

NOTES ON PIGEONS.

BY E. HARTERT AND A. T. GOODSON.

The subspecies of Muscadivora aenea.

THE specific name *aenea* was first given to Brisson's "*Columba moluccensis*," said to have been brought from the Moluccan Islands. As this species does not occur on the Moluccas, we propose as the restricted locality for the name *aenea* Flores, which seems to be the nearest place to the Moluccas where it occurs. Even if this should be considered incorrect, no great harm can be done by this action, as the birds from the Greater and Lesser Sunda Islands, Sumatra, Borneo, Java, Lombok, Flores and Sumba are inseparable.

We have therefore *Muscadivora aenea aenea* (L.) inhabiting the Sunda Islands. These birds have the cheeks and ear-coverts, as well as the throat, more tinged with pink and the hind-neck generally less pure grey. Apparently ranging through the Malay Peninsula, *M. aenea sylvatica* (Tick.), described from the forests of Borabhum and Dolbhum, and not from South India, is the correct name for the Indian form, in which the cheeks and ear-coverts as well as the hind-neck are more uniform grey. This form seems to extend to the Andaman Islands. Hainan specimens may be smaller. *M. aenea pusilla* (Blyth) would be the name for the, as it seems, smaller birds from South India and Ceylon. Another quite distinct form is the one from the Philippine Islands, *M. aenea chalybura* (Bp.), in which the tail is less bluish from above and paler brown from below, and the grey colour of the hindneck and upper mantle is lighter and purer grey, and more sharply separated from the metallic green back.

M. aenea palawanensis (Blas.) has the tail again darker, as in *M. aenea aenea* and *sylvatica*, but the hindneck and back as grey and sharply separated from the back as in *M. aenea chalybura*.

We are inclined to think also *M. insularis*, *consobrina*, *oenothorax*, and *babiensis* should also be treated as subspecies of *aenea*, but the last is only known to us from the description. Cf. *Cat. B. Brit. Mus.* xxi. p. 193; Hartert, *Nov. Zool.* 1910. pp. 193, 194.

To recapitulate we have thus:

Muscadivora aenea aenea: Sunda Islands, east to Lombok, Flores, Sumba, Pantar and Alor Islands, north throughout the Malay Peninsula.

M. aenea sylvatica: India east of long. 80°, south to Tenasserim, the Chin and Shan Hills, and the Andaman Islands.

M. aenea subsp. ? : Two birds, said to be a male and a female, from Hainan, are rather small, wings ♂ 228, ♀ 230 mm. Baker, *Indian Pigeons and Doves*, p. 92, also mentions Hainan examples with a wing "on the average no longer than that of the Ceylon bird." More material must be compared from Hainan, to decide about this form. The colour seems to be that of the Indian *sylvatica*.

M. aenea pusilla: South India and Ceylon. Cf. Baker, *Indian Pigeons and Doves*, p. 92.

M. aenea palawanensis: Palawan.

M. aenea chalybura: Philippine Islands (not Palawan!).

M. aenea insularis : Nicobar Islands. Cf. Baker, *Indian Pigeons and Doves*, p. 97.

M. aenea consobrina : Nias Island, Si-oban, Tello and other islands.

M. aenea oenothorax Salvad. : Engano Island.

M. aenea babiensis Oberh. : Pulo Babi (Pig Island), north of Nias.

***Ptilinopus rivolii* and allies.**

In NOVITATES ZOOLOGICAE, 1901, *P. prasinorrhous*, *bellus*, *strophium*, and *miqueli* have been treated as subspecies of *revolii*. It was hardly possible to come to any other conclusion, considering that they do not, so far as we know, occur together, and that *P. strophium* has sometimes a few purple spots, and even a large purple patch on the upper part of the abdomen, if it were not that both *P. miqueli* and *prasinorrhous* occur on Jobi Island in the Geelvink Bay. Of *miqueli* we have, besides a female labelled "Ile Jobie" and another labelled Ansus, April 1874, both from the Bruijn collection, which might have been wrongly labelled, a male collected by William Doherty at Marai, Jobi, in April 1897, full details as to colours of iris, bill, and feet being given on the label. Of *prasinorrhous* we have only two males and one female, said to be from Ansus, Jobi Island, 1879, from the Bruijn collection, others from Traitors Island, not far from Jobi, in Geelvink Bay. If this is absolutely correct, it is a conundrum what to do with these two forms, and to say whether the yellow tinge of the breast-band in *strophium* or the entirely yellow under tail-coverts are the specific differentiating character.

Comparing ten Buru specimens we find that the males differ from typical *prasinorrhous* (terra typica Key Islands, over 50 specimens compared) in having the under tail-coverts more or less widely margined with yellow, while there are only the very narrowest yellow edges to the under tail-coverts in *P. prasinorrhous prasinorrhous*. In the females of *C. p. prasinorrhous* the edges to the under tail-coverts are wider than in the males, sometimes as wide as in the males of the Buru form, but the females of the latter have the under tail-coverts still wider bordered or often almost and sometimes entirely yellow. We name the Buru form

***Ptilinopus rivolii buruanus* subsp. nov.**

Type: ♂ ad. Gunong Fogha, Buru, 24. ii. 1912. No. 1111, Erwin Stresemann leg.

