11. List of the certainly known Species of *Anatidæ*, with Notes on such as have been Introduced into the Zoological Gardens of Europe, and Remarks on their Distribution.

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[Received June 14, 1880.]

Contents.

A. Introductory Remarks.

There is certainly no group in the class of birds that offers such excellent subjects for "acclimatization," as it is often called (that is, for introduction into foreign countries and reproduction in captivity), as the Anatidæ. There can be no doubt that nearly all of the Geese, Swans, and River-Ducks may be easily tamed and bred in a semidomestic state if proper means are employed; and even of the Sea-Ducks and Mergansers, naturally much more wild and less suited for life in small ponds, some do exceedingly well in captivity.

The Zoological Society of London have always paid great attention to "Water-fowl," as they are commonly called, and have been the first to import and breed in Europe many of the rarer exotic species. I believe also that our collection of these birds is by far the most extensive in existence. During the past twenty years, examples of about 86 species of Anatidæ have been exhibited in the Gardens, and at the present time we have in them about 270 individuals, belonging to 53 species. Being always anxious to increase our stock of these beautiful birds, I have thought that it might be well to draw up a list of the certainly known species of Anatidæ, and to add notes upon such as have been already introduced, and the date of their introduction when known. By specifying the principal *species desideratæ*, I hope also in this manner to induce some of our many excellent correspondents and friends in various parts of the world to supply our wants.

In former years, I should remark, before proceeding to my list, the Thirteenth Earl of Derby, President of this Society, was the great introducer of foreign Water-fowl in Europe. In his celebrated Menagerie at Knowsley special attention was devoted to this group of birds, and at the dispersal of that famous collection by auction,

in October 1851, examples of no less than 51 species[1] were disposed of, some of the most select of which were acquired by this Society.

The dispersal of this splendid series under the hammer of the auctioneer was an event which must always be regretted by ornithologists. Still more unfortunate is it that not one of the numerous owners of well-watered parks and grounds in this kingdom have taken up the subject and devoted themselves to the task of forming a living collection of these beautiful birds.

The following arrangement of the subfamilies of the Anatidæ (based upon their most obvious external character) is slightly modified from that employed in the 'List of Vertebrates':—

A. Digito postico simplice.
  a. Pedibus semipalmatis ..... 1. *Anseranatinæ*.
  b. Pedibus palmatis.
    a'. Collo modico.
      a''. Cera rostri ampla ..... 2. *Cereopsinæ*.
      b''. Cera rostri nulla ..... 3. *Anserinæ*.
    b'. Collo elongato ..... 4. *Cygninæ*.
B. Digito postico anguste lobato ..... 5. *Anatinæ*.
C. Digito postico late lobato.
  c'. Rostro depresso.
    Cauda rigidiuscula ..... 6. *Fuligulinæ*.
    Cauda spinosa ..... 7. *Erismaturinæ*.
  d'. Rostro compresso.
    Cauda elongata, rigida ..... 8. *Merganettinæ*.
    Cauda modica ..... 9. *Merginæ*.

B. Subfam. I. ANSERANATINÆ.

Genus Anseranas.

1. Anseranas melanoleuca (Lath.). Black-and-White Goose.

Anseranas melanoleuca, Gould, B. Austr. vii. t. 2.

Hab. Australia.

The Black-and-White, or Semipalmated Goose, of Australia was first received by the Society in 1855[2]. It has never bred with us, nor am I aware that it has done so in any of the continental gardens, although several of them possess specimens.

C. Subfam. II. CEREOPSINÆ.

Genus Cereopsis.

1. Cereopsis novæ-hollandiæ, Lath. Cereopsis Goose.

Cereopsis novæ-hollandiæ, Gould, B. Austr. vii. t. 1.

Hab. Australia.

In 1830 seven Cereopsis Geese were among the animals presented to the Society by King William (see Rep. Council, 1831, p. 14). The species bred frequently in the Gardens, in the early years of the Society (Rep. of Council, 1832, p. 13, and List of Animals,

[1] See Catalogue of the Menagerie and Aviary at Knowsley, formed by the late Earl of Derby, K.G., President of the Zoological Society of London. Liverpool, 1851.

[2] See Rep. of Council, 1856, p. 13.

1844, p. 7), but has not done so since 1860. Fresh introductions are much needed to keep this bird firmly established in Europe.

Dates of Hatching of Cereopsis Geese.

1835. April 15th.	1847. May 15th.
1837. „ 10th.	1850. April 9th.
„ May 22nd.	„ May 3rd.
1838. „ 5th.	1851. April 24th.
1841. „ 12th.	1852. March 30th.
1842. „ 4th.	1853. May 9th.
1843. „ 12th.	1855. „ 5th.
1844. April 9th.	1856. March 29th.
„ May 19th.	1857. April 29th.
1846. „ 31st.	1860. „ 21st.

D. Subfam. III. ANSERINÆ.

Genus Plectropterus.

1. Plectropterus gambensis (Linn.). Spur-winged Goose.

Spur-winged Goose, Lath. Syn. iii. pt. 2, p. 452, t. 102; Bennett, Gard. & Men. Zool. Soc. ii. p. 207 (1835).

Plectropterus gambensis, Scl. P. Z. S. 1859, p. 131, t. cliii.

Hab. Western and Southern Africa.

The Spur-winged Goose was one of the earliest inhabitants of the Society's Gardens, examples having been received in 1830. It has never actually hatched young ones in the Gardens, though eggs were laid in 1868[1]; nor am I aware that it has bred on the continent.

2. Plectropterus rueppelli, Scl. Rüppell's Spur-winged Goose.

Plectropterus rueppelli, Scl. P. Z. S. 1859, p. 131, t. cliii., 1860, p. 42, 1876, p. 696, 1877, p. 48.

Hab. Abyssinia.

This species was originally described from examples living in the Gardens. It has not bred with us.

3. Plectropterus niger, Scl. Black Spur-winged Goose.

Plectropterus niger, Scl. P. Z. S. 1877, p. 47, t. vii., et 1879, p. 5.

Hab. Zanzibar coast of Africa.

Also originally described from examples in the Gardens.

Genus Chenalopex.

4. Chenalopex ægyptiaca (Linn.). Egyptian Goose.

Chenalopex ægyptiaca, Gould, B. Eur. v. t. 353.

Hab. Africa.

An old introduction to these Gardens, occurring in the earliest catalogues (Rep. of Council, 1831, p. 22), and a constant breeder. Also common in other Gardens, and apparently firmly established.

[1] See P. Z. S. 1877, p. 48.

Dates of Hatching of Egyptian Geese.

1837. May 31st.	1846. April 3rd.
,, June 2nd.	1847. ,, 12th.
,, July 9th.	1848. March 4th.
1838. April 23rd.	1850. June 5th.
1839. May 24th.	1868. May 24th.
,, ,, 27th.	1869. June 6th.
,, June 30th.	1870. May 21st.
1840. March 13th.	1871. ,, 3rd.
,, May 2nd.	1872. June 21st.
1842. April 13th.	1873. ,, 14th.
1843. July 18th.	1874. July 16th.
1844. June 13th.	1879. June 4th.
1845. May 5th.	

5. CHENALOPEX JUBATA (Spix) [1]. Orinoco Goose.

Anser jubatus, Spix, Av. Bras. ii. t. 108.
Chenalopex jubata, Gray et Mitch. Gen. B. iii. t. clxiv.

Hab. Lower Amazonia.

Introduced, I believe, by Lord Derby at Knowsley, where it bred freely for many years (see 'Gleanings,' vol. ii. sub tab. xv.). It has not bred with us, at any rate of late years, although we have had specimens ever since 1830.

Genus ANSER.

6. ANSER CINEREUS, Meyer. Grey-Lag Goose.

Anser ferus, Gould, B. Gt. Brit. v. t. i.

Hab. Palæarctic Region.

The Grey-Lag Goose occurs in the earliest lists (Rep. Council, 1831, p. 22), and is recorded as having bred in the Gardens in 1842 (April 21st). In 1843, as mentioned in Yarrell's 'Birds' (iii. p. 34), the Grey-Lag crossed with the Domestic Goose in the Gardens. Some of the produce were exhibited by Mr. Bartlett at the "Prize-Poultry Show" held in the Gardens by the Society in June 1845, and obtained a prize. "Cross-bred Geese," probably of the same stock, were also hatched in several subsequent years, as will be seen by the subjoined table.

Dates of Hatching of Wild Geese.

1842. April 21st.	1845. May 5th. Half-bred.
1843. ,, 26th. Half-bred.	1846. April 24th. Cross-bred.
,, May 28th. ,,	1847. May 7th. ,, ,,
1844. ,, 7th. ,,	1851. April 27th. ,, ,,
,, ,, 9th. ,,	

[1] Gray (Hand-l. iii. p. 74) gives this species as the type of Brandt's generic term *Chenonetta*. But Brandt instituted that generic name in 1836 (Ic. An. Ross. i. p. 5), for *Anas jubata*, Lath., *i. e. Bernicla jubata* of Australia.

7. Anser brachyrhynchus, Baill. Pink-footed Goose.

Anser brachyrhynchus, Gould, B. Gt. Brit. v. t. iii.

Hab. Palæarctic Region.

Occasionally exhibited in the Gardens (1840[1] and 1861), but has never, so far as I am aware, bred in confinement, although eggs were laid in St. James's Park (see Yarrell, B. B. iii. p. 50).

8. Anser segetum, Linn. Bean-Goose.

Anser segetum, Gould, B. Gt. Br. v. t. ii.

Hab. Northern Europe and Asia.

In the earliest lists of animals; but I am not aware that it has ever bred in our Gardens, although Mr. Bartlett tells me it did so in St. James's Park in former years.

9. Anser middendorfi, Severtz. Middendorf's Goose.

Anser grandis, Midd. Sib. Reise, ii. pt. ii. p. 125, t. xx. fig. 1.

Anser middendorfi, Severtz. Turk. Jevotn. p. 149; Ibis, 1876, p. 416.

Hab. N.E. Asia.

This "large form of the Bean-Goose" we have not yet seen in Western Europe.

10. Anser albifrons (Scop.). White-fronted Goose.

Anser albifrons, Gould, B. Gt. Brit. v. t. iv.

Hab. Palæarctic Region.

The White-fronted Goose has been in the Collection since 1830, and bred in the Gardens in 1843 (June 11). In 1844 a hybrid between this species and *Bernicla leucopsis* was in the Gardens, presented by Lord Derby (List of An. 1844, p. 26).

11. Anser gambeli, Hartl. Gambel's Goose.

Anser gambelii, Baird, B. N. A. p. 761.

Hab. North America.

I am not aware that this form of the White-fronted Goose (if distinct from *A. albifrons*) has been introduced into Europe.

12. Anser erythropus, Linn. Little Goose.

Anser erythropus, Dresser, B. Eur. pts. 75, 76.

Hab. Palæarctic Region.

First obtained by the Society, I believe, from Holland in 1852 (Rep. of Council, 1853, *A. minutus*), but has never bred with us.

13. Anser indicus, Gm. Bar-headed Goose.

Anser indicus, Gould, Cent. B. t. 80.

