6. On the Fruit-Pigeons of the Genus *Ptilopus*.

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(Plates XXXIII. & XXXIV.)

My material for the present paper has been most ample, and was derived from the following sources :—the collection of the Paris Museum, rich in the types of the older authors, such as Hombron and Jacquinot, Lesson, Quoy and Gaimard, Bonaparte, Temminck, Knip, &c. ; the collection of the British Museum, containing the types of Gray, Gould, Wallace, &c. ; a series of special desiderata from the Museum at Genoa, collected by D'Albertis, Bruijn, &c., and from the Museum of Count Turati at Milan ; a large number of various species from different localities brought by Laglaize, and especially by M. Raffray, now in the Paris Museum ; the species of *Ptilopus* procured by the 'Challenger' Expedition, also those from Duke-of-York Island sent by Mr. Brown ; specimens in Messrs. Salvin and Godman's collection obtained by Mr. Layard in the Fiji Islands ; and, lastly, the type specimen of Dr. Finsch's recently described *Pt. ponapensis*.

Probably no such complete series, illustrating the species of this group from all localities, has ever before been at the disposal of any one wishing to study these birds ; and it is very safe to say that, unless I had had before me the actual specimens described and figured by the earlier writers, especially of those species belonging to the islands of the Polynesian subregion, this paper could never have been written without great danger of adding to the confusion already existing in these perplexing birds. The descriptions in many instances are so meagre and unsatisfactory, and the illustrations, in certain cases, so totally unlike the originals, that it is utterly impossible to recognize the species by them ; but having had the specimens, in the majority of instances, before me, I have been enabled to ascertain without difficulty to what species these doubtful birds (made such by their authors) really belonged. Some of my conclusions may be found to be quite at variance from those of other authors ; but in all cases (unless otherwise stated), let it be remembered, I have judged from the vast material at my command, and, having brought to my task a mind totally unprejudiced by any preconceived opinions, it will not perhaps be deemed too great a request should I ask that, if any of the decisions arrived at in this paper are rejected, they may be condemned only after the examination of material at least approximating somewhat to that which I have consulted, and such as will clearly show my views to be erroneous.

Probably there are but few groups of birds so liable to lead a naturalist astray as those species of *Ptilopus* inhabiting the Pacific islands ; and, without an ample series before him, no one could accurately diagnose the forms that really are distinct. In this special division of the genus the collection of the Paris Museum is rich,

Hanhart imp

PTILOPUS PICTIVENTRIS.

$\frac{2}{3}$

J. Smit lith

J. Smit lith.

J. Smit

2/3

PTILOPUS GESTROI.

Hanbart imp.

probably beyond all others, through the material brought to France by the scientific expeditions known as the voyages of the 'Astrolabe,' 'Coquille,' 'Vénus,' 'Zélé,' 'Pôle Sud,' &c. Many types are among these specimens; and it has been by their assistance I have worked out the synonymy of the species of the Polynesian subregion. All the species figured by Bonaparte in his 'Iconographie des Pigeons' are also in the Museum, and have been invaluable in enabling me to arrange the synonymy and determine the species to which they belong, which has not been always possible from the work itself, some curious and unaccountable errors having been committed by the authors.

Man is fallible, and it is not to be supposed that in an extensive review of some seventy species no errors have been committed; but, having endeavoured to verify every statement made in this paper (taking nothing for granted), I may venture to hope that inaccuracies have been reduced to a minimum.

The pleasing duty now alone remains for me to express my thanks to those who have assisted me with material during the time I have been occupied with this memoir, without whose aid it certainly never could have been properly completed. To my friend Prof. A. Milne-Edwards, to whom I have already so often given my testimony as to his willingness to accord every facility for the study and examination of the unequalled collection of birds and quadrupeds under his charge, I am again under obligations for every assistance rendered to me during the months I have been engaged upon this group. Not only was every specimen the Museum contained continually at my disposal, but also many books from his own library were placed at my service as, from time to time, I had need of them. It is only by such enlightened assistance and cooperation from those who are at the heads of great departments in European museums that any satisfactory work can be accomplished by a naturalist who may not be himself attached to such institutions. To Dr. Oustalet, Aide-Naturaliste, I also desire to express my thanks for much assistance continually and freely given. To my friend Count T. Salvadori I would acknowledge my indebtedness for a very valuable series of specimens not otherwise obtainable, procured by the consent of the Marquis G. Doria from the Museum at Genoa, among which were some types of Count Salvadori's lately described species. To Count H. Turati I am also obliged for specimens from his magnificent museum. To my friend Dr. Sclater I am indebted for opportunities of examining the collection of the 'Challenger' Expedition, and also those sent to him from different islands in the Pacific, containing various types of the species described by him from time to time; and to Messrs. Salvin and Godman for specimens from their collection obtained by Mr. Layard, and which I brought to Paris for comparison with those in the Museum collection. To Mr. Sharpe, who placed at my disposal all the specimens of this genus in the British Museum, among which were various types of much service in determining some doubtful points, I am greatly obliged. And, lastly, to the Directors of the Museum Godeffroy, who sent me the types of *Ptilopus pona-*

pensis described lately in this Journal by Dr. Finsch, I am much indebted.

I commence with a brief review of the literature of the genus:—

1766. LINNÆUS, 'Systema Naturæ.'

But one species was known to this author belonging to the present genus, and was named by him *Columba viridis*. Species 1.

1788. GMELIN, 'Systema Naturæ.'

In this work three species are given, two of which are described the first time—*C. viridis*, *C. jambu*, and *C. melanocephalus*. Another one is mentioned, the *C. purpurata*, based on Latham's "Purple-crowned Pigeon." This, however, describes no species known, but is taken from portions of two different ones, and therefore cannot be recognized. Species 3.

1813. TEMMINCK, 'Histoire Naturelle des Pigeons et des Gallinacées.'

Two species are here described belonging to the genus *Ptilopus*, viz. *Pt. cinctus* and *Pt. superbus*, placed in the genus *Columba*. Species 5.

1820-39. TEMMINCK, 'Planches Coloriées.'

Eight species are described in this work belonging to this genus, all under the term *Columba*, seven of which are given for the first time, viz. *Pt. magnificus*, *Pt. monachus*, *Pt. pulchellus*, *Pt. hyogaster*, *Pt. porphyreus*, *Pt. perlatus*, and *Pt. nanus*. The *Pt. xanthogaster* of Wagl. is renamed *diademata*. Species 12.

1825. SWAINSON, 'Zoological Journal.'

Pt. regina, from Australia, described as *Columba purpurata*, var. *regina*. Species 13.

1826. LESSON, 'Voyage de la Coquille.'

In the volume devoted to the zoology of this expedition one species is described belonging to this genus, viz. *Pt. taitensis* as *Columba kurukuru*, var. *taitensis*, from Otaheite. Species 14.

1827. LESSON, 'Bulletin des Sciences Naturelles.'

The *Colombe amarante* of the 'Voyage of the Coquille' is here named *Columba puella*. Species 15.

1827. WAGLER, 'Systema Avium.'

Pt. xanthogaster first described as *Columba xanthogaster*. Species 16.

1829. WAGLER, in the 'Isis.'

In his list of the Columbæ several species of this genus are given. Two are described for the first time, viz. *Pt. pectoralis* and *Pt. purpuratus*, ex Tonga Tabou. *Pt. taitensis*, Less., is renamed *Columba oopa*. Species 18.

1830. QUOY & GAIMARD, in the 'Voyage of the Astrolabe.'

Pt. gularis is here described and figured as *Columba gularis*.
Species 19.

1831. LESSON, 'Traité d'Ornithologie.'

Under the term *Ptilonopus* eight species are given, one of them for the first time, *Pt. roseicapillus*. Four of the remainder are valid species, viz. *melanocephalus*, *jambu*, *porphyreus*, and *taitensis*. *Pt. cyanovirens* is the female of *superbus*, *Pt. virens* is the female of *pectoralis*, and *Pt. purpuratus* is *Pt. ewingii*. Species 20.

1838? KNIP AND PRÉVOST, 'Histoire Naturelle Générale des Pigeons.'

Ptilopus rivoli described as *Columba rivoli*. Species 21.

1840. NEBOUX, in the 'Revue Zoologique.'

Pt. dupetit-thouarsi first described as *Columba dupetit-thouarsii*.
Species 22.

1841. HOMBRON AND JACQUINOT, 'Annales des Sciences Naturelles.'

Pt. luteovirens described in the genus *Columba*. Species 23.

1842. GOULD, in the 'Proceedings of the Zoological Society of London.'

Pt. ewingii described. Species 24.

1844. GRAY AND MITCHELL, 'Genera of Birds.'

Twenty-five species are here recorded, of which three do not belong to this genus, viz. *Pt. holosericeus*, Temm., *maculatus*, Gmel., and *pulcherrimus*, Scop. *Pt. purpuratus*, Lath., is a made-up species, *Pt. virens* = *pectoralis*, Wagl.; *Pt. cyanovirens* = *superbus* ♀, Temm.; *Pt. purpureo-leucocephalus* = *dupetit-thouarsi*, Neboux; *Pt. swainsoni* = *regina*, Swains.; *Pt. roseicollis* = *porphyreus*, Temm.; *Pt. viridissimus*, Temm. = *fasciatus*, Peale. The remaining species are valid, among which *Pt. occipitalis* is given for the first time and a plate published. Species 25.

1848. PEALE, 'United-States Exploring Expedition, Ornithology.'

A list of the species belonging to this group, collected by this Expedition, is given, four in all, among which three are described for the first time, viz. *Pt. coralensis*, *Pt. perousii*, and *Pt. fasciatus*; the fourth, *Pt. furcatus*, is the *Pt. taitensis* of Lesson. Species 28.

1850. GOULD, in 'Jardine's Contributions to Ornithology.'

Pt. strophium described for the first time. Species 29.

1850. GOULD, 'Proceedings of the Zoological Society of London.'

A race of *Pt. magnificus* is named *Pt. assimilis*. Species 30.

1853. GRAY, 'Proceedings of the Zoological Society of London.'

Pt. chrysogaster described. Species 31.

1853. JACQUINOT AND PUCHERAN, 'Voyage au Pôle Sud' (text). Young of *Pt. luteovirens* described as *Pt. feliciæ*.

1854. BONAPARTE, in the 'Comptes Rendus.'

In a paper contributed to this Journal, Bonaparte divided the then known species of *Ptilopus* into various genera as follows:—*Leucotreron*, *Cyanotreron*, *Rhamphiculus*, *Omeotreron*, *Kurutreron*, *Thouarsitreron*, *Lamprotreron*, *Iotreron*, and *Chrysæna*. These are founded mainly upon the coloration of plumage (a dangerous character (?) always), and in this case not particularly well selected. In the case of *Rhamphiculus* and *Omeotreron*, the former is created for the young (!), and the latter for the adult (!), of *Ptilopus occipitalis*; and in *Cyanotreron* is placed the female (?) of *Ptilopus superbus*, while the male (!) of the same species is made the type of the genus *Lamprotreron*. In *Omeotreron*, also, is placed the young of *Pt. luteovirens*, while the adult is the type of the genus *Chrysæna*! It does not appear to me necessary, or even advisable, to adopt any of this author's genera for this group.

1854. BONAPARTE, in the 'Comptes Rendus.'

The young of *Pt. occipitalis* is called *Pt. batilda*, and *Pt. apicalis* is first described. Species 32.

1855. DESMURS AND PRÉVOST, 'Voyage de la Vénus.'

Pt. mercieri and *Pt. temminckii* first described. Species 34.

1855. BONAPARTE, in the 'Comptes Rendus.'

Pt. leclancheri described as *Trerolæma leclancheri*. Species 35.

1856. GRAY, 'List Birds British Museum.'

Among the members of this genus here recorded *Pt. greyi* is named but not described. Species 36.

1856. GOULD, 'Proceedings of the Zoological Society of London.'

Pt. eugeniæ from the Solomon Islands described. Species 37.

1857. BONAPARTE, 'Conspectus Generum Avium.'

In this publication this author made a subfamily of this group, and divided it into the genera proposed by him in the 'Comptes Rendus' three years previously. *Pt. xanthogaster*, Wagl., is called *diademata*, after Temminck; *Drepanoptila holosericea* is placed in the genus *Lamprotreron* with *superba* and *porphyreus*! In *Ptilopus* are *purpuratus*, Wagl., as *porphyraceus*, Forst., ex Tonga-Tabou; *regina*, Swains., as *swainsoni*, Gould; *Pt. ewingii*, Gould, from Timor, is separated as *flavicollis*, after Gray; *Pt. coralensis*, Peale, redescribed as *viridissimus*; the species ex Vanikoro (!) (errore) called *purpuratus*, Wagl. [this bird comes from Balaou, not Vanikoro, and was afterwards named *bonapartei* by Gray]; *Pt. roseicapillus*, *mercieri*, *fasciatus*, Peale (as *clementinæ*, Hombr. & Jacq.); *perousii*, Peale (as *maricæ*, Hombr. & Jacq.); *pulchellus* and *apicalis*. *Cyanotreron* has *cyanovirens* (= *superbus*, Temm., ♀) and *monachus*, Temm. *Iotreron* contains *viridis*, Linn., *melanocephalus*, Gmel., *rivoli*, Prév. & Knip, *iogaster*, Temm., and *nana*,

Temm. *Kurutreron* possesses *oopa*, Wagl. (= *taitensis*, Less.), *chrysogaster*, Gray, and *coralensis*, Peale. *Omeotreron* has *batilda* (= *occipitalis*, juv.), *virens* (= *pectoralis*, Wagl.), and *feliciæ*, Hombr. and Jacq. (= *luteovirens*, Hombr. & Jacq., juv.). In *Chrysæna* is placed *luteovirens*. *Phapitreron* is also included in this subfamily, containing the *Columba leucotis*, Temm., and *Ph. amethystina*, Bon.; but these birds have but little in common with those of the genus *Ptilopus*.

1858. GRAY, 'Proceedings of the Zoological Society of London.'

Five species are here described for the first time, viz. *Pt. prasinorrhous*, *Pt. iozonus*, *Pt. aurantiifrons*, *Pt. coronulatus*, and *Pt. wallacei*. Species 42.

1859. GRAY, 'List of Birds of the Tropical Islands of the Pacific Ocean.'

Nineteen species of the genus *Ptilopus* are recorded in this catalogue of the species of the Pacific islands contained in the British Museum. One species is described as distinct—*Pt. chalcurus*. Species 43.

1860. GRAY, 'Proceedings of the Zoological Society of London.'

Pt. temminckii, Des Murs & Prév., described as *Pt. formosus*.

1861. Schlegel, 'Nederlandsch Tijdschrift voor de Dierkunde.'

Pt. insolitus described. Species 44.

1862. WALLACE, 'Proceedings of the Zoological Society of London.'

Pt. humeralis first described. Species 45.

1863. WALLACE, 'Proceedings of the Zoological Society of London.'

Pt. albocinctus first named. Species 46.

1863. SCHLEGEL, 'Nederlandsch Tijdschrift voor de Dierkunde.'

Pt. bernsteini first described. Species 47.

1868. HARTLAUB AND FINSCH, 'Proceedings of the Zoological Society of London.'

Pt. pelewensis described. Species 48.

1867. FINSCH AND HARTLAUB, 'Fauna Centralpolynesiens.'

This standard work on the Central Polynesian avifauna contains all the species of this genus that were known at the time of its publication. *Pt. purpuratus*, Wagl., ex Tonga Tabou, is called *Pt. porphyraceus*, Forst.; *Pt. purpuratus*, Temm., is referred to *C. forsteri*, Desm.; and the genus *Chrysæna* is employed for *Pt. luteovirens*. *Drepanoptila holosericea* is also retained in the genus *Ptilopus*. No new species are described. Many of the species given had not been seen by the authors.

1870. GRAY, 'Hand-list of Birds.'

A list of the known species is here given, without any especial attempt to arrange their synonymy being made. The birds figured by Bonaparte on pl. xix. of his 'Iconographie des Pigeons' are named *Pt. bonapartii*. Species 49.

1871. HARTLAUB AND FINSCH, in the 'Proceedings of the Zoological Society of London.'

Pt. rarotongensis described. Species 50.

1871. SCHLEGEL, 'Nederlandsch Tijdschrift voor de Dierkunde.'

Three species are here described, viz. *Pt. speciosus*, *Pt. ornatus*, and *Pt. geelvinckianus*, the last as *Pt. viridis geelvinckianus*. Species 53.

1871. GOULD, in the 'Proceedings of the Zoological Society of London.'

Pt. victor described. Species 54.

1873. SCHLEGEL, 'Muséum des Pays-Bas.'

A catalogue is here given of the species contained in the Leyden Museum belonging to the genus *Ptilopus*. Some are included which should be separated into different genera, such as *Drepanoptila holosericea* and the members of *Funingus*. Three species are described as new—*Pt. neglectus*, *Pt. lettiensis* (called *Pt. cinctus lettiensis*), and *Pt. jobiensis* (called *Pt. humeralis jobiensis*). Species 57.

1873. SCLATER, in the 'Proceedings of the Zoological Society of London.'

Pt. bellus described. Species 58.

1874. FINSCH, in the 'Proceedings of the Zoological Society of London.'

Pt. huttoni described. Species 59.

1875. SALVADORI, 'Annali del Museo Civico Naturale di Genova.'

In different lists of birds inhabiting New Guinea, six species of *Ptilopus* are described, viz. *Pt. gestroi*, *Pt. melanospilus*, *Pt. chrysorrhous*, *Pt. xanthorrhous*, *Pt. geminus*, and *Pt. trigeminus*. Species 65.

1875. LAYARD, in the 'Proceedings of the Zoological Society of London.'

Pt. viridis, as *Chrysœnas viridis*, described. This is the *Pt. layardi* of the present paper. The name *viridis*, having been given by Linnæus to another species of *Ptilopus*, cannot stand. Species 66.

1876. SALVADORI, 'Annali del Museo Civico Naturale di Genova.'

Pt. zonurus described. Species 67.

1876. RAMSAY, in the 'Proceedings of the Linnean Society of New South Wales.'

Pt. corriei described. Species 68.

1876. BRÜGGEMANN, 'Abhandlungen des naturwissenschaftlichen Vereins zu Bremen.'

Pt. fischeri described. Species 69.

1877. SCLATER, in the 'Proceedings of the Zoological Society of London.'

Pt. johannis described. Species 70.

Fig. 1.

1. *Pt. purpuratus.*
2. *Pt. chrysogaster.*
3. *Pt. mercieri.*
4. *Pt. dupetithouarsii.*
5. *Pt. jobiensis.*

6. *Pt. xanthorrhous.*
7. *Pt. insolitus.*
8. *Pt. taitensis.*
9. *Pt. aurantiifrons.*
10. *Pt. luteovirens.*

11. *Pt. lettiensis.*
12. *Pt. ornatus.*
13. *Pt. pectoralis.*
14. *Pt. bellus.*
15. *Pt. victor.*

in the family. Some authors have separated them from the rest of the Pigeons on account of the abruptly attenuated first primary. This is utterly worthless, either as a generic or a specific character, as among the species which are included in *Ptilopus* every gradation of the first primary is procurable, from the most abrupt attenuation to the normal shape of feather.

I here give (fig. 1), in proof of this assertion, a series of drawings of first primaries, together with the name of the species to which each belongs, so that any one can verify it for himself; and I may state that it would not have been at all difficult to have arranged a more minute gradation from the species at my disposal if it had been necessary; but those given will be found, I think, amply sufficient for the purpose.

Another so-called character, which has been adopted by some to distinguish the members of the genus *Ptilopus*, and one which is expressed by the term itself, is the *tarsus feathered to the foot*. This proves to be of no more value, generically or specifically, than the attenuated primary. Species with or without the last-named character have the tarsus covered or partly bare, as do also those with the graduated or normal shape of this feather. The drawings (pp. 510, 511) of the partly bare and partly covered tarsus, together with the first primary of several species, will show clearly how very unsatisfactory these characters are.

Relative lengths of wing and tail, as given by some writers for the separation of some of these birds into different genera, also are not constant, as the tail can be found shorter than the wing, or nearly equal to it in length. This last is the main character given by Reichenbach for separating the birds placed by him in his genus *Megaloprepia*, as all the others are common to different species of *Ptilopus*. He says:—"Schwanz fast so lang wie die Flügel. Vorderschwinge nicht verschmälert." The species included by him, it is true, have not this last character; but *Pt. perlatus* has the tail only a little over half the length of the wing, while *Pt. cinctus* and *Pt. gularis*, neither of which are included in *Megaloprepia*, have the *tail nearly as long as the wing*, with the first primary *abruptly attenuated*. I do not see that there is a single character remaining among those given by Reichenbach which can distinguish the birds included in his genus from those of the genus *Ptilopus*.

For those who deem colour sufficient to establish a genus, it might be supposed that among these gaily plumaged birds certain patterns might be found which would answer for a generic character. But this, again, fails; for the variety of the coloration is so great that it would be necessary to divide the group into numerous genera (as has, indeed, been attempted), and many of the species would be left alone to represent a genus. I do not find any thing better to designate the genus than the following formula:—*Ptilopus*. Size moderate; wings usually reaching two thirds the length of the tail; rectrices fourteen in number, excepting *Pt. occipitalis*, which has apparently sixteen; tarsi partly or wholly covered with feathers; colours of plumage usually bright, and often strongly

opposed: distinguished from *Treron* (with which it constitutes the subfamily *Treroninæ*) by not possessing the scallop on the inner web of the third primary.

Ptilopus is well placed between *Treron* and *Carpophaga*, leading

Fig. 2.

Ptilopus iogaster. Celebes.

First primary only narrowing slightly; tarsus partly bare.

Fig. 3.

Ptilopus fasciatus. Upolu, Samoa.

First primary abruptly attenuated; tarsus partly bare.

up to the latter genus through the different races of *Ptilopus magnificus*. It is the absence of the scallop on the third primary which is the chief distinction between *Ptilopus* and *Treron*. To any one who will study this group with ample materials, such as has fortunately been at my disposal, I think the difficulty, nay, impossibility, of discovering any trenchant generic characters will be readily acknowledged. Those who have had but a few species before them, represented by two or three individuals of each, might easily imagine that some one character of those which I have mentioned is really

of generic value; and it is only when a great series has been obtained that it is perceived how these gradually disappear or become evolved into something quite different. It is from the lack of material to show this fact that such a genus (among others) as *Chrysæna* has been accepted for *Pt. victor* and *Pt. luteovirens*. First established for the latter species, chiefly on account of the lanceolate form of the feathers, it was quickly perceived, on the discovery of *Pt. victor*, that the genus could not rest on this character; for the two species

Fig 4.

Ptilopus geelvinckianus. Mafor.

First primary normal in shape; tarsus completely feathered.

Fig. 5.

Ptilopus coronulatus. Aru.

First primary abruptly attenuated; tarsus completely feathered.

were generically essentially the same, and yet *Pt. victor* did not possess lanceolate feathers. The partly covered tarsus is not sufficient to separate them from *Ptilopus*; for, as I have shown, many species of that genus have also the tarsus half nude. The normal shape of the first primary also fails, as this is also possessed by other species of *Ptilopus*; and therefore no characters remain worthy of separating these birds generically from the other members of the group, those that exist being only of specific value. Bonaparte has proposed most of the generic divisions; and he founded them mainly upon the colour of plumage, sometimes placing the two sexes, or adult and young, of the same species in different genera (vide *Pt. superbus*, *Pt. luteovirens*, &c.). I have not been able to discover

any reasons (after a careful examination of the species separated generically by him) for accepting his divisions. The species named by Schlegel *Pt. insolitus* has been made the type of a genus, *Edirhinus*, by Cabanis and Reichenow. The same peculiarity exhibited by this bird—a bony protuberance upon the base of the culmen—is also found in certain members of the genus *Carpophaga*; and I see no more reason for separating *Pt. insolitus* from the other members of this genus than exists for placing these *Carpophagæ* in a new generic division. The term *Megaloprepia*, instituted by Reichenbach for certain birds of this group, was so oddly selected, at least in one instance (*Pt. perlatus*) that a doubt arises in my mind if the author had ever had an opportunity of examining specimens. No characters were given by him which were not also to be found in other species of *Ptilopus*; and although the term has been employed by some authors, it seems to me to be entirely unnecessary; for it is impossible to designate in a large series of *Ptilopi* where the genus (?) should commence, as the species graduate into one another from the smallest to the largest.

Prof. Garrod, in the 'Proceedings' of this Society for 1874, in his paper on the "Anatomy of the Columbæ," states that the members of the genus *Ptilopus* possess a form of gizzard such as is not found in any other bird, and gives figures exhibiting its peculiarities as compared with *Treron*. If this is ascertained to be a constant formation in all the species of *Ptilopus*, it may well be deemed of sufficient importance to constitute a generic character; but, unfortunately, as yet, it cannot be said to be proven; for out of the seventy-one species considered in this memoir as belonging to *Ptilopus*, Prof. Garrod has only been able to dissect three, a number too insignificant for it to be decided that all the members of the genus have the same formation. The *Carpophagæ* do not possess a similar gizzard; yet certain species of *Ptilopus*, viz. *Pt. magnificus* with its races *assimilis* and *puella*, and *Pt. gularis*, in their outward form resemble certain species of *Carpophaga*; and it is possible that in some of these at least a modified form of gizzard may be found to exist. It will be interesting to learn if such be the case, or if really the species of *Ptilopus* are separated from all other Pigeons by an abrupt alteration in the gizzard's shape, one not approached by that of any other bird. A large number of species must be first examined before this can be definitively ascertained.

