell, having the umbilicus placed near the middle, not towards the base, of the inner lip: the spiral whorls are elevated and ventricose, not depressed, and slightly convex; and the basal volution, instead of being very wide on the upper part, (near the suture,) is widest only in the middle. In young shells, the wrinkles and the marginated aperture are less defined. When divested of its epidermis, the colour is blueish white, with a few narrow bands of obscure purple. A specimen in my own collection has the epidermis so thin, that the colours beneath it are very conspicuous. The mouth inside is dark chesnut, with blackish bands; the margin being pale yellow and slightly reflected. The umbilicus, both in this and in *A. globosa,* is small and contracted, while in the real *A. rugosa Lam.* (*Helix urceus Lin.*) it is very large, round, and deep. This latter shell, also, differs from both of the former, by having a thin, and not a margined aperture.

Mr. Sowerby appears the only writer who has figured this shell, which he has mistaken for the *A. rugosa* of Lamarck. I am informed by Mr. Humphreys it is a native of India.



122.

ACHATINA virginea, *var.*

Common Striped Achatina, *var.* 2 *and* 3.

GENERIC CHARACTER. — See Pl. 30.

SPECIFIC CHARACTER.

A. testâ elongatâ, fasciis numerosis nigris, viridibus et flavis ornatâ; anfractûs basalis latitudine altitudinem superante; aperturâ rotundatâ; labio exteriore integro; basi profundè emarginatâ.

Var. 2. *testâ fasciis fuscis ornatâ; labio interiore albo.*

Var. 3. *testâ fasciis rufis ornatâ; labio interiore roseo.*

Shell elongated, with crowded bands of black, green, and yellow; basal volution broader than high; aperture rounded; outer lip entire; base deeply notched.

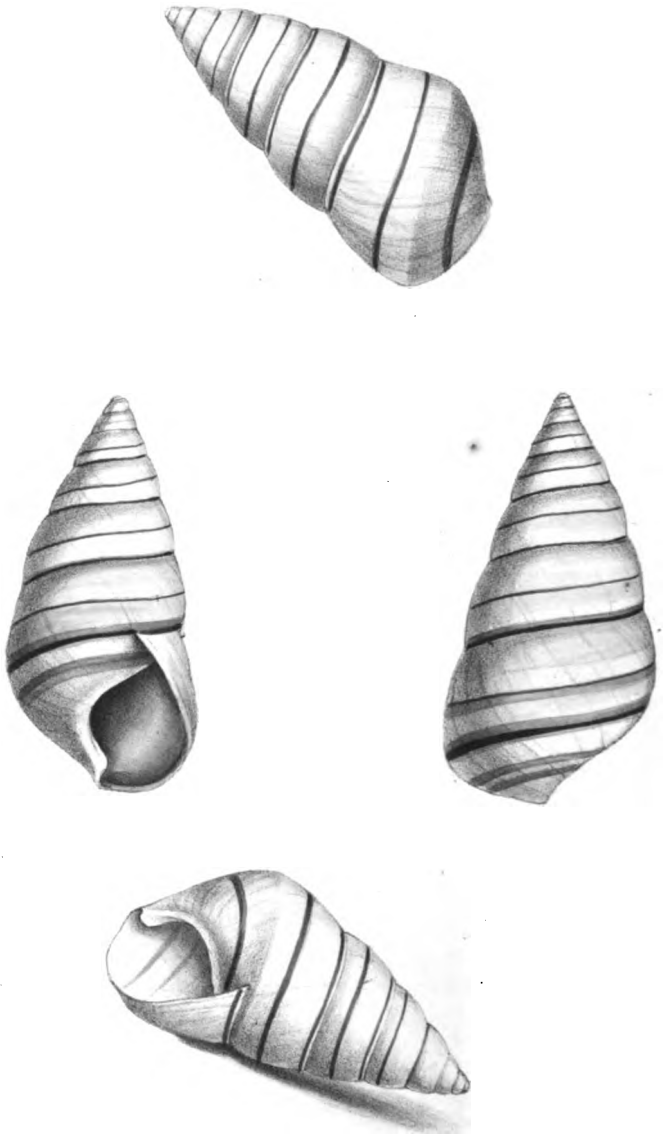
Bulla virginea. *Gm.* 3429. *Chemnitz*, 9. *t.* 117. *f.* 1000, 1. *Dill.* 491.
Bulimus virgineus. *Brug. p.* 363.—*Lister*, 15. 10. *Seba*, *t.* 40. *f.* 38. *Ferrusac*, *pl.* 120. *f.* 3, 4, 5.