We have other specimens collected on the mountains by Dumas and H. Kühn, others from Kayeli, from W. Doherty.

The subspecies of Ptilinopus regina.

There can be no doubt that *ewingii* and *flavicollis* are subspecies of *P. regina*, and that *flavicollis* is much smaller and must therefore be separated. The form of Cape York is not *ewingii*, but *regina*. (Cf. Mathews, *B. Austr.* i. p. 105, and *List B. Austr.* p. 12, where the former error has been duly corrected.)

The forms stand thus as follows :

1. *Ptilinopus regina regina* Swains.

Ptilinopus purpuratus var. *Regina* Swainson, *Zool. Journ.* i. p. 474 (1825—"Australasia"! Restricted terra typica: New South Wales; cf. Mathews, l.c.).*

New South Wales and Queensland north to Cape York.

2. *Ptilinopus regina ewingii* Gould.

Ptilinopus Ewingii Gould, *Proc. Zool. Soc. London*, 1842. p. 19 ("Port Essington").

A more western form, inhabiting the "Northern Territory" (Arnhem Land, also Melville Island).

3. *Ptilinopus regina flavicollis* (Bp.).

Ptilopus flavicollis Bonaparte, *Consp. Gen. Av.* ii. p. 20 (1854—"Timor." Type coll. Mangé in Mus. Paris). (Cf. Hellmayr, *Avif. Timor*, p. 86.)

Timor, Savu, Samao, and Flores.

On Phapitreron.

There is no doubt, in our opinion, that *leucotis*, *occipitalis*, *brevirostris*, *samarensis*, and *nigrorum* must be treated as subspecies, and *leucotis* is the oldest name.

The specimen from Sulu appears to belong to a new form, having the wing shorter, while agreeing in colour very much with *brevirostris*, though the throat is more as in *leucotis*. More specimens from Sulu will no doubt prove it to be a new subspecies. Macgregor, *Manual Philipp. B.* i. p. 35, suggests "that there must be something wrong about the Sulu record of *P. brevirostris*." There is, however, nothing wrong about it, except that it can hardly be *brevirostris*. The specimen, sexed ♀, is labelled "Mainbun, Sulu Island, 24. iv. 1883. Length, 23 centim. Iris outer ring red, inner white. Bill brownish. Tarsus dull coral red," by Dr. H. Guillemard, and the label is the original one.

It may be remarked that the forehead, which is described as "white," is never quite white, but only whitish, or buffy whitish, in *P. leucotis samarensis* and *albifrons*.

The forms of Treron calva.

The various forms of the African Bald-fronted Fruit-Pigeons have hitherto, chiefly for want of sufficient series from all localities, not been well understood. After comparing our material of 91 specimens and an examination of the still longer series in the British Museum by one of us (Hartert), we think that we can throw some further light on these birds, without, however, in any way reaching finality and solving all questions.

In the *Cat. B. Brit. Mus.* xxi. pp. 20-25, 1893, "*Vinago*" *calva* and *nudirostris* were united, while *wakefieldi*, *schalowi*, and *delalandei* were kept as different species. From the distribution of *wakefieldi* it would indeed seem that the forms with a greenish tail cannot be subspecies of *calva*, and we shall not, therefore, discuss these latter forms at present; with regard to *calva* Salvadori

* Hellmayr, *Avif. Timor*, p. 86, calls this form *reginus*, but as Swainson spelled the name with a capital *R* it is not an adjective, but a substantive. It is important that the original spelling is copied in quotations!

was certainly in error, since *nudirostris* is not identical and several other forms have now been separated.

Reichenow (*Vög. Afr.* i. pp. 394–397, 1901, and iii. p. 806, 1905) got very much nearer the truth, for he separated “*Vinago calva*” and “*Vinago calva nudirostris*,” but his distribution cannot be right, and he appears to have taken some females and other specimens of other forms of *calva* for *nudirostris*, though he correctly recognised the latter as different. In 1902 and 1905 he further separated the West African forms into two, distinguishing as a new subspecies “*Vinago calva sharpei*” from Sierra Leone to Calabar. Mr. C. H. B. Grant, *Ibis*, 1915, pp. 36 and 37, returned to the older less correct notions, separating only “*Vinago calva calva*” and “*Vinago calva salvadorii*,” a form described in 1897 and synonymized by Reichenow with *nudirostris*; Mr. Grant said that he “could not see any difference between *Columba calva* Jemm. and *Vinago nudirostris* Swains., and that *Vinago calva sharpei* was “a pure synonym of *V. nudirostris*,” which is by no means correct.