The following are the principal generic terms which have been proposed for these birds.

	Type.
(1825) <i>Ptilonopus</i> , err. Swains. Zool. Journ. vol. i. p. 473	<i>Pt. reginæ</i> .
(1841) <i>Ptilopus</i> , corr. Strickl. Ann. Nat. Hist. vii. p. 36.	
(1854) <i>Leucotreron</i> , Bon. Compt. Rend. vol. xxxix. p. 876	<i>Pt. cinctus</i> .
(1854) <i>Cyanotreron</i> , Bon. tom. cit. p. 878	<i>Pt. monachus</i> .
(1854) <i>Rhamphiculus</i> , Bon. ibid.	<i>Pt. occipitalis</i> .
(1854) <i>Omeotreron</i> , Bon. ibid.	<i>Pt. occipitalis</i> .
(1854) <i>Kurutreron</i> , Bon. ibid.	<i>Pt. purpuratus</i> .
(1854) <i>Chrysæna</i> , Bon. ibid.	<i>Pt. luteovirens</i> .
(1854) <i>Thouarsitreron</i> , Bon. tom. cit. p. 876	<i>Pt. dupetit-thouarsii</i> .
(1854) <i>Lamprotreron</i> , Bon. ibid.	<i>Pt. superba</i> .

	Type.
(1854) <i>Iotreron</i> , Bon. tom. cit. p. 878	<i>Pt. iogaster</i> .
(1857) <i>Sylphitreron</i> , Verr. teste Bon. Consp. ii. p. 40 ...	<i>Pt. perlatus</i> .
(1862) <i>Megoloprepia</i> , Reich. Tauben	<i>Pt. magnificus</i> .
(1876) <i>Ædirhinus</i> , Cab. & Reich. J. f. Orn. p. 326	<i>Pt. insolitus</i> .

The *Drepanoptila holosericea*, from New Caledonia, has usually been placed in the genus *Ptilopus*; but it does not appear to me that this is its proper position. With a colouring, it is true, approaching something the style of these birds, it differs from them in form, and especially in the shape of the wing-feathers. These (see fig. 6) are very peculiar, and, in my opinion, at once remove this species from

Fig. 6.

Wing of *Drepanoptila holosericea*.

among the present group of birds into a separate genus. The drawing will show, better than any description can explain, the unusual formation of the feathers in question¹.

The members of the genus *Funingus*, beyond the feathered tarsus,

¹ In the Rev. et Mag. de Zool. 1862, p. 135, pl. 8, MM. J. Verreaux and O. Des Murs conferred another generic name upon this bird, viz., *Calypptomenænas*, and gave a drawing of both it and a portion of the wing. Neither of these, however, are correctly done, especially that of the wing, which shows only the ends of the primaries. The illustration here given more faithfully exhibits the peculiar shape of these feathers.

have but little in common with the members of *Ptilopus*, the peculiarly notched first primary and bare face easily distinguishing them.

GEOGRAPHICAL DISTRIBUTION.

Probably no group in ornithology exhibits to a greater degree the effects upon the coloration of plumage arising from the physical causes incidental to an insular life than the one here considered as composing the genus *Ptilopus*. Some of these birds that have evidently had a common origin exhibit greater or less variations from each other, according to the position of their various habitats, sometimes of sufficient importance to constitute their possessors distinct species, at others only of that trivial kind that would at best but cause them to rank merely as varieties, the lapse of time during which the individuals have dwelt in their separate localities not having been sufficiently great, or the physical causes of climate, food, and soil not powerful enough to modify essentially their appearance from the typical form. It is therefore not surprising that we find some species inhabiting one island only, others dwelling upon several, though perhaps separated by miles of sea, while again in other localities uncertain forms are observed not changed sufficiently to authorize the bestowal upon them of a separate distinctive rank, but yet differing enough to show that a departure from the type and towards a distinctive independent form has been commenced, and will continue (unless the race should become exterminated) until the variety eventually blooms into a separate species possessing characters not found elsewhere. It is not to be supposed that the continents of which the islands of the Pacific and those of the Eastern Archipelago are the sole remains, were broken up simultaneously or always suddenly throughout their length and breadth; but more probably the casualty happened at various periods and sometimes gradually. Therefore we may not be surprised at the apparently strange phenomenon that one species should inhabit various islands, between which are others containing totally distinct forms of the same genus. This may have been brought about in two probable ways. A species may have been widely dispersed over the continent; and when portions of this had disappeared beneath the waves, the fragments that remained above water at the outset were all occupied by the same species: but physical effects at intermediate points were of a different character from those at the extremes; and in course of time the birds dwelling on the intervening islands departed entirely from their types, while those most widely separated retained their original characters. Or it may, on the other hand, have been that on the breaking-up of the continent a district inhabited by a strictly local species (but one surrounded by a more widely disseminated and distinct species) had not been entirely submerged; and this, all other circumstances being equal, would explain the fact that a distinct form should intrude itself on an island lying between others inhabited by a different one, the species with the greater range having been preserved at the extremes

of its habitat, which also had become islands. In considering the peculiarities of the geographical distribution of these birds, the great physical changes that have taken place in that portion of the globe over which they are dispersed must always be borne in mind.

The members of the genus *Ptilopus* are found in only two of the zoogeographical regions of the earth, viz. the Oriental and Australian. Of these the latter contains by far the great majority of the species; and, to judge from the material at present available, the Papuan group of the Austro-Malayan Subregion is apparently the head quarters of the genus. The Polynesian Subregion also possesses many species; but they are altogether of a different style of plumage, and constitute almost a division by themselves.

I commence the review of this portion of my subject with the most easterly group of the Pacific islands (in the Polynesian Subregion of the Australian Region) in which any members of this genus are found, viz. the Marquesas. But two species are met with among these islands—the *Pt. dupetit-thouarsii*, on Christine Island, and the *Pt. mercieri*, from Nuka-hiva. Both of these are very distinct from all others known. I have described *Pt. pictiventris* as from Nuka-hiva of the Marquesas; but, for the reasons I give under the head of this species, I believe that locality to be an error, and that the bird in question is a native of the Samoan Islands only. To the south-west of the Marquesas lies the Pomatu archipelago, which is as yet hardly known in an ornithological sense. But one species of *Ptilopus* has been recorded from there, *Pt. coralensis*, found on Carlshoff Island. South of the Pomatu group lies the island of Rapa. Here has been procured probably the most important member of this genus, *Pt. huttoni*. To the west of Pomatu are the Society Islands, upon only two of which have any species of *Ptilopus* been procured, viz. *P. chrysogaster*, upon Huahaine, and *Pt. taitensis* in Otaheite. To the south-west of this last is Cook's Archipelago, where *Pt. chalcurus* has been obtained on Harvey Island. It is still doubtful if this bird is specifically distinct from *Pt. coralensis* of the Pomatu group. If the identity of those two could be established, it would be an interesting and important fact, since the two clusters of islands are not only separated by miles of ocean, but several distinct forms of *Ptilopus* are found upon the intervening archipelagos, none of which, so far as we know, are particularly related to *Pt. chalcurus*. Upon Rarotonga island has been procured *Pt. rarotongensis*; and these two species are all that have as yet been found in this group. Savage Island, lying between Cook's Archipelago and the Friendly group, contains three species—*Pt. purpuratus*, *Pt. pictiventris* and *Pt. rarotongensis*. Passing on to the westward we reach the Tonga Islands, among which five species of *Ptilopus* dwell, a number exceeded in only one of the Pacific groups, viz. the Fijis. On Tonga-Tabou all the species occur—*Pt. chrysogaster*, *Pt. apicalis*, *Pt. pictiventris*, *Pt. purpuratus*, and *Pt. perousii*. Harpai contains *Pt. perousii* and *Pt. purpuratus*; and this last has also been procured at Eua and Ninafou, the last the most northern of them all. North of the

Friendly Islands lie the Samoan or Navigators' Islands. These contain also five species, two of which are not met with in the Tonga Group. Opalu has four—*Pt. perousii*, *Pt. luteovirens*, *Pt. pictiventris*, and *Pt. fasciatus*, this last being also found on Wallis Island, while *Pt. purpuratus* is a native of Fulima, lying to the south of Wallis. We now come to the Fijis, which possess among the different islands nine species of *Ptilopus*. Only one island, however, contains more than two species, viz. Viti-Levu, which has three—*Pt. perousii*, *Pt. luteovirens*, and *Pt. pictiventris*. Schlegel suggests Viti as the probable locality also of the bird he has called *Pt. neglectus*; but this is very uncertain, and there is no evidence to support the supposition. Balaou has two species—*Pt. luteovirens* and *Pt. bonapartei*. Two species are found upon five islands which possess no others of this genus. These are *Pt. perousii* and *Pt. purpuratus*, met with at Waikia, Vanua Levu, Mango, Mokani, and Loma Loma. Bua, Lanthala and Ngamia only have *Pt. victor*. Taviuni has *Pt. victor* and *Pt. purpuratus*; while Kandavu contains *Pt. perousii* and *Pt. layardi*. The New Hebrides possess but two species—*Pt. greyi* on Erromango Island, and *Pt. corriei* on Malacolo. On Lifu, of the Loyalty group, *Pt. greyi* is found, as well as on the Isle of Pines and New Caledonia to the west, this last being also recorded by Schlegel as the habitat of *Pt. insolitus*—which, however, is probably an error. Passing now to the northward, *Pt. greyi* is again met with on Vanikoro of the Santa-Cruz archipelago; and in the Caroline archipelago, on the island of Ponapé in the Seniavin group, *Pt. fasciatus* has been procured. To the north-west, the furthest north perhaps that any species of this genus is found, lie the Marianne or Ladrone Islands. Here is met with the very distinct *Pt. roseicapillus*, the only representative of these birds in this group. To the west are the Pelew Islands, whence comes *Pt. pelewensis*; but from which particular island is not stated by its describers.

We now reach the Austro-Malayan Subregion; and the islands which come first in this review (proceeding from the east towards the west) are those contained in the Papuan group, of which New Guinea is the centre and most important. Beginning with the most eastern division of this group, we have first the Solomon Islands, upon one of which, not as yet known, the *Pt. eugeniæ* was obtained. To the westward of this, in the Louisiade archipelago, on the Island of Duchateau, the type of *Pt. strophium* was procured. From New Ireland, to the north-west, come *Pt. insolitus* and *Pt. puella*; while between this last-named island and New Britain lies Duke-of-York Island, the home of the rare and little-known *Pt. rivolii* and also of the *Pt. insolitus* mentioned above. From New Hanover *Pt. superbus* has been received. To the north-west of this section, on Wild and D'Entrecasteaux Islands of the Admiralty group, the beautiful *Pt. johannis* was obtained by the naturalists of the 'Challenger' Expedition. Coming now to New Guinea, the islands in the great Bay of Geelvinck claim our attention. Krudu, the most eastern of these, possesses one species, *Pt. geminus*. Next, on the large

island of Jobie, eight species of this genus dwell, viz. *Pt. superbus*, *Pt. coronulatus*, *Pt. geminus*, *Pt. aurantiifrons*, *Pt. perlatus*, *Pt. strophium*, *Pt. puella*, and *Pt. jobiensis*. The small island of Ansus, to the south of Jobie, contains also one species, *Pt. geminus*, being the only one out of those found upon its great neighbour. Meosnoum or Misnomin, to the west of Jobie, also contains one species found on that island, *Pt. strophium*. On the island of Korido, or Sook, the most northern of those in this bay, two species have been procured, *Pt. pectoralis* and *Pt. speciosus*. Mansinam, the last island in this bay from which any species of *Ptilopus* is known to come, contains one species, the *Pt. humeralis*. It will thus be seen that, so far as we are able to determine from our material, in the Bay of Geelvinck, Jobie is the central or starting-point of the members of this genus. The two small islands lying near are only detached portions of Jobie, each containing one species found on the last, but none peculiar to themselves. On the other hand the islands of Korido and Mafor only have one species in common with Jobie, viz. *Pt. superbus*, found on Korido, while on Mafor *Pt. pectoralis* and *Pt. geelvinkianus* are met with, the last-named being also a native of Meosnoum. The relationship of these islands, so far as regards this genus, are nearer to the western shores of the bay than to Jobie. Turning now to the mainland, at Andai and Dorey five species are found—*Pt. pulchellus*, *Pt. pectoralis*, *Pt. puella*, *Pt. geminus*, and *Pt. perlatus*; while on Mount Arfak *Pt. superbus*, *Pt. bellus*, *Pt. iozonus*, *Pt. aurantiifrons*, and *Pt. ornatus* have been obtained. At Amberbaki, on the north coast, five species have been procured, viz. *Pt. pulchellus*, *Pt. superbus*, *Pt. perlatus*, *Pt. pectoralis*, and *Pt. bellus*; while at Sorong *Pt. trigeminus*, *Pt. humeralis*, *Pt. coronulatus*, and *Pt. prasinorrhous* have been met with. At Triton Bay *Pt. nanus* has been obtained; and at Mount Epa, in the south of New Guinea, the small race of *Pt. magnificus*, called *puella*, is found. These are all that are as yet known to come from the mainland of New Guinea; but doubtless others of the described species, as well as those not yet discovered, remain to be obtained among the dense forests of this singular country. Passing now to the western islands of the Papuan group, the most northerly is Waigiou, which contains five species—*Pt. superbus*, *Pt. pulchellus*, *Pt. prasinorrhous*, *Pt. puella*, and *Pt. pectoralis*, this last being also found upon the near-lying small islands of Gagie and Giebeh, while *Pt. puella* is also met with on Ghémien. Batanta has four, viz. *Pt. aurantiifrons*, *Pt. superbus*, *Pt. pectoralis*, and *Pt. prasinorrhous*; while Salwatty possesses all these (excepting *Pt. pectoralis*) and also *Pt. coronulatus*, *Pt. trigeminus*, *Pt. humeralis*, *Pt. pulchellus*, *Pt. perlatus*, and *Pt. puella*. Mysol, to the south-west of Salwatty, contains seven species, viz. *Pt. prasinorrhous*, *Pt. superbus*, *Pt. aurantiifrons*, *Pt. pulchellus*, *Pt. puella*, *Pt. pectoralis*, and *Pt. nanus*. All of these save the last two are found upon Salwatty. Far to the south of this last-named island we reach the most southern ones of the group, viz. Arou, with seven species (*Pt. coronulatus*, *Pt. superbus*, *Pt. iozonus*,

Pt. wallacei. *Pt. aurantiifrons*, *Pt. zonurus*, and *Pt. perlatus*), and Yule Island, lying to the south-east of the mouth of Fly River, in the Papuan Gulf, and close to the coast, with two (*Pt. coronulatus* and *Pt. gestroi*, the last intermediate between *Pt. ornatus* and *Pt. perlatus*). The next group of the Austro-Malayan Islands that claims our attention is the Moluccas; and, commencing with the furthest north, Sanghir is the first to be considered: here is found a race of *Pt. melanocephalus* from Java, which has become possessed of sufficient characteristics to separate it from the type, and is known as *Pt. xanthorrhous*. Gilolo and its small neighbours, Ternate and Batchian, contain four species, found on each, viz. *Pt. iogaster*, *Pt. superbus*, *Pt. bernsteini*, and *Pt. monachus*. Tidore, on the west, has three—*Pt. monachus*, *Pt. iogaster*, and *Pt. prasinorrhous*; Morty two, *Pt. monachus* and *Pt. iogaster*; Obi one, *Pt. bernsteini*; Dammor and Kaisa, each one, *Pt. monachus*; and Weda and Dodingo also one, *Pt. iogaster*. Ceram contains three species—*Pt. chrysorrhous*, *Pt. superbus*, and *Pt. viridis*, this last being also found upon the small island of Monavolka, which, together with Matabello, also possesses *Pt. prasinorrhous*. Banda, to the south of Ceram, has *Pt. xanthogaster*, which is also found upon the islands of Koor and Ki, these last having in addition *Pt. prasinorrhous*. Goram, lying to the east, has two species, the one last named and *Pt. viridis*. Bouru has three species—*Pt. superbus*, *Pt. viridis*, and *Pt. prasinorrhous*; while Amboyna has also three species—*Pt. superbus*, *Pt. viridis*, and *Pt. prasinorrhous*; and Harouka, east of Amboyna, contains *Pt. viridis*. Of the Timor group, I commence with Timor, which possesses two species, *P. ewingii* and *Pt. cinctus*, this last being also found upon the small island of Wetta, to the north of Timor; while Lettie, to the north-east, possesses *Pt. lettiensis* (a modification of *Pt. cinctus*) and *Pt. xanthogaster*. Flores has three species—*Pt. ewingii*, *Pt. albocinctus*, and *Pt. melanocephalus*, this last being also found in Sambawa and Lombok. Celebes has four species, three of which are peculiar to it, viz. *Pt. melanospilus*, *Pt. temminckii*, *Pt. gularis*, and *Pt. fischeri*; while Sula contains *Pt. melanospilus* and *Pt. chrysorrhous*. Australia, the last division of this region, has six species—*Pt. regina* and *Pt. magnificus* in New South Wales, in the district between the river Hunter and Moreton Bay, *Pt. superbus* at Cape York and on the Booby Islands, *Pt. assimilis* and *Pt. magnificus* in North-east Queensland at Rockingham Bay, *Pt. assimilis* being also found together with *Pt. puella* at Cape York, and *Pt. ewingii* on the Coburg Peninsula near the coast—the distribution of the three forms of *Pt. magnificus* being decidedly against the view that they represent distinct species.

The other zoogeographical region in which these birds are found is the Oriental; and we here find them restricted to the subregion containing the Indo-Malay islands. Of these I commence with the Philippine group, in only one island of which as yet has any species been found, viz. Luzon, containing three (*Pt. occipitalis*, *Pt. jambu*, and *Pt. leclancheri*). The great island of Borneo, and also Sumatra,

have but one species, *Pt. jambu*; while Java, the last locality in which *Ptilopus* is found, contains two, *Pt. melanocephalus* and *Pt. porphyreus*.

The following key will show the chief differences existing between the birds of this genus. I recognize 71 species, and have divided them into two great groups, characterized by having the breast-feathers bifurcate or not bifurcate.

KEY TO THE SPECIES.

A. Breast-feathers bifurcate.

- a. Front and top of head purple or deep rose, margined with yellow or pale green.
 - a'. Tail with a subterminal grey or ash-coloured band.
 - a''. Abdomen deep rose-colour; under tail-coverts yellow, tipped with rose; breast bright green..... 1. *Pt. greyi*, p. 523.
 - b''. Abdomen and breast washed with olive; purplish red spot on the breast 2. *Pt. neglectus*, p. 524.
 - c''. Abdomen and flanks green, with an indistinct spot of darker green in the middle of the former; breast ash-colour, tinged with green; back, wings, and tail green, with strong coppery red reflexions; inner secondaries with a small dark green spot on tip 3. *Pt. bonapartei*, p. 524.
 - d''. Abdomen pale green, with a purplish black spot in the centre; breast uniform ashy, tinged with green; scapulars with a conspicuous dark violet spot at tip 4. *Pt. purpuratus*, p. 525.
 - b'. Tail with a terminal yellow band.
 - a''. No spot at base of mandible.
 1. Centre of abdomen rufous 5. *Pt. apicalis*, p. 527.
 2. Secondaries and tail copper-colour; small dark purple spot on lower part of abdomen.
 - a. Front and crown purple 6. *Pt. coralensis*, p. 528.
 - β. Front and crown greyish purple or amethyst 7. *Pt. chalcurus*, p. 529.
 3. Middle of abdomen rufous, upper edge dark purple, scapulars tipped with lilac 8. *Pt. pictiventris*, p. 530.
 4. Feathers on upper part of breast with transverse violet spots near the tips; no spot on lower part of breast; abdomen orange; crissum yellow; under tail-coverts white at base, then yellow, with rose-violet tips 9. *Pt. pelewensis*, p. 531.
 5. Throat white or pale yellow; breast pale green, feathers tipped with light grey; abdomen orange, with a lilac-red spot in the centre 10. *Pt. regina*, p. 531.
 6. Throat light yellow; breast pale green, feathers tipped with light grey; abdomen orange, with a pale lilac band upon the upper part ... 11. *Pt. ewingii*, p. 533.

7. Abdomen and under tail-coverts bright yellow; on lower part of breast a large spot of dark purplish red 12. *Pt. rarotongensis*, p. 534.
 8. Throat, cheeks, and breast yellowish green; abdomen clear green, with a purplish black spot in the centre 13. *Pt. fasciatus*, p. 535.
 - b''. Conspicuous deep-rose spot at base of mandible.
 1. Abdomen bright uniform yellowish green, without spot 14. *Pt. mercieri*, p. 536.
 2. Breast with a deep purple spot on lower part; abdomen orange; under tail-coverts bright yellow, tips orange 15. *Pt. roseicapillus*, 537.
 3. Chin pale purplish red; dark purplish violet spot on breast, with the base of the feathers dark olive-green; under tail-coverts purplish violet-red, basal portion yellow; purplish violet of front and crown surrounded by green 16. *Pt. huttoni*, p. 538.
 - b. Front and top of head greyish or purplish white, margined with yellow.
 - a'. Abdomen deep rose; crissum and under tail-coverts deep yellow 17. *Pt. dupetithouarsi*, p. 539.
 - b'. Abdomen and under tail-coverts orange-yellow 18. *Pt. xanthogaster*, p. 540.
 - c' Abdomen and under tail-coverts bright yellow 19. *Pt. chrysogaster*, p. 541.
 - d'. Underparts pale ash-green; centre of abdomen and crissum pale yellow; under tail-coverts bright yellow 20. *Pt. taitensis*, p. 541.
 - c. Top of head and occiput bright purple; sides of head light green; nape and sides of neck rufous-orange; middle of abdomen and crissum white; flanks and thighs green.
 - a'. Feathers of breast purple at base, broadly tipped with ashy grey, a broad bluish black band across the lower part of breast 21. *Pt. superbus*, p. 542.
 - b'. Lower part of breast light purple, graduating into bluish black 22. *Pt. temmincki*, p. 544.
 - d. Front, crown, band across the back, and under tail-coverts dark purplish red; feathers of breast purple at base, white at tip; beneath these an orange band 23. *Pt. perousei*, p. 545.
 - e. Front pink, with posteriorly a narrow band of purple, followed by a broader one of yellow; a purple spot on fore part of abdomen; middle of abdomen and under tail-coverts yellow 24. *Pt. coronulatus*, p. 546.
 - f. Front pinkish white, surrounded by a purple band succeeded by one of yellow; purple spot on abdomen, surrounded by saffron-yellow 25. *Pt. geminus*, p. 546.
 - g. Front greyish white 26. *Pt. trigeminus*, p. 547.
- B. Breast-feathers not bifurcate.
- a. Middle of abdomen deep orange; vent and under tail-coverts white varied with yellow; tertials violet grey in the centre.
 - a'. Shoulders greyish violet, mixed with

- green; tail green, with an apical grey band above, white beneath..... 27. *Pt. iozonus*, p. 547.
- b'. Shoulders violet-grey, bordered beneath by deep purple; tail green, with a sub-terminal grey band on lower surface only 28. *Pt. humeralis*, p. 548.
- c'. Shoulders violet-grey; tail green above, beneath black, with an apical white band 29. *Pt. jobiensis*, p. 548.
- d'. Bony protuberance on forehead; shoulders and patch on back light grey; tail bright green, apical third ashy grey 30. *Pt. insolitus*, p. 549.
- e. Bluish grey band on each side of breast; purple spot on centre of abdomen; wing-coverts, scapulars, and tertials tipped with yellow 31. *Pt. nanus*, p. 549.
- c. Front, crown and lores, moustaches, and spot on the breast greyish blue; superciliary stripe, chin, throat, lower parts of abdomen, and under tail-coverts lemon-yellow 32. *Pt. monachus*, p. 550.
- d. Front and crown bright carmine; sides of head and neck and breast light grey; chin and throat white; large purplish red spot on lower part of breast; abdomen and under tail-coverts orange 33. *Pt. pulchellus*, p. 551.
- e. Head and neck light grey; occiput and back of neck black; throat yellow.
- a'. Crissum and short under tail-coverts yellow, long ones carmine 34. *Pt. melanocephalus*, p. 551.
- b'. Throat-mark narrow; crissum yellow, washed with orange 35. *Pt. melanospilus*, p. 552.
- c'. Throat-mark narrow; black bar on nape small; crissum orange-yellow 36. *Pt. chrysorrhous*, p. 553.
- d'. Lower parts of abdomen and crissum rich orange 37. *Pt. xanthorrhous*, p. 553.
- f. Head and neck rose-colour, graduating into carmine on the breast, beneath which is a broad white band, followed by another of blackish green 38. *Pt. porphyreus*, p. 553.
- g. Throat, crown, and sides of face in front scarlet, chin and throat black; middle of breast rose-colour; under tail-coverts chestnut 39. *Pt. jambu*, p. 554.
- h. Throat white or pale grey.
- a'. Scapulars and tertials grey, margined with green.
- a''. Top of head bright carmine; mantle, neck, and breast bluish grey; lower part of breast crossed by a white band, succeeded by a broad one of deep orange; shoulders deep orange 40. *Pt. wallacei*, p. 555.
- b''. Forehead deep orange; crown and occiput yellowish green; back and upper part of breast plumbeous; underparts yellowish green..... 41. *Pt. aurantiifrons*, p. 556.
- c'. Shoulders dark purplish red; lower parts of throat dark yellow; breast dark ochre; tail dark green, with a light-yellow apical band.
1. Top of head and sides of face purplish red 42. *Pt. ornatus*, p. 556.
2. Top of head and sides of face olive-yellow 43. *Pt. gestroi*, p. 557.

