

**Article XXVII. COLLATION OF BRISSON'S GENERA OF BIRDS  
WITH THOSE OF LINNÆUS.**

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INTRODUCTION.

In considering recently certain questions of ornithological nomenclature it became necessary to examine the works of Brisson and Linnæus in considerable detail and this examination finally led to a careful collation of Brisson's 'Ornithologia,' published in 1760, with the sixth, tenth, and twelfth editions of Linnæus's 'Systema Naturæ,' published respectively in 1748, 1758, and 1766.

As every systematic ornithologist has had occasion to learn, Linnæus's treatment of the class Aves was based on very imperfect knowledge of the subject. As is well-known, this great systematist was primarily a botanist, secondarily a zoölogist, and only incidentally a mammalogist and ornithologist. Through isolation he was deprived of access to any of the collections of mammals and birds then extant in the larger cities of Europe, and

his acquaintance with the literature of these subjects was evidently exceedingly defective, at least at the time he prepared the sixth and tenth editions of his great systematic compendium of zoölogy. Yet this work, with all its shortcomings, is not only the basis of systematic nomenclature, but furnished a zoölogical classification that served for the time being to reduce "a chaos to a semblance of order," and became the foundation on which has since arisen the elaborate superstructure of modern zoölogy.

Brisson, on the other hand, was a specialist, his interest in zoölogy being mainly restricted to mammals and birds.<sup>1</sup> He had access in Paris to the largest collections of these animals then in existence, and to libraries that contained all the literature relating to them. It is thus not strange that in this restricted field, with all these advantages, he should have outstripped his great contemporary whose field was the whole realm of biology.

The zoölogical writings of Linnæus, excluding a few minor papers, comprise the 'Fauna Suecica,' in two editions (1746 and 1761), the 'Museum Adolphei Friderici' (Part I, 1754; Part II, 1764), the 'Museum Ludovicæ Ulricæ' (1764), and the several editions of the 'Systema Naturæ.' The zoölogy of the sixth edition of this work (1748) comprised only 76 octavo pages, and was in effect a synopsis of the fauna of Sweden, filled out, as regards the rest of the world, almost wholly by compilation from previous authors. In this edition the birds were arranged in six orders and 51 genera, comprising 260 species. In the tenth edition (1758) he retained the same six orders, but omitted some of the genera and added others, and rather more than doubled the number of species. In the twelfth (1766) the classification remained essentially the same as in the sixth, but some fifteen genera were added, and the number of species again nearly doubled. On comparison with the first edition it is found that some of the genera were transferred in the later editions from one order to another. In the sixth edition the Storm Petrel was placed with the Passerine birds, and as late as the twelfth edition the two species of Penguin known to him were still placed, the one in *Phaëthon* with the Tropic-bird, the other in *Diomedea* with the Albatross, and the Pratincole, a Limicoline bird, in the genus *Hirundo*. In the sixth edition of the 'Systema' birds occupied only 17 octavo pages; in the tenth the space allotted them was increased to 116 pages, and in the twelfth to 237 pages.

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<sup>1</sup> Mathurin Jacques Brisson (April 30, 1723–June 23, 1806), Member of the Academy and of the Institute, was for a time an enthusiastic zoölogist, but later turned his attention to physics, becoming professor of natural philosophy at the College of Navarre, and publishing in 1806 a 'Dictionnaire raisonné de physique.' He early projected a work on the Animal Kingdom ('Regnum Animale'), but published only the parts relating to mammals and birds, the first in 1756 and the second in 1760, when he was at the age, respectively, of 33 and 37 years.

## BRISSON NOT GREATLY INDEBTED TO LINNÆUS.

Brisson's great work,<sup>1</sup> in six quarto volumes, with over 4,000 pages of text and 261 plates, was published in 1760. It was two-thirds printed before he came in possession of the tenth edition of the 'Systema Naturæ,' published in 1758. He cited only the sixth edition throughout the first four volumes, and the tenth to the exclusion of the sixth in the last two. In the supplement to the sixth volume, in the addenda to the references in the main text of the work, he cites the tenth edition where it had been previously omitted, which is further evidence that this edition was not available to him till after the first four volumes of his own work were printed. It is impossible that a work of this magnitude could have all been printed within the space of a single year, or even in two years, at this early date. It is a work on which the author spent many years in its preparation; consequently it was practically completed and partly printed before the promulgation of binomial nomenclature for zoölogy.<sup>2</sup> Yet Brisson has been criticised for not employing the binomial system in his 'Ornithologia,' and for this reason objection has been made to the acceptance of his genera! He has also been charged with speaking slightly of Linnæus's classification, and for following a new system of his own invention. When, however, one recalls that the only edition of the 'Systema' Brisson knew of, in time to make use of it, was the sixth, his criticisms cannot be considered

<sup>1</sup> Ornithologia | sive | Synopsis Methodica | sistens Avium divisionem in Ordines, | Sectiones, Genera, Species, ipsarumque Varietates. | Cum accurata cujusque speciei | descriptione, citationibus auctorum de iis tractantium | nominibus eis ab ipsis & nationibus impositis, nomi- | nibusque vulgaribus. | A. D. Brisson, Regiæ Scientiarum Academiæ Socio. | Opus figuris æneis adornatum. | Volumen I [-VI]. [Design] Parisiis, | Ad Ripam Augustinoram, | Apud Cl. Joannem-Baptistam Bauche, Bibliopolam, | ad Insigne S<sup>uæ</sup>. Genovefæ, & S<sup>ti</sup>. Joannis in Deserto. | — | M. DCC. LX. | Cum Approbatione, et Privilegio Regis.