We have purposely united *Osmotreron* (or *Dendrophassa* as it should apparently be called), *Vinago*, and *Treron*. The extent of the naked cere or base of bill is merely a specific character. *Treron teysmanni*, though placed in “*Osmotreron*,” connects the latter and typical *Treron* in colour and has the rhamphoteca extending to the feathers on the forehead. “*Vinago*” *australis* from Madagascar, though in colour a typical “*Vinago*,” has the bill of an “*Osmotreron*.”

The two principal characters by which the various forms of *T. calva* can be separated, are:

1. The extent of the naked space (“cere”) on the forehead. This is a sharp division, and one is tempted even to regard it as a specific character, but we do not think that forms with a short and a wider naked space occur together, and it is in single instances possible to mistake a female of *calva* for a male of *nudirostris*, as generally, though not quite constantly, the females have the naked space less developed. The colour of the under tail-coverts is the same in both sexes.

2. The sharply defined, more pure lavender grey, or less defined, duller, more greenish nuchal collar, as well as generally brighter or duller coloration.

Length of wing is rather variable, as in most Pigeons; it can, therefore, only be of importance in cases where large series have been measured. Females have shorter wings, but many specimens in collections are, as usual, wrongly sexed.

We distinguish the following forms:

1. *Treron calva calva* (Temm.).

Columba Calva Temminck, in Temm. and Knip, *Pigeons*, i. p. 35. pl. 7 (1808—from a collection made on the coasts of “Loango and Angola.” Restricted terra typica: Loango. The figure is called “bad” by Salvadori, but it is, in fact, very good, showing the dull nuchal collar and general dark coloration to perfection).

Colours dark and dull, head more olivaceous green than yellowish, nuchal collar greyish green to greenish grey, and not sharply defined. Back sometimes, apparently chiefly in fresh plumage, with grey tinge. Base of bill naked for about $1\frac{1}{2}$ the length of the rhamphoteca and nearly or quite to a line connecting the fore-edge of the eye. Wings 20 ♂, 155–172, generally 160–165, measures above 170 rare, ♀ 148–153 mm. Base of bill and forehead magenta or bright red.

Hab. Gabun, Loango, Northern Angola, and the Congo basin to the Ituri forest and Kindu, north evidently to Kamerun.

Specimens from the Upper Congo (Kindu and 340 miles west of Baraka) seem all to have the greyish tinge and are generally slightly lighter, while Ituri forest birds are as dark as the darkest specimens from the Lower Congo and Angola. Apparently also Princes Island.

Ten skins from Princes Island in the British Museum, collected by Boyd Alexander, 8 sexed "♂," 2 "♀," agree in colour with *T. calva calva*. Their wings are generally shorter, but some are as long as the majority of the latter, *i.e.* 153–160 mm. Though the isolated insular home suggests the probability of a separate race, we must therefore unite the Princes Island birds with typical *calva*, while São Thomé has quite a different species, and Fernando Po a distinct subspecies.

2. *Treron calva uellensis* (Rchw.).

Vinago calva uellensis Reichenow, *Journ. f. Orn.* 1912, p. 320 ("Jakoma und Koloka am Uelle").

"Diese Form steht der Form *V. c. sharpei* von der Goldküste und Togo am nächsten und unterscheidet sich von dieser durch etwas helleren Ton der Gesamtfärbung. Sowohl das Grün der Oberseite wie das Grau des Nackenbandes und des Schwanzes ist heller."

One of us (Hartert) has examined in the British Museum a skin from Niam Niam (Bohndorff coll.) and one from Tomaja, just south of the Uelle, which agree with each other and differ from all other forms. They can hardly be anything else than Reichenow's *uellensis*, though, by their somewhat olivaceous and indistinct nuchal collar, and less bright collars, they are perhaps better compared with *T. c. calva*, from which they only differ by being lighter and brighter, *i.e.* standing between *T. c. calva* and *sharpei*.

Two birds from the Victorian Nile (one from Businde in the British Museum, one from Fadjaou in Tring) are also less brightly coloured than *salvadorii* and closely resemble *uellensis*, while one from Kichuchu in Toro (Ansorge) also somewhat resembles *T. c. calva*, but it is in worn plumage and not clean. Another specimen from the Victorian Nile belongs to the eastern *nudirostris*-like form, *i.e.* with a short naked space on the base of the bill!

3. *Treron calva poensis* subsp. nov.

Specimens from Fernando Po differ from *T. c. calva* at a glance by their paler, somewhat more yellowish underside, and generally slightly lighter upper surface. Wing ♂ ♀ 166–175 mm. 2 ♂, 2 ♀ in the British Museum, Boyd Alexander and E. Seimund coll., 1 "♀" (probably ♂, wing 175 mm.!) in the Tring Museum. Therefore apparently larger than *T. c. calva*.

Type: "♀" (♂!), Bantabari, Fernando Po, 12.ii.1904. E. Seimund coll. (Tring Museum).

