

NOMENCLATURE OF THE WHITE-FRONTED GOOSE

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Notes and data on the White-fronted Goose (*Anser albifrons*) were originally elaborated for presentation in my projected report on the birds of the Labrador Peninsula, but since the matter is of current interest in view of the expected appearance of the fifth edition of the A. O. U. Check-List, and since there have been certain new developments requiring fuller consideration, I have decided to put my conclusions on record now. The paper is based primarily on a study of the series of specimens (53) of this species in the collection of the Carnegie Museum and of the literature pertaining to the subject. It will be necessary to recapitulate briefly the taxonomic history of this species and its nomenclatural vicissitudes.

The White-fronted Goose was not known to Linnaeus. It was first introduced to science by Scopoli, an Italian author, under the name *Branta albifrons*, in 1769. No locality was mentioned, but it is fair to presume that the specimen he described must have come from Italy, and I would so restrict the type locality. Of course, the species is only a winter resident in southern Europe, since it goes to the far north to breed, as later authors presently discovered. Eventually it was traced completely across the continent of Asia, and then to North America. The long list of references given by Salvadori (1895) and by Alphéraky (1905) testifies to its wide distribution. While it did not escape synonyms, and while certain variations had been noted, it was not until very recently (1948) that convincing proof was offered that more than one race occurred in Europe. Long before this, however, in 1852, Hartlaub had attempted to describe a new "species" of White-fronted Goose from North America, basing his separation wholly on larger size. European ornithologists, confused by his inadequate description, and lacking authentic material representing the American bird, were tempted to refer all large specimens from their side to Hartlaub's *gambeli*.

American ornithologists were almost as much in the dark as their European colleagues, since the American bird passed under the name *gambeli* for many years, and it so appears in three editions of the A. O. U. Check-List. Some thirty years ago, however, Swarth and Bryant (1917) published the results of a study of the White-fronted Geese of California. Their findings were, in brief, that two distinct races of this species occur in that state in the winter, and that these races differ from each other mainly in size, but to some extent also in coloration. The smaller form is the commoner of the two and appears to be identical with true *albifrons* of Scopoli (or so the authors believed). However, they had no European specimens for direct comparison, and their measurements for such were taken from Alphéraky's account (1905). The larger form, they concluded, must be called *gambeli* of Hartlaub, although they admitted some uncertainty about his measurements.

Later Kuroda (1929), like Swarth and Bryant, reproduced Hartlaub's original description, but with millimetric equivalents of the measurements added, and what is more to the point, he cites his own measurements of the three specimens in the Berlin Museum purporting to be Hartlaub's types. The two sets of figures do not agree at all; indeed, the discrepancy is so great as to lead him to question the authenticity of these types as such. Despite his misgivings, however, he accepts the name *gambeli* (or *gambelli*, as he prefers to write it) on the basis of the original description. More clearly even than Swarth and Bryant, he points out the differences between the two races and illustrates them with figures of the head and the tarsus. For the first time, too, we are given measurements of two breeding specimens from the Arctic coast. Concerning these he

remarks they are "evidently larger birds than the three preserved in the Berlin Museum." However, their measurements agree well enough with those of a California winter bird which he figures. He had some eastern Asiatic specimens for comparison, but apparently he had none from Europe.

According to this authority, the so-called Tule Goose is distinguishable from *albifrons* "by enormously larger size." Its tarsus is not only longer, but also thicker in proportion, measuring as it does 84.5 mm. instead of under 79 mm. The bill is thicker and heavier, and the general coloration is darker brown. In our small series of winter specimens from California and Mexico there is none fitting this description; all are by comparison small birds. Another series of twenty-five birds, taken during spring migration in southern Saskatchewan, undeniably average larger than the California birds; some of them, indeed, approximate the larger form in certain measurements, but taken as a whole they seem better referable to the smaller race. My colleague, Dr. Arthur C. Twomey, has examined in addition a good series of breeding birds in other collections (Chicago Museum of Natural History, Chicago Academy of Sciences, Colorado Museum, National Museum of Canada, Conover Collection). These come from various points in northern Alaska, east to Point Barrow. Their measurements agree with those of the winter and migrant examples, so that we can feel reasonably sure that the breeding population of this region is the same (or at least belongs to the same race) as migrates through western Canada and winters from California to the Mississippi Valley and southward into Mexico.