Var. 2. Shell banded with brown; inner lip white. *Ferrusac*, *t.* 120. *f.* 2.

Var. 3. Shell banded with rufous; inner lip rosy. *Chemnitz*, 10. 173. *f.* 1682, 1683, *(reversed.)*

THE shell generally known as the *Ach. virginea* (*Bulla virginea Lin.*) is so common, that few collectors do not possess it. The varieties, however, of this species are rare, and differ so remarkably in their colouring, as to require illustration. Several kindred species of this family I have already described; and on the same principle of establishing specific distinctions from formation instead of colour, I shall now endeavour to point out those characters which are common, more or less, to all the varieties of this species, and which distinguish it from its allies. *A. virginea* may be known by the comparative shortness of the basal whorl, which in general is broader than high; the margin of the outer lip is entire, and sloping in an oblique direction; the aperture is wide, and nearly round; the lower part of the columella takes a concave direction, and between its base and that of the outer lip is a very deep notch. The basal whorl is so broad that the shell, if placed on a table with its mouth downwards, will remain erect.

Both these and the two next varieties are in Mr. Dubois' cabinet. Their locality is unknown; but my young friend, Mr. Frederick Parkes, has recently sent me shells of the common variety, found by himself near Kingston, Jamaica.



123

ACHATINA virginea, *var.* 3 *and* 4.

GENERIC CHARACTER. — See Pl. 30.

SPECIFIC CHARACTER. — See Pl. 122.

A. virginea, var. 3. *testâ ampliore, albescente, fasciis rufis nigrisque ornatâ; aperturâ purpureâ; labio interiore albo.*

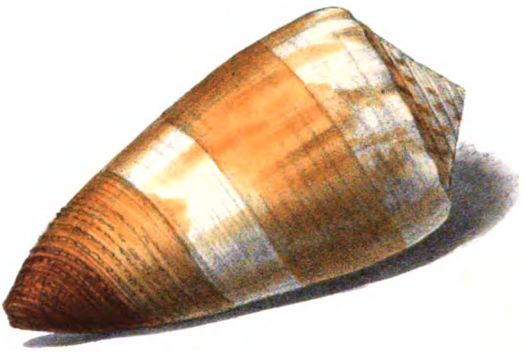
Var. 4. *testâ ampliore, albâ, fasciis* 3 *angustis, fuscis ornatâ; aperturâ labioque interiore albis; anfractu basali medio subcarinato.*

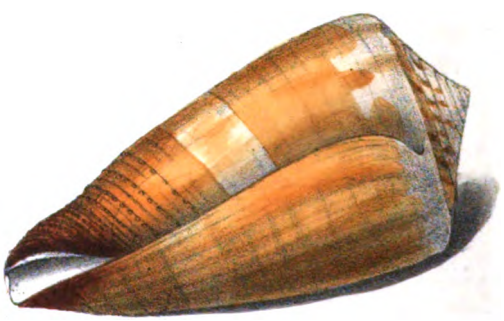
A. virginea, var. 3. Shell larger, whitish, with rufous and black bands, aperture purple; inner lip white. *Middle figures.*

Var. 4. Shell larger, white, with three narrow brown bands; aperture and inner lip white; basal whorl in the middle slightly carinated. *Upper and lower figures.*

THE two varieties of *A. virginea* on this plate, are still more removed from the type of the species than those last figured; they are both much larger in size, and var. 4 presents a slight difference of formation, in having the basal volution somewhat carinated round the middle; but as in every other essential character it agrees with the rest, I have refrained from separating it as a distinct species.

The four varieties I have now illustrated of *Ach. virginea,* tend to establish, in a very complete manner, the correctness of the principles on which I have framed the specific characters of this genus; here are four shells, with a total difference in the colouring of each, yet all agreeing in the same formation. It should be observed likewise, that *A. pallida,* figured at pl. 41 of this work, and *A. virginea,* var. 4, are nearly the same in colour, while in formation they are completely at variance. I do not think it has been hitherto remarked, that the elegant green lines which ornament the common variety, are only *external;* they resemble, in this respect, the epidermis of other shells, for they may be taken off by a knife without any injury to the enamel. M. Ferrusac has figured several other varieties in his beautiful work on Land Shells.