[Or:] Ornithologie | ou | Méthode | contenant la Divisions des Oiseaux | en Ordres, Sections, Genres, Espèces & leurs Variétés. | A laquelle on a joint une Description | exacte de chaque espece, avec les citations des auteurs | qui en ont traité, les noms qu'ils leur ont donnés, ceux | que leur ont donnés les différentes nations, & les noms | vulgaires, | Par M. [Mathurin Jacques] Brisson, de l' Académie Royale des Sciences. | Ouvrage enrichi de figures en taille douce. | Tome I [-VI]. [Design] A Paris, | Quay des Augustins, | Chez Cl. Jean-Baptiste Bauche, Libraire, à l'Image Sainte | Geneviève & S. Jean dans le Désert. | — | M. DCC. LX. | Avec approbation, et privilege du Roi. — 6 vols. 4to.

Vol. I, pp. xxiv + 526 + lxxiv, 1 l., pll. i-xxxvii; Vol. II, 2 ll., pp. 516 + lxxviii, pll. i-xlvi; Vol. III, 2 ll., pp. 734 + xcii, pll. i-xxxvii; Vol. IV, 2 ll., pp. 576 + liv, 1 l., pll. i-xlvi; Vol. V, 2 ll., pp. 544 + lvi, pll. i-xlii; Vol. VI, 2 ll., pp. 542 + lxxvi, 1 l., pp. 146 + xxii, 1 l., pl. i-xlvii + i-vi: = 12 unpagued leaves, 3,584 pp. text, 456 pp. indexes, 261 plates. Text in Latin and French, in parallel columns.

<sup>2</sup> At the end of the first volume of the work are given extracts from the registers of the Paris Royal Academy of Sciences, to the effect that on August 9, 1758, MM. Duhamel and de Jussieu, having been appointed to examine Brisson's work, 'l'Ornithologie ou le troisième Classe du Regne Animal,' reported that it was a work of unusual merit, and on April 1, 1759, the Academy authorized its being printed with the "approbation de l'Académie." The copyright, under the order of the King, however, is dated "5 Juin 1750."

as without warrant; nor can he be charged with refusing to accept binomial nomenclature when his work was practically completed and partly printed before the binomial system for zoölogy was really in existence.

Brisson knew the birds of the world as no other man of his time knew them, and more thoroughly than any other one man knew them for generations after him. He broke up the incongruous Linnæan combinations of genera into orders and sections, and the incongruous associations of species into additional genera, in many cases closely approximating the group boundaries, especially as regards many of his orders, of modern classifications. Through the recognition of 26 orders in place of the Linnæan 6, and of 115 genera in place of the 51 of Linnæus's sixth edition, or the 63 of his tenth edition, Brisson was able to approximate a much more natural classification of both genera and species. He knew personally from specimens he had actually had in hand over 800 species, through which knowledge he was able the better to correlate those he had not seen and knew only from figures or descriptions. It is thus evident that his indebtedness to Linnæus as a source of information was extremely slight.

#### LINNÆUS'S INDEBTEDNESS TO BRISSON.

As already shown, the publication of Linnæus's tenth edition, although of two year's earlier date than Brisson's own work, was too late to be of much real service to Brisson. While the 'Ornithologia' of Brisson appeared too late to be of use to Linnæus in the preparation of his tenth edition, it was of very great use to him in the preparation of his twelfth edition. Of the 386 species added in the twelfth, 240 are based exclusively on Brisson, and a large part of the others on Brisson and his citations of authors not previously utilized by Linnæus. Of the 15 genera added by Linnæus in his twelfth edition, 14 were taken from Brisson. He did not, however, adopt all of Brisson's genera, nor nearly all of his species, though most of the latter eventually received binomial names at the hands of other compilers. Linnæus was thus the first author to give nomenclatural status to a large number of Brisson's species, but in adopting Brisson's generic groups he renamed most of them.

#### BRISSON'S METHODS AND RESOURCES.

A few excerpts from Brisson's preface will show his viewpoint, methods, and resources. In the first place, as to his resources: He had access, as curator, to the magnificent collection of birds, for that time, of his friend

M. René Antoine Ferchault de Réaumur, the celebrated physicist and naturalist, to which collection accessions were constantly being made from all parts of the world, through Réaumur's numerous and zealous correspondents, during the preparation of Brisson's work. For this reason its publication, the author tells us, was not only considerably delayed in order to insert the many new species thus discovered, but resulted in the addition of others in a final supplement.

His concise résumé of the works of previous authors gives his own point of view. After reference to Belon, the first author, he says, to give some order to this part of natural history, and to Gesner, Aldrovandus, Schwenckfeld, Jonston, Willughby, Ray, and Barrere, he comes to Linnæus's '*Systema Naturæ*.' Of this work he observes that the characters given are insufficient not only for comprehending the species which were new, but also those he has given for the genera, since many of the species placed under them have not the characters indicated for the genus: a just criticism, as known to all users of the '*Systema*.'

After further reference to the literature of the subject, including the works of Mœhring, Klein, and other systematists, and the contributions of others besides the great "historians and systematists," as Hernandez, Marcgrave, Frisch, Albin, Catesby, and Edwards, he goes on to explain his own classification and his methods of procedure. His higher groups, termed orders and sections, are designated merely by numbers, under which are arranged the genera, species and varieties. He says of his plan of classification that he divides the birds into 26 orders, which contain 115 genera, and about 1,500 species and varieties.<sup>1</sup>

The primary divisions, or orders, are based on the characters furnished by the feet and bill, other characters being the number and position of the toes, and their membranes, whether present or absent, and their character when present. The subdivisions of the orders, or the "sections," are founded on the form of the bill, while other particulars determine the genera; and, finally, differences in color distinguish the species.

Regarding his descriptions of the species he says, in effect: "All the birds which I have seen are described with the most scrupulous exactitude. With regard to the others, which are the smaller number, I have been obliged to take them from the authors who have described them. I have only rendered their descriptions analogous to mine, following the same plan for all, to render it easier to compare, in all cases, one species with another, in order to see precisely how they differ. One can thus surely depend upon the descriptions which I have made with the animal under my eyes. As

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<sup>1</sup> The species number 1,336, with about 150 additional "varieties."

guaranty for the exactitude of the descriptions of the other species I cite the authors on which they are based; and in order to distinguish the one from the other, I have marked with two stars the species I have described from the animal itself, and with one star those of which I have seen only some parts. The rest of the description and the entire descriptions of species not thus marked are based on the different authors cited in this work;<sup>1</sup> and I always prefer to follow those who have seen the animal."