4. *Treron calva sharpei* (Rchw.).

Vinago calva sharpei Reichenow, *Orn. Monatsber.* 1902. p. 45 ("Oberguinea"); *id.*, *Vög. Afr.* iii. p. 806 (1905—"Sierra Leone bis Kalabar").

Reichenow quite correctly restricted the name *calva* to the birds from "Unterguinea" and considered *pytiropsis* as a synonym; Sharpe (*Ibis*, 1902)

adopted Bonaparte's name *pytiroptis* * for the typical *T. calva calva*, while he thought that the northern form, which Reichenow named *sharpei*, was true *calva*, a quite impossible course, as the southern bird is the true *calva* and *pytiroptis* is merely said to differ from *delalandei* by smaller size (!), and no exact locality given; Jardine's figure (very bad, like all illustrations in Jardine and Selby's work) is quoted by Bonaparte, but it is not exact enough for any conclusion, and has not either a definite locality.

T. calva sharpei differs from *T. c. calva* by having the head brighter and slightly more yellow, the nuchal collar better defined and clearer grey, wing (♂ ♀) 148–162 mm. This form inhabits Western Africa from Sierra Leone (Clark, Bower, Kelsall, Kemp) to the Lower Niger (Felix Roth, Ansorge, Braham) and Kalabar (Ansorge and Brit. Mus.).

5. *Treron calva salvadorii* (Dubois).

"*Vinago salvadorii*, subsp. nov." Dubois, *Proc. Zool. Soc. London*, 1897. p. 784 ("Afrique tropicale orientale et centrale"—terra typica Tanganyka, as the author only examined Tanganyka specimens, no doubt from the western shores, though no exact locality has been stated).

Like all the foregoing subspecies with the bare portion of the forehead longer than the rhamphotheca, but the nuchal collar very sharply defined and brighter blue-grey or lavender-grey, greenish colour brighter and more yellowish above and below, especially on the crown and neck. Wings ♂ 167–179, ♀ 157–167 mm.

African lake districts from the western shore of Lake Tanganyka to Uganda, Kavirondo, Unyoro, and Mt. Elgon. In the Tring Museum from the following localities: Russisi River between Lakes Kivu and Tanganyka (R. Grauer), Marienseen (R. Grauer), Ussuwi, between Ussuwi and Lake Urigi, Lake Urigi (Rud. Grauer), Kwidgwi Island in Lake Kivu (R. Grauer), Rutshuru plain, 1,600 m., between Albert Edward and Kivu (R. Grauer), Entebbe (F. J. Jackson, R. Grauer, L. M. Seth-Smith), Ngongo in Usoga (W. J. Ansorge), Unyoro (R. Grauer), Kavirondo (W. J. Ansorge), Mpanga Forest in Toru (R. Grauer); Mt. Elgon (British Museum). The Mpanga Forest and Kavirondo birds, as well as the Unyoro specimens from Grauer, agree well with other *salvadorii*, while the bird from Kichuchu in Toru (see above, under *uellensis*) is much darker, like true *calva*, and appears to have the nuchal collar more indistinct, but, being worn and dirty, this cannot well be seen; a female from Fadjao is less bright and has the collar less distinct than *salvadorii*, and is almost sure to belong to *uellensis*.

Two specimens, marked ♂ and ♀, shot by Grauer, in "the forest west of Tanganyka" at 1,900 and 2,000 m., the same day (13. vi. 1908), are puzzling. The female, from 1,900 m., has the collar more indistinct, head darker, and agrees perfectly with specimens shot 340 km. west of Baraka and at Kindu, at elevations from 400 to 1,200 m., while the male, from 2,000 m., is brighter, and agrees better with *salvadorii*, though the head is not quite as bright as in most *salvadorii*.

* Reichenow's quoting "*Vinago pyterioptis*" Verreaux, *Rev. et. Mag.* 1851, p. 421, is a slip, as the name occurs nowhere in that work.

6. *Treron calva ansorgei* subsp. nov.

Very similar to *T. calva salvadorii*, but the nuchal collar not quite so sharply defined, underside and head generally a little brighter and more yellowish, wings ♂ ♀ 169–182 mm.

Benguella, Mossamedes (Ansorge), Gambos (Veth and van der Kellen), Bailundu (C. H. Pemberton).

Type: ♂ ad., No. 298, Huilla, Mossamedes, 21. ii. 1906, W. J. Ansorge coll.

Named after the late Dr. W. J. Ansorge, from whom the Tring and the British Museum have received magnificent collections from various parts of Angola.*

7. *Treron calva nudirostris* (Swains.).

Vinago nudirostris Swainson, *B. W. Africa*, ii. p. 205 (1837—Senegal).