128.

CONUS vitulinus, *var.*

Orange Fox Cone,

Brown-tipp'd variety.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. testâ fulvâ seu fuscâ, fasciis 2 interruptis ornatâ; spiræ brevis, levatæ, conicæ, maculatæ anfractibus concavis, subgranosè striatis; basi granosâ, albâ.

Var. testâ flavescente, fasciis obscuris, subalbidis ornatâ; basi rufâ. (*Fig. nos.*)

Shell fulvous or brown, with 2 interrupted white bands; spire short, elevated, conic, spotted, volutions concave with subgranulated striæ; base granulated, white.

Conus vitulinus. *Brug. p.* 648. *Lamarck. Ann.* 15. *p.* 265. *Knorr. vol.* 5. *tab.* 1. *fig.* 4 (*optimè*). *Dillwyn* 377.

Var. Shell yellowish, with obscure whitish bands; the base rufous.

I RECEIVED this very uncommon shell from the Island of Amboyna; and although in size and colour it is widely different from the usual appearance of *C. vitulinus*, I have no hesitation in considering it as a remarkable variety only of that species.

C. vitulinus in general is a small shell. The best representation of it I have seen is given by Knorr; an author not in general very accurate in his figures. It varies considerably in colour, and approaches very near to *C. vulpinus Lam.* from which it principally differs in having an elevated, though short, spire, instead of one nearly flat: the base is granulated, and generally white; *C. vulpinus* also has the body whorl carinated and thickest round the upper margin, whereas, in *Vitulinus*, it is gently swelled in the middle.

M. Lamarck is, I think, mistaken in the synonyms of this shell, which is represented in the *Ency. Méth.* plate 326, fig. 204. The shell at fig. 8. appears to me as the granulated variety of *C. vulpinus*.

Inhabits the Asiatic Ocean.

Pl. 126.

CONUS Maldivus,
Spanish Admiral Cone.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER.

C. testâ lævi, posticè gracili ferrugineâ, maculis albis subtrigonis, cingulisque numerosis fuscis, albo punctatis, ornatâ; basi nigrâ; spiræ brevis apice acuto, anfractibus lævibus, planis.

Shell smooth, posterior end slender, ferruginous, with angular white spots, and white bands dotted with brown; base black; spire short, tip acute, the whorls smooth and flat.

C. Maldivus. *Brug.* (1789.) *p.* 644. *Lam. Ann. v.* 15. *p.* 264.
C. Jaspideus. *Humphreys in Mus. Cal.* (1797) *p.* 12. *No.* 185.
Conus Generalis. *Var.* B. *Dillwyn.* 539. 11.

Var. 1. Band in the middle narrow; *upper figure. Ency. Méth.* pl. 325. fig. 6.
Var. 2. Band broader; *lower figure.*
Var. 3. Band very broad, with dotted transverse lines; *middle figure.*

Seba. pl. 54. *fig.* 11. 12. *Ency. Méth. pl.* 325. *fig.* 5. 7.

THE general similarity existing between the Spanish Admiral, and two other cones, figured in this work, I have before alluded to; it has been placed by the Linnæan writers as a variety of *C. Generalis,* from which, however, it invariably differs, in being a much thicker shell, with a shorter spire, and the whorls without any concavity. The colour of the two species varies considerably in different individuals, but *C. Maldivus* is always destitute of the dark brown longitudinal stripes at the top of the body whorl, peculiar to *C. Generalis;* the white bands are either broken into somewhat triangular spots, or are banded with minute dots; these triangular white spots are sometimes scattered in other parts of the shell, and the white band in the middle varies much in breadth; of all the varieties I have yet seen, the middle figure is that which makes the nearest approach to *C. Generalis.*

The very applicable name given to this shell by Mr. Humphreys, in the *Museum Calonnianum,* I should have adopted, had not Bruguiere previously affixed to it that of *Maldivus,* as being a native of the Maldivian Islands.

Pl. 127.

CONUS Maldivus, *var.*

Spanish Admiral Cone,

Chesnut variety.

GENERIC CHARACTER.—See Pl. 65.

SPECIFIC CHARACTER. — See Pl. 127.

Conus Maldivus. Var. B. *testâ castaneâ, fasciâ albescente mediâ angustâ ornatâ; anfractûs basalis basi et margine albis.*

Var. B. Chesnut, with a narrow whitish band in the middle; base and margin of the body whorl white.