Thus one knows, when using Brisson's work, what species were personally known to him and described directly from specimens, and what species are based on the works of previous authors — a point of great interest and value to his successors. We thus have in Brisson's work descriptions which, while to some extent burdened with non-essentials, are among the most detailed and exact in descriptive ornithology. These are supplemented by more than two hundred and sixty uncolored plates, which in artistic execution and exactness of detail far excel any that preceded them, and are still good standards of reference.

He continues: "At the end of each description I indicate the country where the bird described is found: and, for proof that I have advanced nothing that is not certain, I state, at least with regard to the species that form the cabinet of the late M. Réaumur, who the correspondent is who has been willing to take the trouble to collect and send them to him."

#### BRISSON'S GENERA.

All this, and much more that might be taken from Brisson's preface, shows an exact and painstaking author whose devotion to accuracy and appreciation of essential details was rare in his day and generation and is still worthy of emulation. In fact, the superior excellence of Brisson's ornithological work was so apparent as to impress upon the British Association Committee on Zoölogical Nomenclature in 1842, the desirability of conserving Brisson's genera by a special provision when that Committee unwisely adopted the twelfth edition of Linnæus's '*Systema Naturæ*,' instead of the tenth, as the starting-point of the binomial system of nomenclature. Under present codes of nomenclature no such special provision is necessary, since binomial nomenclature, according to all zoölogical codes, begins at 1758. Brisson's nomenclature conforms to Art. 25 of the International Code of Zoölogical Nomenclature, in being binary although not binominal; his generic names meet all the requirements of this Article

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<sup>1</sup> His bibliography at the end of the preface numbers about seventy titles, and includes all of the principal ornithological works of previous authors.

and are available; his specific names are not available, since they are binominal only exceptionally and by chance.

It is of interest in this connection to note the opinion held by so high an authority as the late Alfred Newton (*Dictionary of Birds*, Introduction, pp. 9, 10, 1896) of Brisson's 'Ornithologie,' who says of it: "... a work of very great merit so far as it goes, for as a descriptive ornithologist the author stands even now unsurpassed.... His attempt at classification was certainly better than that of Linnæus; and it is rather curious that the researches of the latest ornithologists point to results in some degree comparable with Brisson's systematic arrangement,.... But greater value lies in his generic or subgeneric divisions, which taken as a whole, are far more natural than those of Linnæus, and consequently capable of better diagnosis. More than this, he seems to be the earliest ornithologist, perhaps the earliest zoölogist, to conceive the idea of each genus possessing what is now called a 'type' — though such a term does not occur in his work; and, in like manner, without declaring it in so many words, he indicated unmistakably the existence of subgenera — all this being effected by the skilful use of names. Unfortunately he was too soon in the field to avail himself, even had he been so minded, of the convenient mode of nomenclature brought into use by Linnæus.... It is certain that the first four volumes were written if not printed before that method was promulgated, and when the fame of Linnæus as a zoölogist rested on little more than the very meagre sixth edition of the *Systema Naturæ* and the first edition of his *Fauna Suecica*."

As already said, Brisson divided the class Aves into 115 genera, or 52 more than Linnæus recognized in 1758. Both Brisson and Linnæus took a large part of their generic names from earlier authors, as Gesner, Ray, and Moehring. Of the 51 genera employed by Linnæus in his sixth edition (the last known to Brisson until his work was two thirds printed) 33, or 65 per cent, are used by Brisson; of the 63 used by Linnæus in the tenth edition 36, or 56 per cent, are found in Brisson, although neither apparently adopted names from the other, but took them from an earlier common source. In the case of the twelfth edition, however, the case is different, since Linnæus obviously took most of his new genera from Brisson, in part retaining Brisson's names for them but in most cases giving them new names.

Taking Linnæus's sixth edition as the only proper starting point in this collation, it is to be noticed that where Brisson separated Linnæus's incongruous generic groups into two, three, or more genera he often, but not always, retained the name of the original group for one of its subdivisions. In other cases he gave new names to all the subdivisions and did not retain the original name for any of them, as in the case of *Falco*, *Tetrao*,

*Trochilus*, *Fringilla*, etc., or employed them in a wholly different sense, as is shown in detail in the following analyses and comparative tables.

# BRISSON AND LINNÆUS STATISTICALLY COMPARED.

## Orders.

1748.	Linnæus, 6th ed.,	6
1758.	" 10th "	6
1760.	Brisson, Orn.,	26
1766.	Linnæus, 12th ed.,	6

## Genera.

1748.	Linnæus, 6th ed.,	51
1758.	" 10th "	63
1760.	Brisson, Orn.,	115
1766.	Linnæus, 12th ed.,	78

## Species.

1748.	Linnæus, 6th ed.,	260
1758.	" 10th "	545
1760.	Brisson, Orn.,	1,386
1766.	Linnæus, 12th ed.,	931

From the above it will be seen that the number of genera recognized by Brisson is not only more than twice the number given in Linnæus's sixth edition, but the number of species is five times greater, the increase in the number of genera being due not so much to the breaking up of the Linnæan genera into smaller groups as to the inclusion of many forms of bird life unknown to Linnæus when he prepared not only the sixth, but even the tenth, edition of the 'Systema.'

It is of interest to note also the steady increase in the number of species in certain well-defined groups from 1748 to 1766, as represented in the sixth, tenth, and twelfth editions of the 'Systema' of Linnæus and in Brisson's work, as shown in the subjoined table. Most of the species added in the twelfth edition are based exclusively on Brisson, but Linnæus appears to have been too conservative to accept all the species recognized by Brisson.