- b'. Middle of scapulars and lesser wing-coverts rosy purple.
- a". Tail uniform dark green 44. *Pt. perlatus*, p. 557.
- b". Tail dark green, with an apical greyish white band 45. *Pt. zonurus*, p. 558.
- i. Head, except occiput, light grey; abdomen reddish purple..... 46. *Pt. iogaster*, p. 558.
- j. Forehead and chin greenish grey; reddish purple spot on breast 47. *Pt. pectoralis*, p. 559.
- k. Forehead and chin grey; tips of tertials and bar across the shoulders grey.
- a'. Lower part of throat and upper part of breast dark reddish purple; tail bronzy green, tipped with yellow 48. *Pt. viridis*, p. 560.
- b'. Lower part of throat and upper part of breast bright reddish purple; tail yellowish green, each feather with a sub-terminal grey spot on the inner web... 49. *Pt. geelvinkianus*, p. 560.
- l. Head white, secondaries slate-grey; centre of throat and chest crimson 50. *Pt. eugeniæ*, p. 561.
- m. Upper parts, throat, and upper part of breast green.
- a'. Breast crossed by a broad white band; forehead purplish red.
- a". Rose spot on abdomen.
1. Crissum and under tail-coverts bright yellow 51. *Pt. rivolii*, p. 561.
2. Crissum and under tail-coverts green, edged with yellow 52. *Pt. prasinorrhous*, p. 562.
- b". No rose spot on abdomen 53. *Pt. strophium*, p. 563.
- b'. Breast crossed by a broad band, lemon-yellow above, white beneath.
- a". Front and crown rosy red; purplish red spot on abdomen 54. *Pt. bellus*, p. 563.
- b". Front and crown green; abdomen lilac 55. *Pt. speciosus*, p. 564.
- c'. Band on breast, crissum, and under tail-coverts yellow; top of head and middle of abdomen lilac 56. *Pt. johannis*, p. 564.
- n. Feathers of neck and breast lanceolate, sulphur-yellow, tinged with green; abdomen, vent, and under tail-coverts bright yellow 57. *Pt. luteovirens*, p. 565.
- o. Head and neck olive-green; plumage green; secondaries tipped with yellow; under tail-coverts yellow, blotched with green . 58. *Pt. corriei*, p. 566.
- p. Head and neck greenish yellow; under tail-coverts bright yellow; rest of plumage green 59. *Pt. layardi*, p. 567.
- q. Head and throat olive-green; rest of plumage orange-carmine..... 60. *Pt. victor*, p. 568.
- r. Top of head light grey
- a'. Sides of head and upper part of breast ashy white; a dark purple band across the breast; flanks and underparts ashy green; under tail-coverts cinnamon; chin black..... 61. *Pt. leclancheri*, p. 568.
- b'. Sides of face and occiput purplish red; centre of breast ochraceous..... 62. *Pt. occipitalis*, p. 569.
- c'. Sides of face, breast, and flanks grey; centre of abdomen yellowish white; thighs and under tail-coverts cinnamon; chin deep chestnut 63. *Pt. gularis*, p. 570.

- d'*. Head, neck, and underparts partly grey, partly golden-ochre; under tail-coverts grey and white intermixed; sides of head bluish red; black band on back of neck 64. *Pt. fischeri*, p. 571.
- s*. Head white.
- a'*. Abdomen yellowish green, separated from breast by a black band.
- a''*. Neck and breast light blue 65. *Pt. albocinctus*, p. 571.
- b''*. Neck and breast white.
1. Tail black, with apical dark grey band 66. *Pt. cinctus*, p. 571.
2. Tail greyish black, with apical third yellowish white 67. *Pt. lettiensis*, p. 572.
- t*. Head and neck greenish grey.
- a'*. Red spot on lower part of breast; abdomen and flanks yellowish ochre 68. *Pt. bernsteini*, p. 572.
- b'*. Centre of throat and neck in front and underparts to the thighs purplish red 69. *Pt. puella*, p. 574.
- c'*. Larger race of the above 70. *Pt. assimilis*, p. 574.
- d'*. Still larger; centre of throat and underparts deep purple 71. *Pt. magnificus*, p. 575.

1. PTILOPUS GREYI.

Ptilopus greyi, Grey, List B. Brit. Mus. (1856) p. 4. sp. 8, desc. nulla—Columbæ; id. List B. Trop. Isl. (1859) p. 38; id. Proc. Zool. Soc. 1859, p. 165; J. Verr. & Des Murs. Rev. Zool. 1860, p. 435; Bon. Iconogr. Fig. (1857) pl. xx.

Ptilopus purpuratus, Bon. (nec auct.) Consp. Gen. Av. vol. ii. p. 19. sp. 1.

Hab. New Caledonia (*Germain*); Isle of Pines (*Gray*); Lifu, Loyalty Islands (*Whitmee*); Erromaungo, New Hebrides, Vanikoro (*Voy. Astrolabe*).

This handsome species was first named by Gray, but not described (*l. c.*). Bonaparte gave a description and very good figure of the bird in his Iconogr. Fig. pl. 20, from the specimen brought, by the naturalists attached to the expedition of the 'Astrolabe,' from Vanikoro Island. The species has a rather extensive distribution, from New Caledonia and neighbouring islands to Vanikoro on the north. Young and immature birds are greener on the breast and neck than the adults; and the first primary is not so abruptly attenuated.

Adult. Front and top of head deep rose, margined posteriorly with yellow; back of head, neck, and breast pale greyish green; throat yellowish white; flanks and sides of crissum bright green; abdomen very deep rose-colour, running into orange-yellow on crissum. Under tail-coverts rose-colour, but not so dark as on the abdomen. Upper parts bronzy green. Primaries black on inner web, dark green on the outer, and the innermost ones tipped with bronze-green; first primary abruptly attenuated, end very narrow. Secondaries shining green, edged with yellow. Tertiaries and some of the innermost secondaries with a pale lilac spot near their tips. Tail dark green, with a subterminal grey band. Bill black, with pale tip. Feet brown, possibly red in life. Total length 8 inches, wing 5, tail 3, culmen $1\frac{1}{2}$.

Specimen described is the one figured by Bonaparte, Iconogr. Fig. pl. 20, ex Vanikoro.

Another specimen from New Caledonia, marked as a female, differs from the male only in having the forehead slightly tinged with rose, and the abdomen mottled with rose and bright yellow. The under tail-coverts are deep rose on their apical half, as in the specimen from Vanikoro. The secondaries are more broadly margined with yellow, and the primaries tipped with white. I am inclined to regard this example rather as an immature male than a female. Three examples are in the British Museum from Erromango Island, one of the New Hebrides, which are in all respects like the one in the Paris Museum figured by Bonaparte from New Caledonia.

2. PTILOPUS NEGLECTUS.

Ptilopus neglectus, Schleg. Mus. Pays-Bas (1873), p. 7, *Columbæ*.

Hab. Océanie! Viti? (*Schlegel*).

Allied to the *Pt. greyi*, but differs in having the lower part of the abdomen and under tail-coverts tinged with sulphur, the abdomen and breast washed with olive-green, the purplish-red spot being placed upon the *breast* and *not on the abdomen*, and in the neck and upper part of breast being tinged with light grey (*Schlegel*). Wing 5 inches, tail 2 inches 3 lines.

The locality suggested by Schlegel, as given above, "Viti," is without doubt incorrect, as there are no indications to support the idea, the relatives of this bird having been procured in quite a different group of islands.

3. PTILOPUS BONAPARTEI.

Ptilopus purpuratus, Bon. (nec auct.) Iconogr. Fig. (1857) pl. xix. fig. a, adult, ex Balaou (nec Vanikoro).

Ptilopus bonapartei, Gray, Hand-l. B. vol. ii. (1870) p. 225, descr. nulla, founded on pl. 19, Bon. Iconogr. Fig.

Hab. Balaou, Fiji Islands (*Hombroun and Jacquinet*).

This is the species figured by Bonaparte as *Pt. purpuratus*, fig. a (*l. c.*). The specimen is in the Paris collection; and the plate gives no idea of the bird; which is reddish in all lights, but in certain ones exhibits a brilliant coppery-red hue. Bonaparte committed two strange errors in reference to this bird. He stated that it came from the island of Vanikoro, and also figured as the young the *Pt. purpuratus*, Wagl., from Tonga-Tabou, a very different and distinct species. Gray (*l. c.*) bestowed the name of *Pt. bonapartei* (*l. c.*), ex Vanikoro!, on the bird represented by Bonaparte on plate 19 of his work, 'Iconographie des Pigeons.' Gray could never have seen the specimen; or else he would have corrected Bonaparte's error, and stated that it did not come from Vanikoro, but from Balaou, and also that Bonaparte had confounded two species. Gray gives no description, which also strengthens the belief that he did not know the species autoptically. It is a question whether Gray's name should be noticed at all; for to name species without seeing them, on the chance of their proving new, is not a commendable practice; and, as he did not designate which figure he bestowed the name of *bona-*

partei upon, it is of course impossible to know whether it ought to be applied to the present or to the Tonga-Tabou bird. As, however, I now have selected the Balaou species as the type of *bonapartei*, in order to avoid giving it a new name (for it is quite distinct from the *Pt. purpuratus*, Wagl.), and as the type will be in the collection of the Paris Museum for future reference, it will not be difficult hereafter to ascertain what the species really is. The type is unique.

Adult. Front and crown rosy purple, faintly margined posteriorly with yellow; throat white; occiput, neck, and breast ash-colour, tinged with green; abdomen and flanks green; an indistinct dark green spot in the middle of the former. Back and wings green, with strong coppery-red reflexions. Inner secondaries with a small dark green spot at tips, and all edged with yellow. Primaries dark coppery red, edged with white. Tail above green, with bright coppery-red reflexions, and with a subapical greyish-white band; beneath dark grey, with a broad apical white band. Crissum and under tail-coverts bright yellow. Bill greyish black, with yellow tip. Feet light red. Total length 9 inches, wing $5\frac{1}{2}$, tail $3\frac{1}{4}$, culmen $\frac{5}{8}$.

4. PTILOPUS PURPURATUS.

Columba purpurata, Shaw, Gen. Zool. vol. xi. p. 66 (1819), partim; Wagl. Syst. Av. (1827) *Columbæ*, sp. 30.

Columba porphyracea, Temm. Trans. Linn. Soc. vol. xiii. p. 130? (1822).

Columba porphyrea, Wagl. Syst. Av. (1827) sp. 31?, *Columbæ*.

Columba forsteri, Desm. Dict. Scien. Nat. vol. xl. p. 340 (1826)?; Less. Compl. Buff. tom. iii. Ois. p. 34 (1837), ex Tonga-Tabou.

Columba purpurata, Wagl. (nec Gmel.) Isis, 1829, p. 742, ex Tonga-Tabou (1829).

Columba porphyracea, Licht., Forst. Descr. Anim. p. 167 (1844); Finsch & Hartl. Fauna Centralpolyn. (1867) p. 119; Gräffe, Journ. Mus. Godeffr. tab. 7. fig. 3.

Ptilonopus porphyracus, Gray, Gen. B. (1844-49) vol. ii. p. 466; id. B. Trop. Isl. p. 38 (1839); id. List Columb. p. 3 (1856), partim.

Ptilopus purpuratus, Bon. (nec Gmel.) Iconogr. Pig. (1857) pl. xix. fig. b, juv., spec. Paris Mus. ex Tonga-Tabou (Voy. Astro-labe), nec Vanikoro.

Ptilinopus porphyraceus, Finsch & Hartl. Journ. für Ornith. 1870, p. 131; Finsch, Proc. Zool. Soc. 1877, pp. 725, 775, 783.

Ptilonopus porphyraceus, Reich. Taub. p. 95; Layard, Proc. Zool. Soc. 1876, p. 502.

Ptilonopus purpuratus, Reich. (nec auct.) Taub. p. 94?

Columba kurukuru, variété, Temm. & Knip, Pig. vol. i. pl. 35?

Ptilopus fasciatus, Layard (nec Peale), Ibis, 1876, p. 392.

Hab. Tonga-Tabou, Waikai, Mango, Mokani, Loma-Loma, Tavuni, Fiji Islands, Futuna, Friendly Islands (*Layard*); Ninafou Island, most northern of Tonga group (*Finsch*); Hapai (*Gräffe*); Eua, Friendly Islands (*Hübner*); Savage Island (*Whitmee*); Vavao, Friendly Islands.

It is apparently a difficult matter for authors to decide upon the

correct name for this Fruit-Pigeon ; and, as will be seen by the list of synonyms given above, the species has been presented with a very fair number of appellations. In order to explain why I consider that this bird, of all those given in this paper, should alone bear the name of *purpuratus*, it will be necessary to begin at the beginning. Latham, in his 'General Synopsis of Birds,' vol. ii. p. 626. sp. 15 (1783), describes a Dove, which he says came from Otaheite, as the "Purple-crowned Pigeon," the chief characteristics of which were :— "*Forehead to the middle of the crown purple* ; head, neck, and *underparts of body* pale green, inclining to ash-colour ; vent and under tail-coverts yellow. Tail greenish black, with green edges, and when spread a greyish bar appears near the end, the colour only occupying the inner webs of each feather." To this description Gmelin gave the name of *Columba purpurata*. Now there is no Pigeon known belonging to the genus *Ptilopus* that will answer to the above description of Latham. *No such bird is found upon the island of Otaheite*, whence, according to Latham, this curiously compounded specimen came ; for it carries the *head* of the bird from Tonga-Tabou and the *body* of the species found in Otaheite, distinguished afterwards by Lesson as *taitensis*. Latham possessed specimens from both these localities, and remarked upon their differences, but did not deem them distinct species ; and it is very evident that when he wrote his description he took his characters from both forms. The bird from Otaheite does not possess a purple forehead or crown, these parts being ash-colour with but a faint tinge of lilac ; therefore it could never have been designated as the "Purple-crowned Pigeon." Nor does the Tonga-Tabou bird have the *underparts of the body* pale green inclining to ash-colour (which is a characteristic of the Otaheite species), but has the flanks and abdomen grass-green, with a conspicuous purplish-black spot in the centre of the latter. Therefore the name *Col. purpurata*, Gmel., having been founded upon a bird that did not exist, taken from a description comprising portions of two distinct species, cannot be accepted, and should be rejected from the nomenclature of the genus.

The next author after Gmelin who mentioned this species was Shaw (*l. c.*) (1819). He, however, also confounded two species, and his name of *purpurata* must be passed over. Temminck follows in 1822 (*l. c.*) with *Columba porphyracea* ; and this name, attributed to Forster, has been used by various writers when referring to this bird, especially from the island of Tonga-Tabou. Now the *C. porphyracea* of Temminck was bestowed upon the bird figured by Madame Knip in their great work on the Pigeons, at plate 35, and there considered as a variety of the *Pt. ewingii*, and called *Columba purpurata*. Temminck states (Trans. Linn. Soc. 1822, p. 130) that his specimen came from *New Holland* ! The figure resembles no species from that country, nor indeed from any other ; and it can only be through an examination of the type that a correct knowledge of the species intended can be ascertained. I have therefore placed Temminck's name, as well as *porphyrea*, Wagl., founded upon Temminck's bird, whatever it may have been, among the synonyms of

the present species with a doubt¹. Desmarest also published a name (*l. c.*) for the bird depicted on Temminck's plate, viz. *forsteri*. This, for the same reason which has placed Temminck's name on one side, will also have to go among the list of doubtful synonyms. We now come to Wagler, 'Isis,' 1829, who first diagnosed as distinct both species, from Otaheite and Tonga-Tabou respectively, and gave names to each, and properly portrayed their distinctive characters. To the Tonga bird with the purple crown he applied the term *purpurata*, which name will take precedence; and the Otaheite species he called *oopa*. Unfortunately he did not appear to be cognizant of the name *taitensis* previously given to this species by Lesson, Voy. Coq. tom. i. text, p. 297 (1826); and therefore *oopa* will of course become a synonym of Lesson's term.

Mr. Layard speaks of this species under the name of *porphyraceus*, Forst., as not uncommon in the Friendly Islands. In its habits it resembles the other species of this genus, and is called by the natives "Kullu kullu." The female, when in full breeding-dress, resembles the male, but is not so brightly coloured on the abdomen, the male at this season having the black abdominal patch shading away into brilliant purple.

Adult. Front and top of head, extending in a curved line behind the eyes, rich purple, edged with light yellow. Rest of head, neck, upper part of back, throat, and breast pale ashy green. Flanks and abdomen grass-green, with a dark purple spot in the centre of abdomen. Crissum and under tail-coverts bright yellow, tinged with orange on the tips of the coverts. Back and upper tail-coverts dark yellowish green. Wings the same colour, with the inner secondaries and some of the scapulars deep bluish green near their tips. Primaries black on their inner webs, green on their outer, and, together with the secondaries, margined with yellow; first primary abruptly attenuated and very narrow at the end. Rectrices bright green on their outer webs, brownish black on their inner, with a terminal grey or ash-coloured band, this margined with yellow. Under surface smoke-colour, terminal portion white. Bill black, tip flesh-colour. Feet brownish. Total length $8\frac{3}{4}$ inches; wing $5\frac{1}{4}$; tail $3\frac{3}{4}$; bill, culmen $\frac{5}{8}$.

Young. Resembles the adult, except that the top of the head is ashy like the breast, with only a tinge of purple on the forehead. The back of the neck is pale green, instead of ash-colour; and the plumage of the upper part, tail, and wings is bronzy.

5. PTILOPUS APICALIS.

Lamprotreron apicalis, Bon. Compt. Rend. vol. xxxix. p. 877 (1854).

Ptilinopus apicalis, Bon. Consp. Gen. Av. vol. ii. (1857) p. 23; Finsch & Hartl. Centralpolyn. (1867) p. 121.

Ptilonopus apicalis, Reich. Tauben, p. 97.

Hab. Samoa, Vavao (*Bonaparte*).

This species, described by Bonaparte (*l. c.*), while resembling in

¹ See further remarks upon this plate 35 in the article on *Pt. coralensis*.

general appearance the preceding one, differs from all others in the colour of the spot upon the abdomen. In the type this is mixed with rufous and yellow, the latter colour perhaps predominating; but in a second specimen, also in the Paris collection, the spot is more rufous, and extends over a greater space. I regard this latter as a more adult individual. It unfortunately bears no precise locality, but has merely marked upon the stand, "donné par la Société des Missions Catholique de l'Océanie en 1849." The type was brought by Hombron and Jacquinot from the Samoan Islands in their Voyage au Pôle Sud. The exact island is not given on the specimens by these travellers; but Bonaparte has stated Vavao to be the habitat. I am not aware how he ascertained this island to be the one in which the specimen described by him was procured.

Adult. Front and crown rosy purple, faintly margined with yellow; throat yellowish white; occiput and back of neck pale green; sides of neck and breast greenish grey; flanks and abdomen pale green, with a rufous spot tinged with yellow in the centre of the latter; crissum and under tail-coverts bright yellow, inclining to a deep orange hue at the tips. Upper part and wings bronzy green. Secondaries margined on outer webs with pale yellow. Tail bronzy green, with an apical light-yellow band. Bill green? Feet dark red? Total length $7\frac{1}{2}$ inches; wing $5\frac{1}{4}$, tail $3\frac{1}{2}$, culmen $\frac{5}{8}$. (Type.)

6. PTILOPUS CORALENSIS.

Ptilopus coralensis, Peale, U.S. Expl. Exped. (1848) p. 190, pl. 51; Cass. U.S. Expl. Exped. 2nd ed. (1858) p. 272, pl. 32; Schleg. Mus. Pays-Bas, 1873, p. 14, *Columbæ*.

Columba purpurata, Temm. & Knip, Fig. vol. i. pl. 35?

Ptilopus viridissima, Bon. Consp. Gen. Av. vol. ii. p. 20 (1857).

Kurutreron coralensis, Bon. Consp. Av. vol. ii. p. 26. sp. 3 (1857); Reich. Taub. p. 93; id. Novit. Suppl. p. 203, t. iii. f. 33.

Ptilinopus coralensis, Cass. Wilkes Expl. Exped. text, p. 272, atl. pl. 32 (1858).

Ptilonopus coralensis, Gray, List B. Trop. Isl. p. 37 (1859).

Ptilonopus viridissimus, Gray, List B. Trop. Isl. p. 38 (1859), partim; Reich. Tauben, p. 95, pl. 236 b. fig. 3367.

Ptilinopus viridissimus, Finsch & Hartl. Faun. Centralpolyn. (1867) p. 134.

Hab. Island of Carlshoff, Paumotu group (Peale).

The type of Bonaparte's *Ptilopus viridissimus* is in the Paris Museum. The example, which was brought home by M. Maugé, the surgeon attached to the expedition commanded by Captain Baudin, is marked as from Timor. This locality is evidently erroneous, as no species belonging to this particular group of the genus *Ptilopus* is found in that island, but all are, on the contrary, apparently confined to the islands of the South Sea, from some one of which it is most probable the specimen described by Bonaparte was brought. It is in a bad condition, the primaries and tail being worn away to a considerable degree, as though the bird had been in captivity at

some period of its existence. It may possibly have been purchased by Maugé at Timor. In the coppery-red hue of the wings, as well as the tail, it answers well to the description given by Peale (*l. c.*) of his *P. coralensis*; and I have therefore assigned it to that species. The back of the type is not "viridissimum immaculatum," as described by Bonaparte, but has very conspicuous violet spots on the scapulars.

I have given among the synonyms of this species the *Columba purpurata*, var., figured by Madame Knip on plate 35 of the work on Pigeons. Temminck states that there are two specimens in the Paris Museum, brought by Capt. Baudin, which resemble the type of his plate 35. I find that the type of Bonaparte's *Pt. viridissimus* is marked as follows:—"Ptilopus viridissimus, Bp. ex Temm. tab. 35, nec 34." This unquestionably refers to the work of Temminck and Knip; but whether it is also intended to indicate that the example was the original of Madame Knip's plate I am unable to ascertain. I deem it very probable, however, that it is the original from which the drawing was made. In that case this bird would bear the name of *porphyraceus*, Temm. Trans. Linn. Soc. 1822, p. 130, which antedates *coralensis*, Peale.

Mr. Peale states that this Dove attracted his attention by its plaintive call, resembling *hoot-hoot-hoot*, uttered in rapid succession. Although not wild, it was very difficult to see them, as their plumage accorded so well with the leaves. Specimens were subsequently obtained on the low coral islets of the Paumotu group, but nowhere else. They always kept in the most wooded and secluded places.

Male. "Vertex having a very pale rubiaceous spot, which does not reach to the base of the bill; bill yellow; irides red; head, neck, and breast ashy, the feathers having a very pale greenish-yellow band near their tips, those on the breast bifurcate; back and rump green, inclining to olive; vent, wings, and tail, when viewed in a positive light, bright copper-colour, barred with golden green; underparts of the wing and tail cinereous; quill-shafts brown; tail-shafts white beneath and black on the upper surface; tail even, the inner web having a dark bar near the tip; tertiary feathers edged with yellow; primaries and secondaries having a very narrow margin of white; feathers on the leg cinereous. Total length 9 inches; tail $3\frac{1}{10}$, extent of wings 17, bill $\frac{1}{2}$, tarsus 1."—Peale (*l. c.*).

7. PTILOPUS CHALCURUS.

Ptilonopus chalcurus, Gray, List Birds Trop. Isl. Brit. Mus. (1859) p. 37.

Ptilinopus chalcurus, Finsch & Hartl. Faun. Centralpolyn. (1867), p. 131.

Hab. Harvey Islands, Cook's Archipelago (*Gray*).

The type of this species (?) is in the British Museum, where I have had an opportunity of examining it. The colour of the forehead is amethyst, a lighter hue than in *Pt. viridissimus*, Bon.; but in their coppery tints the two birds greatly resemble each other. Gray separated this Harvey-Island bird from *Pt. coralensis*, Peale, on account of the light-coloured front and crown. Without the

type of Peale's species to compare it with, I cannot say if the difference mentioned is sufficient to separate the present form as distinct, and for the present leave it under the designation given to it by its describer.

Forehead amethyst. Crown, occiput and nape pale green. Throat yellowish; sides of neck and breast greyish ash; abdomen pale green. Back and wings bronzy-green. Primaries and secondaries with a coppery-red hue in certain lights. Tail coppery red, with a greenish shade; but in the majority of lights the feathers are bright copper-colour. Crissum and under tail-coverts pale yellow. Bill, legs, and feet yellowish in the skin. Wing $5\frac{1}{2}$, tail 4in. (Type.)

8. *PTILOPUS PICTIVENTRIS*. (Plate XXXIII.)