While in all the foregoing subspecies the bare portion of the bill extends more or less to the forehead and is longer than the hard fore-part of the bill (rhamphotheca), in *T. c. nudirostris* it is in both sexes less long than the latter. In the female it is shorter than in the male, but unfortunately we could not examine a good series. Mr. Riegenbach only sent three skins, two males and one female. The wings appear to be short, in our largest male only 163 mm. The colour is generally rather light and yellowish; the nuchal collar is not very distinct, in fact, except in one specimen, no more so than in any Congo birds (*T. c. calva*); head and underside fairly bright and yellowish, more as in *salvadorii* than in *calva*.

We know this form only from Senegambia. How far it extends eastwards we are unable to say. Reichenow supposed that this form—although he separated it trinomially, as a subspecies—occurred also in East Africa and South-west Africa. His East African birds, so far as he actually had them before his eyes, were mostly almost certainly the new form described hereafter. The South-west African birds were erroneously included, evidently on account of the statement of Bocage, as Reichenow did not examine either Ivens', nor Anchieta's, nor van der Kellen's specimens.

* The late Dr. William John Ansorge was one of the best collectors who ever collected for the Tring Museum. Though not a zoologist and without knowledge of the species of birds and lepidoptera, he obtained most valuable material of study, and the collection of fishes which he made for the British Museum in Nigeria is of the greatest importance. His ancestors lived in Silesia, where Ansorge is a common name, but when and who of his forefathers became a British subject I do not know. He was born in India in 1850 and died in Angola in 1914. I was surprised to learn that he was only sixty-four years of age, as his white beard and bald head gave him the appearance of a much older man, though he was good-looking and young in habits and energy. Having been educated at Mauritius and in Cambridge, he became a professor of the Royal College, Mauritius, but in 1886 came to England to study medicine. In 1892 he went out to Uganda, where he began to collect. At the beginning his skins were rather bad, but the superior and methodical way of labelling butterflies and birds, together with his industry and warm interest in all zoological objects, was evident, and I personally instructed him in skinning, so that his skins soon vastly improved. The large collections from northern Angola, Benguella, and Mossamedes in the Tring and British Museums have never been completely studied, though many novelties from them were described, chiefly by myself and Oscar Neumann, and they were partially utilised at many opportunities, as in the present case. The British Museum also possesses many mammals collected by Ansorge and a fine collection of birds made in Portuguese Guinea in 1909, out of which Mr. Ogilvie-Grant described a few new forms. The name Ansorge will always be remembered by students of African ornithology and entomology, and a number of birds, fishes, and lepidoptera bear his name.—E. HARTERT.

8. *Treron calva brevicera* subsp. nov.

A form with a short naked cere or basal portion of beak, as in *T. c. nudirostris*, occurs also in East Africa. Head and underside as bright as in *T. c. nudirostris*, but the nuchal collar bluish or lavender grey and sharply defined. Wing 166–179 mm. Outer edges of rectrices more or less washed with yellow.

Type: ♂ ad., Moschi, 13. iv. 1916. A. Buchanan coll. (Tring Museum). "Length 12 inches. Iris lovely clear cobalt blue. Bill very pale whitish blue-grey. Cere medium dull orange yellow. Feet pure coral red" (Buchanan). "Iris bright bluish white. Cere orange ochreous, tip of bill white. Feet coral" (Doherty).

It seems that this form differs constantly from the forms of *T. calva* with wide bare space in the colour of the cere. Unfortunately I have no certain information about *T. c. nudirostris*. On many labels of *T. c. calva*, *ansorgei*, and *salvadorii* the base of the bill is described as red, magenta red, bright red, alizarine-carmine, scarlet, roth, scarlet lake, alizarine-crimson, but never as orange-yellow or orange-ochreous!

We have in the Tring Museum a pair shot by Captain A. Buchanan at Moschi, at the foot of Mt. Kilimanjaro, and a male collected by Will Doherty on the Escarpment, 8,500 feet, in January 1901. In the British Museum one of us has examined specimens from the Kilimanjaro (Johnstone), Athi River, Machakos (Hinde), Matabato Hills (B. Percival), and Kikuyu (Crawshay). Probably Mombasa specimens belong also to this form. Should it turn out that *T. c. brevicera* or *T. c. nudirostris* occur together with forms with the very wide bare space at the base of the bill, we should be obliged to recognize as species *T. calva* and *nudirostris*, each with one or more subspecies. There is indeed a specimen of the *nudirostris* group from the Victorian Nile in the British Museum, where also *T. c. uellensis* or a closely allied form with wide naked forehead is found!

9. *Treron calva sejuncta* subsp. nov.

A large form with widely naked space at base of forehead inhabits Portuguese Guinea. It is distinguished from its allies by a very yellowish green back and underside. The head is rather apple-green, the collar dull grey, not so distinct and sharply defined as in *T. c. sharpei*, *salvadorii*, and *brevicera*, but not quite so indistinct as in *T. c. calva*. Underside very bright yellowish, much as in the more yellow specimens of *poensis*, but still yellower. The wings measure 154–166 mm. There are in the British Museum 3 adult males, 2 females, and an immature bird, all collected by W. J. Ansorge in 1909, the adult birds in rather worn plumage, but clearly showing the above differences. This form is nearest to *poensis* but still lighter and yellower green.