## Genus *Columba*.

1748.	Linnæus, 6th ed.,	4 species.
1758.	" 10th "	22 "
1760.	Brisson, Orn.,	44 "
1766.	Linnæus, 12th ed.,	40 "

## Genus *Falco* (= *Accipiter* + *Aquila* Briss.).

1748.	Linnæus, 6th ed.,	15 species.
1758.	" 10th "	26 "
1760.	Brisson, Orn.,	51 "
1766.	Linnæus, 12th ed.,	32 "

## Genus *Vultur*.<sup>1</sup>

1748.	Linnæus, 6th ed.,	0 species.
1758.	" 10th "	6 "
1760.	Brisson, Orn.,	12 "
1766.	Linnæus, 12th ed.,	8 "

## Genus *Strix* (= *Asio* + *Strix* Briss.).

1748.	Linnæus, 6th ed.,	10 species.
1758.	" 10th "	11 "
1760.	Brisson, Orn.,	20 "
1766.	Linnæus, 12th ed.,	12 "

<sup>1</sup> The genus *Vultur* was established by both Linnæus and Brisson, quite independently of each other — by Linnæus in 1758, by Brisson in 1760. The same is also true of the genus *Emberiza*.



Genus *Caprimulgus*.

1748.	Linnæus, 6th ed.,	0 species.
1758.	" 10th "	2 "
1760.	Brisson, Orn.,	7 "
1766.	Linnæus, 12th ed.,	2 "

Genus *Hirundo*.

1748.	Linnæus, 6th ed.,	5 species.
1758.	" 10th "	8 "
1760.	Brisson, Orn.,	17 "
1766.	Linnæus, 12th ed.,	12 "

Genus *Picus*.

1748.	Linnæus, 6th ed.,	11 species.
1758.	" 10th "	13 "
1760.	Brisson, Orn.,	32 "
1766.	Linnæus, 12th ed.,	21 "

Genus *Trochilus* (= *Polytmus*  
+ *Mellisuga* Briss.).

1748.	Linnæus, 6th ed.,	3 species.
1758.	" 10th "	18 "
1760.	Brisson, Orn.,	36 "
1766.	Linnæus, 12th ed.,	22 "

Genus *Cuculus*.

1748.	Linnæus, 6th ed.,	1 species.
1758.	" 10th "	8 "
1760.	Brisson, Orn.,	28 "
1766.	Linnæus, 12th ed.,	22 "

Genus *Ramphastos* (= *Tucana* Briss.).

1748.	Linnæus, 6th ed.,	4 species.
1758.	" 10th "	4 "
1760.	Brisson, Orn.,	12 "
1766.	Linnæus, 12th ed.,	8 "

Genus *Anas* (= *Anas*+*Anser* Briss.).

1748.	Linnæus, 6th ed.,	25 species.
1758.	" 10th "	39 "
1760.	Brisson, Orn.,	58 "
1766.	Linnæus, 12th ed.,	45 "

BRISSON'S 'ORNITHOLOGIA' COMPARED WITH THE AVES OF THE TENTH  
EDITION OF LINNÆUS'S 'SYSTEMA.'

Although Linnæus's tenth edition was published in 1758 and Brisson's work in 1760, the two works were so nearly contemporaneous in preparation that, as already shown, neither author could have profited much from the labors of the other, except that Brisson in the supplement to his last volume adds about twelve species included in Linnæus's tenth edition on the double basis of Linnæus and Edwards, and about twenty on the basis of Edwards alone (mainly from Part II of the *Gleanings*, 1760).

Brisson's new generic groups number 64, all of which, except one based on a fictitious species, are now in current use. His new generic names number 80, 16 of which are new names for Linnæan genera. Of Brisson's new generic groups, 14 were adopted in essentially the same sense by Linnæus in his twelfth edition, he retaining Brisson's names for 4 of them and renaming 10 of them, while he ignored the other 50. Many of Brisson's generic names, however, have been erroneously accredited to Linnæus at 1766, even by writers who admit the availability of Brissonian names. On the other hand, many writers, taking the twelfth edition of Linnæus as the

starting point for binomial nomenclature, have credited Brisson with many of the Linnæan genera of the tenth edition.<sup>1</sup>

The chief factor operative in bringing discredit upon Brissonian genera is the attribution to him of a large number of names he never used in a generic sense. His genera are clearly defined by a diagnosis; preceding the account of each species is a Latin diagnosis of the species, in each case beginning with the name of the genus under which the species is described, which is the first word of the diagnosis. One of the species, usually the first, bears the same technical name as the genus, while the French vernacular name which introduces the species gives it as *the* species of the genus. For example, under the genus *Phasianus*, the first species is "1. Le Faisan," and the Latin species name is simply "*Phasianus*" = [*Phasianus*] *phasianus*. Under modern rules, such species are the tautonymic types of their respective genera. In the index at the close of each volume the genera and species are listed in the order of their occurrence in the volume, the genera being given as captions to the lists of species and serially numbered with Roman numerals, while the species are serially numbered with Arabic numerals. In this way the groups recognized by Brisson as genera are still further distinctly designated as such.

In the case of large genera, the species are *apparently* arranged in groups, which have been freely interpreted by many subsequent writers as employed by Brisson to indicate sections or subgenera; such names have often been used later as names of genera and attributed to Brisson as though he had used them in a generic sense. That this is an error of conception on the part of later writers is evident on inspecting a large genus like *Columba*, where part of the species names begin with *Columba*, part with *Enas*, part with *Turtur*, and part with *Palumbus*; but the species names beginning with these words are not segregated but are scattered irregularly throughout the genus. They correspond to the vernacular designations *pigeon*, *turtle dove*, etc., as shown by the accompanying French vernacular names, which are merely given a Latin rendering, the text being in both Latin and French, in parallel columns. In the same way, under *Perdix*, we have *Perdix*, *Francolinus*, and *Coturnix* as the first word of the Latin species name, with their French equivalents; but here the species bearing these names stand together in groups. In the same way, *Pavo* and *Crax* occur under *Phasianus*; *Ara*, *Cacatua*, *Lorius* and *Psittacula* under *Psittacus*; *Passerculus*, *Linaria*, *Cardinalis*, *Vidua*, *Fringilla*, *Serinus*, and *Chloris* under *Passer*; *Merula*, *Mainatus*, *Oriolus*, and *Mimus* under *Turdus*;