Ptilonopus fasciatus, Whitmee (nec Peale), Proc. Zool. Soc. 1873, p. 152 (spec. exam.)

Ptilonopus apicalis, Lay. (nec Bon.), Proc. Zool. Soc. 1876, p. 495.

Ptilopus pictiventris, Elliot, Ann. & Mag. Nat. Hist. ser. 5, vol. i. p. 349 (1878).

Hab. Nukahiva, Marquesas Islands (?) (type Paris Museum); Samoa (*Whitmee*); Savage Islands (*Brenchley*); Navigators' and Friendly Islands (*Layard*).

This species was sent from Samoa by the Rev. S. J. Whitmee, and marked by him *Pt. fasciatus*. I have examined his specimens now in the British Museum, from one of which the figure (Plate XXIII.) is taken; and they agree exactly with my type in the Paris Museum. Mr. Whitmee states (*l. c.*) that this bird is kept generally in captivity by the natives of the Samoan Islands, and they train it to act as a decoy for the wild bird. I described this species from a specimen in the Paris Museum, stated to have been brought by Hombron and Jacquinot from Nukahiva of the Marquesas. I am inclined to think this locality may be erroneous, as I find on the bottom of the stand that it is first stated to have come from "Upolu," Samoan group. This was erased and Nukahiva substituted. It seems to me, in view of the Rev. Mr. Whitmee's examples, that Upolu is probably the correct locality of the type. Mr. Layard, in the 'Proceedings' of this Society, 1876, p. 495, has erroneously referred this bird to the *Pt. apicalis*, Bon. This latter species, the type of which is before me, has a rufous spot mixed with yellow in the centre of the abdomen, without any black line about it. The secondaries are also uniform bronzy green without any lilac spots near their tips; and the under tail-coverts are bright yellow inclining to an orange hue at their tips. The present species and *Pt. apicalis* are readily distinguishable from each other, the purplish-black line above the rufous on the abdomen of the present bird being at all times sufficient to separate it. Mr. Layard states that he found this species abundant, feeding on wild berries, and having a pleasing rolling "coo." The females were not so brightly coloured as the males; and the young have the whole of the underparts scaly with yellow edges to their green feathers. They exhibit no trace of the bifurcation in the breast-feathers, as in the adults; nor is the

first primary so greatly attenuated. Front and crown rosy purple, with a very faintly indicated yellow margin, almost obsolete. Occiput greenish grey. Throat whitish; neck, upper part of mantle, and breast ashy green. Flanks light green. Centre of abdomen rufous, bounded above by a deep-purple line. Crissum and under tail-coverts bright yellow, the latter orange towards their tips. Back and upper tail-coverts bright green. Scapulars tipped with lilac. Tail bright green, with a broad apical yellow band. Bill greenish with a yellow tip. Feet brown in the skin. Total length $8\frac{1}{2}$ inches, wing $5\frac{1}{4}$, tail 3, culmen $\frac{9}{16}$.

9. PTILOPUS PELEWENSIS.

Ptilinopus pelewensis, Hartl. & Finsch, Proc. Zool. Soc. 1868, p. 7, 1872, p. 101; Gräffe, Journ. Mus. Godeffr. 1873, pt. 1, pl. 7. fig. 5; Finsch, Vög. Palau-Gruppe, Journ. Mus. Godeff. 1875, Heft viii. p. 24.

Hab. Pelew Islands.

This species, described by Messrs. Hartlaub and Finsch (*l. c.*) belongs to the second group into which I have divided the green Fruit-Pigeons of the South-Sea Islands, viz. the one with the yellow apical band on the tail. It differs apparently from its relative in the violet spot on the breast-feathers, and in the colouring of the under tail-coverts, and also, as Dr. Finsch writes me, in the large orange vent-spot. It is evidently a very distinct species. In their first description the above-mentioned authors state that the under tail-coverts are white at base, then yellow, with the tips rose-violet. In the Society's 'Proceedings' for 1872, p. 101, they describe these coverts as bright purplish red, with narrow bright orange edgings. From this there would seem to be considerable variation in the hues of these feathers. I have not seen an example of this species.

Adult. Front and crown rose-violet, margined with yellow; rest of head and neck pale greenish yellow, feathers of upper part of breast crossed transversely with violet spots, tips greenish yellow. Middle of abdomen deep orange. Crissum yellow. Under tail-coverts white at base, then yellow, with the tips rose-violet. Upper parts light green. Primaries black, tipped and margined on the outer web with light green. Secondaries bright green edged with yellow. Middle rectrices green; lateral ones black on inner webs, green on outer, all with an apical yellow band. Bill lead-colour, feet flesh-colour. Length $9\frac{1}{2}$ ", wing $8'' 2'''$, tail $2\frac{1}{2}''$, tarsus $10'''$, bill $6'''$ (*Hartl. and Finsch*).

10. PTILOPUS REGINA.

Columba purpurata, prem. var., Temm. Pig. et Gall. tom. i. p. 282 (1813) (?).

Columba purpurata, var. *regina*, Swains. Zool. Journ. vol. i. (1825) p. 473.

Columba purpurata, Jard. and Selby, Illust. Ornith. vol. ii. pl. 70 (nec auct.).

Ptilinopus swainsoni, Gould, Proc. Zool. Soc. 1842, p. 18; id.

Birds Austr. vol. v. pl. 55; id. Hand-b. B. Austr. vol. ii. p. 106; Finsch & Hartl. Faun. Centralpolyn. (1867) p. 125; Gräffe, Journ. Mus. Godeff. 1873, pt. 1, pl. 7. fig. 6; Ramsay, Proc. Zool. Soc. 1876, p. 114.

Ptilonopus swainsoni, Gray, Gen. B. (1844) vol. ii. p. 466. sp. 6; id. List B. Brit. Mus. (1856) p. 2. sp. 1; Reich. Tauben, p. 94, pl. 235. figs. 1309-10.

Kurukuru swainsonii, Des Murs & Prév. Voy. Vénus, Zool. (1855) p. 256.

Ptilopus swainsonii, Schleg. Mus. Pays-Bas, 1873, p. 4, *Columbæ*.

Hab. Australia, river Clarence, between the Hunter and Moreton Bay (Gould).

Temminck, in his 'Pigeons et Gallinacées,' (*l. c.*), describes a "première variété" of his *Columba purpurata* (= *ewingii*, Gould). This has been referred, by Messrs. Finsch and Hartlaub in their work on Central-Polynesian birds, to *Pt. fasciatus*, Peale. I do not think this is correct; and although it may be impossible to prove what really this "variety" of Temminck's is, yet it seems to me that his description points more towards the present species. In the first place Temminck makes no mention of a purplish-black spot upon the abdomen, which *Pt. fasciatus* (Peale) possesses; and he describes the belly as exhibiting "plusieurs nuances de jaune et d'orange," which certainly are not to be found on Peale's bird, which has this part grass-green with a purplish black spot in the centre. As the *Columba purpurata*, Temm., is known to be the *Pt. ewingii*, Gould, and did not come from Tahiti, it is probable that he had with it the *Pt. regina*, also from Australia, and looked upon them as varieties of the same species. As this cannot, however, be definitely ascertained, I have placed his name among the synonyms, with a question. Temminck states that there are two specimens in the Paris Museum, brought by Capt. Baudin, which are like the variety described by him. I have examined all the examples brought by Baudin's expedition; and they belong only to the *Pt. ewingii* and *Pt. viridissimus*, Bon. (= *coralensis*, Peale). This species has been generally known as the *Ptilopus swainsoni*, Gould; but it was called *regina* by Swainson seventeen years before Mr. Gould's name was published. In fact it is the type of Swainson's genus *Ptilonopus* (*Ptilopus*); and Gould's name must become a synonym.

Male. Forehead and top of head crimson, margined narrowly with yellow. Occiput and back of neck greyish green. Throat white, sometimes tinged with yellow. Breast pale green, each feather tipped with light grey. Flanks dull green. Abdomen deep orange, with a spot of deep lilac-red in the centre. Crissum and under tail-coverts orange-yellow. Upper parts bright green. Primaries slaty grey on inner webs, green on the outer, edged with yellow. The first abruptly and greatly attenuated. Secondaries bluish green, becoming deep blue near their tips, and broadly margined with yellow. Tail deep green, with a broad terminal rich yellow band. Irides reddish orange. Bill greenish black, horn-colour at the tip. Feet olive-brown. Total length $9\frac{1}{4}$ inches, wing $5\frac{1}{2}$, tail $3\frac{1}{2}$, culmen $\frac{1}{2}$.

Immature. Front tinged with rose-colour; loreal space and a line over the anterior half of the eye light yellow. Head, neck, cheeks, back, and breast green, the feathers of the latter tipped with light yellow. Throat yellowish white. Abdomen and under tail-coverts light yellow; the lilac-red spot absent. Rest of plumage as in the adult.

Specimens described are those figured by Bonaparte, *Iconogr. Fig.* pl. 21.

11. PTILOPUS EWINGII.

Columba purpurata, Temm. *Pig. et Gall. tom. i.* p. 280 (1813); Less. *Traité Ornith.* (1831), p. 472 (nec auct.).

Columba purpurata, Desmar. *Dict. Sc. Nat. vol. xl.* (1826) p. 339; Knip & Prév. *Pig. vol. i. pl. 34* (nec auct.).

Le Kurukuru, Less. *Compl. Buff. Ois. tom. iii.* p. 32 (1837).

Ptilinopus purpuratus, Selby, *Nat. Libr. vol. v. pt. 3,* p. 103 (1835) (not from Otaheite); Swains. *Class. Birds, vol. ii.* p. 347 (nec auct.).

Ptilinopus ewingii, Gould, *Proc. Zool. Soc.* 1842, p. 19; id. *B. Austr. vol. v. pl. 56.*

Ptilonopus purpuratus, Gray, *List B. Brit. Mus.* (1844) p. 2, *Gallinæ.*

Ptilonopus ewingii, Gray, *List B. Brit. Mus.* (1844) p. 2, (1856) p. 3. sp. 2; id. *Gen. B. vol. ii.* (1844) p. 466; Reich. *Tauben,* p. 94, pl. 235. figs. 1307-8.

Kurukuru roseicapillus, Des Murs & Prév. (nec Less.), *Voy. Vénus, Ois.* p. 262 (1855), partim.

Ptilinopus flavicollis, Gray, *List B. Brit. Mus.* (1856) p. 3. sp. 3.

Ptilonopus flavipectus, Reich. *Tauben,* p. 94, pl. 235. fig. 1305 (ex pl. 35, Knip, *Pig.*), ex Timor.

Ptilonopus flavicollis, Reich. *Taub.* p. 95; Gray, *List B. Brit. Mus.* (1856) p. 3. sp. 3; Wall. *Ibis*, 1865, p. 380.

Ptilopus flavicollis, Bon. *Consp. Gen. Av. vol. ii.* p. 20. sp. 4; id. *Compt. Rend.* (1855) tom. xl. p. 216. sp. 40; id. *Iconogr. Fig.* (1857) pl. 25.

Ptilopus ewingii, Bon. *Consp. Av. vol. ii.* p. 20 (1857); id. *Iconogr. Fig.* (1857), pl. 24. fig. 1; Schleg. *Mus. Pays-B.* 1873, p. 5.

Ptilinopus flavicollis, Finsch & Hartl. *Faun. Centralpolyn.* (1867) p. 125.

Hab. Coburg peninsula, northern coast of Australia (Gould); Timor, Flores (Semmelink).

The representation of this species given by Madame Knip on plate 34 of her work is so badly executed that it is impossible to recognize what is intended; for it certainly resembles no species that was ever seen. Therefore Bonaparte was perfectly justified in giving another figure in his *Iconogr. Fig.* pl. 25, from which a very good idea of this species is obtained. It is very safe to say that, unless the originals of some of Madame Knip's plates had been preserved in the Paris Museum to show what the species really were, they would always have remained a stumbling-block to ornitho-

logists. I do not find, after a careful comparison of specimens from the two localities, that the birds from Timor and Australia show any characters that should separate them as distinct species. Desmarest, in the 'Dictionnaire des Sciences,' gives a species of *Ptilopus* as *Columba purpurata*. This has been referred to the *Pt. fasciatus* of Peale. As, however, the description mentions yellow and orange colours on the belly, and, moreover, this bird is referred to plate 34 of Temminck and Knip's 'Pigeons,' which represents *Pt. ewingii*, I have placed Desmarest's name among the synonyms given above.

Adult male. Forehead and crown rose-colour, margined with yellow. Sides of head greyish. Throat light yellow. Breast pale green, feathers tipped with yellow. Abdomen orange, with a pale lilac band crossing the upper part. Flanks green. Crissum and under tail-coverts orange-yellow. Back of neck and upper parts bright green. Wings bluish green. Primaries brownish black on inner webs, dark green on outer, margined with yellow, the first abruptly and greatly attenuated. Secondaries bluish green; base of inner webs brownish black, margined with light yellow. Tail bright green, with a broad terminal yellowish-white bar. Bill black, with yellow tip. Feet brownish. Total length 9 in., wing 5, tail $3\frac{1}{2}$, culmen $\frac{1}{2}$. (Specimen figured by Bonaparte.)

12. PTILOPUS RAROTONGENSIS.

Ptilinopus rarotongensis, Hartl. & Finsch, Proc. Zool. Soc. 1871, p. 30; Gräffe, Journ. Mus. Godeff. 1873, pl. 7. fig. 1.

Hab. Cook's Islands (*Finsch & Hartlaub*); Savage Island (*Whitmee, Brenchley*).

A specimen in the British Museum from Savage Island, one of the Friendly group, is apparently of this species, and answers quite well to the description given by Finsch and Hartlaub. The spot on the lower portion of the breast is rosy red in the centre, surrounded by very dark purple. Abdomen and under tail-coverts are yellow, the latter strongly tinged with orange towards the ends.

Adult. Front and vertex purplish violet-red, surrounded by a narrow indistinct line of yellow; occiput, sides of head, neck, crop, and upper part of breast delicate grey, the feathers of the latter bifurcate and with a pale yellow cross band; chin and middle of throat white, washed with pale yellow; breast and remainder of underparts yellow, purer on the back and under tail-coverts, paler on the anal region; the sides washed with pale greyish green, the same as the feathered tarsus; on the middle of the lower portion of the breast a large spot of dark purplish red; back and upper parts vivid grass-green; primaries and their coverts on the outer web and end brilliant dark green, with a very narrow but distinct white margin, the inner web black; secondaries also dark green, but with a somewhat broader yellow margin along the outer web; coverts of the secondaries dark green, narrowly margined externally and at the end with yellow; larger shoulder-coverts brilliant dark green, broadly margined at the end with grass-green; wing beneath ashy grey; under wing-coverts

delicate grey like the neck; tail dark green with a broad greyish-white end; the feathers, except the two middle ones, are on the inner web dark grey, crossed above the white end by a blackish cross band; the white end is margined narrowly with pale yellow; tail beneath dark grey, at the end broadly white; bill plumbeous, tipped with pale horn-colour; feet reddish brown, nails dark; irides yellow; bill brownish yellow; legs purple-red.

"*Young*. Vertex and hind neck green like the back; front and forehead covered with a pale violet-purple patch; sides of head and neck grey, washed with green, the crop and upper portion of breast with greenish yellow; the underparts are of a less brilliant yellow; the sides darker greyish green; the red pectoral patch is indicated only by some dirty purplish feathers; the pale yellow margins at the ends of the coverts of the secondaries are broader and form a distinct cross line; the white end portion of the tail-feathers is washed at the outer web and apex with green; bill and feet brown; total length 8 inches, wing 5, tail 3.1."—*Finsch and Hartl. (l. c.)*.

13. PTILOPUS FASCIATUS.

Ptilinopus fasciatus, Peale, U.S. Expl. Exped. Ornith. (1848) p. 193, pl.; Gray, List B. Brit. Mus. (1856) p. 4; Finsch & Hartl. Faun. Centralpolyn. (1867) p. 115; Gräffe, Journ. Mus. Godeff. Heft i. (1872) p. 45, Taf. 7. fig. 2.

Ptilinope de Clémentine, Hombr. & Jacq. Voy. Pôle Sud (1841), pl. xxix. fig. 3.

Ptilinopus clementinæ, Bon. Compt. Rend. tom. xl. (1855) p. 216. sp. 48; id. Consp. Gen. Av. vol. ii. p. 22. sp. 9; id. Iconogr. Fig. pl. xxii. fig. 1 (1857); Reich. Taub. p. 96, tab. 240. fig. 2588; id. Suppl. p. 203, pl. iv. figs. 34, 35; Gray, B. Trop. Isl. p. 38; Finsch, Journ. Mus. Godeff. Heft xii. p. 37 (1876).

Columba viridissima, Temm. Pl. Col., text of *C. diademata*.

Ptilinopus! clementinæ, Jacq. & Puch. Voy. Pôle Sud, vol. iii. text (1853), p. 117, Atl. pl. xxix. fig. 3.

Kurukuru clementinæ, Des Murs & Prév. Voy. Vénus, Ois. p. 269 (1855).

Lamprotreron porphyracea, Bon. Consp. Gen. Av. vol. ii. p. 21.

Ptilopus clementinæ, Bon. Iconogr. Fig. (1857) pl. xxii. fig. 1.

Ptilonopus fasciatus, Gray, List B. Trop. Isl. (1859) p. 37 (partim).

Ptilonopus clementinæ, Gray, List B. Trop. Isl. (1859) p. 38.

Ptilopus porphyraceus, Schleg. Mus. Pays-B. 1873, p. 8, *Columbæ*.

Ptilopus fasciatus, Schleg. Mus. Pays-B. 1873, p. 6, *Columbæ*.

Ptilonopus ponapensis, Finsch, Proc. Zool. Soc. 1877, p. 779.

Native name *Manu-tagi* (*Whitmee*).

Hab. Samoa (*Peale, Hombron and Jacquinet*); Ponapé Island (*Kubary*).

This is the species first described by Peale (*l. c.*) from Samoa, and afterwards by Hombron and Jacquinet as *clementinæ*. It is a well-marked bird, differing from all its allies in the yellowish hue of its throat, cheeks, and breast. The abdomen is pure green, with

a purplish-black spot in the centre. Several examples are before me, including the type of *Pt. clementinæ*; and the species is readily recognizable from all the others of this especial section of the genus *Ptilopus*. *Pt. apicalis*, Bon., sometimes referred to this species, is quite distinct. I place with a doubt, among the synonyms given above, the *Ptilinopus fasciatus* figured in the Journal of the Museum Godeffroy (*l. c.*); for the colouring of the figure is so defective that it is impossible to arrive at any satisfactory conclusion as to what species is meant. The purplish-black mark on the abdomen is apparently omitted. If the specimen does not possess this, it cannot be the *Pt. fasciatus*, and is probably *Pt. apicalis*, Bon. An examination of the bird itself could alone decide the matter.

Dr. Finsch, in a late number of these 'Proceedings' (1877, p. 779), described a *Ptilopus* from the island of Ponapé from specimens sent to the Museum Godeffroy by Mr. Kubary, as distinct under the name of *Pt. ponapensis*. Not being able to make out by the description wherein this bird differed from the *Pt. fasciatus*, Peale, I wrote to Dr. Finsch asking if it was not possible to have the type sent to me. On his making the request to the Directors of the Museum Godeffroy, they most kindly forwarded me three specimens, among which was the type of the description published in this Journal. I compared it with the examples in the Paris Museum; and, as I supposed it would be, the species is the same as *Pt. fasciatus*, Peale, being identical with those birds in the Paris Museum called *clementinæ* by Hombron and Jacquinot, and procured by them in the Voyage au Pôle Sud, and which do not differ specifically from the *Pt. fasciatus*, Peale. The *Pt. ponapensis* will therefore have to become a synonym of the present species.

Adult. Top of head and forehead bright purple, margined with pale yellow. Back and sides of neck, cheeks, upper part of back, throat, and breast pale yellowish green inclining to ash colour. Flanks and abdomen grass-green, with a purplish-black spot in the centre of the abdomen. Back and upper tail-coverts bronzy green. Primaries and secondaries black on inner webs; outer bright green, edged with yellow on the secondaries; first primary abruptly and greatly attenuated. Some of the innermost secondaries and tertials have a pale violet mark near their tips. Tail bright green, with the terminal fourth bright yellow. Crissum and under tail-coverts orange-yellow. Bill black, tip yellowish. Feet brown. Total length $8\frac{3}{4}$ inches, wing $5\frac{1}{2}$, tail $3\frac{3}{8}$, culmen $\frac{5}{8}$. (From Hombr. & Jacq. specimen in Paris Museum.)

14. PTILOPUS MERCIERI.

Kurukuru mercieri, Des Murs & Prév. Voy. Vénus, Ornith. p. 266 (1855).

Ptilopus mercieri, Bon. Compt. Rend. tom. xl. (1855) p. 216; id. Iconog. Fig. pl. xxii. fig. 2 (1857); id. Consp. Gen. Av. vol. ii. (1857) p. 22. sp. 8.

Ptilinopus mercieri, Finsch & Hartl. Faun. Centralpolyn. (1867) p. 128; Finsch, Proc. Zool. Soc. 1877, p. 410.

Ptilonopus mercieri, Gray, List B. Trop. Isl. (1859) p. 36; Reich. Tauben, p. 96.

Hab. Nuka-hiva, Marquesas Islands. (Type.)

A very rare and well-marked species; but one or two examples besides the type in the Paris Museum are, I believe, all that are known in European collections. It resembles in its coloration the last species, but is readily recognized by the red spot on the head at the base of the mandible.

Adult. Entire upper part of head and occiput and a conspicuous spot at base of the mandible deep rosy purple. Nape, mantle, sides of neck, throat, and breast pale yellowish green, with a tinge of ash upon cheeks and nape. Abdomen and flanks bright greenish yellow; crissum and under tail-coverts bright yellow. Back and upper tail-coverts bright green, with a yellowish tinge upon the latter. Wings same colour as the back; primaries black, shaded with very dark green upon the outer webs, the first abruptly and greatly attenuated; secondaries black on the inner webs, dark green on the outer, and margined with yellow; the innermost ones with a conspicuous blue-black spot near the tips, and margined broadly with yellow. Rectrices smoke-colour at base, the outer webs barred with pale green in the centre, this colour sometimes extending slightly onto the inner web; and all the apical third very light yellow. Bill black with light tip. Feet brown. Total length 9 inches, wing $5\frac{1}{2}$, tail $3\frac{3}{8}$, culmen $\frac{1}{2}$. (Description taken from type in Paris Museum.)

15. PTILOPUS ROSEICAPILLUS.

Columba roseicapilla, Less. Trait. Ornith. p. 472. sp. 44 (nec syn.) (1831).

Le Kurukuru des Mariannes, Less. Compl. Buff. tom. iii. Ois. p. 33 (1837).

Ptilonopus purpureicinctus, Gray, Proc. Zool. Soc. 1853, p. 48, pl. lv; id. List B. Brit. Mus. (1856) p. 4. sp. 5 (partim); id. Ann. & Mag. Nat. Hist. 2nd ser. vol. xv. (1855) p. 159; id. List B. Trop. Isl. (1859) p. 37.

Kurukuru roseicapilla, Des Murs & Prév. Zool. Voy. Vénus, Ois. p. 259 (1855).

Ptilopus roseicapillus, Bon. Compt. Rend. tom. xl. (1855) p. 216. sp. 46; id. Iconog. Fig. (1857) pl. xxii.; id. Consp. Gen. Av. vol. ii. p. 21. sp. 7.

Ptilonopus roseicapillus, Gray, List B. Trop. Isl. p. 37; Reich. Taub. p. 96.

Ptilinopus roseicapillus, Finsch & Hartl. Faun. Centralpolyn. (1867) p. 127.

Hab. Ladrone Islands or Marianne Islands.

This is a very distinct species, differing in certain particulars from all others known. Besides Lesson's type there are several examples in the collection of the Paris Museum. It is a rare species, not many examples having been brought to Europe.

Adult. Front, crown, and spot at base of lower mandible rich purple, margined on the posterior part with yellow. Back and sides of neck greenish grey. Throat white. Upper part of breast greyish green, the feathers tipped with pearly white. Lower part of breast crossed by a green band, with a large spot of deep purple in the centre; abdomen orange, with the centre yellowish green; under tail-coverts bright yellow, becoming rich orange towards their tips. Back and upper tail-coverts bronzy green. Wings like the back; primaries black on inner webs, green on the outer, edged with yellow, the first one abruptly and greatly attenuated; secondaries bluish green margined with lemon-yellow. Rectrices pale green on outer webs, smoke-colour on their inner, with a broad terminal band of yellowish white. Bill black, tip yellowish. Total length $8\frac{3}{4}$ inches, wing $5\frac{1}{4}$, tail $3\frac{1}{4}$, culmen $\frac{1}{2}$. (Specimen figured by Bonaparte l. c. in Paris Museum. Lesson's type of this species is also before me; but not being in so good a condition as Bonaparte's specimen, I have preferred not to take my description from it.)

16. PTILOPUS HUTTONI.

Ptilinopus huttoni, Finsch, Proc. Zool. Soc. 1874, p. 92.

Hab. Island of Rapa or Opara, South Sea.