Type: ♂ ad., No. 52, Porto Mansoa, Portuguese Guinea, 9. v. 1909. "Cere alizarin-crimson." W. J. Ansorge coll. (In the British Museum.)

10. *Treron calva* subsp. ?

Professor Oscar Neumann collected two Green Pigeons in western southern Ethiopia. One, sexed ♂, with large testicles, shot at Djiren in Djimma, 28. iii. 1901, another, also marked ♂, testicles large, Uma River near Baka in

Konta, 1. iii. 1901. The first has the forehead widely bare and closely resembles *T. c. calva*, unless it is slightly darker, but being rather dirty this is almost impossible to say. Wing 171 mm. The other is lighter and more greyish on the head and throat and the naked space at the base of the bill is less than the rhamphotheca. If it is a male and a slip has not occurred when writing the label, this bird cannot possibly be the same as the one from Djiren, and it is very strange that a form with wide and one with short naked space on the bill are found so close together. As it is difficult to give a good description of one rather poor specimen, we do not give a name to this form at present, but have no doubt that it will be named before long. The wing of the Konta specimen measures 167 mm.

Recapitulating we thus recognize the following forms :

1. *Treron calva calva* (Temm.) : Kamerun to North Angola, Congo basin, Kindu and Ituri Forest. Also Princes Island.
2. *Treron calva uellensis* (Rehw.) : Uelle, Niam Niam. (Distribution and differences require further investigation.)
3. *Treron calva poensis* Hart. & Goods. : Fernando Po.
4. *Treron calva sharpei* (Rehw.) : Sierra Leone to Kalabar. (Boundaries eastwards not yet certain.)
5. *Treron calva salvadorii* (Dubois) : Apparently Tanganyika to Unyoro, Uganda and Mt. Elgon. (Exact distribution not fully worked out.)
6. *Treron calva ansorgei* Hart. & Goods. : South Angola, *i.e.* Benguella and Mossamedes.
7. *Treron calva nudirostris* (Swains.) : Senegambia, but limits eastwards uncertain.
8. *Treron calva brevicera* Hart. & Goods. : Kilimanjaro to Athi River, Kikuyu, etc. (More information about distribution desirable.)
9. *Treron calva sejuncta* Hart. & Goods. : Portuguese Guinea.
- 10, 11. One or two insufficiently known (one bad skin each !) from south-western Abyssinia or Ethiopia, collected by Oscar Neumann.

We may thus fairly assume that, if the whole of Africa were completely ornithologically explored, a full dozen forms in place of the one recognized in the *Cat. B. Brit. Mus.* xxi. or the three to four admitted by Reichenow, must be separated.

The forms of Treron vernans.

It has been known for a long time that there is some geographical variation in this species, especially in the colour of the crown. Wallace, *Ibis*, 1863, p. 320, said that a specimen from Penang had the head "dark slaty," while in the Macassar form the head was paler, the forehead and throat greenish, and the pale lilac area narrower on the upperside, and a Bornean specimen appeared somewhat intermediate, though more closely approaching that from Penang. Again, in *Ibis*, 1865, p. 374, he says that Penang examples had the head darker, Bornean ones paler, while in a Macassar one the front and throat were greenish. Schlegel, *Nederl. Tijdschr. Dierk.* i. p. 70 (1863), says that the skins from Java and Celebes (Gorontalo) have the head and throat dull greenish grey ("d'un vert grisâtre mat"), which Salvadori (*Ann. Mus. Civ. Genova*, v. p. 287), wrongly

translated "verde-grigio-scuro," "mat" not meaning dark ("oscuro"), but less bright, dull, *i.e.* rather paler than darker, while Sumatran and Bangka birds had the head fine bluish-grey ("d'un joli gris bleuâtre"). Though this description is not very good and rather sounds as if the items were exchanged, it shows that Schlegel distinguished between the Java-Celebes and the Sumatran race, which he called "*griseocapilla*."

Salvadori (Ucc. Borneo, *Ann. Mus. Civ. Genova*, v. p. 288, 1874, thought there might be three "species": *T. vernans*: Philippines, *T. griseicapilla* Schleg.: Java, and *T. chlorops* Salvad.: Celebes, but afterwards he abandoned this view.

The differences of the colour of the crown were disregarded by Salvadori in 1893 (*Cat. B. Brit. Mus.* xxi. p. 62). He simply remarked that "Some specimens have the forehead and throat more or less tinged with greenish, but they are not confined to a particular locality." This is perfectly true. We find the throat and forehead sometimes more or less tinged with greenish in all localities, but it is not clear what this means; it seems to be purely individual, and not due to age or state of plumage.