<sup>1</sup> Waterhouse, in his 'Index Generum Avium' (1889), credited 23 Linnæan genera to Brisson; why he was so inconsistent as not to credit all the Linnæan genera of 1758 to Brisson is not apparent.

and so on with the rest of the larger genera. We have here the original source of many familiar generic names of birds.<sup>1</sup>

In other cases names of this character are repeated under several different genera, as *Cardinalis* under *Tangara*, *Carduelis*, and *Passer*, etc. It is thus evident, from every correct point of view, that they were not intended as names of groups in any taxonomic sense,—in other words, as subgenera, as many writers have assumed. When such names are thrown out as having no technical status, and only the names used by Brisson as names of genera are considered, no fault can be reasonably found with Brisson's genera. They are almost without exception far more natural groups than those recognized as genera by Linnæus, the only contemporary author with whose genera Brisson's can be compared.

Brisson's genera of birds, when additional to those of the tenth edition of the 'Systema Naturæ,' have, in most cases, been accepted by subsequent ornithologists,<sup>2</sup> to the exclusion, in some cases but not in all, of names proposed later for the same groups by Linnæus (1764, 1766). Those additional to the twelfth edition have had almost universal recognition. As, however, there are exceptions to all general rules, an eminent and most excellent ornithologist, Dr. Ernst Hartert, has recently declared that he cannot accept Brisson's genera, since in his opinion they are not genera at all and have no claim to be treated as such; he consequently, in using Brisson's names of genera in his 'Die Vögel der paläarktischen Fauna' and elsewhere, uniformly attributes them to some later author, with or without the statement "ex Brisson." That Brisson's genera, *i. e.*, the groups he himself recognized as genera, are properly "defined" has above been shown.

#### BRISSON'S NEW GENERA AND THEIR LINNÆAN EQUIVALENTS.

Brisson's 65 new genera are based in part (17 of them) on species unknown to Linnæus in 1758, but the greater number (48) are formed by separating the constituents of the Linnæan genera into two or more generic groups, as shown by the following summary:

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<sup>1</sup> Waterhouse (Index Generum Avium, 1889) has credited 23 of these generic names to Brisson, while Gray, fifty years earlier (A List of the Genera of Birds, 1840-1855), accredited most of these and many others to Brisson, which, while now in current use, date only from the authors who first properly employed them for names of either genera or subgenera.

<sup>2</sup> The British Association Code of Nomenclature of 1842, makes an exception in favor of the recognition of Brisson's genera, although published prior to 1766, the date adopted in the Code for the beginning of binomial nomenclature. Thus, under § 2, it is said: "It should be here explained, that Brisson, who was a contemporary of Linnæus and acquainted with the 'Systema Naturæ,' defined and published certain genera of birds which are additional [and likewise prior] to those in the 12th edition of Linnæus's work, and which are therefore of perfectly good authority."

*Gallus* Briss. = *Phasianus* Linn., part.

*Meleagris* Briss. = *Phasianus* Linn., part. = (*Numida*<sup>1</sup> Linn., 1764. Not *Meleagris*<sup>1</sup> Linn., 1758.)

*Lagopus* Briss. }  
*Perdix* Briss. } = *Tetrao* Linn.

*Accipiter* Briss. }  
*Aquila* Briss. } = *Falco* Linn.

*Asio* Briss. = *Strix* Linn. part.

*Coracia* Briss. = *Corvus* Linn. part. Not *Coracias* Linn. 1758 = *Graculus* Koch, 1816, non *Gracula* Linn. 1758.

*Pica* Briss. = *Corvus* Linn. part = *Pica* Linn. 1748, abandoned in his later editions.

*Garrulus* Briss. = *Corvus* Linn. part.

*Nucifraga* Briss. = *Corvus* Linn. part. The Linnæan genus *Corvus*, 1758 = 5 genera of Brisson, 1760.

*Galgulus* Briss. = *Coracias* Linn. part.

*Icterus* Briss. = *Coracias* Linn. 1758, part; nearly = *Oriolus* Linn. 1766.

*Cotinga* Briss. = *Lanius* Linn. part; nearly = *Ampelis* Linn. 1766.

*Muscicapa* Briss. = *Motacilla* Linn. part; = *Muscicapa* Linn. 1766. Almost universally wrongly attributed to Linn. 1766.

*Buphagus* Briss. Not in Linn. 1758; = *Buphaga* Linn. 1766. Both are monotypic with the same type, and the genus should be credited to Brisson.

*Promerops* Briss. = *Upupa* Linn. part.

*Tangara* Briss. Not in Linn. 1758; almost exactly equals *Tanagra* Linn. 1766, of which *Tanagra* is an emendation, both names being based on the Brazilian word *tangara*. Not so nearly = *Tanagra* Linn. 1764. (See below, p. 334.)

*Carduelis* Briss. }  
*Passer* Briss. } = *Fringilla* Linn., nearly.

*Coccothraustes* Briss. = *Loxia* Linn. part.

*Pyrrhula* Briss. = *Loxia* Linn. part. *Loxia* Linn. 1758 was divided by Brisson into three genera, and the name *Loxia* restricted to the single species *L. curvirostra* Linn.

*Colius* Briss. Not in Linn. 1758; = *Loxia* Linn. part 1766.

*Polytmus* Briss. }  
*Mellisuga* Briss. } = *Trochilus* Linn.

*Galbula* Briss. Not in Linn. 1758; = *Alcedo* Linn. part, 1766.

*Bucco* Briss. Not in Linn. 1758; = *Bucco* Linn. 1766.

*Trogon* Briss. Not in Linn. 1758; = *Trogon* Linn. 1766.

*Rupicola* Briss. Not in Linn. 1758; = *Pipra* Linn. 1766, part.

*Manacus* Briss. = *Parus* Linn. part; *Pipra* Linn. 1766, part.