Anser skorniakooi, Severtz. Turkest. Jevotn. t. x.; Ibis, 1876, p. 419.

Hab. Central Asia and Northern India.

Has been in the Collection since 1845, but has never bred with

[1] See Rep. of Council, 1841, p. 14.

us, though it has done so in the gardens of Antwerp and Berlin, and, I believe, of Liége.

14. Anser cygnoides, Linn. Chinese Goose.

Anser grandis, Gm. et Pall. (?).

Hab. China.

The domestic Swan-Goose, introduced from China, has been in the Gardens since 1831, and breeds readily *inter se*. It also hybridizes readily with the Domestic Goose and with *Bernicla canadensis*.

15. Anser hyperboreus, Pallas. Snow-Goose.

Anser hyperboreus, Gould, B. Eur. t. 346.

Hab. Northern Europe, Asia, and America.

I have never yet seen the Snow Goose alive, but there were formerly examples of it in the Knowsley Menagerie. It would be a fine addition to our Collection, and, I suppose, might easily be obtained in British Columbia. Nor have the allied forms of this species (*A. albatus* and *A. cærulescens*), so far as I know, been imported, at any rate of late years.

16. Anser albatus (Cass.). Cassin's Snow-Goose.

Chen albatus, Elliot, B. N. A. ii. t. xlii.

Hab. Arctic America.

17. Anser cærulescens (Linn.). Blue Snow-Goose.

Chen cærulescens, Elliot, B. N. A. ii. t. xliii.

Hab. Arctic America.

18. Anser rossi, Baird. Ross's Goose.

Exanthemops rossii, Elliot, B. N. Am. t. xliv.

Hab. Arctic America.

This Goose is also still unknown in captivity.

19. Anser canagicus (Sewartz.). Emperor Goose.

Chloëphaga canagica, Elliot, B. N. A. t. xlv.

Hab. N.E. Asia and N.W. America.

This fine Goose has not yet been introduced into Europe. It would be a great acquisition.

Genus Bernicla.

a. *Species Arcticæ.*

20. Bernicla leucopsis (Bechst.). Bernicle Goose.

Bernicla leucopsis, Gould, B. Gt. Brit. t. v.

Hab. Palæarctic Region.

This Bernicle occurs in the earliest lists (Rep. Council, 1833); and young ones were hatched in the Gardens in 1848 (May 23). It breeds freely in captivity.

21. Bernicla canadensis (Linn.). Canada Goose.

Bernicla canadensis, Wils. Am. Orn. vol. viii. pl. lxvii. fig. 4.

Hab. Nearctic Region.

The Canada Goose occurs in the earliest lists (Rep. Council, 1831). I do not find notices of its having bred in our Gardens; but it is common in many ornamental waters and parks, and breeds very freely in semicaptivity.

22. Bernicla hutchinsi, Rich. Hutchins's Goose.

Bernicla hutchinsi, Aud. B. Am. vi. pl. 377.

Hab. Arctic America.

We have once received (in 1860) an example of this smaller form of the Canada Goose.

23. Bernicla brenta (Pallas). Brent Goose.

Bernicla brenta, Gould, B. Gt. Brit. t. vii.

Hab. Palæarctic Region.

The Brent Goose occurs in the earliest list (Rep. Council, 1831), and is always represented in our series. I am not aware that it has bred in captivity.

24. Bernicla nigricans, Lawr. Black Brent Goose.

Bernicla nigricans, Cass. Ill. B. Cal. t. x.

Hab. North America.

I have never seen this Goose in captivity. It would be a fine acquisition to our ponds.

25. Bernicla ruficollis (Pall.). Red-breasted Goose.

Bernicla ruficollis, Gould, B. Gt. Brit. t. vi.

Hab. Palæarctic Region.

A female of this fine species, received in exchange in 1853, lived many years in the Gardens, and paired with a male Brent, but did not actually breed.

b. *Species Æthiopicæ.*

26. Bernicla cyanoptera, Rüpp. Blue-winged Goose.

Bernicla cyanoptera, Rüpp. Syst. Ueb. t. 47.

Hab. Southern Abyssinia.

This fine Goose has not yet been introduced, but M. Cornély tells me he is hoping to receive specimens from Upper Nubia before long.

c. *Species Neotropicæ.*

27. Bernicla magellanica (Gm.). Upland Goose.

Oye des terres Magellaniques, Daub. Pl. Enl. 1006 (♀).

Chloëphaga magellanica, Scl. P. Z. S. 1857, p. 128, et Zool. Sketch. ii. t. 48.

Hab. Falkland Islands.

The first pair of "Upland Geese" were acquired from Governor

Moore, of the Falkland Islands, in 1857; and a second pair was received in 1861. The first young birds were hatched in 1863; and the species has since bred with us with tolerable regularity, as will be seen by the following list.

Dates of Hatching of Upland Geese.

1863. May 4th.	1872. April 22nd.
1865. April 30th.	1874. „ 26th.
1868. May 25th.	„ May 5th.
1869. „ 21st.	„ „ 17th.
1870. „ 8th.	1875. April 29th.
1871. April 23rd.	1878. June 15th.

28. Bernicla dispar (Phil. et Landb.). Chilian Goose.

B. magellanica, Cassin, Gilliss's Exp. ii. t. 24.

B. dispar, Phil. et Landb. Wiegm. Arch. 1863, i. p. 190; Scl. et Salv. P. Z. S. 1866, p. 364.

Hab. Chili.

We first received examples of this form of the Magellanic Goose in 1871. The female having died, the male was lent to a correspondent, who placed it along with a female *B. magellanica*. In 1875 this pair bred and produced hybrid birds, of which a pair were received in exchange by the Society (see P. Z. S. 1876, p. 365, where they are figured).

We have since received several pairs of the pure bird from South America.

29. Bernicla poliocephala, Sclater. Ashy-headed Goose.

Chloëphaga poliocephala, Scl. P. Z. S. 1860, p. 388, et Zool. Sk. i. t. 49; Scl. et Salv. P. Z. S. 1876, p. 366.

Bernicla inornata, Gray & Mitch. Gen. B. iii. t. 163.

Hab. Antarctic America.

The first examples of this Goose were received in 1833. It bred frequently in the Gardens from 1852 to 1869, when we unfortunately lost most of our stock. We have quite lately succeeded in obtaining some newly imported birds, and hope now to begin breeding them again.

Dates of Hatching of Ashy-headed Geese.

1852. June 9th.	1860. May 27th.
1854. May 24th.	1865. „ 25th.
1857. „ 23rd.	1867. „ 23rd.
1858. June 7th.	1868. „ 25th.
1859. May 21st.	1869. June 1st.
„ June 2nd.	

30. Bernicla rubidiceps, Sclater. Ruddy-headed Goose.

Chloëphaga rubidiceps, Scl. P. Z. S. 1860, t. clxxiii.

Bernicla rubidiceps, Scl. et Salv. P. Z. S. 1876, p. 367.

Hab. Falkland Islands.

Two pairs of this Goose were obtained from the Falklands in 1860,

but they did not breed until 1865. We have unfortunately now lost our whole stock of this bird.

Dates of Hatching of Ruddy-headed Geese.

1865. April 30th.	1868. May 1st.
1866. May 8th.	,, ,, 25th.
,, June 5th.	1869. June 6th.
1867. May 18th.	1870. May 11th.
,, June 4th.	

31. Bernicla melanoptera (Eyt.). Andean Goose.

Anser melanopterus, Gould, Zool. Beagle, iii. t. 50; Scl. et Salv. P. Z. S. 1876, p. 362.

Hab. Antarctic America.

We have received several pairs of this Goose, but have never succeeded in getting it to breed.

32. Bernicla antarctica (Gm.). Kelp Goose.

Bernicla antarctica, Cassin, Gilliss's Exp. ii. t. 23.

Hab. Antarctic America.

A single example of this Goose was imported in 1868.

d. *Species reg. Australianæ.*

33. Bernicla jubata (Lath.). Maned Goose.

B. jubata, Gould, B. Austr. vii. t. 3; Sclater, P. Z. S. 1864, p. 587.

Hab. Australia.

We have had examples of both sexes of this Goose in the Gardens since 1864, but it has never bred with us; nor am I aware that it has done so in other gardens on the Continent.

34. Bernicla sandvicensis (Vig.). Sandwich-Island Goose.

B. sandvicensis, Jard. et Selb. Ill. Orn. iv. t. 8.

Hab. Sandwich Islands.

This species was originally based by Mr. Vigors on a pair of birds living in the Society's Gardens, to which they were presented by Lady Glengall in 1832 (see P. Z. S. 1833, p. 63, and Rep. of Council, 1833, p. 13). In 1834 a pair was also received by Lord Derby at Knowsley (see P. Z. S. 1834, p. 41). They bred in both places; and in subsequent years our pair and their descendants bred frequently in the Society's Gardens.

Dates of Hatching of Sandwich-Island Geese.

1835. May 7th.	1839. May 8th.
1837. April 6th.	,, ,, 10th.
,, ,, 12th.	,, ,, 30th.
1839. ,, 11th.	1840. April 21st.
,, ,, 16th.	,, ,, 23rd.

1841. April 8th.
„ „ 16th.
„ „ 27th.
„ May 3rd.
„ „ 9th.
1842. April 3rd.
„ „ 30th.
„ May 9th.
1843. „ 11th.
1844. April 19th.
1845. „ 26th.
1846. March 27th.
„ April 8th.
1847. „ 17th.
1849. March 20th.
1850. „ 31st.
„ April 20th.
„ May 5th.
1851. April 3rd.
1853. March 21st.
„ April 24th.
„ May 9th.
1854. „ 15th.
1856. April 3rd.
1857. „ 17th.
1859. „ 18th.
1864. „ 5th.
1871. May 23rd.

Genus Nettopus.

No example of any species of this beautiful genus has, so far as I know, been yet brought alive to Europe.

35. Nettopus auritus (Bodd.). Eared Pigmy Goose.

Sarcelle mâle de Madagascar, Daub. Pl. Enl. 770.
Nettapus auritus, Hartl. Vög. Madagasc. p. 357.
Hab. Tropical Africa and Madagascar.

36. Nettopus coromandelianus (Gm.). Indian Pigmy Goose.

Anas girra, Gray, Ind. Zool. i. t. 68.
Hab. India and Malacca.

37. Nettopus albipennis, Gould. White-winged Pigmy Goose.

Nettapus coromandelianus, Gould, B. Austr. vii. t. 5.
Hab. Eastern Australia.

38. Nettopus pulchellus, Gould. Beautiful Pigmy Goose.

Nettapus pulchellus, Gould, B. Austr. vii. t.
Hab. Northern Australia.

E. Subfam. IV. CYGNINÆ.

Genus Cygnus.

1. Cygnus olor (Gm.). Common Swan.

Cygnus olor, Gould, B. G. Brit. v. t. 8.
Hab. Palæarctic Region.
This Swan is better known in a semidomestic than in a wild state, and breeds abundantly in captivity.

2. Cygnus immutabilis, Yarr. Polish Swan.

Cygnus immutabilis, Yarr. Brit. B. iii. p. 131.