I do not know this bird autoptically. It is evidently a very fine and distinct species, differing in many ways from all others of this genus. It is quite large, has the first primary attenuated, and also two thirds of the basal portion of the tarsus feathered. As I have shown, however, in the discussion of the genera in the earlier part of this paper, these two characters are not of any especial importance in defining the generic position of the members of the group now under consideration. The following description is taken from that given by Dr. Finsch of the type.

Adult. Front and crown and spot at base of mandible purplish violet-red; chin red, but paler than the crown. Red of crown margined narrowly and indistinctly with green. Occiput, neck, throat, and crop ashy grey tinged with green; feathers on the crop bifurcate, and dull olive-green in the centre. A pale yellowish longitudinal patch below the chin. A large dark purplish-violet patch on the breast; base of feathers dark olive-green. Sides of breast and flanks dark olive-green. Anal region and back of thighs dirty yellow. Under tail-coverts purplish violet-red like the crown, basal portions yellowish. Upper parts dark olive grass-green. Quills dark green, margined narrowly with yellow, with apical portions having coppery reflections. Shoulder-coverts with a triangular spot of dull lilac. Tail-feathers dark green; apical margin yellowish white, with coppery reflections in certain lights. Bill horny grey, tip yellowish; feet pale, apparently yellow; eye pink. Total length 12.20 inches, wing 6.70, tail 4.90; bill above .75, at gape 1.15; tarsus 1.20; middle toe .95, nail .35.

17. PTILOPUS DUPETIT-THOUARSI.

Ptilinope de dupetit-thouars, Hombr. & Jacq. Voy. Pôle Sud, pl. 29. f. 1.

Columba dupetithouarsii, Neboux, Rev. Zool. 1840, p. 289; id. Voy. Favor. pl. 7.

Columba kurukuru purpuro-leucocephalus, Hombr. & Jacq. Ann. Sc. Nat. xvi. p. 316 (1841).

Ptilinopus emiliæ, Less. Echo du Monde Sav. (1844) p. 873.

Ptilonopus leucocephalus, Gray, List B. Brit. Mus. p. 2 (1844), *Gallinæ*.

Ptilonopus dupetit-thouarsi, Gray, Gen. B. vol. iii. App. p. 23 (1844-49); id. List B. Brit. Mus. (1856) p. 3, *Columbæ*; id. B. Trop. Isl. p. 36 (1859).

Ptilinopus dupetit-thouarsi, Jacq. & Puch. Voy. Pôle Sud, vol. iii. (1858), text, p. 114, atl. pl. 29. fig. 1.

Trygon dupetit-thouarsi, Reich. Syst. Av. p. xxvi.

Thouarsitreron leucocephala, Bon. Compt. Rend. tom. xxxix. (1854) p. 276, and tom. xl. (1855) p. 216; id. Iconogr. Pig. (1857) pl. 17; id. Consp. Av. p. 16 (1857).

Columba dupetit-thouarsi, Des Murs & Prév. Voy. Vénus, Zool. (1855) p. 241.

Thouarsitreron dupetit-thouarsii, Reich. Tauben, p. 93, pl. 240. fig. 2587.

Ptilinopus dupetit-thouarsi, Finsch & Hartl. Faun. Centralpolyn. (1867) p. 129; Finsch, Proc. Zool. Soc. 1877, p. 410.

Ptilopus dupetit-thouarsii, Schleg. Mus. Pays-B. 1873, p. 15, *Columbæ*.

Hab. Christine Island, Marquesas.

A very handsome species, not likely to be confounded with any other of this group. It has, I believe, only been obtained on Christine Island of the Marquesas. The first primary is especially noticeable for the great length of its attenuation.

Adult. Top of head greyish white, margined faintly with light yellow. Throat and spot in front of the eye light yellow. Neck and upper part of back greyish green. Feathers of the breast pale green tipped with grey. Flanks pale green. Abdomen deep rose-colour; crissum and under tail-coverts bright yellow. Back and upper tail-coverts bronzy green. Wings like the back; primaries black, with a dark green shade on their outer webs, and the innermost ones bronzy green at their tips, the first one abruptly and greatly attenuated. Secondaries—outer ones dark green on their outer webs, dark brown on inner with bronze-green tips, innermost ones deep blue near their tips, and all broadly margined with light yellow. Rectrices dark green (sometimes strongly tinged with bronze), with a broad apical yellowish-white band. Bill black, tipped with yellow. Feet red. Total length $9\frac{5}{8}$ inches, wing 6, tail $3\frac{3}{4}$, culmen $\frac{3}{8}$. (Type of the species from Christine Island.)

18. PTILOPUS XANTHOGASTER.

Columba purpurata, Temm. (nec auct.) Pl. Col. livr. 43 (1824), vide text to pl. 254, livr. 95 (1835).

Columba xanthogaster, Wagl. Syst. Av. (1827) sp. 29, *Columbæ*.

Columba diademata, Temm. text to Pl. Col. 254, livr. 95 (1835).

Ptilinopus purpuratus, Steph. (nec auct.) Cont. Shaw's Gen. Zool. vol. xiv. p. 277. sp. 1.

Ptilinopus flavigaster, Swains. Class. B. vol. ii. p. 347.

Le Kurukuru à ventre jaune, Less. Compl. Buff. tom. iii. Ois. p. 36 (1837).

Ptilonopus xanthogaster, Gray, Gen. B. (1844-49) vol. ii. p. 446; id. List B. Brit. Mus. (1856) p. 5; id. List B. Trop. Isl. p. 36 (1859).

Kurukuru xanthogaster, Des Murs and Prév. Voy. Vénus (1855), Zool. p. 238.

Thouarsitreron diademata, Bon. Compt. Rend. tom. xxxix. (1854) p. 876, tom. xl. (1855) p. 216; id. Iconog. Pig. pl. 18 (1857); id. Consp. Av. vol. ii. p. 16 (1857); Reich. Tauben, p. 93, figs. 1326, 1327.

Ptilonopus diadematus, Wall. Ibis, 1865, p. 380.

Ptilinopus diadematus, Finsch & Hartl. Faun. Centralpolyn. (1867) p. 124.

Ptilopus diadematus, Schleg. Mus. Pays-B. 1873, p. 11, *Columbæ*.

Ptilopus xanthogaster, Salvad. Ann. Mus. Civ. Genov. 1876, vol. ix. p. 199.

Hab. Banda (*Reinwardt, Hoedt*); Koor or Kanaloor, Little Ké, Grand Ké (*Von Rosenberg*); Lettie, east of Timor (*Hoedt*).

This species was first called by Temminck *Columba purpurata*, Lath., in the 43rd livraison of the 'Planches Coloriées,' he supposing that it was a female of Latham's bird. Afterwards he ascertained, from an examination of the specimens obtained by Quoy and Gaimard during the voyage of the 'Uranie,' that the bird figured by him represented a distinct species; and he therefore, in the 95th livraison, issued a new sheet of text calling the bird *diademata*, and requested that the previous page should be replaced by this one. However, between the dates of these two livraisons (1824-1835), Wagler had in 1827, in his 'Systema Avium,' described the species as *xanthogaster*, which name will of course take precedence over Temminck's later one of *diademata*.

Adult. Head, neck, and upper part of the breast greyish white. An orange-yellow line passes over the eye and encircles the occiput. Throat bright yellow. Lower part of breast, abdomen, and under tail-coverts orange-yellow; a large pale grey patch on upper part of abdomen. Upper parts dark green. Centre of tertials, scapulars, and innermost secondaries deep blue, bordered with yellow. Primaries bordered with white, the first one abruptly and greatly attenuated. Tail dark green, with an apical band of lighter green. Bill green,

tip yellow; feet dark red. Total length 9 inches, wing $5\frac{1}{4}$, tail $3\frac{3}{8}$, culmen $\frac{1}{2}$.

19. PTILOPUS CHRYSOGASTER.

Ptilonopus chrysogaster, Gray, Proc. Zool. Soc. 1853, p. 48; id. Ann. & Mag. Nat. Hist. 2nd ser. vol. xv. (1855) p. 158; id. List B. Brit. Mus. (1856) p. 5. sp. 10, *Columbæ*; id. List B. Trop. Isl. p. 36 (1859); Sclat. Proc. Zool. Soc. 1864, p. 9.

Kurutreron chrysogaster, Bon. Compt. Rend. (1854) tom. xxxix. p. 876, (1855) tom. xl. p. 217; id. Iconogr. Pig. (1857) pl. 29. fig. 2; id. Consp. Gen. Av. vol. ii. p. 26. sp. 2 (1857).

Kurutreron chrysogastra, Reich. Taub. p. 92, tab. 245 b. figs. 3525, 3526.

Ptilinopus chrysogaster, Finsch & Hartl. Faun. Centralpolyn. (1867) p. 128; Graeffe, Journ. Mus. Godeff. 1873, Taf. 7. fig. 4.

Hab. Tonga-Tabou, Huaheine, Society Islands (*Wodehouse*).

Although distinct, this species is a close ally of the *Pt. xanthogaster*. It can, however, be readily recognized by its bright yellow abdomen and under tail-coverts and light-purple crown, those of its relative being orange and greyish white respectively. It is one of the two species known to inhabit the Society Islands.

Adult. Front and crown light-purple, margined posteriorly with dark yellow. Rest of head, neck, mantle, breast, and flanks greenish grey. Throat pale yellow. Abdomen and under tail-coverts bright yellow. Back and wings bronzy grass-green. Primaries black, the outer webs margined with dark green, the first abruptly and greatly attenuated for one third its length; secondaries bluish green, margined with pale yellow. Tail dark bronze-green, with a broad terminal band of yellowish white edged with a bright yellow. Bill black, tip yellow. Feet brown. Total length $9\frac{1}{2}$ inches, wing $5\frac{3}{4}$, tail 4, culmen $\frac{3}{8}$.

20. PTILOPUS TAITENSIS.

Columba kurukuru, var. *taitensis*, Less. Voy. Coq. tom. i. text, p. 297 (1826).

Columba oopa, Wagl. Isis, 1829, p. 742.

Columba taitensis, Less. Trait. Ornith. (1831) p. 472.

Le Kurukuru d'Otaïti, Less. Compl. Buff. tom. iii. Ois. p. 35 (1837).

Colombe de Taiti, Neboux, Rev. Zool. 1840, p. 289.

Ptilonopus taitensis, Gray, Gen. B. vol. ii. p. 466 (1844-49).

Ptilinopus furcatus, Peale, U.S. Expl. Exped. Birds, p. 191 (1848).

Kurukuru purpuratus, Des Murs & Prév. (nec auct.) Voy. Vénus, Zool. p. 222 (1855). Spec. Paris Mus.

Kurukuru dupetit-thouarsi, Des Murs & Prév. Voy. Vénus, Zool. pl. vii. (1855).

Kurukuru nebouxii, Des Murs & Prév. Voy. Vénus, Zool. p. 253 atl. pl. vii.

Kurukuru taitensis, Des Murs & Prév. Voy. Vénus, Zool. (1855) p. 251.

Ptilinopus purpuratus, Gray, List B. Brit. Mus. (1856) p. 4 (partim); id. List B. Trop. Isl. (1859) p. 35 (partim); Finsch, Proc. Zool. Soc. 1877, p. 741.

Kurutreron oopa, Bon. Compt. Rend. (1854) tom. xxxix. p. 878; id. Iconogr. Fig. (1857) (text); id. Consp. Av. vol. ii. p. 26; Reich. Taub. p. 92, pl. 245 b. figs. 3527-28.

Ptilinopus purpuratus, Cass. U.S. Expl. Exped. (1858) Ornith. pl. xxx. p. 269; Finsch & Hartl. Faun. Centralpolyn. (1867) p. 122; Finsch, Proc. Zool. Soc. 1877, p. 741.

Ptilopus purpuratus, Schleg. Mus. Pays-B. 1873, p. 15, *Columbæ*. *Hab.* Otaheiti.

Peale says this species utters a *coo-coo-coo* slowly and at regular intervals. It is not as sprightly as the Coral-Island Dove, and delights to sit on some dead branch in the shady recesses of the woods. In my article on *Pt. purpuratus* I have given my reasons for considering that this species should not bear that name. The fact that Latham states that the bird he describes came from Otaheite, which is the chief reason why his name of *purpuratus* was assigned to this species, loses entirely its value and force when it is seen that no bird of the genus *Ptilopus* inhabits Otaheite that answers to his description. Having specimens from both the Society Islands and Tonga in his possession, and having confused them in his description, he probably did not particularly regard his specimen or compare it with his description when he stated it to have come from Otaheite. By no stretch of the imagination can the present species be deemed to have a "purple crown." It is *ashy grey with a lilac tinge*, but in no way does it approach any shade of purple. A series of specimens now before me from the Paris-Museum collection clearly substantiates this.

Adult. Top of head ash-grey with a tinge of lilac. Underparts light ash-green, darkest on the abdomen. Back of neck cinereous, washed with green. Upper parts bright green. Wings bright green; first primary gradually narrowed to tip; the inner webs of secondaries and primaries black, outer webs bright green, those of the secondaries edged with yellow. Centre of abdomen and crissum pale yellow, becoming bright yellow on the under tail-coverts. The tail has the rectrices bright green on the outer webs, black on the inner, and a subterminal interrupted greyish bar, extending only over the inner webs. Feet violet; eyes orange; bill green at base, tip yellow. Feet brown. Total length 9 inches, wing $5\frac{3}{4}$, tail $3\frac{5}{8}$, culmen $\frac{1}{2}$.

21. PTILOPUS SUPERBUS.

Columba superba, Temm. Fig. & Gall. tom. i. p. 277 (1813); Shaw, Gen. Zool. vol. xi. pt. 1, p. 64 (1819); Desm. Dict. Sc. Nat. vol. xl. (1826) p. 337; Temm. & Knip, vol. i. pl. 33.

Columba cyanovirens, Less. Voy. Coq. pl. xlii. fig. 1 (1824); Desm. Dict. Sc. Nat. vol. xl. (1826) p. 343; Less. Trait. Ornith. (1831) p. 471; Knip & Prév. Fig. vol. ii. pl. 8, ♀.

Columba superba, Wagl. Syst. Av. (1827) sp. 32, *Columba*.

La Verte, Less. Compl. Buff. tom. iii. Ois. p. 29 (1837).

La Poukiopou, Less. Compl. Buff. tom. iii. Ois. (1837).

Ptilinopus leucogaster, Swains. Class. B. vol. ii. p. 347.

Ptilinopus superbus, Steph. Gen. Zool. vol. xiv. p. 279. sp. 6 ; Gould, B. Austr. vol. v. pl. lvii.

Ptilonopus superbus, Gray, Gen. B. (1844-49) vol. ii. p. 467 ; id. List B. Brit. Mus. (1856) p. 7 ; id. Proc. Zool. Soc. 1858, p. 184 ; id. List B. Trop. Isl. (1859) p. 39 ; id. List Mamm. and B. New Guin. (1859) p. 46 ; Wall. Ibis, 1865, p. 379 ; Salvad. Ann. Mus. Civ. Gen. (1875) vol. vii. p. 786.

Ptilonopus cyanovirens, Gray, Gen. B. (1844-49) vol. ii. p. 467 ; id. List B. Brit. Mus. (1856) p. 8. sp. 23 ; id. Cat. Mamm. and B. New Guin. (1859) p. 47.

Kurukuru superbus, Des Murs & Prév. Voy. Vénus, p. 231 (1855).

Lamprotreron superba, Bon. Consp. Gen. Av. (1857) vol. ii. p. 18 ; Reich. Tauben, p. 97, pl. 236 b. fig. 3366, ♀, pl. 236. figs. 1316-17, ♂ juv. ; Ibis (1866), p. 333 ; Ramsay, Proc. Zool. Soc. 1876, p. 114.

Cyanotreron cyanovirens, Bon. Compt. Rend. (1854) tom. xxxix. p. 878 ; id. Consp. Av. vol. ii. p. 23 ; Reich. Tauben, p. 98, pl. 238. fig. 1324.

Ptilonopus (Lamprotreron) superbus, Gray, Proc. Zool. Soc. 1860, p. 360.

Ptilopus superbus, Schleg. Mus. Pays-B. 1873, p. 30, *Columbæ* ; Salvad. Ann. Mus. Civ. Genov. (1877) vol. x. p. 158.

Lamprotreron porphyrostictus, Gould, Ann. & Mag. Nat. Hist. (1874) vol. xiii. p. 137, ♀ ?

Hab. Amboyna, Ceram, Batchian, Gilolo, Waigiu, Mysol, Aru, New Guinea (*Wallace*) ; Mount Arfak (*Brujn.*) ; Halmahera, Ternate, Batanta, Jobie (*Bernstein, Von Rosenberg*) ; Bouru, Salwatty (*Hoedt*) ; Amberbaki, Mafor (*Raffray*) ; New Hanover (*Cabanis*) ; Booby Islands (*Gould*) ; Cape York, Australia (*Cockerell*).

As will be seen from the list given above, this species has received many names. The two sexes have been described as distinct species, and have been assigned to different genera ! It has a wide distribution, having been procured as far to the eastward as New Hanover, reaching Gilolo on the north, and Cape York, Australia, on the south. In fact it is found generally throughout the Papuan group of islands and along the northern part of New Guinea. As it has been obtained at Mount Arfak and Amberbaki, and also on Salwatty on the west coast, it is probable that it will be ascertained to inhabit the entire northern portion of New Guinea. According to Mr. Ramsay, this bird is tolerably abundant in the scrub-lands of the Herbert River and coast-range. The note, which is a rolling guttural "coo," may be heard half a mile off. The young resemble somewhat those of *Pt. swainsoni (regina)*, but do not show the bifurcate breast-feathers before the end of the second year ; but the green bands on the flanks are conspicuous even in the nestling. The

Lamprotreron porphyrostictus of Gould seems to be only a female of this species, having "a purplish-blue spot at back of head."

Adult male. Upper part of head bright purple. Ear-coverts and sides of face light green. Chin and throat ashy white. Nape and sides of neck above shoulders rufous-orange. Breast has the feathers light purple at the base, broadly tipped with ashy grey, this latter hue giving the predominant colour to the breast. A broad bluish-black band crosses the lower part of the breast. Middle of abdomen and crissum white. Flanks and thighs green, the former crossed by a white band above the thighs. Upper parts bright green. Shoulders and a spot on the scapulars, wing-coverts, and secondaries deep purple. Primaries brownish black, the first abruptly attenuated. Secondaries bright green, edged with light yellow. Tail has the rectrices blackish on the inner webs, bright green on the outer, and all except the central pair with a white apical band. Under tail-coverts white, tinged with yellow, with broad central green stripes. Bill olive-green, tip yellowish. Feet pink; claws pale. Iris yellow.

Total length $9\frac{1}{2}$ inches, wing $5\frac{1}{2}$, tail 4, culmen $\frac{5}{8}$.

Specimen described from Ternate. Amboyna examples seem to be bright pale orange on the nape and sides of neck.

Female. Uniform green above. A spot of deep greenish blue on the occiput. Throat greyish white; breast greyish green. Middle of abdomen white.

Young. Uniform yellowish green, tinged with grey upon the breast.

22. PTILOPUS TEMMINCKI.

Columba superba, Knip & Prév. Fig. tab. 42, ♀, ex Celebes (1838).

Kurukuru temminckii, Des Murs & Prév. Voy. Vénus, p. 234 (1855).

Ptilonopus formosus, Gray, Proc. Zool. Soc. 1860, p. 360; Wall. Ibis, 1865, p. 379; Wald. Trans. Zool. Soc. vol. viii. (1872) p. 82.

Ptilopus superbus, Schleg. Mus. Pays-B. 1873, p. 32, *Columbæ*, ex Celebes.

Megaloprepia formosa, Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 199.

Hab. Celebes.

This form, from the island of Celebes, possesses quite sufficient difference in coloration to entitle it to be considered distinct from *Pt. superbus*. The nape and sides of the neck are a much brighter orange; and the lower part of the breast is pale purple, graduating insensibly into the bluish-black band that crosses the body above the abdomen. An immature bird of this species from Celebes was figured by Knip & Prévost (*l. c.*) as the female of *Pt. superbus*; but afterwards, convinced that it represented a distinct species, they called it *temminckii* in the Voyage of the Vénus (*l. c.*), which name antedates the *formosus* of Gray. The figure originally published by these authors does not represent well the differences existing between this species and *Pt. superbus*, on account of the specimen not having yet assumed its perfect livery; but the locality, Celebes, proves

that their bird cannot belong to the older known form. Gray did not well indicate the distinctive characters of this species in the 'Proceedings' of this Society when he conferred a name upon it (*l. c.*); but it was properly and completely described by Wallace afterwards in 'The Ibis' (*l. c.*). It can readily be distinguished from its ally by the purple breast, the general plumage of the two species being the same, as are also the dimensions.

The female resembles that of *Pt. superbus*, with rather a deeper coloration.

23. PTILOPUS PEROUSEI.

Ptilopus perousei, Peale, U.S. Expl. Exped. (1848) p. 195, pl. 54; Cassin, *ibid.* (1858) 2nd ed. p. 274, pl. 33; Finsch & Hartl. Faun. Centralpolyn. (1867) p. 110; *id.* Proc. Zool. Soc. 1869, p. 548; Finsch, Journ. für Ornith. 1872, p. 44; Schleg. Mus. Pays-Bas 1873, p. 10, *Columbæ*.

Ptilinope de Marie, Hombr. & Jacq. Voy. Pôle Sud, pl. 29. fig. 2.

Columba kurukuru superba, Hombr. & Jacq. Ann. Scien. Nat. (1841) tom. xvi. p. 316.

Ptilinopus mariæ, Jacq. & Puch. Voy. Pôle Sud (1853), tom. iii. p. 115.

Kurukuru samoensis, Des Murs & Prév. Voy. Vénus, Zool. p. 247. Type examined.

Ptilopus mariæ, Bon. Compt. Rend. (1854) tom. xxxix. p. 877; *id.* Iconog. Pig. (1857) pl. 26, ad. et juv.; *id.* Consp. Av. vol. ii. p. 22. sp. 10.

Ptilonopus mariæ, Gray, List Columb. (1856) p. 4; Reich. Tauben, p. 96, pl. 240. fig. 2586; *id.* List B. Trop. Isl. p. 37 (1859).

Ptilinopus cæsarinus, Hartl. Journ. für Ornith. 1864, p. 413, juv.

Ptilinopus perousei, Cass. Expl. Exped. (1858) p. 274, pl. 33; Reich. Tauben, Supp. p. 203, nov. taf. 38-40; Finsch & Hartl. Faun. Centralpolyn. (1867) p. 110, t. xi. fig. 1; Gräffe, Journ. für Ornith. 1870, pp. 122 & 408; Finsch, Journ. für Ornith. 1872, p. 44.

Ptilinopus mariæ, Finsch & Hartl. Journ. für Ornith. 1870, p. 131.

Ptilonopus perousei, Whitmee, Ibis, 1875, p. 441.

Hab. Ovalau (*Filhol*); Upolu, Hapai (*Gräffe*); Samoan Islands, Viti-Levu (*Gräffe*); Wakaia, Mokani, Vanua Levu, Loma Loma, Kandavu, Mango (*Layard*); Fiji Islands; Tonga or Friendly Islands.

This species was first described by Peale (*l. c.*) under the name here adopted, and afterwards by Hombron and Jacquinot (*l. c.*) as "*Ptilinope de Marie*," still later latinized by Jacquinot and Pucheran (*l. c.*) as *Ptilinopus! mariæ*. Peale's appellation, however, has undoubted priority. Mr. Peale found it in the mountain-gorges of the Feejee Islands, but not abundant. The native name, *Manu-ma*, means shame or modest bird. It is one of the most beautiful and curiously marked members of this genus. The young are so differently coloured from the adult that they might easily be mistaken for a different species.

Adult. Front and crown, and a broad band across the back, dark purplish red. Head, neck all around, and throat white with a wash of yellow. Feathers of the breast, split at their ends, have their basal half rose-red, apical portion yellowish white; beneath these feathers is a reddish-orange band. Abdomen, flanks, and crissum yellowish white. Under tail-coverts dark purplish red. Back and upper tail-coverts pale greenish yellow. Wings pale grey, feathers margined with greenish yellow. Primaries and secondaries dark bronzy green; first primary abruptly attenuated. Tail greyish white. Bill black, with the tip yellow. Feet black.

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

Immature. Front and crown deep rosy purple. Cheeks grey. Upper parts shining golden green. Throat white. Breast green, feathers tipped with white. Abdomen and crissum yellowish white. Under tail-coverts bright yellow. Wings shining golden green; primaries and secondaries margined with yellow. Tail golden green, very bronzy on the edges and tips of the feathers. Bill and feet as in the adult. (Four specimens before me, all of which lack the purple bar on the breast shown in the figures of Bonaparte and Hartlaub and Finsch.)

24. PTILOPUS CORONULATUS.

Ptilonopus coronulatus, Gray, Proc. Zool. Soc. 1858, p. 185, pl. 138; id. List Mamm. & Birds, New Guinea (1859), p. 45; Wall. Ibis, 1865, p. 378; Schleg. Mus. Pays-Bas 1873, p. 9, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. vol. vii. (1875) p. 833.

Ptilopus coronulatus, Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 198.

Hab. Aru Islands (*Wallace, Rosenberg*); Salwatty and Sorong, (*Bernstein*); Jobie (*Rosenberg*); Yule Island (*D'Albertis*).