As a further illustration of the last plate, I have been induced to figure this very rare variety, from a specimen I met with at Mrs. Mawe's. In the disposition of its markings, it approaches near to the shell represented in the *Ency. Méth. plate* 325, *f.* 6, but the white band in the middle is narrower, and quite destitute of the circular dotted lines there expressed.

No shells require a greater accuracy of delineation than the Cones, particularly in expressing the peculiarity in the form and sculpture of their spires. I am well persuaded that a great number of the mistakes committed by authors have originated in the wretched figures contained in Favanne's work, and in the early volumes of Martini. Those of Favanne are generally so loose and inaccurate, (although remarkably well engraved,) that I do not wish, by quoting, to make them any authority; and most of the Cones figured by Martini are equally bad.

Bruguiere and Lamarck have both given the character of *spirâ canaliculatâ* to this species, which is altogether a mistake. The spiral whorls are all *but* perfectly flat, and the suture is quite closed up, although sometimes uneven; originating, as in many other shells, either from the inequalities of growth, or from an accidental sea-break, which the animal may have repaired.

134.

STROMBUS exustus,

Burnt, or Purple-mouthed Strombus,—(Upper figure.)

GENERIC CHARACTER.—See Pl. 10.

SPECIFIC CHARACTER.

S. testâ nodosâ; labio interiore albo, lævi; labii exterioris inflexi, supra sinuati, intus purpureo-atri, striati; lobo basali edentulo.

Shell nodulous; inner lip smooth, whitish; outer lip inflected, above sinuated, within striated, blackish purple; basal lobe not toothed.

Young. S. papilio. *Chem.* x. *t.* 158. *f.* 1510, 11. *Dillw.* 661. 120. 11.
Adult. Strombus exustus. *Humphreys in Mus. Cal. p.* 38. *n.* 714.
S. lentiginosus. *Martini*, iii. *t.* 80. *f.* 825, 826. *Gmelin.* 3510. *(var. β.) Dillwyn.* 660.
Seba, t. 52. *f.* 17. 18. *Knorr.* 3. *t.* 26. *f.* 2. 3?

SPECIMENS now before me prove that the *S. papilio* of Chemnitz is a young shell of *S. exustus*, a species named by Mr. Humphreys in the Calonne Catalogue, and described in his own manuscripts. In a young state, the aperture is smooth and nearly white, but when full grown, the outer lip is strongly striated, and the aperture reddish purple, dark red, or reddish chesnut: the outer lip is but slightly sinuated above, and the basal lobe never toothed, as in the next species. Inhabits the island of Haynam, in the East Indies, and is very rare.

STROMBUS lentiginosus,

Tuberculated Strombus,—(Lower figure.)

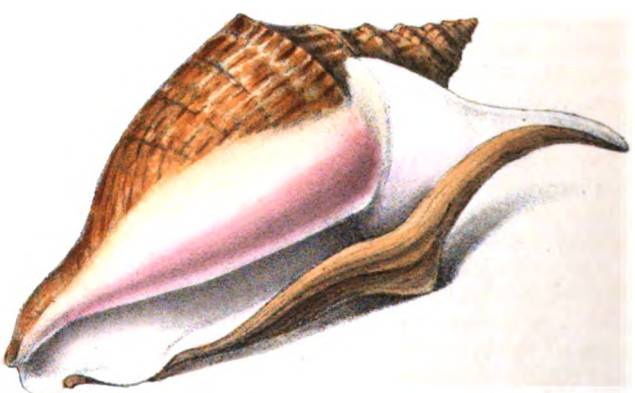
S. testâ nodosâ; labii exterioris supra rotundati ad spiram annexi, profundè bilobati, margine crasso inflexo, sub-nodoso; lobo basali dentato; aperturâ lævi.

Shell nodulous, outer lip above rounded, attached to the spire, deeply bilobated, margin thick, inflexed, slightly nodulous; basal lobe toothed; aperture smooth.

Young. Seba, t. 62. *f.* 37. 40. *optimè. Martini*, 3. *t.* 89. *f.* 871. *t.* 91. *f.* 891. 892? *Lister*, 893. 12?
Adult. S. lentiginosus. *Gmelin*, 3510. *Dillwyn.* 660. *Martini*, 3. *t.* 81. *f.* 827, 828.
Seba, 62. *f.* 11. 30. *(optimè.) Lister*, 861. 18. *Gualt.* 32. *f.* A.