Hab. Northern Europe.

In one of our registers it is said that an example of this species was in the Gardens in 1830, but it is not included in the general list of 1831.

Mr. Yarrell speaks of a pair of this species (or subspecies of *C. olor*) as living at Knowsley, where the male paired with a female Mute Swan and produced hybrids, and two were sold at the Knowsley sale in 1851.

In 1871 we obtained a living pair of this Swan, which were subsequently deposited with Mr. J. H. Gurney, F.Z.S., for the purpose of breeding. See Mr. Gurney's note on this subject, P. Z. S. 1876, p. 466.

Mr. Gurney has kindly furnished me with the subjoined additional particulars :—

"I fear I cannot give you much information respecting the breeding of the Polish Swans or the colour of their cygnets beyond what is contained in my note in the P. Z. S. for 1877, p. 579.

"They have reared a brood during each subsequent year; but as I have been from home more or less every spring I have kept no detailed notes about them since 1877. The number they have hatched annually has varied from 4 to 6, so that they are not a very prolific pair as compared with some common Swans. This year they hatched four, of which one was killed by rats. All the cygnets have resembled in colour those described in my former note."

3. Cygnus musicus, Bechst. Hooper Swan.

Cygnus ferus, Gould, B. G. Brit. v. t. 9.

Hab. Palæarctic Region.

The Hooper bred in the Society's Gardens in 1839 (June 16), 1841 (May 27), and in 1842 (May 20), but has not done so of late years. It cannot be considered by any means a free breeder in confinement.

4. Cygnus americanus, Sharpless. American Swan.

Cygnus americanus, Baird, B. N. A. p. 758.

Hab. North America.

I have never heard of this Swan having been brought alive to Europe, nor am I aware that it has been exhibited in any of the American gardens.

5. Cygnus buccinator, Rich. Trumpeter Swan.

Cygnus buccinator, Baird, B. N. A. p. 578.

Hab. Western North America.

Our first examples of this Swan were received in 1866 (see P. Z. S. 1866, p. 203). The first pair bred in 1870 (June 6th) (see P. Z. S. 1870, p. 664). Young ones were also bred every subsequent year up to 1876, but our stock is now unfortunately reduced to a single bird.

Dates of Hatching of Trumpeter Swans.

1870. July 6th.	1874. May 30th.
1871. June 3rd.	1875. June 28th.
1872. „ 6th.	1876. „ 11th.
1873. „ 8th.	

6. Cygnus bewicki, Yarrell. Bewick's Swan.

Cygnus minor, Gould, B. G. Brit. v. t. 10.

Hab. North Palæarctic Region.

Bewick's Swan (represented in our series in 1878 and now by a single bird) has never bred in captivity, so far as I know. Two were sold at the Knowsley sale in 1851.

7. Cygnus davidi, Swinh. Père David's Swan.

Cygnus davidi, Swinh. P. Z. S. 1870, p. 430 ; David et Oust. Ois. Chine, p. 494.

Hab. Northern China.

Only yet known by a single specimen at Pekin !

8. Cygnus atratus (Lath.). Black Swan.

Cygnus atratus, Gould, B. Austr. vii. t. 6.

Hab. Australia.

The Black Swan is in the first list of living animals given in the Council's Report for 1831 (p. 15). I find records of its having hatched at the following dates, which are of interest, as showing that there is much variation in this respect in an Antarctic species.

Dates of Hatching of Black Swans.

1837. May 16th.	1848. April 10th.
„ August 4th.	1849. „ 1st.
„ . „ 8th.	„ October 4th.
1838. September 12th.	1850. March 21st.
1839. August 11th.	„ April 14th.
1840. April 10th.	1851. March 2nd.
1841. „ 21st.	1852. „ 26th.
1842. „ 21st.	1860. „ 29th.
1843. March 20th.	1864. November 11th.
1844. April 16th.	1877. March 31st.
1846. March 31st.	1878. „ 11th.
1847. October 24th.	

The male Black Swan has also mated with the female Common Swan and produced party-coloured hybrids. See Lord Derby's note on this subject, P. Z. S. 1847, p. 97.

9. Cygnus coscoroba (Mol.). Coscoroba Swan.

Cygnus coscoroba, Gr. et Mitch. Gen. B. iii. t. 166 ; Scl. et Salv. P. Z. S. 1876, p. 371.

Hab. Antarctic America.

This beautiful Swan was first obtained by us in 1870 (see

P. Z. S. 1870, p. 666). There are examples in several of the Continental gardens also, but I am not aware that they have bred in any case.

10. Cygnus nigricollis (Gm.). Black-necked Swan.

Cygnus nigricollis, Wolf, Scl. Zool. Sk. i. t. 48; Scl. et Salv. P. Z. S. 1876, p. 370.

Hab. Antarctic America.

"The first importation of the Black-necked Swan was effected by the exertions of Admiral Hornby. When this officer was in command on the Pacific station he succeeded in sending home at different periods, to the late Earl of Derby, eight individuals of this species, of which six were living at the dispersion of the Knowsley collection in 1851[1]. The present Earl of Derby presented a pair of these birds to Her Majesty the Queen, and the two remaining pairs passed into the possession of the Zoological Society. They, however, for several seasons made no attempt at reproduction, and one of them having died, the apparent chance of continuing the species depended on one pair. Fortunately, in the year 1857, these not only made a nest, as had been done in 1856, but hatched out four young birds, which rapidly arrived at full size and colour, and at the end of the autumn could scarcely be distinguished from their parents. The same success occurred in 1858, with the fortunate and singular result that the four birds of 1857 were all males, and the birds of 1858 females." (Sclater and Wolf, Zool. Sketches, i. sub tab. xlviii.)

Since this was written (in 1861) numerous importations of the Black-necked Swan have taken place, and the species may be considered completely established in Europe. We have eight examples of it now in the Gardens.

The subjoined list gives the dates of the hatchings.

Dates of Hatching of Black-necked Swans.

1857. June 23rd.	1868. June 22nd.
1858. July 3rd.	1873. July 3rd.
1859. June 27th.	1877. „ 10th.
1865. May 19th.	1878. „ 20th.
1866. „ 4th.	1879. May 23rd.
1867. „ 9th.	

F. Subfam. V. ANATINÆ.

Genus Dendrocycna[2].

Examples of the eight out of the ten known species of this genus have been exhibited in the Society's Gardens; but the only instance of any one of them breeding took place in 1872, when a pair of *Dendrocycna fulva* mated and two young ones were hatched.

[1] See Knowsley Sale-list, p. 44.

[2] This generic name being a compound of κύκνος, should clearly be written thus, not *Dendrocygna*, as usually spelt.

On the species of this genus my previous notes (P. Z. S. 1864, p. 299, et 1866, p. 148) should be consulted.

1. Dendrocycna viduata (Linn.). White-faced Tree-Duck.

Dendrocygna viduata, Scl. et Salv. P. Z. S. 1876, p. 376.

Hab. South America, Africa, and Madagascar.

The White-faced Tree-Duck was first received from Brazil in 1835, and again in 1862, when Mr. Christie sent us examples. We have since obtained many specimens.

2. Dendrocycna autumnalis (Linn.). Red-billed Tree-Duck.

Dendrocygna autumnalis, Scl. et Salv. P. Z. S. 1876, p. 373.

Hab. Mexico and Central America.

This Tree-Duck is enumerated in the first list of animals given in the Council's Report for 1831 (p. 22). We have since received many specimens of it.

3. Dendrocycna discolor, Scl. et Salv. Southern Red-billed Tree-Duck.

Dendrocygna discolor, Scl. et Salv. P. Z. S. 1876, p. 375.

Hab. South America.

Received from Para in 1874 (see P. Z. S. 1864, p. 299), and since frequently exhibited.

4. Dendrocycna arborea (Linn.). Black-billed Tree-Duck.

Dendrocygna arborea, Scl. et Salv. P. Z. S. 1876, p. 375.

Hab. West Indies.

Recorded in the list of animals of 1831, and frequently received since.

5. Dendrocycna guttulata, Müll. Müller's Tree-Duck.

Dendrocygna guttulata, Scl. P. Z. S. 1864, p. 300.

Hab. Moluccas.

Not yet imported, so far as I know.

6. Dendrocycna fulva (Gm.). Fulvous Tree-Duck.

Dendrocygna fulva, Scl. et Salv. P. Z. S. 1876, p. 373.

Hab. Mexico and Brazil.

Our first examples of this Tree-Duck were obtained in 1867 (see P. Z. S. 1867, p. 687). Two others were obtained in 1871. In 1872, as above mentioned, the only instance of ducks of this genus breeding took place. Mr. C. Bartlett has furnished me with the following note on this subject:—

"The Fulvous Tree-Ducks bred in the Gardens in the north pond in August 1872, while under my charge. The nest was upon the ground and was domed, the dome being formed of the long grass surrounding the nest. This is the only instance I know of any of the water-fowl building a dome over its nest. Many of the common

water-fowl build in the long grass, but do not attempt to form a dome.

"Two birds were hatched, but unfortunately killed by rats."

7. Dendrocycna major, Jerd. Larger Tree-Duck.

Dendrocygna major, Jerd. Ill. Ind. Orn. t. 22; Hartl. Vög. Mad. p. 359; Scl. P. Z. S. 1864, p. 300, et 1861, p. 148.

Hab. India, East Africa, and Madagascar.

It is quite doubtful whether this species in distinct from *D. fulva*. We obtained two examples in 1867 (Sept. 18) from the Acclimatization Society of Paris, stated to have been received from Madagascar.

8. Dendrocycna arcuata (Cuv.). Indian Tree-Duck.

Dendrocygna arcuata, Scl. P. Z. S. 1864, p. 300.

Hab. India and Africa.

A single example of this Tree-Duck was purchased at the Knowsley sale in 1851. In 1857 we again received examples from the Babu Rajendra Mullick, along with other rare Indian animals.

9. Dendrocycna vagans, Fraser. Wandering Tree-Duck.

Dendrocygna arcuata, Gould, B. Austr. vii. t. 14.

Dendrocygna vagans, Fraser, Zool. Typ. t. 68; Scl. P. Z. S. 1864, p. 300, et 1866, p. 149.

Hab. Philippines, Moluccas, and North Australia.

Not yet introduced, so far as I know.

10. Dendrocycna eytoni (Gould). Eyton's Tree-Duck.

Leptotarsis eytoni, Gould, B. Austr. vii. t. 15.

Hab. North-west Australia.

Our excellent friend Dr. G. Bennett, of Sydney, sent us a pair of this species in 1867, the only individuals we have yet received (see P. Z. S. 1867, p. 686); but it was formerly in the Knowsley Menagerie (see Sale-list, p. 45).

Genus Sarcidiornis.

11. Sarcidiornis melanonota (Forst.). Indian Wattle-Duck.

Sarcidiornis melanonota, Scl. P. Z. S. 1876, p. 694, t. 67.

Hab. India.

I find no record of this species having been introduced until 1837, when a pair were acquired by purchase from the Jardin d'Acclimatation of Paris.

Notes on the distinctions between this and *S. carunculata* will be found in my paper above referred to.