This species and the two next mentioned form a small section of this genus, related closely to each other in the distribution of the hues of their plumage. Like so many others of the genus, they are conspicuous for their brightly-coloured crowns and abdomens.

Male. Front and crown pink, bordered posteriorly by a narrow line of purple, succeeded by a broader one of bright yellow. A purple spot on the upper part of the abdomen; middle of abdomen, crissum, and under tail-coverts bright yellow. Entire rest of plumage bronzy green. Secondaries and primaries margined with yellow. First primary abruptly attenuated at tip. Bill greenish yellow. Feet red. Iris orange.

Total length $7\frac{1}{2}$ inches, wing $4\frac{3}{4}$, tail $2\frac{3}{4}$, culmen $\frac{3}{8}$.

Female like the male.

25. PTILOPUS GEMINUS.

Ptilonopus geminus, Salvad. Ann. Mus. Civ. Genov. vol. vii. (1875) p. 786.

Ptilonopus senex, Brügg. Abhandl. natur. Ver. Brem. 1876, p. 82.

Ptilopus geminus, Salvad. Ann. Mus. Civ. Genov. vol. ix. (1876) p. 198.

Hab. Jobie (*Von Rosenberg, Bruijn*); Krudu (*Beccari*); New Guinea, near Dorey (*Bruijn*); Ansus (*Salvadori*).

This is a species apparently entitled to be considered distinct from the *Pt. coronulatus*. It differs by having the front and crown pinkish white, and the upper part of the abdomen around the violet spots saffron-yellow. The cheeks are also a dark greenish grey. First primary abruptly attenuated at tip. Size the same as *Pt. coronulatus*. Prof. Schlegel, in Mus. Pays-Bas, was the first to point out the differences existing between these two birds, but did not deem them of specific importance; and Dr. Salvadori bestowed the name here adopted.

26. PTILOPUS TRIGEMINUS.

Ptilonopus trigeminus, Salvad. Ann. Mus. Civ. Gen. vol. vii. (1875) p. 787.

Ptilonopus marginalis, Brügg. Abhandl. natur. Ver. Brem. 1876, p. 82.

Ptilopus trigeminus, Salvad. Ann. Mus. Civ. Genov. vol. ix. (1876) p. 198.

Hab. Salwatty (*Von Rosenberg*); New Guinea, near Sorong (*Bernstein*).

The claims of this form to be considered distinct from the last are based upon very slight grounds; and it may well be doubted if it should be separated from *Pt. geminus*. The only difference is in the slightly paler crown. At best it seems to be but a local race of the preceding species.

27. PTILOPUS IOZONUS.

Ptilonopus iozonus, Gray, Proc. Zool. Soc. 1858, p. 186; id. List Mamm. & Birds New Guin. (1859) p. 46; Wall. Ibis, 1865, p. 378.

Ptilopus iozonus, Schleg. Mus. Pays-B. 1873, p. 17, *Columbæ*; id. Nederl. Tijdsch. Dierk. tom. iv. p. 25 (1873); Meyer, Rowl. Ornith. Misc. pt. ix. p. 342.

Ptilonopus ionozonus, Salvad. Ann. Mus. Civ. Gen. vol. vii. (1875) p. 834.

Ptilopus ionozonus, Salvad. Ann. Mus. Civ. Gen. vol. ix. (1876) p. 198.

Hab. Aru (*Wallace, Von Rosenberg*); New Guinea (*D'Albertis*).

We have here, in this species and its two relatives, another small section of this genus. One of their chief differences is the arrangement of the colours on the margin of the wing, and another the manner in which the terminal band on the tail is exhibited. Although closely allied, the species seem to be quite distinct, their geographical distribution also giving strength to this view.

Male. Yellowish green. Bend of wing greyish violet, mixed with green. Middle of the abdomen deep orange. Vent and under tail-

coverts white, varied with yellow. Greater wing-coverts and tertials bordered with yellow, the latter grey in the middle of each feather. Quills shining deep emerald-green, first one gradually narrowed to the tip. Under surface of wings slate-colour. Tail green, with a broad band of grey at the tip, which is white beneath, especially on the inner webs.

Length 8" 3''' ; wings 4" 9''' (*Gray, l. c.*).

Female with a patch on the abdomen of an orange-yellow.

28. PTILOPUS HUMERALIS.

Ptilonopus humeralis, Wall. Proc. Zool. Soc. 1862, p. 166.

Ptilopus humeralis, Meyer, Proc. Zool. Soc. 1862, pl. 21 ; Schleg. Mus. Pays-B. (1873) p. 16, *Columbæ* ; id. Nederl. Tijdsch. Dierk. tom. iv. p. 24 (1873) ; Meyer, Rowl. Ornith. Misc. p. 342, pt. ix. ; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 198.

Hab. Salwatty and adjacent coasts of New Guinea (*Wallace*) ; Sorong (*Bernstein*) ; Salwatty and Mansinam (*Meyer*).

This bird is easily distinguished from its immediate allies by the deep-purple band on the shoulder. It apparently ranges across the northern part of New Guinea, having been procured, as will be observed, from Mansinam, on the mainland, in the Bay of Geelvink, to Sorong, on the west coast, and also on Salwatty, opposite Sorong.

Adult male. General plumage bright green. Middle of abdomen rich orange. Crissum and under tail-coverts bright yellow. Shoulders violet-grey, bounded beneath by deep purple. Wing-coverts violet-grey, margined with green. Secondaries margined with yellow. Primaries dark green, the first sharply narrowed towards the tip. Tail bright green above, dark grey beneath, with an apical whitish band. Bill greenish, tipped with yellow ; base above red and swollen. Feet purplish red.

Total length $8\frac{3}{4}$ inches, wing $4\frac{7}{8}$, tail $2\frac{1}{2}$, culmen $\frac{5}{8}$.

29. PTILOPUS JOBIENSIS.

Ptilopus humeralis jobiensis, Schleg. Mus. Pays-B. 1873, p. 16, *Columbæ* ; Rowl. Ornith. Misc. pt. ix. pp. 340, 348, pl. ; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 198.

Hab. Island of Jobie.

This species, a close relative of *Pt. humeralis*, has as yet only been found upon the island of Jobie, in the great Bay of Geelvink, New Guinea. It differs chiefly from the species just named in the coloration of the shoulders of the wing, which are violet-grey, without any purple ; and the tail is uniform green above, without the apical grey band.

Adult. General plumage yellowish green. Abdomen rich orange. Crissum and under tail-coverts white, the latter tipped with yellow. Shoulders violet-grey. Wing-coverts violet in the centre, surrounded by greenish blue, and margined with green. Primaries and secondaries dark green, the latter edged with yellow ; first primary nar-

rowed at tip. Tail bronzy green above, beneath black, with an apical greyish-white band. Bill black, tip yellow. Feet red.

Total length $7\frac{1}{4}$ inches, wing $4\frac{3}{4}$, tail $2\frac{1}{4}$, culmen $\frac{5}{8}$.

30. PTILOPUS INSOLITUS.

Ptilopus insolitus, Schleg. Nederl. Tijdsch. (1861) vol. i. p. 61, pl. 3. fig. 3.

Ptilopus humeralis jobiensis (monstr.?), Schleg. Mus. Pays-B. 1873, p. 16, *Columbæ*.

Edirhinus globifer, Cab. & Reich. Sitzungsber. Gesellsch. nat. Freunde Berlin 1876, p. 73; id. Journ. für Ornith. 1876, p. 326.

Edirhinus insolitus, Sclat. Proc. Zool. Soc. 1877, p. 110; Salvad. Proc. Zool. Soc. 1877, p. 196.

Hab. New Ireland (*Huesker*); Duke-of-York Island (*Brown*).

This strange and attractive species was first described by Schlegel (*l. c.*). He afterwards, on account of the protuberance on the forehead, imagined it was only a monstrosity of the *Pt. jobiensis*. This, however, is not the fact, as the species is very distinct. The locality given by Schlegel (New Caledonia) is probably an error, as the bird has lately been received from both New Ireland and Duke-of-York Island. Cabanis and Reichenow have made a new genus for the reception of this bird, "*Edirhinus*," on account of the swelling of the forehead. I have not adopted this term; for the division does not seem to me to be necessary. The same peculiarity exists in species of *Carpophaga*, viz. *C. tumida* and *C. rubricera* and others; and if it is a sufficient cause to separate *Pt. insolitus* from the members of the genus *Ptilopus*, the species above mentioned should also be generically divided from *Carpophaga*, a proceeding which is hardly likely to meet with favour. Nothing is known about the habits and economy of the present species. In the arrangement of the group it naturally comes next to the *Pt. jobiensis*.

Adult. Head, neck, back, breast, and flanks bright bronzy green. Throat green, slightly tinged with grey. Abdomen deep orange. Shoulders and a patch on each side of the back at the edge of the mantle light grey. Wings green; secondaries margined with bright yellow on their outer webs; inner secondaries light grey, margined with green. Tail bright green, with the apical third ashy grey. Crissum and under tail-coverts bright yellow. Bill greenish at base, yellowish at tip. Forehead and base of culmen covered by a bony protuberance large and rounded in form, very conspicuous, and of a red colour. Tarsi and feet red.

Total length $9\frac{1}{4}$ inches, wing 5, tail 3, bill at gape $\frac{3}{4}$.

31. PTILOPUS NANUS.

Columba Naina, Temm. Plan. Col. no. 565; Knip & Prév. Fig. vol. ii. pl. 59.

La Naine, Less. Compl. Buff. tom. iii. Ois. p. 30 (1837).

Ptilonopus naina, Gray, Gen. B. vol. iii. p. 467 (1844-49).

Iotreron nana, Bon. Consp. Gen. Av. vol. ii. p. 25 (1857).

Ionotreron nana, Reich. Taub. p. 100, Taf. 239. fig. 1330.

Ptilonopus nanus, Gray, List Mamm. & B. New Guinea (1859), p. 46; Wall. Ibis 1865, p. 381.

Ptilopus nanus, Schleg. Mus. Pays-B. (1873) p. 21, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. vol. ix. (1876) p. 196.

Hab. Triton Bay, New Guinea (*Müller*); Mysol (*Hoedt*).

This is the smallest species of this genus, and one of the most attractive. It is very rare in collections, but few specimens having been procured since it was first described by Temminck (*l. c.*). It is conspicuous among its relatives from having all the wing-coverts tipped with yellow, and from the blue-grey bands on each side of the breast.

Male. General plumage bronzy green. Large band of bluish grey on each side of the breast. A purple spot on the centre of the abdomen. Wing-coverts, scapulars, and tertials tipped with yellow, a greenish-blue shade behind the yellow on the last two. Feathers of the legs whitish. First primary narrowed at tip.

Wing 2 inches 11 lines, tail 1 inch 6 lines.

Female. Green, without abdominal spot.

32. PTILOPUS MONACHUS.

Columba monacha, Temm. Pl. Col. 253; Desm. Dict. Sc. Nat. tom. xl. p. 344 (1826); Knip & Prév. Pig. pl. 53; Wagl. Syst. Av. (1827) sp. 35.

Ptilinopus monachus, Steph. Shaw, Gen. Zool. vol. xiv. (1826) p. 277. sp. 2; Swains. Class. B. vol. ii. p. 347 (1837).

La Monache, Less. Compl. Buff. tom. iii. Ois. p. 29 (1837).

Ptilonopus monachus, Gray, Gen. B. vol. ii. p. 466. sp. 8 (1844-49); Wall. Ibis, 1865, p. 378; Salvad. Ann. Mus. Civ. Genov. vol. vii. p. 786 (1875).

Cyanotreron monacha, Bon. Consp. Gen. Av. vol. ii. p. 24 (1857); Reich. Taub. p. 98, Taf. 236. figs. 1314, 1315.

Ptilonopus (*Cyanotreron*) *monachus*, Gray, Proc. Zool. Soc. 1860, p. 359.

Ptilopus monachus, Schleg. Mus. Pays-B. (1873) p. 12, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. vol. ix. (1876) p. 198.

Hab. Batchian, Kaisa, Ternate, Gilolo, Morty (*Wallace*); Motir, Dammar (*Bernstein*); Tidore (*Raffray*).

A series of this bird from different localities brought by M. Raffray is now before me. I notice that those from Ternate differ from Gilolo specimens, as well as those from Tidore &c., in being of larger size, and also in having the blue spot of greater extent and situated upon the *abdomen*, and not on the *breast*, as in those from Gilolo. The type of *Pt. monachus* was erroneously stated to have come from Celebes. A specimen in the Paris collection was obtained in exchange from M. Temminck, and the locality given as Celebes. This agrees precisely with Ternate examples, and has the blue patch upon the abdomen. Temminck's figure in the 'Planches Coloriées' exhibits this large abdominal patch very clearly. The Gilolo birds may require separation.

Adult male. Front, crown, lores, moustache, and a spot on the breast greyish blue. Superciliary stripe, chin, and throat, lower part of abdomen, and under tail-coverts lemon-yellow. Rest of plumage of body bright green. Primaries and secondaries black on inner, green on outer webs, edged with white or pale green; first primary abruptly attenuated at tip. Tail bright green, with a sub-terminal bar of darker green. Bill greenish, tip lighter; iris dark; feet red.

Total length 7 inches, wing 4, tail $2\frac{1}{2}$, culmen $\frac{3}{8}$.

Female differs in having the front and top of head greenish blue, the throat only slightly tinged with yellow, no spot on the breast, rest of plumage like the male but all the colours much duller.

33. PTILOPUS PULCHELLUS.

Columba pulchella, Temm. Pl. Col. 564; Knip & Prév. Fig. vol. ii. t. 14.

La Mignonne, Less. Compl. Buff. tom. iii. Ois. (1837).

Ptilonopus pulchellus, Gray, Gen. B. vol. ii. (1844) p. 466. sp. 7; id. Cat. Mamm. Birds New Guin. (1859) p. 44; Reich. Tauben, p. 96, pl. 236. fig. 1311; Wall. Ibis, 1865, p. 378; Salvad. Ann. Mus. Civ. Genov. vol. vii. (1875) pp. 786, 833.

Ptilopus pulchellus, Bon. Consp. Gen. Av. vol. ii. p. 22 (1857); Schleg. Mus. Pays-B. 1873, p. 2, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 198, & vol. x. (1877) p. 158.

Hab. New Guinea, Salwatty, Waigiou (*Bernstein*); Mysol (*Wallace*); Amberbaki, Andai (*Raffray*); Monte Epa, New Guinea (*D'Albertis*).

A very brightly coloured and charming little species. From the localities in which it has been procured, we should judge its range was the northern part of New Guinea, with some of the islands lying off the west coast. Its synonymy is very simple, the species never having received a second name.

Male. Front and crown bright carmine. Sides of head and neck, together with the breast, light grey. Chin, throat, and lores white. A large spot or bar of purplish red on the lower part of the breast. Flanks green. Abdomen orange, shading into deep yellow upon the lower parts and crissum. Under tail-coverts orange. Entire upper parts and back of neck bright green. Wings green; primaries and secondaries black on inner webs, green on outer, those of the secondaries edged with yellow; first primary abruptly attenuated at tip. Tail bright green. Bill yellow, tip greenish yellow. Feet dull carmine. Iris orange, paler within. Eyelids yellow.

Total length 8 inches, wing $4\frac{1}{4}$, tail $3\frac{1}{8}$, culmen $\frac{7}{16}$.

There is no difference between the sexes in plumage.

34. PTILOPUS MELANOCEPHALUS.

Columba melanocephala, Gmel. Syst. Nat. tom. i. p. 781 (1788); Temm. Fig. & Gall. tom. i. (1813) p. 263; Horsf. Trans. Linn. Soc. 1821, vol. xiii. p. 182; Wagl. Syst. Av. (1827) *Columba*,

sp. 33; Temm. Pl. Col. 214; Knip & Temm. Pig. vol. i. pl. 30; Less. Trait. Ornith. (1831) p. 471.

Tourterelle de Batavia, Buff. Plan. Enlum. 214.

Columba melanocephala, Shaw, Gen. Zool. vol. xi. pt. 1 (1819).

Ptilinopus melanocephalus, Steph. Shaw, Gen. Zool. vol. xiv. p. 279. sp. 7; Wall. Ibis, 1865, p. 381.

Le Turgis, Less. Compl. Buff. tom. iii. Ois. p. 26 (1837).

Ptilonopus melanocephalus, Gray, List B. Brit. Mus. (1844) p. 1, (1856) p. 6. sp. 15; id. Gen. B. vol. ii. p. 467 (1844-49).

Ionotreron melanocephala, Reich. Taub. p. 100, Taf. 237. figs. 1318, 1319.

Iotreron melanocephala, Bon. Consp. Gen. Av. vol. ii. p. 24. sp. 2 (1859).

Ptilopus melanocephalus, Schleg. Nederl. Tijdsch. Dierk. vol. iii. p. 207; id. Mus. Pays-B. 1873, p. 28, *Columbæ*.

Ptilopus melanauchen, Salvad. Ann. Mus. Civ. Genov. vol. vii. (1875) p. 670 (ex Flores).

Iotreron melanocephala, id. ibid. p. 671.

Hab. Java (*Diard*, *Temminck*); Sumbawa, Flores (*Forstein*, *Rosenberg*); Sulabessie (*Hoedt*); Lomboek (*Wallace*).

Count Salvadori has called the birds from Flores (*l. c.*) *Ptilopus melanauchen*; but I really cannot see that this island form differs sufficiently from typical *Pt. melanocephalus*, ex Java, to require separation as a distinct species. It would seem that *four* races of this style of *Ptilopus* are quite sufficient to indicate the varieties that exist. This species is one of the longest-known in the genus; and while the typical style is confined to Java and the Timor group of islands, representative forms, constituting races if not distinct species, are met with on other islands of the Malay archipelago.

Male. Top and sides of head and neck, and lower part of throat light grey; occiput and back of neck black; chin and throat yellow; crissum and short under tail-coverts rich yellow, long ones carmine; entire rest of plumage bright green; primaries black on inner web, green on outer; first primary slightly scalloped and narrowed at tip; bill yellow, greenish horny at the tip; feet pink-red; orbits bare, green.

Total length $9\frac{3}{8}$ inches, wing $4\frac{1}{2}$, tail 3, culmen $\frac{1}{2}$. (Java.)

Female. Entirely green, with the exception of the longest feathers of the under tail-coverts, which are carmine, like those of the male.

35. PTILOPUS MELANOSPILUS.

Ptilopus melanocephalus, Schleg. Mus. Pays-B. 1873, p. 29, ex Celebes.

Iotreron melanospila, Salvad. Ann. Mus. Civ. Genov. vol. vii. (1875) p. 670.

Ptilinopus melanocephalus celebensis, Brügg. Brem. Abhandl. (1876) p. 80.

Hab. Celebes.

The various forms of *Pt. melanocephalus* were pointed out by

Prof. Schlegel (*l. c.*), and names afterwards given to them by M. Salvadori. The principal difference between examples from Celebes and Java appears to be that the former have a much narrower throat-mark, which is lemon-yellow washed with orange.

36. *PTILOPUS CHRYSORRHUS*.

Ptilopus melanocephalus, Wall. Proc. Zool. Soc. 1862, p. 344; Schleg. Mus. Pays-B. 1873, p. 29, ex Sula.

Iotreron chrysorrhoa, Salvad. Ann. Mus. Civ. Gen. (1875) vol. vii. p. 671.

Ptilinopus sulaensis, Brügg. Abhandl. natur. Ver. Brem. 1876.

Hab. Sula, Ceram (*Bernstein*).

This form has the throat-mark as in specimens from Celebes. The black band on the occiput is smaller, and the abdomen orange-yellow. The characters it offers to support its claim to a distinct rank are not very striking; and it may be questioned if it should be really separated from *Pt. melanocephalus*.

37. *PTILOPUS XANTHORRHUS*.

Ptilopus melanocephalus, Schleg. Mus. Pays-B. 1873, p. 29, ex Sanghir.

Iotreron xanthorrhoa, Salvad. Mus. Civ. Gen. vol. vii. (1875) p. 670.

Ptilinopus nuchalis, Brügg. Brem. Abhandl. 1876, p. 80.

Hab. Island of Sanghir.

This well-marked race of *Pt. melanocephalus* differs, both in size and colour of plumage, so much that, more than any of the other styles, it deserves a separate name. The colour of the throat is of a deeper yellow; and both abdomen and crissum are orange; and this colour runs up nearly to the breast instead of being confined to the short under tail-coverts and crissum. It is much larger than any of the other races.

Male. Head and neck pearly white. Occiput and back of neck jet-black. Throat orange-yellow. Abdomen and crissum bright orange; long feathers of the under tail-coverts rich carmine. Entire rest of plumage bright yellowish green. Primaries and secondaries margined on their outer webs, near the tips, with lemon-yellow. First primary gradually narrowed towards tip. Bill black, tipped with yellow. Feet very dark red.

Total length 10 inches, wing $5\frac{1}{2}$, tail $3\frac{3}{4}$, culmen $\frac{3}{4}$.

Female. Entirely green. Feathers of the abdomen tipped with yellow. Some feathers of the under tail-coverts tipped with yellow, others with carmine. Bill black. Feet dark red.

38. *PTILOPUS PORPHYREUS*.

Columba porphyrea, Temm. Pl. Col. 106 (1824); Knip & Prév. Fig. vol. ii. pl. iv.; Less. Trait. Ornith. (1831) p. 472.

Ptilinopus porphyreus, Swains. Zool. Journ. vol. i. p. 474 (1824-25); Steph. Shaw, Gen. Zool. vol. xiv. (1826) p. 277. sp. 3.

PROC. ZOOLOG. SOC.—1878, No. XXXVI.

- Columba roseicollis*, Wagl. Syst. Av. (1827), *Columba*, sp. 30.
La Porphyre, Less. Compl. Buff. tom. iii. Ois. (1837).
Ptilonopus erythrocephalus, Swains. Class. B. vol. ii. p. 347 (1839).
Ptilonopus roseicollis, Gray, Gen. B. vol. ii. p. 467 (1844-49);
 id. List B. Brit. Mus. (1844) p. 1, (1856) p. 8.
Ptilopus porphyrea, Reich. Taub. p. 97, pl. 237. figs. 1322-23.
Ptilonopus porphyreus, Wall. Ibis, 1865, p. 380.
Ptilopus porphyreus, Schleg. Mus. Pays-B. 1873, p. 33, *Columbæ*.
Hab. Java (*Wallace, Diard*).

This is a rather large and brightly plumaged species, with a long square tail, approaching somewhat in form *Pt. cinctus*, *Pt. bernsteini*, &c. The first primary is abruptly attenuated at the tip. It is apparently restricted to Java, all the specimens that I have seen having come from that island. There is considerable difference in the colour of the plumage of the adult and young, the latter almost entirely wanting the rose or carmine on the head and breast which makes the adult so conspicuous. There does not appear to be any difference in the plumage of the sexes.

Adult. Head rose-colour, graduating into carmine upon the neck and breast. Beneath the red colour on the breast is a rather broad white band, below which is another of blackish green. Abdomen and flanks clear grey. Thighs and crissum bright green, feathers tipped with bright yellow. Under tail-coverts greenish on the inner webs, white on the outer, with the margins light yellow. Entire upper parts dark yellowish green, lightest on the rump. Primaries black, the first abruptly attenuated at tip. Tail dark green, with a broad dull grey apical band. Bill black, with pale tip. Feet red.

Total length 11 inches, wing $5\frac{3}{4}$, tail $4\frac{1}{4}$, culmen $\frac{5}{8}$.

Young. Have a generally green plumage, with the feathers margined with yellow, and the breast mottled with purplish red.

39. PTILOPUS JAMBU.

Columba jambu, Gmel. Syst. Nat. (1788) vol. i. p. 784; Raffl. Trans. Linn. Soc. (1822) vol. xiii. p. 212; Wagl. Syst. Av. (1827) sp. 28, *Columba*.

Columba jambos, Lath. Ind. Ornith. (1790) vol. i. p. 598. sp. 18; Less. Trait. Ornith. (1831) p. 472.

Columba jamboo, Temm. Pig. et Gall. (1813) p. 257; Temm. & Knip, Pig. vol. i. pl. 27 ♀, 28 ♂; Shaw, Gen. Zool. vol. xi. pt. 1 (1819), p. 49.

Le Jambou, Less. Compl. Buff. tom. iii. Ois. p. 27 (1837).

Ptilonopus jambu, Gray, List B. Brit. Mus. (1844) p. 2, (1856) p. 7. sp. 18; id. Gen. B. vol. ii. p. 467 (1844); Sclat. Proc. Zool. Soc. 1863, p. 221; Wall. Ibis, 1865, p. 378.

Ramphiculus jambu, Bon. Consp. Gen. Av. vol. ii. p. 17 (1857); Moore, Proc. Zool. Soc. 1859, p. 465; Reich. Taub. p. 99, pl. 239. figs. 1334-35 ♂, pl. 244. figs. 3488-89 ♀.

Ptilopus jambu, Schleg. Mus. Pays-B. 1873, p. 36, *Columbæ*.

Native name *Punei-chitrah* in Borneo (*Motley*).

Hab. Malacca (*Wallace*); Sumatra (*Müller*); Borneo (*Motley*);

Luzon, Philippines (*Crockewit*) ; Busan and Bintulu, Borneo (*Everett*).