THIS common shell requires little description, and is only introduced to contrast more fully the difference between these two species: the upper part of the lip has two deep notches, which form three prominent lobes; the basal lobe is toothed, similar to the *Pterocerae:* the aperture (in those shells from the East Indies) is light pink inside. A large and fine variety comes from the Mauritia islands, having the mouth within pale golden yellow.

Pl. 134.



135.

STROMBUS tricornis,
Horned Strombus.

GENERIC CHARACTER.—See Pl. 10.

SPECIFIC CHARACTER.

S. testâ ponderosâ, nodis longitudinaliter compressis armatâ; labio exteriore inflexo, margine crasso, suprà attenuato et ultra spiram producto; canali truncato.

Shell ponderous, with longitudinally compressed nodules; outer lip inflexed, the margin thick, above attenuated and produced beyond the spire; channel truncated.

In young stages of growth.

Seba, pl. 62. *f.* 36, 10. *Martini* 3. *tab.* 91. *f.* 890. *tab.* 85. *f.* 847.

Var. A. Shell whitish, outer lip much produced. *Upper figure. Martini, vol.* 3. *tab.* 84. *f.* 844, 845. *Sw. Ex. Conch. part* 4.

Var. B. Shell varied with chesnut, outer lip shorter. *Lower figure. Ency. Méth. t.* 408. *f.* 1. *t.* 409. *f.* 2. *Martini,* 3. *tab.* 84. *f.* 843. *Lister,* 871. *f.* 25. 873. *f.* 29.

MARTINI was the first conchological writer who separated this species from the *Strombus Gallus* of Linnæus; under which name are included three shells, so remarkably different from each other, that they hardly possess a single character in common.

The original name of Linnæus I have retained to that species figured by *Seba, tab.* 62. *fig.* 1 and 2, and by myself in *Exotic Conchology, Part* 4.

Strombus tricornis, although figured, has never yet, I believe, been defined.

Two varieties of this shell are met with; one having the attenuated process of the lip much produced, the margins folded inward, and the tip somewhat spatulate, or spoon-shaped: the colour of this variety is generally white, slightly varigated with brown stripes or irregular spots. A very fine specimen of this variety, having these characters remarkably developed, is in my own cabinet, and is figured in *Exotic Conchology,* part 4. The second variety has the process of the lip shorter, and the margins not folded; the colour usually brownish, richly clouded and variegated with chesnut; the aperture within is tinged with pale red or rosy; but that of the other variety is pure white. I believe this species inhabits the coasts of America; it is a heavy shell, and sometimes measures seven inches in extreme length.

Pl. 135.

136.

AMPULLARIA crassa,

Thick Apple Snail,

Upper and lower figures.

GENERIC CHARACTER.—See Pl. 103.

SPECIFIC CHARACTER.

A. testâ globosâ, lævi, (sub epidermide) albâ, fasciis fuscis ornatâ; spiræ levatæ apice obtuso; aperturæ margine albo, crasso; umbilico caret.

Shell globose, smooth, beneath the epidermis white with brown bands; spire elevated, tip obtuse; margin of the aperture thick, white; umbilicus none.

Martini 9. *t.* 128. *f.* 1135.

A DISTINCT species, well characterised by the absence of the umbilicus, the situation of which is indicated only by a slight depression: the margin of the aperture all round is thickened, and white; but, from no groove being discernible, I suspect the operculum may be horny. The only specimen I have, is divested of the epidermis; it is obviously an old shell; and appears to agree with the figure of Martini, also taken from an uncoated specimen.

AMPULLARIA oblonga,

Oblong Apple Snail,—(Middle figures.)

A. testâ oblongâ, lævi, tenui, fuscâ; spirâ levatâ, crassâ, obtusâ; aperturæ elongatæ basi contractâ; umbilico vix obsoleto.

Shell oblong, smooth, thin, brown; spire elevated, thick, obtuse; aperture lengthened, base contracted; umbilicus nearly obsolete.

A RARE and undescribed shell, presenting a singular deviation from the general globose form of the *Ampullariæ.* The inner lip is wanting on the upper part of the aperture, and on the lower is thin, white, and reflected over the umbilicus, which is nearly obsolete.

Both these shells were in the late Mrs. Bligh's collection, without any *habitat* being affixed to them.

Pl. 136.

Index.

Vertebrosa.

Conchology.

Entomology.