No *Sarcidiornis* has yet bred with us.

12. Sarcidiornis africana, Eyton. African Wattle-Duck.

Sarcidiornis africana, Hartl. Vög. Madagasc. p. 355.

Hab. Africa and Madagascar.

An example of this form of *Sarcidiornis* was purchased at the

Knowsley sale in 1851. According to Hartlaub it merely differs from *S. melanonota* in its smaller size.

13. SARCIDIORNIS CARUNCULATA (Licht.). American Wattle-Duck.

Sarcidiornis carunculata, Scl. P. Z. S. 1876, p. 694, t. 68.

Hab. South America.

See my notes (above referred to) on this species, which was first received in 1876.

Genus CAIRINA.

14. CAIRINA MOSCHATA (Linn.). Muscovy Duck.

Cairina moschata, Scl. et Salv. P. Z. S. 1876, p. 378.

Hab. Central and South America.

The domestic "Muscovy Duck," as it is called, has long been introduced into Europe, and breeds readily (*inter se*), besides hybridizing freely with the common Domestic Duck.

In 1851 I find a record of "Wild Muscovy Ducks" having been received from America, and noticed as new to the Collection. We have recently (May 6, 1880) received three examples from Paraguay, which I believe to be probably of the wild race.

Genus TADORNA[1].

15. TADORNA CORNUTA (Gm.). Common Sheldrake.

Tadorna vulpanser, Gould, B. G. Brit. v. t. 11; Scl. P. Z. S. 1864, p. 189.

Hab. Europe and North Asia.

The Sheldrake is in the earliest list, and in former years bred frequently in the Gardens. It is not, however, a ready breeder in captivity, and requires special treatment.

Dates of Hatching of Common Sheldrake.

1835. June 6th.	1845. June 9th.
1842. „ 9th.	1846. May 7th.
1843. May 30th.	1848. „ 27th.
1844. „ 16th.	

16. TADORNA RADJAH, Garn. Radjah Sheldrake.

Tadorna radjah, Gould, B. Austr. vii. t. 8; Scl. P. Z. S. 1864, p. 190.

Hab. North Australia and Moluccas.

This beautiful Sheldrake would form a fine addition to our introduced Water-fowl. It would, I should say, be easily obtainable in Queensland.

17. TADORNA RUTILA (Pall.). Ruddy Sheldrake.

Casarca rutila, Gould, B. G. Brit. v. t. 12; Scl. P. Z. S. 1864, p. 190.

Hab. Sonth Europe, West Asia, and North Africa.

[1] *Cf.* articles, P. Z. S. 1864, . 189, and 1866, p. 148, on this genus.

The Ruddy Sheldrake appears to have been first received in these Gardens in 1850, when a pair were obtained from Egypt.

This pair first bred in 1859, as will be seen by reference to my notes above referred to. I add a list of the dates of hatching.

Dates of Hatching of Ruddy Sheldrake.

1859. May 13th.	1870. May 19th.
1860. „ 18th.	1871. „ 17th.
1861. June 2nd.	1872. „ 19th.
1867. May 18th.	1873. „ 25th.
1868. „ 20th.	1874. „ 31st.
1869. „ 19th.	

18. Tadorna cana (Gm.). White-fronted Sheldrake.

Tadorna cana, Scl. P. Z. S. 1864, p. 190.

Hab. South Africa.

The only individual of this species yet received by the Society was the female acquired at the sale of the Knowsley Menagerie in 1851. The facts as to the breeding of this remarkable bird will be found in former communications (P. Z. S. 1859, p. 442, et 1864, p. 191).

19. Tadorna tadornoides, Jard. & Selb. Australian Sheldrake.

Casarca tadornoides, Gould, B. Austr. vii. t. 7.

Tadorna tadornoides, Scl. P. Z. S. 1864, p. 191, t. xviii.

Hab. South Australia.

We received females of this species in 1862, and examples of both sexes in 1863. We have now also pairs, but have not yet succeeded in getting them to breed in this country.

20. Tadorna variegata (Gm.). Variegated Sheldrake.

Tadorna variegata, Scl. P. Z. S. 1864, p. 191, t. xix., et 1866, p. 149.

Hab. New Zealand.

This beautiful species is one of our most successful introductions. First received in 1863, and first bred in 1865, it is now to be found in most of the larger zoological gardens of the Continent.

Dates of Hatching of the Variegated Sheldrake.

1865. May 17th.	1873. May 19th.
1866. „ 8th.	1874. „ 27th.
1867. „ 5th.	1875. „ 29th.
1869. „ 12th.	1876. „ 11th.
1870. July 12th.	1877. „ 16th.
„ „ 30th.	1878. June 3rd.
1872. May 29th.	„ May 17th.

21. Tadorna scutulata, Müll. White-winged Sheldrake.

Anas scutulata, Müll. Verh. Ethn. p. 159; Scl. et Wolf, Zool. Sk. ii. t. 49.

Casarca leucoptera, Strickl. Contr. Orn. 1859, p. 114, t. 64.

Hab. Java.

Two living examples of this rare Duck were received by the Society from Mr. Blyth in 1851. Mr. Blyth supposed that these birds were from Tenasserim ; but it would appear that the species is not of ordinary occurrence in that country (*cf.* Hume & Davison, Str. Feath. vi. p. 489). Müller obtained several examples in Java (Schl. Mus. d. P.-B. *Anseres*, p. 64).

Genus Stictonetta[1].

22. Stictonetta nævosa (Gould). Freckled Duck.

Anas nævosa, Gould, B. Austr. vii. t. 10.

Hab. Australia.

Not yet received alive.

Genus Aix.

23. Aix sponsa (Linn.). Summer Duck.

Aix sponsa, Baird, B. N. Am. p. 785.

Hab. North America.

The Summer Duck occurs in the earliest list, and breeds with us nearly every year, as will be seen by the following list :—

Dates of Hatching of Summer Ducks.

1831. June 4th.
„ „ 17th.
1834. May 12th.
„ June 3rd.
„ „ 17th.
1835. „ 6th.
„ „ 13th.
„ „ 18th.
1837. „ 5th.
1839. „ 5th.
„ „ 7th.
1844. May 18th.
1846. June 27th.
„ July 16th.
1848. May 29th.
1852. June 19th.
1853. May 29th.
1854. June 11th.
„ „ 15th.
1855. May 29th.
„ July 1st.
1857. May 31st.
„ June 21st.
1858. May 31st.
„ June 19th.
1859. May 24th.
1860. July 5th.
1865. May 23rd.
„ June 9th.
1866. „ 18th.
1867. „ 8th.
1869. „ 18th.
1870. May 26th.
1871. June 1st.
1873. May 31st.
1874. June 2nd.
1875. „ 16th.
1876. July 1st.
„ „ 10th.
1877. June 5th.
„ „ 21st.
1878. „ 28th.

24. Aix galericulata (Linn.). Mandarin Duck.

Aix galericulata, Gould, B. Asia, pt. 4 (1852).

Hab. China.

The Mandarin was also an inhabitant of the Gardens in 1830,

[1] *Stictonetta*, Reichenb. Syst. Av. p. ix. (1852).

and first bred with us in 1834. It is perhaps not quite so free a breeder as the Carolina, but does very well if attention be paid to it.

Dates of Hatching of Mandarin Ducks.

1834. June 23rd.	1858. May 31st.
„ „ 26th.	1859. June 2nd.
1837. July 3rd.	1862. ——?
1840. „ 14th.	1863. June 1st.
1851. June 18th.	1865. „ 14th.
„ „ 20th.	1866. July 7th.
„ July 6th.	1868. June 18th.
1852. June 30th.	1869. July 9th.
1853. „ 21st.	1870. June 29th.
„ July 3rd.	1871. „ 27th.
1854. June 26th.	1872. July 19th.
1856. July 12th.	1874. June 13th.
1857. June 17th.	„ July 16th.

Genus Mareca.

25. Mareca penelope (Linn.). Wigeon.

Mareca penelope, Gould, B. G. Brit. v. t. 13.

Hab. Palæarctic Region.

The Wigeon is in the first list (1831), and has always been represented in the Gardens, but has not bred with us very frequently.

Dates of Hatching of the Wigeon.

1870. June 24th.	1874. June 20th.
1872. „ 29th.	

26. Mareca americana (Gm.). American Wigeon.

Mareca americana, Baird, B. N. Am. p. 783; Scl. et Salv. P. Z. S. 1876, p. 394.

Hab. North America.

The American form of the Wigeon has not yet been imported into Europe, so far as I know.

27. Mareca sibilatrix (Poeppig). Chiloe Wigeon.

Mareca sibilatrix, Scl. et Salv. P. Z. S. 1876, p. 395.

Mereca chiloensis, Eyton, Mon. Anat. pl. 31; Scl. List of An. p. 371 (1879).

Hab. Antarctic America.

First imported from Chili in 1870 (see P. Z. S. 1870, p. 667), and commenced breeding the following year. We have now supplied most of the Continental gardens with examples of this highly ornamental species.

Dates of Hatching of Chiloe Wigeon.

1871. June 7th.	1875. June 2nd.
1872. May 22nd.	„ July 10th.
1873. „ 29th.	1876. June 7th.
1874. „ 28th.	1878. „ 22nd.
„ July 3rd.	1879. „ 15th.

Genus Dafila.

28. Dafila acuta (Linn.). Common Pintail.

Dafila acuta, Gould, B. G. Brit. v. t. 18.

Hab. Palæarctic and Antarctic Regions.

The Pintail does well in captivity. Its name occurs in the earliest lists, and it breeds freely in our ponds.

In the early years of the Society I find numerous records of its having hybridized with *Anas boschas*. The pure bird is registered as having bred as follows:—

Dates of Hatching of the Common Pintail.

1839. May 9th.	1850. June 11th.
1842. „ 5th.	„ „ 15th.
1845. June 16th.	1851. June 5th.
1846. May 26th.	1852. „ 23rd.
„ June 4th.	1853. May 13th.
1847. „ 9th.	1857. June 15th.
1848. May 22nd.	1860. May 16th.
1850. „ 29th.	1861. „ 15th.

29. Dafila erythrorhyncha (Gm.). Red-billed Duck.

Anas erythrorhyncha, Smith, Ill. S. Afr. Zool., Aves, t. 104.

Hab. South Africa and Madagascar.

The Red-billed Duck was first imported by Lord Derby. Five examples sold at the Knowsley sale in 1851 were acquired by the Society. It bred first in 1856, and continued to do so until 1860. But I regret to say we have now lost this species, which requires re-introduction.

Dates of Hatching of Red-billed Ducks.

1856. August 5th.	1859. July 5th.
1857. June 28th.	1860. „ 9th.

30. Dafila spinicauda (Vieill.). Chilian Pintail.

Dafila spinicauda, Scl. P. Z. S. 1870, p. 666, t. xxxviii.; Scl. et Salv. P. Z. S. 1876, p. 392.

Hab. Antarctic America.

The Chilian Pintail was introduced by Lord Derby, and a single example sold at the Knowsley sale in 1851 was purchased by the Society. It was not obtained again, I believe, until 1870, when

eight examples were procured from Mr. Weisshaupt. These began to breed in 1872. It has thriven well ever since, and we have supplied many of our continental friends with examples of it.