This bird, although very plentiful at Banjermassing, is, according to Mr. Motley, rare in other parts of Borneo. It feeds on fruits, particularly of the different species of *Ficus*. Quite different in its style of coloration, it cannot be confounded with any other species of *Ptilopus*. Of late hundreds of specimens have been sent to Europe to be cut up to decorate ladies' bonnets. I saw only lately a box, at least three feet square, full of these birds, which were condemned to be torn to pieces in order to supply the demand this unfortunate fashion has created.

Adult male. Front, crown, and sides of face in front scarlet, the top of head in some lights having an amethyst shade. Upper part of throat and chin black. Sides of neck, from just below the eye, lower part of throat, and entire underparts pure white, washed with rose-colour on the centre of the breast. Under tail-coverts deep chestnut. Entire upper parts and wings dark green. Primaries black, tinged with green on the outer webs, and edged with rufous, the first abruptly attenuated at tip. Tail dark green, with a dusky grey apical band. Bill bright yellow. Iris sienna-orange. Feet dark red.

Total length $10\frac{1}{4}$ inches, wing $5\frac{3}{4}$, tail 4, culmen $\frac{3}{4}$.

Female. Top of head greyish purple, sides of face in front deep rose, centre of throat and chin black. Upper parts and breast bronzy green, rest of underparts white. Under tail-coverts chestnut. Tail green, with a pale rufous apical band.

Young. Plumage almost uniformly green. Chin pale red. Middle of abdomen white. Under tail-coverts chestnut.

40. PTILOPUS WALLACEI.

Ptilonopus wallacei, Gray, Proc. Zool. Soc. 1858, p. 185, pl. 136 ; id. List Mamm. & B. New Guin. p. 45 (1859) ; Wall. Ibis, 1865, p. 380.

Ptilopus wallacei, Schlegel, Mus. Pays-B. 1873, p. 18, *Columbæ* ; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 197.

Hab. Aru Islands (*Wallace*) ; Kei Island (*Von Rosenberg*).

This beautiful bird, one of the most lovely species of this lovely group, was procured by Mr. Wallace on the Aru Islands, and described by Gray (*l. c.*). It is still very rare in collections ; and for the examples from which my description was taken I am indebted to the Marquis Doria, who sent them to me from the Museum of Genoa. I have also examined the type in the British Museum.

Adult male. Top of head and occiput carmine. Chin, throat, and sides of head pure white. Nape, neck, and breast pure grey. A band of white across lower part of breast, succeeded by a broad one of deep orange. Abdomen and under tail-coverts light yellow, the latter striped with green. Upper part of back grey, bordered with orange ; scapulars and lesser wing-coverts grey, margined with green. Shoulders orange. Secondaries bright green, margined with lemon-yellow. Quills deep green, the first one narrowed gradually

to the tip. Back and rump yellowish green. Tail coppery green, apical half of lateral feathers greenish white. Bill yellow. Feet red. Iris orange-red.

Total length 10 inches, wing 6, tail $3\frac{1}{2}$, culmen $\frac{3}{4}$.

41. PTILOPUS AURANTIIFRONS.

Ptilonopus aurantiifrons, Gray, Proc. Zool. Soc. 1858, p. 185, pl. 137; id. List Mamm. & B. New Guin. (1859) p. 45; Wall. Ibis, 1865, p. 380.

Ptilopus aurantiicollis, Schleg. Mus. Pays-B. 1873, p. 18, *Columbæ*.

Ptilopus aurantiifrons, var. *novæ-guineæ*, Meyer, Sitz. Ak. Wiss. 1874, p. 508.

Ptilopus aurantiifrons, Salvad. Ann. Mus. Civ. Gen. (1876) vol. ix. p. 197.

Hab. Aru Islands, Mysol (*Wallace*); Salwatty (*Von Rosenberg*); Batanta (*Laglaize*); New Guinea (*Wallace*, *D'Albertis*); Jobie (*Meyer*, *Beccari*).

This is a very beautiful and very distinct species. Dr. Meyer (*l.c.*) has proposed to separate the bird from the mainland of New Guinea, procured at Passim, from that of Jobie, on account of some slight variation in the hues of the plumage, such as the deeper orange of the forehead and the orange tint of the back of the head and breast, with also metallic reflections of the top of the head. I do not deem these slight differences of sufficient importance to give New-Guinea specimens a distinct specific rank. Examples from Batanta before me seem to be intermediate between those of Jobie and Passim, with more orange tints than in individuals from Jobie, and less than in those of Passim.

Adult. Forehead deep orange, rest of top and sides of head yellowish green. Throat pure white. Neck all around and upper part of breast leaden grey. Underparts yellowish green. Mantle and scapulars with some of the lesser wing-coverts grey, margined with green, some of the feathers of the mantle margined with orange. Rest of wing-coverts and secondaries yellowish green, margined with lemon-yellow. Primaries dark green, the first narrowed gradually to the tip. Back and upper tail-coverts yellowish green. Tail bronzy green, with a subterminal interrupted grey band; this band does not extend entirely across the outer web of each rectrix. Under surface smoky grey, with a light-grey apical band. Bill yellow; base swollen, red. Feet red. Iris orange.

Total length $9\frac{1}{2}$ inches, wing $5\frac{1}{4}$, tail $2\frac{3}{4}$, culmen $\frac{3}{4}$.

42. PTILOPUS ORNATUS.

Ptilopus ornatus, Schleg. Nederl. Tijdsch. 1871, vol. iv. p. 52; id. Mus. Pays-B. 1873 p. 18, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 197, et (1877) vol. x. p. 158.

Hab. New Guinea, Mount Arfak (*Rosenberg*, *Laglaize*).

This species seems to be entirely confined to the mainland of New

Guinea. At all events I have not seen a specimen from any of the islands. To state that it was a beautiful bird would be only equivalent to saying that it belongs to the genus *Ptilopus*. It is still quite a rare species in collections.

Adult. Top and back of head, sides of face, and back of neck purplish red. Chin and throat pale grey. Upper part of breast dark ochre, becoming a clearer yellow on the lower part of throat. Underparts bright green; feathers of abdomen edged with yellow; centre of abdomen pale yellow. Under tail-coverts lemon-yellow, streaked with dark green. Upper parts bright green, darkest on the mantle. A band of dark purplish red upon the shoulders. Wing-coverts light grey, margined with green. Primaries black, tinged with dark green on outer webs, the first narrowed gradually to tip. Secondaries bright green, edged with lemon-yellow. Tail bright green, with a broad light yellow apical band. Bill yellow, dark brownish towards the base in the skin. Feet red. Iris lemon-yellow, bordered with orange.

Total length $9\frac{3}{4}$ inches, wing 6, tail $3\frac{1}{4}$, culmen $\frac{5}{8}$.

43. *PTILOPUS GESTROI*. (Plate XXXIV.)

Ptilinopus gestroi, D'Alb. & Salvad. Ann. Mus. Civ. Gen. vol. vii. p. 834 (1875).

Ptilopus gestroi, Salvad. Ann. Mus. Civ. Gen. (1876) vol. ix. p. 197.

Hab. Yule Island (*D'Albertis*).

This very beautiful species is singularly intermediate between the *Pt. ornatus* and *Pt. perlatus*, possessing as it does the head and neck of the latter with the body and tail of the former. I have only seen one specimen, kindly sent to me by my friend Count Th. Salvadori, a male, collected by Signor D'Albertis in Yule Island. In size it is larger than *Pt. ornatus* and more like *Pt. perlatus*. It is the representative of its near allies in the district it inhabits. As yet Yule Island is the only locality in which it has been obtained.

Adult male. Top and sides of head and upper part of back of neck olive-yellow. Chin, throat, and a broad line going round the lower part of neck light lead-colour, nearly white on throat. Lower part of throat ochraceous yellow. Upper part of breast greenish ochre, changing in certain lights to purplish. Lower parts of breast; abdomen, and flanks bright green. Under tail-coverts yellowish white, striped with bright green. Upper parts bright green. Wings with a rich dark purple band near the shoulders; the coverts pale grey, margined with green. Secondaries green, edged with lemon-yellow. Primaries dark green, the first narrowed gradually at the tip. Tail bright green, with a broad pale yellow apical band edged with green. Bill olive-yellow. Iris yellow. Feet carmine. Total length 10 inches, wing 6, tail $3\frac{1}{4}$, culmen $\frac{5}{8}$.

44. *PTILOPUS PERLATUS*.

Columba perlata, Temm. Pl. Col. 559, livr. 94; Knip & Prév. Fig. vol. ii. pl. xxi.

La Perlée, Less. Compl. Buff. tom. iii. Ois. p. 31 (1837).

Ptilonopus perlatus, Gray, Gen. B. vol. ii. p. 466 (1844); id. Proc. Zool. Soc. 1858, p. 185; id. Cat. Mamm. & B. New Guin. (1859) p. 47; Wall. Ibis, 1865, p. 380.

Megaloprepia perlata, Bon. Compt. Rend. (1854) tom. xxxix. p. 1097.

Sylphitreron perlatus, Bon. Consp. Gen. Av. vol. ii. p. 40.

Ptilopus perlatus, Schleg. Mus. Pays-B. 1873, p. 17, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 197, (1877) vol. x. p. 157.

Hab. Aru Islands (*Wallace*); New Guinea (*Bernstein*); Salwatty, Jobie (*Von Rosenberg*); Amberbaki (*Laglaize*); Dorey (*Raffray*).

Like the last, this is rather a large species. It was placed by Reichenbach in his genus *Megaloprepia*; but I cannot see that it possesses any characters to separate it generically from the members of the genus *Ptilopus*.

Male. Chin and upper part of throat pure white. Moustache, sides, lower part of throat, and a narrow band separating the neck from the mantle pale grey. Top and sides of head and back of neck greenish yellow. Breast and a line beneath the grey band on the neck rufous. Lower part of breast, abdomen, and flanks yellowish green. Crissum and under tail-coverts pale yellow; the latter striped with dark green. Upper parts and wings bright green, with the centre of scapulars and smaller wing-coverts rosy purple. First primary slightly narrowed at tip. Secondaries edged with light yellow. Tail dark green above, beneath dark smoke-grey, with an apical greyish-white band. Bill yellow; feet red; iris orange-yellow. Total length $9\frac{3}{4}$ inches, wing $6\frac{3}{4}$, tail $3\frac{3}{4}$, culmen $\frac{3}{4}$. No difference in the sexes.

Immature. Top of head green; lores and cheeks greenish yellow. Throat greyish white. Sides and back of neck grey; breast dark ochre. Rest of plumage like the male. (Spec. ex Dorey, New Guinea, Voy. Astrolabe.)

45. PTILOPUS ZONURUS.

Ptilopus zonurus, Salvad. Ann. Mus. Civ. Gen. vol. ix. (1876-77) p. 197.

Hab. Aru Islands (*Wallace*, *Von Rosenberg*).

Like *Pt. perlatus*, save that the tail has an apical greyish-white band above and below. Barely distinguishable from *Pt. perlatus*.

46. PTILOPUS IOGASTER.

Columba hyogastra, Temm. Pl. Col. pl. 252, livr. 43; Desm. Dict. Sc. Nat. tom. xl. pl. 344 (1826); Knip & Prév. Fig. vol. ii. pl. 54.

Columba iogastra, Wagl. Syst. Av. (1827) sp. 34, *Columbæ*.

L'Hyogastre, Less. Compl. Buff. tom. iii. Ois. p. 30 (1837).

Ptilinopus hypogaster, Swains. Class. B. vol. ii. p. 347 (1837).

Ptilonopus hyogaster, Gray, Gen. B. vol. ii. p. 466 (1844); Wall. Ibis 1865, p. 381.

Iotreron hyogaster, Bon. Consp. Gen. Av. vol. ii. p. 25. sp. 4 (1857).

Ionotreron ionogaster, Reich. Taub. p. 100, pl. 239. figs. 1332-33.

Ptilonopus (Iotreron) iogaster, Gray, Proc. Zool. Soc. 1860, p. 359.

Ptilopus iogaster, Schleg. Mus. Pays-B. 1873, p. 20, *Columbæ*.

Ptilopus ionogaster, Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 196.

Hab. Tidore (*Bruijn*); Batchian, Gilolo (*Wallace*); Weda, Dodingo, Ternate, Morotai (*Bernstein*).

This is a well-marked species, its grey head and purple abdomen making it very conspicuous among the other species of the genus.

Adult. Head, except occiput, clear grey. General plumage of body, neck, and occiput bronzy green. Abdomen almost entirely covered by a spot of deep reddish purple. Crissum and under tail-coverts rich lemon-yellow. Wings green. Some of the scapulars and greater wing-coverts violet-grey, margined with green. Primaries emerald-green, first narrowing gradually. Secondaries yellowish green, edged with lemon-yellow. Tail bronzy green, with an interrupted subterminal grey bar, this not reaching the edge of the outer web of the rectrices. Beneath smoke-grey, apical band white. Bill bluish white, tip yellow; feet lilac-purple. Total length 9 inches, wing $5\frac{1}{4}$, tail 3, culmen $\frac{5}{8}$.

47. PTILOPUS PECTORALIS.

Columba pectoralis, Wagl. Isis, 1829, p. 759.

Columba virens, Less. Voy. Coq., descr. ♀; id. Trait. Ornith. (1831) p. 471.

Columba cyanovirens, Less. Voy. Coq. pl. 42. fig. 2, ♀.

Omeotreron pectoralis, Bon. Consp. Gen. Av. vol. ii. p. 27.

Ptilonopus rosepectus, Gray, Proc. Zool. Soc. 1861, p. 432; Reich. Tauben, p. 191; Wall. Ibis, 1865, p. 381.

Ptilonopus virens, Wall. Ibis, 1865, p. 382.

Ptilopus pectoralis, Schleg. Mus. Pays-B. 1873, p. 23, *Columbæ*; Meyer, Rowl. Ornith. Misc. pt. xiii. p. 114 (1878).

Ptilonopus pectoralis, Salvad. Ann. Mus. Civ. Genov. (1875) vol. vii. p. 785.

Hab. Rubi, Passim, Andai, New Guinea (*Meyer*); Mysol (*Hoedt*); Gagie, Guébeh, Waigiou (*Bernstein*); Mafoor, Sook (*Von Rosenberg*); Batanta (*Laglaize*); Amberbaki (*Raffray*).

Examples from Batanta are of larger size, but otherwise do not seem to differ from those procured in New Guinea and other localities. The species has a rather wide distribution among the Papuan Islands.

Male. Forehead and chin greenish grey. A small reddish-purple spot upon the breast. Middle of abdomen and under tail-coverts light yellow; the latter striped with dark green. Rest of plumage of body yellowish green. A few of the scapulars with grey tips. Primaries dark green on outer webs, and bronzy green at tips; first

equal for its entire length. Secondaries yellowish green, edged with pale yellow. Tail bright yellowish green, with a grey spot at tip of feathers on inner webs. Underneath smoky black, with apical grey band. Bill yellow, base red; feet red; iris orange. Total length $8\frac{1}{4}$ inches, wing $4\frac{3}{4}$, tail $2\frac{3}{4}$, culmen $\frac{5}{8}$.

Female. Like the male, but without the spot on the breast.

48. PTILOPUS VIRIDIS.

Columba viridis, Linn. (nec Scop.) Syst. Nat. vol. i. p. 283. sp. 23 (1766); Gmel. Syst. Nat. (1788) p. 780. sp. 23; Shaw, Gen. Zool. vol. xi. pt. 1, p. 65 (1819); Knip & Prév. Pig. vol. ii. pl. xvii.

Tourterelle à gorge pourprée d'Amboine, Buff. Pl. Enl. no. 142.

Ptilinopus viridis, Steph. Shaw, Gen. Zool. vol. xiv. p. 299. sp. 5 (1826).

Ionotreron viridis, Reich. Taub. p. 99, pl. 237. figs. 1320–21.

Iotreron viridis, Bon. Iconogr. Pig. (1857) pl. 28, juv. ♀?; id. Consp. Gen. Av. vol. ii. p. 24. sp. 1.

Ptilonopus viridis, Gray, Gen. B. vol. ii. p. 467 (1844–49); id. List B. Brit. Mus. (1856) p. 6; id. List Mamm. & B. New Guin. (1859) p. 45; id. Proc. Zool. Soc. 1863, p. 34; Wall. Ibis, 1865, p. 381.

Ptilopus viridis, Schleg. Mus. Pays-B. 1873, p. 22, *Columba*; Salvad. Ann. Mus. Civ. Gen. vol. ix. (1876) p. 195.

Hab. Bouru, Amboyna, Ceram, Goram (*Wallace*); Harouka, Monavolka (*Rosenberg*).

This is the oldest-described member of the genus *Ptilopus*, and the only one known to Linnæus. It is entirely an insular species, confined to the islands west of New Guinea, upon which land I have found no record of its ever having been procured. It is represented in the east (Bay of Geelvink) by the next species.

Male. Forehead and upper part of throat light grey. Lower part of neck, and upper part of breast very deep reddish purple. Rest of underparts yellowish green. Crissum and under tail-coverts light yellow; the latter with broad dark green stripes on the inner webs of the feathers. Upper parts, occiput, and back of neck bronzy green. A grey band near the shoulder, and tertials also grey, edged with green. Primaries dark green; first about equal in width for the entire length; secondaries bronzy green, margined with lemon-yellow. Tail bronzy green and tipped with yellow, lightest on the edges. Bill yellow, base red; orbits yellow; feet pink-red; iris with inner ring yellow, outer red. Total length 8 inches, wing $4\frac{1}{4}$, tail 3, culmen $\frac{1}{2}$.

49. PTILOPUS GEELVINKIANUS.

Ptilopus viridis geelvinkianus, Schleg. Nederl. Tijdsch. vol. iv. (1871) p. 23; id. Mus. Pays-B. 1873, p. 23.

Ptilopus musschenbræckii, Rowl. Ornith. Misc. pt. xiii. pl. 95, p. 114; Salvad. Ann. Mus. Civ. Gen. vol. ix. (1876) p. 195.

Hab. Islands of Mafor and Meosnoum (*Von Rosenberg, Raffray*); Mysore (*Meyer*).

This bird, separated from the *Pt. viridis* by Schlegel, is apparently entitled to be considered a distinct species. With a large series of examples before me, mainly brought by M. Raffray, the difference of the colour on the breast is very perceptible, being very much brighter and purer than the deep purple of *Pt. viridis*. In other respects the two species closely resemble each other. The term *musschenbrœckii*, being only a MS. name of von Rosenberg's, without any description of the bird given, must become a synonym.

Adult. Forehead and chin dark grey; sides of face grey, washed with green. Breast and lower part of throat bright reddish purple, much lighter than the similar spot in *Pt. viridis*. General plumage yellowish green, slightly bronzed in certain lights. Centre of abdomen and under tail-coverts pale yellow; the latter striped with dark green. Across the wing, near the shoulders, a broad band of pale grey. Some of the innermost secondaries with a spot of light grey near their tips; first primary not narrowed. Tail yellowish green, each feather with a subterminal grey spot on the inner web. Bill yellow, base red. Iris red; feet red. Total length 8 inches, wing $4\frac{1}{2}$, tail 3, culmen $\frac{5}{8}$. Sexes alike.

50. PTILOPUS EUGENIÆ.

Iotreron eugeniæ, Gould, Proc. Zool. Soc. 1856, p. 137; Gray, List B. Brit. Mus. (1856) p. 6; Bon. Iconogr. Fig. (1857), text.

Ptilonopus eugeniæ, Gray, List B. Trop. Isl. (1859) p. 39; Wall. Ibis, 1865, p. 381; Sclat. Proc. Zool. Soc. 1869, p. 124.

Ptilopus eugeniæ, Salvad. Ann. Mus. Civ. Genov. vol. ix. (1876) p. 195.

Hab. Solomon Islands.

The type specimen, which I have examined, of this apparently distinct species, is in a mutilated condition, and wants entirely the tail. The species is very close to the two preceding, but differs in the white head. The type in the British Museum is unique.

Top of head, cheeks, and upper part of throat white. Centre of lower throat and breast rich deep crimson. Back of neck and upper parts yellowish green. Across the shoulders a band of grey, and the tertiaries tipped with the same. Secondaries bright green, edged on the outer webs with yellow. Under surface greyish green. Tail wanting. Bill apparently greenish at base, yellow at tip. Wing $4\frac{3}{4}$ inches, culmen $\frac{1}{2}$. (Type.)

51. PTILOPUS RIVOLII.

Columba rivoli, Knip & Prév. Fig. vol. ii. pl. 57; Des Murs, Iconogr. Ornith. pl. 4 (1845).

Iotreron rivolii, Bon. Conspr. Av. vol. ii. p. 25 (1857).

Ionotreron rivolii, Reich. Taub. p. 100, Taf. 235. fig. 1306.

Ptilonopus rivoli, Wall. Ibis, 1865, p. 381.

Ptilonopus solomonensis, Gray, Ann. Mag. Nat. Hist. vol. v. (1870) p. 328.

Ptilopus rivolii, Sclat. Proc. Zool. Soc. 1877, p. 109.

Hab. Duke-of-York Island (*Brown*), Wanga, San Christoval (*Brenchley*).

The type of the *Ptilopus rivolii* was originally in the collection of the Prince d'Essling, which was purchased by Dr. Wilson, and now forms part of the Museum of the Academy of Natural Sciences at Philadelphia. In the catalogue of Prince d'Essling's collection made at the time of its sale, the specimen of *Pt. rivolii* is entered on page 30 as having "Inde" for the habitat. The exact locality of this handsome species was unknown until Mr. George Brown, C.M.Z.S., obtained it in Duke-of-York Island, lying off the north-east coast of New Guinea. I am inclined to believe that the *Pt. solomonensis*, Gray, is based on a young bird of this species.

Male. Forehead purplish red; breast crossed by a broad white band, a large rose-red spot on the abdomen; lower part of abdomen, crissum, and under tail-coverts bright yellow. Rest of plumage bright green, with some small round bluish-black spots on the scapulars. In its dimensions this species agrees with the following one.

Female. General plumage bright green.

52. PTILOPUS PRASINORRHOUS.

Ptilonopus prasinorrhous, Gray, Proc. Zool. Soc. 1858, p. 185; id. List B. & Mamm. New Guin. 1859, p. 46; Wall. Proc. Zool. Soc. 1863, p. 34, ex Bouru.

Ptilopus rivoli, Schleg. (nec Prév.) Nederl. Tijdsch. tom. iv. p. 21 (1873); id. Mus. Pays-B. 1873, p. 24, *Columbæ*; Salvad. Ann. Mus. Civ. Gen. vol. ix. 1876, p. 196, ex Bouru.

Ptilopus prasinorrhous, Salvad. Ann. Mus. Civ. Gen. (1876) vol. ix. p. 196, (1877) vol. x. p. 157.

Hab. Ké Islands, Khoor, Tegoor, Matabello, Monavolka, Pulo-Pandang, Goram, Salwatty (*Von Rosenberg*); Bouru, Waigiou (*Wallace*); Amboina, Mysol (*Hoedt*); Koffiao (*Beccari*); Batanta (*Bruijn*); Sorong (*D'Albertis*).

This species appears to be very variable in its coloration from different localities; and it is a question if examples might not be procured leading completely from the typical style of this bird into that of the *Pt. rivolii*. It is mainly distinguished from this last by having the vent and under tail-coverts green, slightly margined with yellow, instead of these parts being bright yellow as in *Pt. rivolii*. In the collection at Leyden are specimens from the same locality (island of Bouru), with the under tail-coverts green and yellow respectively, which would seem to show that this character is an indefinite and unsatisfactory one. I do not consider that the specific distinctness of this bird from the *Pt. rivolii* has as yet been established. A larger series than I have had at my command, from all the localities known, will be necessary before the question can be determined. If the two are distinct, it would be a curious fact that, in the case of such closely allied species, *Pt. rivolii* should be restricted to the Duke-of-York Island, while the present is scattered over a dozen islands and also found upon the mainland of New Guinea.

Resembling in its coloration *Pt. rivoli*, but differs chiefly in the vent and under tail-coverts being green, slightly margined with yellow; the reddish-purple patch of the abdomen sometimes reaches the white pectoral band. First primary slightly narrowed at tip. Bill yellow; feet red.

53. PTILOPUS STROPHIUM.

Ptilinopus strophium, Gould, Jard. Contr. Ornith. 1850, p. 102, pl. 105 (note).

Ptilonopus strophium, Gray, List B. Brit. Mus. (1856) p. 6 (partim); id. List Mamm. & B. New Guin. (1859) p. 46; Salvad. Ann. Mus. Civ. Gen. (1876) vol. ix. p. 196.

Ionotreron rivoli, Reich. Taub. p. 100, pl. 236 b. fig. 3364.

Ptilopus miqueli, Schleg. Ned. Tijdsch. (1873) vol. iv. p. 22; id. Mus. Pays-B. 1873, p. 26, *Columbæ*; Rowl. Ornith. Misc. part xii. p. 60, pl. 88 (1878); Salvad. Ann. Mus. Civ. Gen. vol. ix. p. 196 (1876).

Ptilopus miqueli, Meyer, Sitzungs. d. k. Akad. d. Wiss. vol. lxx. p. 128 (1874).