On the other hand it is obvious that the specimens from Mergui, Malay Peninsula, South Tenasserim, Sumatra, Batoe Islands, the Natuna Islands, Borneo, Bongas, Palawan, Sulu, and Philippines are **generally darker all over, and especially the crown of the head is much darker grey**. (38 ♂, 11 ♀ in Tring Museum.) Those from Java, Kangean Islands, Sumbawa and Celebes are **generally lighter all over, and especially the crown of the head is lighter grey**. (8 ♂, 4 ♀ in Tring Museum.) Other constant differences we have not been able to detect. The darker form must of course be called:

***Treron vernans vernans* (L.), terra typica Philippines.**

The lighter one will have to be called:

***Treron vernans purpurea* (Gm.), terra typica Java.**

(*Columba purpurea* Gmelin, *Syst. Nat.* i. 2. p. 784. 1789, ex Brown, *Illustr. Zool.* p. 41. pl. 18, where a Javan specimen is figured.)

In Smithson, *Misc. Coll.* vol. lx. No. 7. pp. 2, 3. 1912, Oberholser described three new subspecies:

"*Dendrophassa vernans mesochloa*" from Nias. Said to be larger and more greenish. As no measurements are given, the form cannot be discussed without a Nias series.

"*Dendrophassa vernans polioptila*" from North Pagi. Said to be lighter and more greyish.

"*Dendrophassa vernans miza*" from Simalur (Pulo Babi). Like *polioptila*, but "decidedly larger." Measurements not given.

In *Bull. U.S. Nat. Mus.* 98, 1917, p. 20, the same author described *Dendr. vernans adina* from the Anamba Islands. Described as larger than *T. v. vernans*, colours duller, abdomen paler.

It may be added that "*Osmotreron*" cannot possibly be separated from *Treron*, or else *Dendrophassa* would have to be the name, antedating *Osmotreron* by twelve years.

Treron bicincta.

There are some misprints in NOVITATES ZOOLOGICAE, 1910, p. 193. The wings of *T. b. bicincta* measure 161–186, those of *T. c. leggei* 142–148 mm.

Treron curvirostra hainana subsp. nov.

Nearest to *T. curvirostra nipalensis* from Northern India, but generally larger, bill as a rule deeper, wings longer, the grey of the crown not reaching quite so far backwards, the nape dull green without any ashy-grey wash, while in *T. c. nipalensis* there is a more or less distinct indication of a grey band. Wings ♂ 145–157, ♀ 147–151 mm.

Hab. Hainan.

Type: ♂ Mt. Wuchi, Hainan, 5. iv. 1903. Katsumata leg.

We cannot help adopting, as Oberholser has done (Smithson, *Miscell. Coll.* lx. No. 7. 1912. p. 3), the name *curvirostra* of Gmelin, although the figure on which it is based does not show the grey crown, nor can we at present discuss the other subspecies (of which *nasica* must be one), for want of sufficient material.

The forms of **Columba guinea.**

In the *Cat. B. Brit. Mus.* xxi. pp. 266–268, Count Salvadori recognized two species, *C. guinea* and *C. phaeonota*. The latter, according to modern ideas, is a subspecies of *guinea*, and was first recognized as such by the senior writer in 1891, *Kat. Vogels. Senckenberg. Mus.* p. 186, under the name of *Columba guinea trigonigera*, a name which though comprising both *guinea* and *phaeonota*, chiefly refers to the former.

Reichenow, *Orn. Monatsber.* 1898. p. 82, described *Columba guinea uhehensis* from Iringa in Uhehe, and in 1901, *Vög. Afr.* i. p. 402, added *C. guinea longipennis* from E. Africa, from the Victoria Nyanza to Ugogo, while he lets *C. guinea guinea* range from West Africa to N.E. Africa, where it is found from 16° lat. to the Victoria Nyanza. *C. phaeonota* he treats as a species, inhabiting South Africa.

In 1905, *Journ. f. Orn.* p. 113, Erlanger identifies both *longipennis* and *uhehensis* with *phaeonota*, which he says ranges from S. to E. Africa. In this judgment he must undoubtedly have been wrong, and it is probably due to some confused notes or faulty memory. About *longipennis* there is no question that it is a form of *guinea*, but not *phaeonota*, while *uhehensis* cannot either be *phaeonota*, as it has the rump light grey as in *guinea*, though otherwise it appears to be nearer *phaeonota*.