Dates of Hatching of Chilian Pintail.

1872. June 11th.	1876. March 10th.
,, ,, 22nd.	,, July 24th.
1873. April 28th.	1877. May 1st.
,, May 9th.	,, June 15th.
,, ,, 31st.	,, ,, 21st.
,, June 16th.	,, ,, 26th.
1874. April 22nd.	1878. May 10th.
,, May 9th.	,, ,, 23rd.
,, ,, 14th.	1879. June 23rd.
1875. April 26th.	,, August 7th.
,, May 11th.	

31. Dafila bahamensis (Linn.). Bahama Duck.

Dafila bahamensis, Scl. & Salv. P. Z. S. 1876, p. 393.

Hab. South America.

The Bahama Duck was first obtained by the Society at the Knowsley sale in 1851, and began to breed in 1853. It seems now to be firmly established in Europe.

Dates of Hatching of Bahama Ducks.

1853. June 28th.	1865. June 15th.
1854. ,, 13th.	,, July 7th.
1855. July 7th.	1866. ,, 6th.
1856. June 25th.	1867. June 22nd.
,, July 19th.	,, July 19th.
1857. June 16th.	1868. June 25th.
,, ,, 30th.	,, ,, 30th.
1858. July 8th.	1869. ,, 26th.
1860. ,, 31st.	1870. July 6th.
1863. June 1st.	1878. August 31st.

Genus Anas.

32. Anas boschas, Linn. Common Wild Duck.

Anas boschas, Gould, B. G. Brit. v. t. 15.

Hab. Palæarctic Region.

The Common Wild Duck breeds readily in semi-domestication, and often pairs with the Domestic Duck.

Dates of Hatching of Wild Ducks.

1844. April 24th.	1845. May 15th.
1845. May 3rd.	1847. ,, 18th.

33. Anas melleri, Scl. Meller's Duck.

Anas melleri, Sclater, P. Z. S. 1864, p. 487, t. xxxiv.; Hartl. Vög. Madag. p. 360.

Hab. Madagascar.

Not yet introduced.

34. Anas wyvilliana, Scl. Wyville-Thomson's Duck.

Anas wyvilliana, Scl. P. Z. S. 1878, p. 350; Birds Chall. Exp. p. 98, t. xxii.

Hab. Sandwich Islands.

Not yet introduced.

35. Anas obscura, Gm. Dusky Duck.

Anas obscura, Baird, B. N. A. p. 775.

Hab. North America.

The Dusky Duck was introduced into our Gardens in 1850, and bred well until 1867. We have now lost the species; but hope soon to receive it again from some of the Continental gardens or from our American correspondents.

In 1858 and 1859 it hybridized with *A. boschas*.

Dates of Hatching of Dusky Ducks.

1851. May 7th.	1858. May 14th (hybrid).
1852. „ 29th.	1859. „ 20th „
„ June 19th.	1860. July 5th.
1853. May 12th.	1861. May 21st.
1854. „ 15th.	1865. „ 23rd.
1855. June 19th.	1866. „ 8th.
1857. May 18th.	1867. „ 10th.

36. Anas luzonica, Fraser. Luzon Duck.

Anas luzonica, Fraser, Zool. Typ. t. 67.

Hab. Philippines.

Not yet introduced into Europe.

37. Anas superciliosa, Gm. Australian Wild Duck.

Anas superciliosa, Gould, B. Austr. vii. t. 9.

Hab. Australia and Pacific Islands.

Our first Australian Wild Duck was received from the late Mr. Edward Wilson, of Melbourne, in 1860. In 1863, 1865, and 1866 we obtained additional specimens from Dr. Mueller and the Acclimatization Society of Melbourne. It first bred in 1869, and may now be considered well established in Europe.

Dates of Hatching of Australian Wild Ducks.

1869. June 29th.	1874. June 6th.
1873. „ 24th.	„ „ 20th.
„ „ 9th.	1875. „ 25th.
„ „ 14th.	1878. „ 22nd.
„ „ 19th.	

38. Anas xanthorhyncha, Forst. Yellow-billed Duck.

Anas flavirostris, Smith, Ill. S. Afr. Zool., Aves, t. 96.

Hab. South Africa.

The Guilbec, or Yellow-billed Duck, was first obtained at the Knowsley sale in 1851. It bred in 1859 and 1860; and we have supplied some of the Continental gardens with our produce. But I am not quite sure, I regret to say, that our present stock of this Duck is pure-bred.

Dates of Hatching of Yellow-billed Ducks.

1859. May 20th.	1868. June 17th.
1860. „ 30th.	1870. „ 18th.
1863. June 1st.	1871. „ 11th (hybrid).

39. Anas pœcilorhyncha, Penn. Spotted-billed Duck.

Anas pœcilorhyncha, Gray, Ind. Zool. i. t. 67.

Hab. India.

A single example of this fine Duck was obtained at the Knowsley sale in 1851, but we lost the species; and it was not again introduced, I believe, until 1868, when we received several males from the Babu Rajendra Mullick. In 1872 we received females from Mr. E. Buck (see P. Z. S. 1872, p. 729); and in 1874 the first pure-bred birds were hatched. The species may now be considered fairly established, and is also found in several of the Continental gardens.

Dates of Hatching of Spotted-billed Duck.

1874. June 2nd.	1877. June 13th.
1875. „ 2nd.	„ „ 19th.
„ „ 14th.	1879. „ 23rd.
1876. „ 5th.	

40. Anas zonorhyncha, Swinhoe.

Anas zonorhyncha, Swinh. Ibis, 1866, p. 394.

Hab. China.

I have not yet seen this close ally of the last species living in Europe.

41. Anas sparsa, Smith.

Anas sparsa, Smith, Ill. S. Afr. Zool., Aves, t. 97.

Hab. South and East Africa.

Not yet introduced.

42. Anas castanea (Eyton). Chestnut-breasted Duck.

Anas punctata, Gould, B. Austr. vii. t. 11.

Mareca castanea, Eyton, Mon. Anat. p. 119, t. 22.

Hab. Australia.

In June 1870 we purchased a single male example of the Australian Duck along with a lot of other animals from the same country. Whether the female obtained in 1865 (and credited to this species in the Cat. of Animals) really belonged here or to the next species, I cannot at present say.

43. Anas gibberifrons, Müll. Müller's Duck.

Querquedula gibberifrons, Buller, B. New Zealand, p. 250.
Anas gracilis, Buller, Ibis, 1869, p. 41.
Mareca albigularis, Hume, Str. F. i. p. 303.

Hab. Celebes, Moluccas, Australia, New Zealand.

Eighteen Australian Ducks which we purchased of a dealer in August last, and entered as *A. castanea*, I now believe to belong to this species, which much resembles the *female* of *A. castanea*. (See above, p. 518.)

Several pairs have been obtained out of the above-mentioned lot; and we expect that they will breed with us this year.

44. Anas bernieri, Verr. Bernier's Duck.

Anas bernieri, Hartl. Vög. Madag. p. 363.

Hab. Madagascar.

Not yet introduced.

45. Anas chlorotis, Gray. Brown Duck.

Anas chlorotis, G. R. Gr. Voy. Ereb. & Terr. Aves, t. 20.

Hab. New Zealand.

Not yet brought to Europe.

46. Anas specularis, King.

Anas specularis, Scl. et Salv. P. Z. S. 1876, p. 380.

Hab. Antarctic America.

Not yet brought to Europe alive.

47. Anas cristata, Gm.

Anas cristata, Scl. et Salv. P. Z. S. 1876, p. 381.

Hab. Antarctic America.

Not yet imported alive.

Genus Chaulelasmus.

48. Chaulelasmus streperus (Linn.). Gadwall Duck.

Chaulelasmus strepera, Gould, B. G. Brit. v. t. 19.

Hab. Palæarctic Region.

The Gadwall is in our first list, as having been in the Collection in 1830, and usually breeds with us.

Dates of Hatching of Gadwall Ducks.

1839. June 30th.
1841. ,, 27th.
1848. ,, 21st.
1850. ,, 21st.
1851. May 28th.
,, June 7th.
,, July 8th.
1852. June 3rd.
1852. June 14th.
1853. ,, 12th.
1854. ,, 14th.
1855. July 5th.
,, ,, 12th.
1856. June 13th.
1857. ,, 4th.
1861. ,, 20th.

49. CHAULELASMUS COUESI, Streets. Coues's Gadwall.

Chaulelasmus couesi, Streets, Bull. U. S. N. Mus. no. 7, p. 21.

Hab. Fanning Islands, Pacific.

Not yet brought alive to Europe.

Genus HETERONETTA.

50. HETERONETTA MELANOCEPHALA (Vieill.). Black-headed Duck.

Heteronetta melanocephula, Scl. et Salv. P. Z. S. 1876, p. 382.

Hab. South America.

Not yet introduced.

Genus MARMARONETTA[1].

51. MARMARONETTA ANGUSTIROSTRIS, Ménétr. Marbled Duck.

Anas augustirostris, Gould, B. Eur. v. t. 373.

Hab. South Europe, North Africa, and Western Asia.

I have never seen this Duck in any living collection, though Mr. Bartlett tells me he believes he has seen examples in captivity.

Genus RHODONESSA.

52. RHODONESSA CARYOPHYLLACEA (Latham). Pink-headed Duck.

Rhodonessa caryophyllacea, Gr. et Mitch. Gen. B. t. 167; Scl. P. Z. S. 1874, p. 110; Garrod, P. Z. S. 1873, p. 153.

Hab. India.

In 1874 we obtained a pair of this beautiful Indian Duck, which, however, unfortunately did not live long with us.

Genus QUERQUEDULA.

a. *Species Arcticæ.*

53. QUERDUEDULA CIRCIA (Linn.). Garganey Teal.

Querquedula circia, Gould, B. G. Brit. v. t. 17.

Hab. Europe.

The Garganey is always to be found represented in the Collection, being recorded in the earliest list (1831), the Catalogue of 1849, and the various Lists of Animals (1852-79). It is, however, I consider rather a shy breeder, having only bred twice with us, so far as I can ascertain by our records.

Dates of Breeding of Garganey Teal.

1849. June 6th.	1859. July 19th.

[1] Reichenb. Syst. Av. p. ix (1852).

54. QUERQUEDULA DISCORS (Linn.). Blue-winged Teal.

Querquedula discors, Baird, B. N. A. p. 779; Scl. et Salv. P. Z. S. 1876, p. 383.

Hab. Eastern N. America.

Not yet introduced.

55. QUERQUEDULA CRECCA (Linn.). Common Teal.

Querquedula crecca, Gould, B. G. Brit. v. t. 16.

Hab. Palæarctic Region.

In the Gardens since 1830, and a constant breeder.

Dates of Hatching of Common Teal.

1839. June 30th.	1855. July 12th.
1843. July 14th.	1856. June 4th.
1844. June 10th.	1860. ,, 24th.
1846. ,, 9th.	1861. ,,
1847. July 3rd.	1865. July 6th.
1850. ,, 8th.	1876. ,, 24th.
1854. June 23rd.	