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<sup>1</sup> = "*Gallina* Linn." in Hasselquist's '*Iter Palæstinum*,' 1757; its later republication in Hasselquist's '*Reise nach Palæstina*' in 1762 does not give it tenability, as Linnæus rejected it in 1758, in the tenth edition of his *Systema Naturæ*. "*Monedula* Linn. in Hasselquist," is perfectly parallel with *Gallina*. (Cf. Richmond, Proc. U. S. Nat. Mus., XXIV, pp. 684, 697.)

- Momotus* Briss. } = *Alcedo* Linn.  
*Ispida* Briss. }  
*Todus* Briss. Not in Linn. 1758; = *Todus* Linn. 1766.  
*Rhea* Briss.  
*Casuarius* Briss. } = *Struthio* Linn. 1758, part. *Raphus* = *Didus* Linn. 1766, both  
*Raphus* Briss. } being monotypic with the same type. Brisson divided *Struthio*  
Linn. into 4 genera; *Raphus* should be adopted in place of  
*Didus*.  
*Himantopus* Briss. } = *Charadrius* Linn. part.  
*Pluvialis* Briss. }  
*Vanellus* Briss.  
*Arenaria* Briss. } = *Tringa* Linn. part. Brisson divided *Tringa* into 5 genera,  
*Glareola* Briss. } all now current.  
*Phalaropus* Briss. }  
*Jacana* Briss. Not in Linn. 1758; = *Parra* Linn. 1766.  
*Limosa* Briss. } = *Scolopax* Linn. part. Brisson made 3 genera of *Scolopax* Linn.,  
*Numenius* Briss. } all still current.  
*Scopus* Briss. Not in Linn. 1758; = *Scopus* Gmelin, 1788, to whom the name is  
still often wrongly attributed; both are monotypic with the  
same type.  
*Cochlearius* Briss. Not in Linn. 1758; = *Cancroma* Linn. 1766; the latter is still  
in use by most writers.  
*Ciconia* Briss. } = *Ardea* Linn. part.  
*Balearica* Briss. }  
*Cariama* Briss. Not in Linn. 1758; = *Palamedea* Linn. 1766, part.  
*Anhima* Briss. Not in Linn. 1758; = *Palamedea* Linn. 1766, part, which name is  
still used erroneously in place of *Anhima*. *Palamedea* Linn.  
1766 = *Anhima* + *Cariama* Brisson, 1760.  
*Porphyrio* Briss. } = *Fulica* Linn. part.  
*Gallinula* Briss. }  
*Uria* Briss. Not in Linn. 1758; = *Colymbus* Linn. part, 1766.  
*Fratercula* Briss. = *Alca* Linn. part.  
*Spheniscus* Briss. = *Diomedea* Linn. part.  
*Catarractes* Briss. = *Phaëthon* Linn. part.  
*Mergus* Briss. (non Linn. 1758) = *Colymbus* Linn. part.  
*Puffinus* Briss. Not in Linn. 1758; = *Procellaria* Linn. part, 1766.  
*Stercorarius* Briss. = *Larus* Linn. part.  
*Anser* Briss. = *Anas* Linn. part.  
*Anhinga* Briss. Not in Linn. 1758 = *Plotus* Linn. 1766.  
*Sula* Briss. } = *Pelecanus* Linn. part.  
*Phalacrocorax* Briss. }  
*Corrira* Briss. = avis fict.

## BRISSON'S NEW NAMES FOR LINNÆAN GENERA.

Several of these names were used by Linnæus in his sixth edition but abandoned in the tenth; the others are names used by Mœhring in 1752, or by still earlier authors. Only in the case of the last eight of these names could Brisson have consciously departed from the names adopted by Linnæus in his tenth edition. The case is different with the next list of names, where Linnæus knowingly gave new names to ten of Brisson's genera.

*Gallopavo* Briss. = *Meleagris* Linn.

*Manucodiata* Briss. = *Paradisea* Linn.

*Ficedula* Briss. = *Motacilla* Linn.

*Torquilla* Briss. = *Jynx* Linn.

*Tucana* Briss. = *Ramphastos* Linn.

*Apiaster* Briss. = *Merops* Linn.

*Hydrocorax* Briss. = *Buceros* Linn.  
with additional species.

*Ostralega* Briss. = *Hæmatopus* Linn.

*Platea* Briss. = *Platalea* Linn.

*Albatrus* Briss. = *Diomedea* Linn.

*Rygchopsalia* Briss. = *Rynchops* Linn.

*Merganser* Briss. = *Mergus* Linn.

*Lepturus* Briss. = *Phaëthon* Linn.

*Onocratulus* Briss. = *Pelecanus* Linn.

*Avocetta* Briss. = *Recurvirostra* Linn.

## LINNÆAN (1764 AND 1766) NEW NAMES FOR BRISSONIAN GENERA.

*Buphaga* = *Buphagus* Briss.  
(emendation).

*Oriolus* = *Icterus* Briss. (nearly).

*Plotus* = *Anhinga* Briss.

*Parra* = *Jacana* Briss.

*Cancroma* = *Cochlearius* Briss.

*Didus* = *Raphus* Briss.

*Numida*<sup>1</sup> = *Meleagris* Briss. non Linn.

*Pipra*<sup>1</sup> = *Manacus* Briss. (nearly).

*Ampelis* = *Cotinga* Briss. (nearly).

*Tanagra*<sup>1</sup> = *Tangara* Briss. (emendation?).

## BRISSONIAN NAMES ADOPTED BY LINNÆUS.

*Muscicapa.*

*Bucco.*

*Trogon.*

*Todus.*

Perhaps *Buphagus* (adopted by Linnæus as *Buphaga*) should be added to this list, making 5 Brissonian generic names adopted by Linnæus.

BRISSONIAN NAMES WRONGLY ASCRIBED TO OTHER AUTHORS IN SHARPE'S  
'HANDLIST OF BIRDS.'

Sharpe's 'Handlist of Birds' (1899-1909) may be taken as representing general usage at the time when the several volumes were published, in respect to Brissonian genera wrongly ascribed to other authors, and also in respect to genera wrongly ascribed to Brisson.