In *Ibis* 1915, pp. 37–39, Mr. C. H. B. Grant reviews the forms of *Columba guinea*, from an examination of the material in the British Museum. He recognized three subspecies:

C. guinea guinea: West Africa.

C. guinea longipennis: Abyssinia and "Sudan" to East Africa.

C. guinea phaeonota: South Africa.

This cannot be correct, because, if the Abyssinian form is the same as the East African one, it must be called: *C. guinea dilloni* (Bp.). Moreover, Abyssinian and East African specimens differ as much, or, in fact, even more from each other, than E. African ones differ from the West African form. According to Mr. Grant's measurements males from W. Africa have the wings 212–231,

East African males 224–238, Abyssinian ones 228–245 mm. Thus Abyssinian ones would be just as separable from E. African ones as the latter from W. African examples—moreover, we doubt if the 212 mm. bird is really a male. According to the senior author's measurements, the Tring Museum specimens have the following wing-measurements :

West African, including specimens collected by Rudolf Grauer between Kagera and Kivu and at Bukoba, which belongs to the western fauna :

♂ ♀ (on account of some doubtful or unsexed specimens the sexes have not been separated), 230, 231, 231, 231, 232, 236, 236, 236, 237, 240 (Senegal).

East African (S. Abyssinia, Harar), collected by Oscar Neumann and Zaphiro :

♂ ♀, 224, 228, 230, 231, 231, 241, 243, 244, 247.

North Abyssinian, Eritrea, collected by Gustav Schrader :

♂, 249, 249, 250, 255.

♀ 233 (? damaged, measure probable only), 236, 239, 242 mm.

We have thus everywhere much larger measurements than Mr. Claude Grant, who probably measured in the old uncertain way, without stretching the wing on the rule, and the difference between the West and East African ones is doubtful, while the Eritrean form is strikingly larger :

W. Africa : 230–240.

E. Africa : (224 once), 230–247.

Eritrea : (233 ?), 236–255 mm.

Moreover, Eritrean birds are, as a rule, a little lighter on the underside, but more so on the mantle and inner secondaries, also the outer grey upper wing-coverts are a little lighter, and they are in the majority of specimens unspotted, while they are spotted with white in nearly all specimens from West and East Africa.

There is no difference in the colour between the West and East African birds.

The birds from the White Nile must belong to the typical West African *guinea* and cannot possibly be *longipennis*. Not only does the West African Sudanese fauna in many cases reach across to the Upper Nile districts, but Grant quotes a "male" (?) from the "Sudan" (by which is meant the Eastern Sudan, south of Khartum) with a wing of only 219, which is below any of his *longipennis*, and we have a ♀ from the Upper White Nile with a wing of 226.5 mm., which is a very small measurement.

We must therefore recognize :

C. guinea guinea L.—West Africa to Upper Nile.

C. guinea longipennis Rchw.—East Africa to Southern Abyssinia. (Doubtfully separable.)

C. guinea dilloni (Bp.).—Northern Abyssinia (Eritrea).

C. guinea uhehensis Rchw.—Uhehe. (Unknown to us.)

C. guinea phaeonota Gray.—South Africa.

There is no doubt as to the validity of Bonaparte's name *dilloni* (*Compt. Rend. Acad. Sc.*, Paris, xxxix. p. 1105. 1854, Abyssinia). The author, though saying that he does not think he is justified in considering as belonging to another species the birds collected by M. Dillon in Abyssinia, **although they were larger and finer than** *C. guinea*, proposes for them the name "*Stictoenas dilloni* ? Bp.," and repeats this afterwards in his lists.

C. uhehensis Rchw. cannot, from the description, be *phaeonota* (and probably Erlanger did not mean to say so, though he emphatically did !), nor can we understand Mr. C. Grant saying that it is a synonym of *C. g. longipennis*, when he had not seen specimens. Though the description does not sound very convincing, nobody is justified in neglecting this form without having compared Uhehe specimens.

***Geopelia maugeus* (Temm.).**

We have to regard *Timor* as the typical locality of Temminck's "*Columba Maugeus*," a name which we cannot alter into "*maugei*," as has been done by many ornithologists. From *Timor* typical *maugeus* extends east and west, to Alor, Kisser, Wetter, Savu, Flores, Sumbawa and Sumba, and on the other side to Roma, Letti, Moa, Luang, Sermatta, and Babber, and H. Kühn also obtained a fine adult male on Tomia Island in the Tukang Besi group, S.E. of Celebes.

The species also occurs still further east, on the Tenimber Islands, in the Key group, and the little islands to the north, where Kühn collected specimens on Taam, Manggur, and Kilsuin in the Koor group. These latter, however, from Tenimber, Key, Taam and Kilsuin are slightly different, the black bars on the hind-neck and nape being wider, so that the barring there appears heavier; the same is generally noticeable on the foreneck and breast, but not constant. This form, in any case, is well separable, and we propose to name it:

***Geopelia maugeus audacis*, subsp. nov.**

Type: ♂ Larat, Tenimber, 17.i.1901. H. Kühn coll., No. 3020 (Tring Museum). There are 14 others from Tenimber, Little Key, Taam and Kilsuin, all collected by H. Kühn, which we compared with 60 of the typical form.



1918. "Notes on Pigeons." *Novitates zoologicae : a journal of zoology in connection with the Tring Museum* 25, 346–358.

<https://doi.org/10.5962/bhl.part.29771>.

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