56. QUERQUEDULA CAROLINENSIS (Gm.). Carolina Teal.

Querquedula carolinensis, Scl. et Salv. P. Z. S. 1876, p. 385.

Hab. North America.

Not yet introduced.

57. QUERQUEDULA FORMOSA (Gm.). Japanese Teal.

Anas formosa, Temm. et Schl. F. J. Aves, tt. 82 B et 82 C.

"*Anas perpulchra*, Yarr.," Rep. of Counc. 1831, p. 22.

Hab. North-eastern Asia.

Examples of this beautiful Teal were acquired by the Society in its earliest days; but it did not breed in our Gardens until 1840, although, I believe, it had previously done so at Knowsley. I find the following four instances of young birds hatched in the registers:—

Dates of Hatching of Japanese Teal.

1840. July 15th.	1842. July 10th.
1841. ,, 15th.	1843. ,, 2nd.

The species was subsequently lost and not again acquired, I believe, until 1867, when two pairs were purchased out of a merchant-vessel. We have since obtained additional specimens, but have not yet succeeded in inducing the recent arrivals to breed.

58. QUERQUEDULA FALCATA (Pallas). Falcated Teal.

Querquedula falcata, Midd. Sib. Reise, t. 21. fig. 2.

Hab. N.E. Asia.

Examples of both sexes of this splendid Teal were acquired in 1874, but the species has not yet bred with us.

b. *Species Æthiopicæ.*

59. QUERQUEDULA HARTLAUBI, Cassin. Hartlaub's Teal.
Querquedula hartlaubi, Cassin, Pr. Ac. Sc. Phil. 1859, p. 175.
Hab. West Africa.
Not yet introduced.

60. QUERQUEDULA PUNCTATA (Burch.). Hottentot Teal.
Querquedula hottentotta, Smith, Ill. S. Afr. Zool., Aves, t. 105.
Anas punctata, Burchell, Travels, i. p. 283 (1822).
Hab. South Africa.
Not yet introduced.

c. *Species Neotropicæ.*

61. QUERQUEDULA CYANOPTERA (Vieill.). Blue-winged Teal.
Querquedula cyanoptera, Baird, B. N. A. p. 780; Scl. et Salv. P. Z. S. 1876, p. 384.
Hab. South America and Western North America.
Not yet imported, so far as I know.

62. QUERQUEDULA OXYPTERA (Meyen). Sharp-winged Teal.
Querquedula oxyptera, Scl. et Salv. P. Z. S. 1876, p. 385.
Hab. Andes of Peru.
Not yet introduced.

63. QUERQUEDULA FLAVIROSTRIS (Vieill.). Chilian Teal.
Querquedula flavirostris, Scl. et Salv. P. Z. S. 1876, p. 386.
Hab. Antarctic America.
Obtained from Chili in 1871, and again in 1874, but has not bred with us.

64. QUERQUEDULA ANDIUM, Scl. et Salv. Andean Teal.
Querquedula andium, Scl. et Salv. P. Z. S. 1876, p. 387.
Hab. Andes of Ecuador and Venezuela.
Not yet introduced.

65. QUERQUEDULA VERSICOLOR (Vieill.). Brilliant Teal.
Querquedula versicolor, Scl. et Salv. P. Z. S. 1876, p. 388.
Hab. Antarctic America.
Not yet introduced.

66. QUERQUEDULA PUNA (Tsch.). Puna Teal.
Querquedula puna, Scl. et Salv. P. Z. S. 1876, p. 388.
Hab. Andes of Peru and Bolivia.
Not yet introduced.

67. QUERQUEDULA TORQUATA (Vieill.). Ringed Teal.
Querquedula torquata, Scl. et Salv. P. Z. S. 1876, p. 389.
Hab. Paraguay and Buenos Ayres.
Not yet acquired.

68. QUERQUEDULA BRASILIENSIS (Gm.). Brazilian Teal.

Querquedula brasiliensis, Scl. et Salv. P. Z. S. 1876, p. 390.

Hab. South America.

We received a single example of this pretty Teal in 1864 from Para. In 1873 we obtained a pair in exchange from Mr. Polvliet, of Rotterdam, and soon afterwards other examples. The species did not breed with us until 1878, when two were hatched on June 11th. It bred again last year, when seven were hatched on August 7th.

69. QUERQUEDULA EATONI, Sharpe. Eaton's Teal.

Querquedula eatoni, Sharpe, Ibis, 1875, p. 328; Phil. Trans. vol. 168, p. 105, pl. vi.

Hab. Kerguelen's Land.

Genus SPATULA.

70. SPATULA CLYPEATA (Linn.). Shoveller.

Spatula clypeata, Gould, B. G. Brit. v. t. 14.

Hab. Palæarctic and Nearctic Regions.

The Shoveller is named in the list of 1831, and breeds readily in ornamental waters.

Dates of Hatching of Shoveller Ducks.

1845. July 5th.	1859. July 4th.
1846. June 9th.	„ „ 11th.
1852. July 20th.	1860. June 24th.
1853. June 12th.	1870. July 9th.
1855. July 2nd.	1872. „ 8th.
1857. June 30th.	1876. „ 10th.

71. SPATULA CAPENSIS, Smith. Cape Shoveller.

Rhynchaspis capensis, Smith, Ill. S. Afr. Zool., Aves, t. 98.

Hab. South Africa.

Not yet introduced.

72. SPATULA RHYNCHOTIS (Lath.). Australian Shoveller.

Spatula rhynchotis, Gould, B. Austr. vii. t. 12.

Hab. Australia.

Not yet introduced.

73. SPATULA VARIEGATA, Gould. New-Zealand Shoveller.

Spatula variegata, Buller, B. N. Zealand p. 252, t.

Hab. New Zealand.

Not yet introduced.

74. SPATULA PLATALEA (Vieill.). South-American Shoveller.

Spatula platalea, Scl. et Salv. P. Z. S. 1876, p. 396.

Hab. Antarctic America.

Not yet introduced.

Genus MALACORHYNCHUS.

75. MALACORHYNCHUS MEMBRANACEUS, Swains. Membranaceous Duck.

Malacorhynchus membranaceus, Gould, B. Austr. vii. t. 13.

Hab. Australia.

Genus METOPIANA.

76. METOPIANA PEPOSACA (Vieill.). Rosy-billed Duck.

Anas peposaca, Scl. P. Z. S. 1867, p. 687.

Metopiana peposaca, Scl. P. Z. S. 1870, p. 666, t. xxxvii.; Scl. et Salv. P. Z. S. 1876, p. 398.

Hab. Antarctic America.

A single male of this beautiful Duck was received in 1867. In 1870 we obtained three pairs from Mr. Weisshaupt's Chilian collections, but they did not breed until 1873.

Dates of Hatching of the Rosy-billed Duck.

1873. July 20th.	1876. July 1st.
1874. „ 6th.	1879. „ 11th.
1875. September 7th.	

G. Subfam. VI. FULIGULINÆ.

Genus FULIGULA.

a. *Species Arcticæ.*

1. FULIGULA RUFINA (Pallas). Red-crested Whistling Duck.

Branta rufina, Gould, B. G. Brit. v. t. 22.

Hab. South Europe, North Africa, and Western Asia.

We first received a single male of this beautiful Duck from our Corresponding Member Mr. E. C. Buck, in 1874. In 1876 the same gentleman most liberally presented us with twelve males and six females of the same species, obtained in the Punjaub.

In spite of every care lavished upon several pairs of this Duck, selected out of the lot thus acquired, they have hitherto refused to reproduce *inter se*. But last year five curious hybrid Ducks were bred in the Society's Gardens, which seem certainly to be the produce of a cross between this species and *Metopiana peposaca*, as examples of these two species were in the pond in which they were hatched, although it is not certainly known of which sex the parents were respectively.

2. FULIGULA CRISTATA (Leach). Tufted Duck.

Fuligula cristata, Gould, B. G. Brit. v. t. 23.

Hab. Palæarctic Region.

The Tufted Duck occurs in the earliest list (1831), and is a familiar inhabitant of our "Three-island Pond." Up to 1848 it bred pretty regularly in this situation. In 1849 it hybridized with the White-eyed Duck, and the hybrids thus produced continued to breed either *inter se* or with one of the parents until 1861.

Dates of Hatching of Tufted Ducks.

1840. July 13th.
1841. June 27th.
1842. „ 19th.
1843. May 30th.
„ June 5th.
„ „ 11th.
1844. „ 10th.
„ July 29th.
1845. June 11th.
„ „ 17th.
1846. „ 7th.
„ „ 12th.
1847. „ 19th.
„ „ 23rd.
1848. „ 17th.

Dates of Hatching of hybrid Tufted and White-eyed Ducks.

1849. June 26th.
„ July 20th.
1850. June 21st.
1851. July 8th.
1853. „ 9th.
1854. June 14th.
„ „ 24th.
„ „ 28th.
„ July 5th.
1854. July 11th.
1855. „ 2nd.
„ „ 5th.
„ „ 22nd.
1857. June 19th.
1859. July 1st.
„ „ 4th.
1861. June 12th.

3. Fuligula collaris (Donov.). Ring-necked Duck.

Fuligula collaris, Scl. et Salv. P. Z. S. 1876, p. 400.

Hab. North America.

Not yet introduced into European gardens.

4. Fuligula marila (Linn.). Scaup Duck.

Fuligula marila, Gould, B. G. Brit. v. t. 24.

Hab. Palæarctic and Nearctic Regions.

Exhibited first in 1845 and frequently since, but has not bred in our Gardens. I am not sure that it has ever done so on the Continent.

5. Fuligula affinis, Eyton. American Scaup Duck.

Fuligula affinis, Scl. et Salv. P. Z. S. 1876, p. 399.

Hab. Nearctic Region.

Not yet introduced into European waters.

6. Fuligula mariloides (Vigors). Chinese Scaup Duck.

Fuligula mariloides, Vig. in Beechey's Voy. Zool. p. 31 ; Swinhoe, P. Z. S. 1873, p. 412.

Hab. China.

We received three females of this somewhat doubtful species from Mr. Swinhoe in 1873 (see P. Z. S. 1873, p. 312).

7. Fuligula ferina (Linn.) Red-headed Pochard.

Nyroca ferina, Gould, B. G. Brit. v. t. 20.

Hab. Palæarctic Region.

The Pochard occurs in the earliest list (1831). I am not sure

that it has ever bred in our Gardens, but it has done so in other ornamental waters, such as Knowsley and Kew Gardens (1880). Three Pochards bred at Knowsley were sold at the sale in 1851.

8. Fuligula americana, Eyton. American Pochard.

Fuligula americana, Scl. et Salv. P. Z. S. 1876, p. 400.

Hab. Nearctic Region.

We have not yet received living examples of this close ally of our Pochard.

9. Fuligula valisneria, Wils. Canvas-backed Duck.

Fuligula valisneria, Scl. et Salv. P. Z. S. 1876, p. 400.

Hab. Nearctic Region.

Never yet introduced alive into Europe, so far as I know.

10. Fuligula nyroca (Gould). White-eyed Duck.

Nyroca leucophthalmos, Gould, B. G. Brit. v. 21.