<sup>1</sup> These date from 1764.

Of Brisson's 64 new genera, 58 are tenable,<sup>1</sup> and most of them have long been in nearly universal use. The 47 recognized as Brissonian in the 'Handlist,' in the order of sequence in Brisson's work, are the following:

Gallus	Carduelis	Hydrocorax	Porphyrio
Lagopus	Passer	Casuarus	Gallinula
Perdix	Coccothraustes	Himantopus	Uria
Accipiter	Colius	Vanellus	Fratercula
Aquila	Pyrrhula	Arenaria	Spheniscus
Asio	Polytmus	Glareola	Catarractes
Pica	Mellisuga	Phalaropus	Puffinus
Garrulus	Galbula	Limosa	Stercorarius
Nucifraga	Bucco	Numenius	Anser
Icterus	Rupicola	Ciconia	Sula
Cotinga	Manacus	Balearica	Phalacrocorax
Promerops	Momotus	Cariama	

The following 7 Brissonian genera are wrongly attributed by Sharpe (in common with most other authors) to Linnæus at 1766, or to some still later author:

<i>Muscicapa</i> to Linnæus,	<i>Jacana</i> to Schæffer,
<i>Buphagus</i> to Linnæus (as <i>Buphaga</i> ),	<i>Scopus</i> to Gmelin,
<i>Todus</i> to Linnæus,	<i>Rhea</i> to Latham.
<i>Trogon</i> to Linnæus,	

The following 5 Brissonian genera have priority over those commonly in use for the same groups:

- Raphus* should replace *Didus* Linn.
- Anhinga* should replace *Plotus* Linn.
- Cochlearius* should replace *Cancroma* Linn.
- Anhima* should replace *Palamedea* Linn.
- Jacana* should replace *Parra* Linn.

The following 5 names in Sharpe's 'Handlist' are wrongly attributed to Brisson, as they were not (except in the case of *Vultur* and *Emberiza*) employed by him as generic names:

- Fregata* — dates from Lacépède, 1799.
- Botaurus* — dates from Stephens, 1819.
- Steganopus* — dates from Vieillot, 1819.
- Vultur* — dates from Linnæus, 1758.
- Emberiza* — dates from Linnæus, 1758.

<sup>1</sup> The untenable are: *Meleagris* (as used by Brisson), *Gallopavo*, *Coracia* (if too near *Coracias* Linn.; if available *Coracia* Briss. will replace *Graculus* Koch, now in current use for *Coracia* Briss.), *Galgulus*, *Ispida*, *Pluvialis*, and *Corrira*.

## THE RELATION OF SIX BRISSONIAN GENERA TO LINNÆAN GENERA.

The relation of 6 Brissonian genera to Linnæan genera is somewhat involved. These genera are *Merganser*, *Meleagris*, *Ispida*, *Galbula*, *Cotinga*, and *Tangara*, here considered in further detail.

**Mergus Linnæus AND Merganser Brisson.**

The genus *Mergus* Linnæus (1758) contained five species (one of them a synonym), without designation of type; *Merganser* Brisson (1760) contained the same species and nothing else. *Merganser* is therefore a homonym of *Mergus*. The tautonymic type of *Merganser* is *Mergus merganser* Linn., which, under Art. 30f of the International Code of Zoölogical Nomenclature, is also the type of *Mergus*.

**Meleagris Linnæus AND Gallopavo Brisson.**

*Meleagris* (1758) was founded with three species, and no type was designated. *Gallopavo* (1760) contained two species, both of them species of *Meleagris*, with *Meleagris gallopavo* Linn. the type by tautonymy. The third species of *Meleagris* (*M. satyra* Linn.) was transferred by Brisson to the genus *Phasianus*. *Gallopavo* is thus a substitute name for *Meleagris*. The type of *Gallopavo* (*Meleagris gallopavo* Linn.) thus also becomes the type of *Meleagris*, under Art. 30f of the International Code of Zoölogical Nomenclature, which reads: "(f) In case a generic name without originally designated type is proposed as a substitute for another generic name, with or without type, the type of either, when established, becomes *ipso facto* type of the other." (*Meleagris gallopavo* is the species commonly recognized as the type of *Meleagris*.)

**Alcedo Linnæus AND Ispida Brisson.**

*Alcedo* Linnæus (1758) originally contained 7 species (one of them indeterminate), no species being designated as type. Brisson in 1760 established *Ispida* for the kingfishers with *Alcedo ispida* Linn. as the tautonymic type. All of the original Linnæan species of *Alcedo* were kingfishers except one, *A. todus*, which Brisson removed in 1760 to his new genus *Todus*, of which it is the tautonymic type. *Ispida* being a substitute name for *Alcedo*, the type of *Ispida* (*Alcedo ispida* Linn.) is the type of *Alcedo* under Art. 30f of the International Code of Zoölogical Nomenclature, as it is also by subsequent designation (Boie, 1822, and Gray, 1840).



**Cotinga** BRISSON AND **Ampelis** LINNÆUS.

*Cotinga* Brisson (1760) contained ten species, of which two seem to be unidentifiable. The type of the genus is tautonymic — *Cotinga cotinga* Brisson = *Ampelis cotinga* Linn. 1766.

*Ampelis* Linnæus (1766) contained seven species, one of which is not satisfactorily identifiable. Five of them, as shown below,<sup>1</sup> are identical with six of Brisson's species of *Cotinga*, on which four of them are primarily based. The other identifiable species is *Ampelis garrulus*, placed by Brisson in *Turdus* as "*Bombycilla bohémica*."

Linnæus placed six of the eight identifiable Brissonian species of *Cotinga* in his genus *Ampelis*, one in his genus *Lanius*, and to the other he makes no reference. *Ampelis* is thus essentially a substitute name for *Cotinga*.