Ptilinopus miqueli, Salvad. Ann. Mus. Civ. Gen. (1875) vol. vii. p. 786.

Hab. Duchâteau Isles (*MacGillivray*, type of *Pt. strophium*, Gould); Jobie, Meosnoum (*Von Rosenberg*, Meyer).

Mr. Gould's type of his *Pt. strophium* is in the British Museum, and is undoubtedly the same bird as was afterwards described as *Pt. miquelli* by Prof. Schlegel. The type is faded upon the forehead and is more of a rosy hue than purple-red; but it is plainly evident, I think, that the original colour has faded away. Another specimen in the Museum collection, without any locality, has the forehead purplish red. The name *miqueli* will have to give way to the older one of *strophium*.

Male. Front and top of head purplish red. A broad pure white band across the breast, beneath which is a stripe of bluish green. Centre of abdomen and under tail-coverts bright yellow. Entire rest of plumage bright yellowish green, with some small round bluish-black spots on the scapulars near the tips. Primaries greenish black, first narrowed to the tip. Tail same colour as the back. Bill greenish, tip yellowish; feet red; iris orange. Total length $10\frac{1}{4}$ inches, wing $4\frac{1}{2}$, tail $2\frac{3}{4}$, culmen $\frac{3}{8}$. (Ex type.)

Female. Plumage almost entirely green.

54. PTILOPUS BELLUS.

Ptilonopus bellus, Sclat. Proc. Zool. Soc. 1873, p. 696, pl. 57; Salvad. Ann. Mus. Civ. Genov. (1875) vol. vii. p. 786.

Ptilopus bellus, Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 197, and (1877) vol. x. p. 157.

Hab. Atam, New Guinea (*D'Albertis*); Mount Arfak (*Laglaize*); Amberbaki (*Raffray*).

This very fine and distinct species is one of the largest of the

section of the genus to which it belongs. Originally described by Mr. Sclater from specimens obtained by D'Albertis on Mount Arfak, it has since been found in other parts of the northern coast of New Guinea. Beside its much greater size, it can always be distinguished from *Pt. speciosus*, its nearest ally, by the rosy-red forehead and crown, together with the purplish-red spot on the abdomen.

Male. Front and crown deep rosy red. Occiput dark bluish green. Breast covered by a broad, halfmoon-shaped band, pure white on the lower parts and sides, lemon-yellow on the upper part. Abdomen has the middle portion covered by a purplish-red patch. Entire rest of plumage yellowish green, with small round bluish-black spots on the scapulars, and the feathers of the crissum and under tail-coverts edged with yellow. Primaries greenish black, first not narrowed. Tail yellowish green, with a pale apical band of the same colour. Bill yellow; feet dark red; iris yellow. Total length $9\frac{1}{4}$ inches, wings $5\frac{3}{4}$, tail $3\frac{3}{4}$, culmen $\frac{5}{8}$.

55. PTILOPUS SPECIOSUS.

Ptilopus speciosus, Schleg. Nederl. Tijdsch. vol. iv. (1871) p. 23; id. Mus. Pays-B. 1873, p. 27, *Columbæ*; Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 197.

Hab. Sook, Mafor (*Von Rosenberg, Raffray*); Misorì (*Raffray*).

This very peculiarly-coloured and striking species is apparently confined to the islands in the great Bay of Geelvink, New Guinea. It was first described by Schlegel from specimens sent by Von Rosenberg, and is very rare in collections. Lately a large series has been received at the Paris Museum, obtained by M. Raffray in the localities given above. There does not appear to be any variation among individuals from the different habitats.

Male. General plumage yellowish green, darkest on the head and neck. A broad bright-yellow band bordered on the lower side with white crosses the breast. Abdomen beautiful lilac; lower part of abdomen and under tail-coverts bright lemon-yellow. A purple spot in front of the eyes. Primaries grey on their outer webs and tips; first not narrowed especially towards tip. Tail yellowish green. Bill black, tip yellow; feet dark red. Total length 7 inches, wing $4\frac{5}{8}$, tail $2\frac{5}{8}$, culmen $\frac{5}{8}$.

Female. Green, with the feathers of the abdomen margined yellow, and under tail-coverts yellow. Primaries have outer webs and tips grey.

56. PTILOPUS JOHANNIS.

Ptilopus johannis, Sclat. Proc. Zool. Soc. 1877, p. 556.

Hab. Wild and D'Entrecasteaux Islands, of the Admiralty group ('Challenger' Expedition).

This very distinct species was obtained by the 'Challenger' Expedition, and derives its name from Mr. John Murray, one of the naturalists. By the kindness of Mr. Sclater I have been enabled to examine the types. With its nearest relationship perhaps to

Pt. speciosus, it differs conspicuously from all the members of this particular section of the genus *Ptilopus* in having the band which crosses the breast all yellow—and in this respect differs from all the others, as it is the only one so marked, the others having this band white, or yellow and white. It is a very beautiful species.

Male. General plumage green, with small dark blue spots on the scapulars. A broad band across the chest, which, together with the lower part of abdomen, crissum, and under tail-coverts, is light yellow. Top of head and middle of abdomen lilac. Primaries leaden grey, with the tips light grey, nearly white. Bill black, feet dark red. Total length $7\frac{1}{2}$ inches, wing $4\frac{5}{8}$, tail $2\frac{1}{2}$.

Female. Nearly uniform green; middle of belly and crissum yellow.

57. *PTILOPUS LUTEOVIRENS*.

Colombe jaune, Hombr. & Jacq. Voy. Pôle Sud, pl. 12. f. 2.

Columba luteovirens, Hombr. & Jacq. Ann. Sc. 2^e sér. vol. xvi. (1841) p. 315.

Colombe de Felicie, Hombr. & Jacq. Voy. Pôle Sud, pl. 12. f. 1, juv.

Columba felicie, Hombr. & Jacq. Ann. Sc. 2^e sér. vol. xv. (1841) p. 316, juv.

Columba flava, Gray, Gen. B. vol. ii. p. 470 (1844–49).

Calœnas luteovirens, Hartl. Wieg. Arch. 1852, p. 134.

Ptilinopus luteovirens, Jacq. & Puch. Voy. Pôle Sud, vol. iii. p. 112 (text) (1853).

Ptilinopus feliciæ, Jacq. & Puch. Voy. Pôle Sud, (1853), text, juv.

Ptilonopus luteovirens, Gray, List B. Trop. Isl. (1859) p. 38.

Chrysœnas luteovirens, juv. *feliciæ*, Reich. Taub. Suppl. p. 203, Taf. nov. no. iii. fig. 32.

Chrysœnas luteovirens, Reich. Taub. p. 90, t. 245. fig. 5594, t. 263. figs. 1469–70.

Chrysœna luteovirens, Bon. Compt. Rend. (1854) tom. xxxix. p. 879; id. Consp. Av. vol. ii. p. 28; id. Iconogr. Fig. (1857) pl. 31; Finsch & Hartl. Faun. Centralpolyn. (1867) p. 134, Taf. ii. fig. 4, juv.; Layard, Proc. Zool. Soc. 1875, p. 436; Finsch, Proc. Zool. Soc. 1875, p. 557; Finsch, Journ. Mus. Godeff. Heft xii. (1876) p. 10.

Omotreron feliciæ, Bon. Consp. Gen. Av. vol. ii. p. 27 (1857), juv.

Hab. Fiji Islands, Balaou (Hombr. & Jacq., type); Ovalau (Layard); Viti Levou (Godeffroy).

This species, according to Layard, dwells in the forest-covered parts of the island of Ovalau and the Rewa. It breeds in October, November, and December. On account of the colour of their plumage it is difficult to see them in the trees; but their presence is betrayed by their voice, which sounds something like a bark. It feeds on berries, and is fond of the seeds of araliaceous trees and creepers of the genus *Melastoma*.

This species is the type of Bonaparte's genus *Chrysœna*, the chief

character being the lanceolate shape of the feathers of the body. This, however, would seem to indicate more a specific than a generic value, as the *Pt. victor*, with which the present bird is generically identical, does not possess this form of feather. As is shown in my remarks on genera, in the beginning of this paper, neither of these two species exhibits any characters that, in my opinion, would separate them from the genus *Ptilopus*, those relied upon by authors for establishing a distinct generic rank not being at all peculiar to, or possessed solely by, these birds.

Male. Head greenish yellow. Throat and irregular collar on lower part of neck lemon-yellow. Feathers of breast and back lanceolate sulphur-yellow, tinged with green. Abdomen, vent, and under tail-coverts bright yellow. Primaries dark greenish yellow, first not narrowed especially; secondaries pale green, both edged with lemon-yellow. Tail pale green, graduating into light yellow at the tip. Bill black, tip yellow. Feet black. Total length 8 inches, wing $4\frac{3}{4}$, tail $2\frac{1}{2}$, culmen $\frac{5}{8}$. (Ex type, Paris Museum.)

Young male. Head and throat pale green. General plumage bright green, with yellow lanceolate feathers appearing upon the breast and back. Abdomen mixed with yellow and green. Under tail-coverts saffron-yellow. Primaries and secondaries brownish green, broadly margined with yellow. Some feathers of the rump and upper tail-coverts tipped and margined with yellow. Tail bright green. Bill black, tip yellow. Feet black.

Female. General plumage bright green, verging to yellow on the throat and abdomen. Primaries and secondaries margined with light yellow. Under tail-coverts pale yellow. Tail bright green, lightest at the tip. Bill black, tip yellow. Feet black.

58. *PTILOPUS CORRIEI*.

Ptilinopus corriei, Ramsay, Proc. Linn. Soc. New South Wales, 1876, p. 133, vol. i.

Hab. Malacolo Island, New Hebrides.

In the above-named publication Mr. Ramsay describes a specimen of *Ptilopus* as representing a distinct species. It is evidently immature, and, judging from the description, belongs to the group comprising *Pt. victor*, *luteovirens*, and *layardi*; and it is not impossible that it may be one of these species from a new locality, although the dimensions given are larger than those of any examples of the above-named species that I have seen. The type had been in spirits, and, as stated by Mr. Ramsay, was somewhat discoloured on the sides of the neck and interscapular region. The texture of the feathers resembled that of *Chrysceenas viridis*, Layard (*Pt. layardi* of this paper). Only a single specimen was procured by Dr. A. Corrie, at Malacolo Island, during the cruise of H.M.S. 'Pearl,' in August 1875. More specimens will be required before its specific rank can be satisfactorily determined.

The following is Mr. Ramsay's description:—

Male. "The whole of head, chin, and throat olive-green, becoming bright green on the neck and occiput; the whole of the remainder

of the upper and under surface bright deep green; the wing-quills deep golden green, mesially shaded with black; the inner webs of the primaries black towards the middle and basal portion of the feather. The three inner secondaries and their corresponding coverts of the larger series only have an oblique oblong blotch of bright golden yellow at their tips, which on the secondaries is confined to the outer web only, the smaller wing-coverts at the bend of the wing adjacent to the scapulars having a roundish, crescentic or cordate spot of white (?) near the tips of the feathers; some show a green shaft-line and a margin of green round the tip of the feather; under wing-coverts green; the outer series ashy; under surface of the wings ashy brown; under surface of the tail ashy brown, becoming lighter towards the base, and crossed conspicuously near the tip with a band of light ashy grey; upper surface green, the grey band not so conspicuous; the inner portion of the legs and lower part of the abdomen yellowish (much faded); under tail-coverts yellow, blotched with oblong marks of green on inner webs; the thighs, outer feathered portion of the legs, and the flanks bright green, like the rest of the body; tail of 14 feathers, square, even; of the wings, the third, fourth, and fifth feathers are nearly equal and longest; bill, legs, and feet bluish lead-colour; tarsi not feathered to the toes, lower portion scaled in front. Total length 9.5 inches, wing 6.3, tail 3; bill from forehead 0.8, from gape 1; tarsus .95."

59. PTILOPUS LAYARDI.

Chrysænas viridis, Layard, Proc. Zool. Soc. 1875, pp. 151, 437; Finsch, Proc. Zool. Soc. 1877, p. 736.

Native name *Sokulu* (Layard).

Hab. Kandavu, Fiji Islands.

This apparently very distinct Pigeon was described by Layard (*l. c.*) from specimens obtained by himself at Kandavu. He at first identified it, as he tells us, with *P. luteovirens*, but afterwards, having obtained it in the full breeding-dress, saw that his first impression was an erroneous one, and then conferred upon the species the name of *viridis*. Several specimens of this pretty Dove are in the collection of the 'Challenger' Expedition, which, through the kindness of my friend Dr. Sclater, I have had the opportunity of examining. They are all in the adult dress, with greenish-yellow head, and entirely green body relieved only by the yellow of the under tail-coverts. The feathers of the back are slightly inclined to the lanceolate form of those of *P. luteovirens*; but the two species cannot well be confounded together. As I do not consider that the birds included in the term *Chrysænas* possess any characters that should properly separate them generically from *Ptilopus*, it will be impossible to retain the name of *viridis* given to this species by Mr. Layard, as there is already, unfortunately, a species of this group so named, described originally by Linnæus. I have therefore substituted the name *layardi*, in justice to my friend, who has, in his researches among the birds of the Fiji Islands, exhibited the same energy and

love for natural history which has always characterized him in other parts of the world in which his lot has been temporarily cast.

Male. Head and neck greenish yellow; under tail-coverts bright yellow. Thighs and lower part of abdomen grey. Rest of plumage of body and wings dark green, with a golden gloss upon back and chest. Primaries are edged with yellow on outer webs, and, together with the secondaries, have nearly all the inner webs golden yellow; the first primary is narrowed gradually towards the tip. Bill blue-black, tip livid; legs dark crimson; iris yellowish. Length $7\frac{3}{4}$ inches, wing $4\frac{1}{2}$, tail $2\frac{1}{2}$, culmen $\frac{5}{8}$ (skin).

Female. Like the male, but less brilliant generally.

60. PTILOPUS VICTOR.

Chrysœna victor, Gould, Proc. Zool. Soc. 1871, p. 642; Layard, Proc. Zool. Soc. 1875, p. 437; Finsch, Proc. Zool. Soc. 1875, p. 557; Rowl. Ornith. Misc. pt. v. pl.; Finsch, Journ. Mus. Godeff. Heft xii. (1876) p. 10; Lay. Ibis, 1876, p. 151; Finsch, Proc. Zool. Soc. 1877, p. 736.

Native name *Buli ndamu* (Layard).

Hab. Fiji Islands, Bua (*Filhol*); Vanua Levu, Taviuni, Ngami, Lanthala (*Layard*).

Layard says that this Dove is the glory of the forest of Taviuni, and is also found in Lanthala and Rambi Islands, also on Vanua Levu, about Bua, Ndreketti, &c. The young males would be mistaken for females, but that the vent is more orange. They breed about December or November, making a rude platform of small twigs for a nest about ten feet from the ground, and lay two eggs, axis 1" 4"', diam. 1", pure white in hue. The species feeds on many sorts of small and large berries and fruits.

Male. Head and throat dull olive-green. Entire rest of plumage bright orange-carmine. Under surface of wings bright yellow. Primaries greenish yellow, edged with orange; first not narrowed. Tail, which is very short and almost hidden by the upper-coverts, brownish orange, graduating into pure orange at the tip. Bill and feet black. Total length 7 inches, wing $4\frac{1}{4}$, tail $2\frac{1}{2}$, culmen $\frac{1}{2}$.

Female. Head yellowish green, lightest upon the throat. Entire plumage of body rich green; inner webs of primaries and secondaries broadly margined with orange; outer webs edged with the same colour. Under tail-coverts orange, with the centre of the feathers green. Bill black, tip yellow; feet black.

61. PTILOPUS LECLANCHERI.

Trerolœma leclancheri, Bon. Compt. Rend. (1855) tom. xli. p. 247; id. Iconog. Fig. (1857) pl. 16.

Carpophaga leclancheri, Gray, List B. Brit. Mus. (1856) p. 21. sp. 19.

Leucotreron gironieri, J. Verr. & Des Murs, Ibis, 1862, p. 342, pl. 12, ♀; Wald. Trans. Zool. Soc. vol. ix. p. 213 (1875).

Ptilopus geversii, Schleg. Ibis, 1863, p. 120.

Ptilopus hugonianus, Schleg. Nederl. Tijdsch. 1863, p. 60, pl. 3.

fig. 2, juv. ex Luevu; Wall. Ibis, 1865, p. 378; Schleg. Mus. Pays-B. 1873, p. 36.

Ptilopus leclancheri, Salvad. Ann. Mus. Civ. Genov. (1876) vol. ix. p. 199.

Hab. Philippines, Luzon, and Guimaras (*Meyer*).

This species was first described by Bonaparte (*l. c.*) as *Trerolæma leclancheri*. The type is a female, and resembles in a great degree the specimen described by Lord Walden (*l. c.*) from Guimaras, brought by Meyer, and called, in Lord Walden's memoir on Philippine birds, *Leucotreron gironieri*. The type was brought to Paris by M. Leclancher, who was attached as surgeon to the expedition of the 'Favourite;' but no locality whatever was given to the specimen; so that of New Guinea, furnished by Bonaparte (*l. c.*), is erroneous. Messrs. J. Verreaux and Des Murs redescribed the species in 'The Ibis' (*l. c.*) as *Leucotreron gironieri*, their specimen being also a female or possibly a young male, bearing, however, a very close resemblance to Bonaparte's type. Schlegel (*l. c.*) also described a young bird of the same species as *Ptilopus hugonianus*. All these names must become synonyms of that given by Bonaparte.

Male. Head, neck, and upper part of the breast ashy white, washed on the nape with pale green; chin and throat black. A broad dark purple band crosses the breast just below the white. Flanks and underparts ashy green. Under tail-coverts cinnamon. Upper parts bright green. Wings green; primaries and secondaries black on inner webs, dark green on the outer, all edged with yellowish white. Tail bright green, with a terminal light-yellow band. Bill yellowish; feet red. Total length $9\frac{1}{2}$ inches, wing 6, tail 4, culmen $\frac{3}{4}$.

Female. Head and breast ashy white, nape pale green. Throat and chin black. A purplish band on the breast, which does not extend across. Rest of underparts and flanks tawny ashy green. Under tail-coverts chestnut. Upper parts and tail as in the male described above. (From type of *Tr. leclancheri*, Paris Museum.)

62. PTILOPUS OCCIPITALIS.

Ptilonopus occipitalis, Gray, Gen. B. vol. ii. p. 467, pl. 118 (1844); id. List B. Brit. Mus. Gall. p. 1 (1844), (1856) p. 7. no. 17; Wall. Ibis 1865, p. 378; Mart. Journ. für Ornith. 1866, p. 22. no. 124.

Ramphiculus occipitalis, Bon. Compt. Rend. tom. xxxix. p. 878 (1854); id. Iconogr. Pig. pl. 14 (1857); id. Consp. Av. vol. ii. p. 17; Wald. Trans. Zool. Soc. vol. ix. (1875) p. 214.

Omotreron batilda, Bon. Compt. Rend. tom. xxxix. p. 878 (1854); id. Consp. Av. vol. ii. p. 27; Wall. Ibis, 1865, p. 382; Von Mart. Journ. für Ornith. 1866, p. 22. no. 125 (juv.).

Ionotreron occipitalis, Reich. Taub. p. 101, pl. 239. fig. 1331.

Columba occipitalis, Schleg. Handl. vol. i. p. 411 (1857).

Lamprotreron porphyria, Bon. (nec Temm.), Iconogr. Pig. (1857) pl. xv. (juv.), from type of *O. batilda*.

Ptilopus occipitalis, Schleg. Mus. Pays-B. 1873, p. 35, *Columbæ*.

Hab. Luzon, Philippines (*Meyer*).

Bonaparte described a young bird of this species, in the 'Comptes Rendus' (*l. c.*), as *Omotreron batilda*; and afterwards, in his 'Iconographie des Pigeons,' he figured this specimen as the young of *Ptilopus porphyreus*! The type of *O. batilda* is in the collection of the Paris Museum, and proves to be simply a young bird of *P. occipitalis*. It is larger than any specimen of *porphyreus*, of which there is a series before me, even exceeding the adults in its measurements, and presents quite a different coloration. The type was brought from the Philippines in 1839 by M. Barrot, but no particular island is indicated.

Adult. Top and front of head light leaden grey; sides of face below the eyes and entire back of head purplish red. Throat yellowish white; sides of neck and breast grey, like the top of head. Entire centre of breast, from the lower part of the throat to the abdomen, ochraceous; flanks bright green; a large purplish-red spot in the middle of the abdomen. Crissum grey mingled with white. Upper parts bronzy green, darkest upon the rump and upper tail-coverts. Wings bright green; primaries and secondaries black on their inner webs, green on their outer and edged with light yellow. Tail bright green, with an apical greyish band; under coverts white, with a broad green stripe on their inner webs. Bill red, with light tip; feet red. Total length $11\frac{3}{4}$ inches, wing $6\frac{1}{8}$, tail $4\frac{1}{2}$, culmen $\frac{5}{8}$. (Specimen figured by Bonaparte, Icon. Pig. pl. 14.)

Young. Top of head, back of neck, and entire upper parts bronzy green. Throat yellowish white. Sides of head yellowish white, interspersed with green. Underparts greyish green, bronze upon the breast. Crissum and under tail-coverts whitish, the latter striped with green. Wings like the back, the secondaries and primaries edged on outer web with yellowish white. Tail bright green, with a greyish-white apical band, which is observed only on the inner webs. Total length 11 inches, wing 6, tail 4, culmen $\frac{5}{8}$. (Type of *batilda*, Bon.)

63. PTILOPUS GULARIS.

Columba gularis, Quoy & Gaim. Voy. Astrol. Zool. vol. i. p. 247, pl. xxix. (1830).

La Mentonnière, Less. Comp. Buff. tom. iii. Ois. (1837).

Columba gularis, Knip & Prév. Pig. pl. xi.

Laryngogramma gularis, Reich. Tauben, p. 102, pl. 233. fig. 1297; id. suppl. p. 203, nov. Taf. iv. fig. 44.

Leucotreron gularis, Bon. Consp. Av. vol. ii. p. 15 (1857); Wald. Trans. Zool. Soc. vol. viii. (1872) p. 83; Salvad. Ann. Mus. Civ. Gen. (1875) vol. ix. p. 670.

Ptilonopus gularis, Wall. Ibis, 1865, p. 377.

Ptilopus gularis, Schleg. Mus. Pays-B. (1873) p. 57, *Columbæ*.

Hab. Celebes.—Menado (*Wallace*); Tondano (*Forsten*); Gorontalo, Wawou, Bone, Modelido (*Von Rosenberg*).

Peculiarly a Celebes species, the present bird has fortunately never received another name beside the one originally bestowed on it by Quoy and Gaimard (*l. c.*). In its long tail it differs from the majority of the species of *Ptilopus*, and approaches the birds placed by Reichenbach in "*Megaloprepia*;" but the first primary is abruptly attenuated.

Adult. Top and sides of head grey, graduating into light green upon the occiput and hind neck. Chin and centre of throat very deep chestnut; rest of throat, neck on sides, and underparts lavender-colour, with a large spot in the centre of the abdomen yellowish white washed with rufous. Thighs and under tail-coverts rich dark cinnamon. Upper parts, wing, and tail bright green, the rectrices indistinctly tipped with yellowish green. Primaries and secondaries black on inner webs, green on outer, and edged with light yellow. Bill yellow; iris orange-brown; eyelids and orbits bare, blue; feet red. Total length $13\frac{1}{4}$ inches, wing $6\frac{5}{8}$, tail $5\frac{7}{8}$, culmen $\frac{3}{4}$. (Type in Paris Museum.)

64. PTILOPUS FISCHERI.

Ptilinopus fischeri, Brügg. Brem. Abhandl. (1876) p. 82, Taf. iv.

Hab. Celebes.

I only know this handsome species by the description and figure published by Dr. Brüggemann (*l. c.*). It is apparently very distinct from all the known forms, and cannot be compared with any of them. The red patch on the side of the head is a very peculiar character.

It may be briefly described as follows:—

"Back green. Head, neck, and breast partly grey, partly golden ochre. Under tail-coverts grey and white intermixed. Sides of head in the male bluish red; back of neck with a black band. Total length 400 millims., wing 168, tail 147, bill 17, tarsus 21." (*Brügg. l. c.*)

65. PTILOPUS ALBOCINCTUS.

Ptilinopus albocinctus, Wall. Proc. Zool. Soc. 1863, p. 496, pl. xxxix.; id. Ibis, 1865, p. 377.

Ptilopus cinctus florensis, Schleg. Nederl. Tijdsch. vol. iv. p. 20 (1873).

Hab. Flores (*Wallace*).

This species, which seems distinct from *Pt. cinctus*, was first described by Wallace (*l. c.*). It differs from its ally in having the neck and breast light blue, and the first primary less attenuated. The bill, according to Wallace, is greenish at the base, yellow at tip; feet bright red. I have examined the type in the British Museum. In size and all other characters, save those pointed out, it is like *Pt. cinctus*.

66. PTILOPUS CINCTUS.

Columba cincta, Temm. Fig. & Gall. vol. i. p. 243 (1813); Knip & Prév. Fig. vol. ii. pl. xxiii.; Shaw, Gen. Zool. vol. xi. p. 50 (1819); Wagl. Syst. Av. (1827) sp. 19, *Columba*.

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