Hab. Western Palæarctic Region.

The White-eyed Duck is an old inhabitant of our Gardens, but does not occur in the first list. I can find no evidence of its having bred pure; but it hybridized in 1851, and some of the following years either with the Pochard or Tufted Duck.

Dates of Hatching of Cross-bred Castaneous Ducks.

1851. June 24th.	1856. July 1st.
1855. July 12th.	1860. June 15th.

b. *Species Æthiopicæ.*

11. Fuligula capensis (Less.). Cape White-eyed Duck.

Anas capensis, Less. Tr. d'Orn. p. 632 (1831).

Nyroca brunnea, Eyt. Anat. t. 23, p. 161 (1838).

Hab. South Africa.

A single female of this little-known Duck was purchased by the Society at the Knowsley sale in 1851, and lived many years in the Gardens.

c. *Species Neotropicæ.*

12. Fuligula nationi, Scl. et Salv. Nation's Pochard.

Fuligula nationi, Scl. et Salv. P. Z. S. 1877, p. 522; Sclater, P. Z. S. 1878, p. 477, t. xxxii.

Hab. Western Peru.

d. *Species Australianæ.*

13. Fuligula australis (Gould). Australian White-eyed Duck.

Nyroca australis, Gould, B. Austr. vii. t. 16.

Hab. Australia.

Not known alive in Europe.

14. Fuligula novæ-zealandiæ (Gm.) New-Zealand Scaup.

Fuligula novæ-zealandiæ, Bull. B. N. Zeal. p. 259.

Hab. New Zealand.

Not known alive in Europe.

Genus Hymenolæmus.

15. Hymenolæmus malacorhynchus (Gm.) Blue Duck.

Hymenolæmus malacorhynchus, Bull. B. N. Zeal. p. 262.

Hab. New Zealand.

A single example of this rare Duck was obtained from the Acclimatization Society of Melbourne in 1876, but did not live long. (See P. Z. S. 1876, p. 463.)

Genus Clangula.

16. Clangula glaucion (Linn.). Golden-eye.

Clangula glaucion, Gould, B. G. Brit. v. t. 31.

Hab. Northern Palæarctic and Nearctic Regions.

Exhibited first in 1832 or thereabouts, and frequently obtained subsequently, but has not bred with us, nor, so far as I know, elsewhere in captivity.

17. Clangula islandica (Gm.). Barrow's Golden-eye.

Clangula islandica, Elliot, B. N. A. ii. t. xlvi.

Hab. Iceland and Arctic America.

Not known in captivity.

18. Clangula albeola (Linn.). Buffel-headed Duck.

Bucephala albeola, Baird. B. N. A. p. 797.

Hab. North America.

Not known in captivity.

Genus Cosmonetta.

19. Cosmonetta histrionica (Linn.). Harlequin Duck.

Histrionicus torquatus, Gould, B. G. Brit. v. t. 32.

Hab. Circumpolar regions.

Not known in captivity.

Genus Harelda.

20. Harelda glacialis (Linn.). Long-tailed Duck.

Harelda glacialis, Gould, B. G. Brit. v. t. 33.

Hab. Circumpolar area.

Not known in captivity.

Genus Heniconetta.

21. Heniconetta stelleri (Pallas). Steller's Duck.

Eniconetta stelleri, Gould, B. G. Brit. v. t. 25.

Hab. North Palæarctic Region and Western America.

Not known in captivity, I believe.

Genus Camptolæmus.

22. Camptolæmus labradoricus (Gm.). Labrador Duck.

Camptolæmus labradoricus, Baird, B. N. A. p. 803.

Hab. Arctic America.

This now extinct bird has never, so far as I know, been captured alive.

Genus Somateria.

23. Somateria mollissima (Linn.). Eider Duck.

Somateria mollissima, Gould, B. G. Brit. v. t. 26.

Hab. Circumpolar area.

Eiders were first obtained by the Society in 1838[1], and bred several years in the Gardens. They were also in the Knowsley Menagerie. Of late years we have received but few specimens, and they have not bred with us.

Dates of Hatching of Eider Ducks.

1841. July 7th.	1849. June 9th.
1848. June 25th.	

24. Somateria v-nigrum, Gray.

Somateria v-nigrum, G. R. Gray, P. Z. S. 1855, p. 211, t. 107; Elliot, B. N. A. t. xlviii.

Hab. Arctic America.

Unknown in captivity.

25. Somateria spectabilis (Linn.). King-Duck.

Somateria spectabilis, Gould, B. G. Brit. v. t. 27.

Hab. Circumpolar regions.

Not yet obtained alive, so far as I know.

Genus Lampronetta.

26. Lampronetta fischeri, Brandt. Fischer's Eider.

Lampronetta fischeri, G. R. Gray, P. Z. S. 1855, t. 108; Elliot, B. N. A. t. 47.

Hab. N.W. America.

Not known in captivity.

Genus Œdemia.

27. Œdemia nigra, Flem. Black Scoter.

Oidemia nigra, Gould, B. G. Brit. v. t. 28.

Hab. North Palæarctic Region.

The Black Scoter is occasionally obtained alive, but does not do well in captivity.

[1] Rep. Council, 1839, p. 39.

28. Œdemia americana, Sw. American Scoter.

Œdemia americana, Baird, B. N. A. p. 807.

Hab. North America.

Not known in captivity.

29. Œdemia fusca (Linn.) Velvet Scoter.

Oidemia fusca, Gould, B. G. Brit. v. t. 29.

Hab. Palæarctic and Arctic Regions.

An example of the Velvet Scoter was obtained from Holland in 1853 (Rep. Council, 1853, p. 16).

30. Œdemia velvetina, Cassin. American Velvet Scoter.

Œdemia velvetina, Baird, B. N. A. p. 805.

Hab. Northern America.

Not known in captivity.

31. Œdemia perspicillata (Linn.). Surf-Scoter.

Oidemia perspicillata, Gould, B. G. Brit. v. t. 30.

Hab. North America; rare in Europe.

Not known in captivity, as is also not the American *Œ. trowbridgii*, if distinct.

Genus Tachyeres.

32. Tachyeres cinereus (Gm.). Loggerhead Duck.

Tachyeres cinereus, Scl. et Salv. P. Z. S. 1876, p. 482.

Hab. Antarctic America.

A single example of this species was received by the Society from Capt. Moore, of the Falklands, in 1861. (See P. Z. S. 1861, p. 367.)

H. Subfam. VII. ERISMATURINÆ.

The Lake-Ducks are not facile subjects for domestication, and I am not aware that any of them have yet been introduced into European gardens.

Genus Biziura.

1. Biziura lobata (Shaw). Musk-Duck.

Biziura lobata, Gould, B. Austr. vii. t. 18.

Hab. Australia.

Genus Thalassornis.

2. Thalassornis leuconota (Smith). White-backed Lake-Duck.

Thalassornis leuconota, Smith, Ill. S. Afr. Zool., Aves, t. 107.

Hab. Lakes of South Africa.

Genus Erismatura.

3. Erismatura leucocephala (Scop.). White-headed Diving-Duck.

Erismatura leucocephala, Gould, B. Eur. vii. t. 383.

Hab. S.E. Europe.

4. Erismatura mocoa, Smith. Mocoa Diving-Duck.

Erismatura mocoa, Smith, Ill. S. Afr. Zool., Aves, tt. 108, 109.

Hab. Lakes of South Africa.

5. Erismatura rubida (Wils.). Ruddy Diving-Duck.

Erismatura rubida, Scl. et Salv. P. Z. S. 1876, p. 403.

Hab. North and Central America.

6. Erismatura australis (Gould). Blue-billed Diving-Duck.

Erismatura australis, Gould, B. Austr. vii. t. 17.

Hab. Australia.

7. Erismatura ferruginea, Eyton. Ferruginous Diving-Duck.

Erismatura ferruginea, Scl. et Salv. P. Z. S. 1876, p. 404.

Hab. Antarctic America.

8. Erismatura dominica (Linn.). Dominican Diving-Duck.

Erismatura dominica, Scl. et Salv. P. Z. S. 1876, p. 405.

Hab. West Indies and Central and South America.

Genus Nesonetta.

9. Nesonetta aucklandica, G. R. Gray. Auckland-Islands Diving-Duck.

Nesonetta aucklandica, G. R. Gray, Voy. Erebus & Terr., Birds, p. 31, t. xvii.

Hab. Auckland Islands.

I. Subfam. VIII. MERGANETTINÆ.

The Torrent-Ducks of the Andes of South America are allied to the Lake-Ducks and to the Mergansers, but seem to be most naturally arranged as a separate family.

None of the three known species have yet been introduced into living collections.

1. Merganetta armata, Gould. Chilian Torrent-Duck.

Merganetta armata, Scl. et Salv. P. Z. S. 1876, p. 406.

Hab. Rivers of the Andes of Chili.

2. Merganetta turneri, Scl. et Salv. Turner's Torrent-Duck.

Merganetta turneri, Scl. et Salv. P. Z. S. 1876, p. 407; Ex. Orn. p. 199, t. 100.

Hab. Rivers of the Andes of Cuzco.

3. Merganetta leucogenys (Tsch.). White-cheeked Torrent-Duck.

Merganetta leucogenys, Scl. et Salv. P. Z. S. 1876, p. 408.

Hab. Rivers of the Andes of Columbia, Ecuador, and North Peru.

J. Subfam. IX. MERGINÆ.

The Mergansers are not good subjects for our Gardens, requiring supplies of live fishes to keep them in good health. We have occasionally examples of the Goosander, Red-breasted Merganser, and Smew; but they cannot be said to thrive under our treatment.

Genus Mergus.

1. Mergus merganser (Linn.). Goosander.

Mergus castor, Gould, B. G. Brit. v. t. 34.

Hab. Palæarctic and Nearctic Regions.

We received females of the Goosander in 1864, and males in 1865 and 1867; but they have never done well with us.

2. Mergus serrator, Linn. Red-breasted Merganser.

Mergus serrator, Gould, B. G. Brit. v. t. 35.

Hab. Palearctic and Nearctic Regions.

We obtained two examples of this bird from the Zoological Gardens of Hamburgh in August 1866; but one arrived dead and the other did not long survive.

3. Mergus cucullatus, Linn. Hooded Merganser.

Mergus cucullatus, Gould, B. G. Brit. v. t. 36.

Hab. N. America, occasional in Europe.

Not yet obtained alive, so far as I know.

4. Mergus albellus, Linn. Smew.

Mergus albellus, Gould, B. G. Brit. v. t. 37.

Hab. Palæarctic Region.

First exhibited in 1851, according to our records, and since obtained occasionally.

5. Mergus australis, Hombr. et Jacq. Antarctic Merganser.

Merganser australis, Hombr. et Jacq. Voy. P. S., Ois. t. 31, fig. 2.

Hab. Auckland Islands.

Only known, I believe, from the original example in the Paris Museum.

6. Mergus octosetaceus, Vieill. Brazilian Merganser.

Mergus octosetaceus, Scl. et Salv. P. Z. S. 1876, p. 409.

Hab. Interior of Brazil.