Of Linnæus's six identifiable species of *Ampelis*, *A. cayana* and *A. maynana* are congeneric with *A. cotinga*, the type of *Cotinga*; *A. garrulus* is congeneric with the type of *Bombycilla* Vieillot, 1807; *A. carnifex* became the type of *Phenicircus* Swainson (1832) by designation of Gray in 1840; *A. pompadora* became the type of *Xipholena* Gloger (1842) by designation of Gray in 1855. If *Ampelis* is not to be construed as a substitute name for *Cotinga*, its type is *A. pompadora*, the last species removed from the genus.

**Coracias** Linnæus AND **Galgulus** Brisson.

*Coracias* Linnæus (1758) contained 6 species and no type was indicated. *Coracias garrulus*, the first species, is the only one of the original species now retained in the genus and this species has long been recognized as its type.

<sup>1</sup> Species of *Ampelis* Linn. 1766.

1. *garrulus* (= *Lanius garrulus* Linn. 1758 = [*Turdus*] *Bombycilla Bohémica* Briss. 1760), congeneric with the type of *Bombycilla* Vieillot, 1807.
2. *pompadora* (= *Cotinga purpurea* Briss.), type of *Xipholena* Gloger, 1842.
3. *carnifex* (= *Cotinga rubra* + *C. cinereo-purpurea* Briss.) = *Lanius carnifex* Linn. 1758), type of *Phenicircus* Swainson, 1832.
4. *cotinga* ([*Cotinga*] *cotinga* Briss.), tautonymic type of *Cotinga* Brisson, 1760.
5. *maynana* (= *Cotinga maynanensis* Briss.), congeneric with No. 4.
6. *cayana* (= *Cotinga cayanaensis* Briss.), congeneric with No. 4.
7. *tersa*, not satisfactorily identifiable.

Species of *Cotinga* Briss. 1760.

1. *cotinga* = *Ampelis cotinga* Linn. 1766.
2. *maynanensis* = *A. maynana* Linn.
3. *cayanaensis* = *A. cayana* Linn.
4. *mexicana*, ex Fernandez and Ray; not identifiable.
5. *purpurea* = *A. pompadora* Linn.
6. *cinereo-purpurea* = *A. pompadora* Linn. ♂ juv.
7. *rubra* = *A. carnifex* Linn.
8. *cinerea* = *Lanius nengeta* Linn.
9. *navia*, not cited by Linn.; = *Ampelis variegata* Gmel.
10. *alba*, ex Joan de Laët; not identifiable.

*Galgulus* Brisson (1760) contained 10 species, with [*Galgulus*] *galgulus* (= *Coracias garrulus* Linn.) as type by tautonymy. Three of Brisson's species of *Galgulus* are now currently referred to *Coracias* Linn.

Brisson retained only one of Linnæus's species of *Coracias* in his genus *Galgulus*, which is its tautonymic type. He referred (in his supplement) two of the others to *Turdus*, and two to his new genus *Icterus*; to the other species he appears to have made no reference. It is thus evident that *Galgulus* Brisson is a substitute name for *Coracias* Linn. Under Art. 30f of the International Code of Zoölogical Nomenclature, the type of *Galgulus* determines the type of *Coracias*, which is fortunately the species hitherto recognized as its type.

### **Tangara** Brisson AND **Tanagra** Linnæus.

*Tangara* Brisson (1760) originally contained 30 species; type [*Tangara*] *tangara* Brisson (by tautonymy) = *Tanagra tatao* auct. ex Linn., 1766. *Tangara* will thus become the name of the genus now known as *Calospiza* Gray, 1840 (formerly *Calliste* Boie, 1829).

*Tanagra* Linnæus, 1764 (Mus. Adol. Frid., II, 30), contained originally only 3 species:

(1) *Tanagra militaris* = *Emberiza militaris* Linn., Syst. Nat., ed. 10, I, 1758, p. 178; now *Leistes* (Vigors, 1825) *militaris*.

(2) *Tanagra albirostris* = *Oriolus persicus* Linn., Syst. Nat., ed. 12, I, 1766, p. 161 = *Parus cela* Linn., Syst. Nat., ed. 10, I, 1758, p. 191; now *Casicus* (Cuvier, 1800) *cela*.

(3) *Tanagra violacea* = *Fringilla violacea* Linn., Syst. Nat., ed. 10, I, 1758, p. 122; now *Euphonia* (Desmarest, 1805) *violacea*.

Species 1 and 3 were included by Brisson four years earlier in his genus *Tangara*, and species 2 in his genus *Icterus*.

Two years later Linnæus (Syst. Nat., ed. 12, I, 1766, pp. 313-317) included 24 species in his genus *Tanagra*, one of which is a duplication (No. 18 = No. 12). Of the remaining 23 species, 21 were included in *Tangara*, 1 in *Icterus*, and 1 in *Muscicapa* by Brisson in 1760. It is from this second use of *Tanagra* by Linnæus (1766) that authors have almost universally taken this genus, instead of from the correct date, 1764.

In case it is held that *Tanagra* is available, its type must be one of the three species originally included in it — either *Tanagra militaris*, *T. albirostris*, or *T. violacea*.<sup>1</sup> Although *T. militaris* would naturally be the type,

<sup>1</sup> Gray in 1840 designated *Tanagra episcopus* as the type of *Tanagra*, but it was not one of the original species. In 1855 he changed the type to *Tanagra jacapa* Linn., which was also not one of the original species.

having been last removed from the genus (as shown above), Richmond, in 1908 (Proc. U. S. Nat. Mus., XXXV, p. 644, Dec. 16, 1908) designated *T. violacea* as the type, *Tanagra* thus replacing *Euphonia* (Desmarest, 1805), while *Thraupis* Boie, 1826 (type by monotypy, *Tanagra archiepiscopus* Desmarest, 1805 = *T. ornata* Sparrmann, 1789) will be the name for the genus now commonly recognized as *Tanagra*, as stated by Richmond (*l.c.*).

Under the A. O. U. Code of Nomenclature *Tanagra* is untenable, being an emendation of *Tangara*, both words being from the Brazilian word *tangara*, of which *Tanagra*, like "tanager," is an obvious variant.