Rare even in the best-stocked collections, and not known alive.

K. Conclusions as to Introduction.

It would appear, therefore, from the foregoing list (as will be seen more closely by the subjoined summary) that out of about 176 certainly known species of Anatidæ, 94, or more than one half, have been at some time or other acquired in the living state, and shown in zoological gardens or other such places, and that of these 50 have propagated in captivity.

Table I. *Showing the numbers of introduced* Anatidæ.

	Species.		
	Known.	Exhibited.	Bred.
1. Anseranatinæ	1	1	...
2. Cereospinæ	1	1	1
3. Anserinæ	38	25	14
4. Cygninæ	10	8	5
5. Anatinæ	76	43	25
6. Fuligulinæ	32	13	5
7. Erismaturinæ	9	...	...
8. Merganettinæ	3	...	...
9. Merginæ	6	3	...
	176	94	50

L. Remarks on the Geographical Distribution of the Anatidæ.

I will conclude with a few remarks upon the geographical distribution of the Anatidæ.

In treating of this part of the subject I find it impossible to separate conveniently the Palæarctic and Nearctic species. So many of the high northern species are circumpolar, or common to both continents, and so many other of the Palæarctic species have closely allied (in some cases barely separable) representatives in the Nearctic area, that it is much more natural to unite these categories into one group as "Arctic Anatidæ." Adding to this the other four generally recognized divisions, we shall find the Anatidæ come out somewhat as follows, in five great geographical groups :—

Table II. *Distribution of the* Anatidæ.

	I. Arctic.	II. Æthiopian.	III. Indian.	IV. Australian.	V. Neotropical.	Total.
1. Anseranatinæ .	...	...	...	1	...	1
2. Cereopsinæ ...	...	...	...	1	...	1
3. Anserinæ	20	6	1	4	7	38
4. Cygninæ	7	...	...	1	2	10
5. Anatinæ	18	13	11	15	24	76[1]
6. Fuligulinæ ...	26	1	...	3	2	32
7. Erismaturinæ	2	2	...	3	2	9
8. Merganettinæ	...	...	...	...	3	3
9. Merginæ	4	...	...	1	1	6
	77	22	12	29	41	176

I will make a few observations on each of these five categories.

I. Arctic Anatidæ.

The Arctic Anatidæ are, as will be seen, by far the most numerous, these birds with their thick covering of feathers and aquatic habits being more naturally adapted to cold and watery climates. Out of the 33 known species of Geese 20, out of the 10 known Swans 7, and of the 31 Sea-Ducks not less than 26 belong to this category. Of the whole number of 176 generally recognized species of Anatidæ, 77 may, I think, be best set down as Arctic—although some of them, such as *Tadorna rutila*, *Fuligula rufina*, and *Marmaronetta angustirostris*, cannot be strictly so termed, as they inhabit only the temperate portions of the Palæarctic Region. Very many of the Palæarctic species also, as will be noted below, go far south in winter, and intrude far into the Æthiopian, Indian, and Neotropical Regions.

The generic forms restricted to the Arctic area are not numerous, except among the Fuligulinæ, where out of 11 known genera (as will be seen by the subjoined Table), 8 are not met with elsewhere. Amongst the Anatinæ, *Aix* only is peculiarly Arctic.

Table III. *Distribution of* Fuligulinæ.

	Arctic.	Æthiopian.	Australian.	Neotropical.	Total.
1. Fuligula	10	1	2	1	13
2. Hymenolæmus	...	...	1	...	1
3. Clangula	3	...	...	...	3
4. Cosmonetta.....	1	...	...	...	1
5. Harelda	1	...	...	...	1
6. Heniconetta ...	1	...	...	...	1
7. Camptolæmus...	1	...	...	...	1
8. Somateria	3	...	...	...	3
9. Lampronetta ...	1	...	...	...	1
10. Œdemia.....	5	...	...	...	5
11. Tachyeres	...	...	...	1	1
	26	1	3	2	31

[1] Certain species of Anatinæ occur in more than one of the regions; so that the total of species is in this case less than the sum of its constituents.

II. Æthiopian Anatidæ.

Under this head I place only those species that live all the year round and breed within the region. These are about 22 in number, as given in the following list :—

List of Æthiopian Anatidæ.

Plectropterus gambensis.
—— *rueppelli.*
—— *niger.*
Chenalopex ægyptiaca.

Bernicla cyanoptera.
Nettopus auritus[2].

Dendrocycna viduata[2].
—— *major*[2].
—— *arcuata.*
Sarcidiornis africana[2].
Tadorna cana.
Dafila erythrorhyncha[2].
Anas melleri[1].
—— *xanthorhyncha.*
—— *sparsa.*
—— *bernieri*[1].
Querquedula hartlaubi.
—— *punctata*[2].
Spatula capensis.
Fuligula capensis.
Thalassornis leuconota[2].
Erismatura mocoa.

Amongst these are two generic forms not found elsewhere, *Plectropterus* and *Thalassornis*. Of the nine Anatidæ hitherto registered as met with in Madagascar, two species only are peculiar to the island, *Anas melleri* and *A. bernieri*, the remaining seven being also found in Africa.

In winter many of the Palæarctic Anatidæ descend far into Eastern Africa. Heuglin includes *Anser albifrons*, *Bernicla brenta*, *Cygnus olor* and *C. musicus*, *Mareca penelope*, *Dafila acuta*, *Anas boschas*, *Querquedula circia* and *Q. crecca*, *Chaulelasmus streperus*, *Spatula clypeata*, *Fuligula cristata*, *F. marila*, *F. ferina*, and *F. nyroca*, *Clangula glaucion*, *Œdemia fusca*, and *Mergus serrator* under this category; while *Tadorna vulpanser* and *T. rutila*, and probably also *Marmaronetta angustirostris* and *Fuligula rufina*, breed in Egypt.

III. Indian Anatidæ.

In this category again I include only species that are permanent inhabitants of some part of the region. They are not numerous, consisting only of twelve species :—

Nettopus coromandelianus.
Sarcidiornis melanota.
Dendrocycna guttulata.
—— *major.*
—— *arcuata.*
—— *vagans.*
Tadorna scutulata.
Anas luzonica.
—— *pœcilorhyncha.*
—— *zonorhyncha.*
—— *gibberifrons.*
Rhodonessa caryophyllacea.

Amongst these there is only one peculiar generic form, *Rhodonessa*.

In winter, however, a host of immigrants from the north invade the Indian Region. Jerdon gives us accounts of upwards of twenty

[1] Peculiar to Madagascar. [2] Also found in Madagascar.

northern Ducks and Geese which are found in various parts of the Indian peninsula in the cold weather.

IV. Australian Anatidæ.

As we advance further south the Anatidæ commence to increase again. Instead of only 12 native species, we find the number running up to 29. The greater number of them are Australian, that great continent, although so dry and arid, being well supplied with water-fowl, as will be seen by the subjoined list.

List of Australian Anatidæ.

Anseranas melanoleuca.

Cereopsis novæ-hollandiæ.

Bernicla jubata.
Nettopus albipennis.
—— pulchellus.
Cygnus atratus.

Dendrocycna vagans.
—— eytoni.
Tadorna radjah.
Tadorna tadornoides.
Stictonetta nævosa.
Anas superciliosa.
—— castanea.
—— gibberifrons.
Spatula rhynchotis.
Malacorhynchus membranaceus.

Fuligula australis.

Biziura lobata.
Erismatura australis.

Among these there are no less than 5 generic monotypic types peculiar to the Australian Region—namely, *Anseranas*, *Cereopsis*, *Stictonetta*, *Malacorhynchas*, and *Biziura*.

Proceeding to the outlying parts of the Australian Region, we find New Zealand also well provided with Anatidæ. Dr. Buller comprehends the following 9 species in his excellent work :—

Dendrocycna eytoni.
**Tadorna variegata.*
Anas superciliosa.
*—— *chlorotis.*
—— *gibberifrons.*
**Spatula variegata.*
Fuligula australis.
*—— *novæ-zealandiæ.*
**Hymenolæmus malacorhynchus.*

Of these, however, *Anas gibberifrons* and *Dendrocycna eytoni* are only occasional visitants, and *Anas superciliosa* and *Fuligula australis* are likewise Australian. The remaining five (marked *) are peculiar to the island, and *Hymenolæmus* is a generic type not known elsewhere.

The adjacent Auckland Islands are tenanted by two very peculiar Ducks quite unknown elsewhere, namely, *Nesonetta aucklandica* and *Mergus australis*.

In Polynesia Anatidæ are scarce, *Dendrocycna vagans* and *Anas superciliosa* being the only species known until we come to the Fanning group, where *Chaulelasmus couesi* has lately been discovered.

In the Sandwich Islands two peculiar species occur, *Bernicla sandvicensis* and *Anas wyvilliana*.

V. Neotropical Anatidæ.

The Neotropical Region is better supplied with Anatidæ than any other of the divisions here adopted except the Arctic, 39 species being specially attributable to it. Besides these, as Mr. Salvin and I have shown in our article on the Neotropical Anatidæ, published in the Society's 'Proceedings' for 1876[1], 23 of the Arctic Anatidæ are more or less regular visitants to it during the winter season.

The generic types of Anatidæ restricted to the Neotropical area are 5, namely, *Cairina*, *Heteronetta*, *Metopiana*, *Tachyeres*, and *Merganetta*. There are, however, only 7 species belonging to these peculiar genera; so that the mass of the Neotropical Anatidæ belong to Arctic genera.

On the whole, the Neotropical Anatifauna (if such an expression is allowable) is not more peculiar than that of Australia, where there are also 5 special generic types not found elsewhere. In true Anatidæ the Neotropical Region is specially rich, possessing 23 species against the Arctic 18, as will be seen better by the subjoined Table.

Table IV. *Distribution of* Anatinæ.

Genus.	Arctic.	Æthiopian.	Indian.	Australian.	Neotropical.	Total.
1. Dendrocycna	...	3	4	2	5	10[2]
2. Sarcidiornis	...	1	1	...	1	3
3. Cairina	...	...	...	...	1	1
4. Tadorna	2	1	1	3	...	7
5. Stictonetta	...	...	...	1	...	1
6. Aix	2	...	...	...	...	2
7. Mareca	2	...	...	...	1	3
8. Dafila	1	1	...	...	2	4
9. Anas	2	4	4	5	2	16[2]
10. Chaulelasmus	1	..	...	1	...	2
11. Heteronetta	...	...	...	...	1	1
12. Marmaronetta ...	1	...	...	...	...	1
13. Rhodonessa	...	...	1	...	...	1
14. Querquedula	6	2	...	...	8	16
15. Spatula	1	1	...	2	1	5
16. Malacorhynchus...	...	...	...	1	...	1
17. Metopiana	...	...	...	...	1	1
	18	13	11	15	23	75

In Fuligulinæ, on the other hand, it is very poor (see Table III. p. 533), having only 1 species against the Arctic 26.

[1] "Revision of the Neotropical Anatidæ," P. Z. S. 1876, p. 358.

[2] In these genera some of the species occur in more regions than one, so that the total is not equal to the sum of the constituents.