As already said, Kuroda had no European specimens of this goose; his conception of *albifrons* was derived from examination of specimens from eastern Asia, which are not necessarily the same as those from Europe. Alphéraky discusses this point at some length, but ends by declining to recognize any races whatever. But in view of the fact that it was not until 1948 that the discovery was formally announced by Dalgety and Scott that the wintering population of the White-fronted Goose in the British Isles comprised two different races, Alphéraky's opinion need not be taken too seriously. In order to put the newly described race on a sound basis these authors reviewed the taxonomic history of the species. Again the same year Salomonsen went into the case in great detail, in support of the validity of the new race, whose breeding grounds had been ascertained to lie in western Greenland. But none of these authorities presumed to question the allocation of the smaller American race with true *albifrons*. On the contrary, Dalgety and Scott expressly stated that "the American *A. a. albifrons* cannot be distinguished, so far as known, from European and Asiatic *A. a. albifrons*, either by measurement, plumage, bill colour or weight." Salomonsen was similarly explicit.

Now, as it happens, the Carnegie Museum has a small but illuminating series of twelve European specimens of true *albifrons*. Eight of these come from Austria, Montenegro, and Albania, and they may be justly regarded as virtually toptypical of this race. Four (mounted birds) are from Holland; like the others they are winter-taken, but they differ in the darker, browner coloration of their upper parts and wings and in the more brownish suffusion of the neck and under parts generally. The significance of this variation I do not presume to explain beyond suggesting that, since it cannot be seasonal, it could be racial. The two groups agree, however, in their relatively smaller size; they are noticeably smaller than our American specimens, and on this ground alone the latter would be subspecifically separable. Leaving the Holland specimens out of account, and taking only those from Austria and the Balkan States as typical of *albifrons* (a perfectly justifiable procedure), and comparing them with winter specimens from California and Mexico, a marked and constant color-difference emerges. The European birds (both adult and immature) are decidedly grayish or slaty above; the

American birds, on the other hand, are just as decidedly brownish in tone. The difference is especially well marked on the wings and their coverts, which latter are pale mouse gray in the European birds, but hair brown in the American. The color of the lower back and rump differs in the two series in a corresponding way: in the one it is mouse gray; in the other, chaetura drab. The amount of black blotching on the under parts varies in both series, but the ground color in the European birds is almost white, while in the American birds it is strongly shaded with brown, and the throats and necks of the latter are markedly browner (near buffy brown of Ridgway, but duller). My first impression was that the American birds, although seasonally comparable with those from Europe, were actually in a different stage of plumage, but further study convinces me that such can scarcely be the case. Immature specimens show precisely similar differences, and what is more to the point, our series of spring specimens taken on migration are undeniably of the brownish type.

From these considerations it follows that we are no longer justified in referring the smaller of the two American races of this goose to true *albifrons* of Europe. Recognition of this fact has been obscured because toptotypical European material has not heretofore been available for comparison. The odd distribution resulting from the failure to separate a small American race from the Old World bird seems to have escaped comment. I do not at the moment recall a parallel case of distribution. If the smaller American bird is not *albifrons*, what name should it then bear? Ruling out the *gambeli* of Hartlaub, which applies to another and different form entirely, there is only one other name based on the American White-fronted Goose. This is the *Anser frontalis* of Baird (1858), based on two immature birds, one from "Selkirk settlement" (Canada), the other from Fort Thorn, New Mexico. The latter specimen, still extant in the collection of the Philadelphia Academy of Natural Sciences, was marked "Type" by Cassin (*cf.* Stone, 1900:23). This specimen I have not seen, but the measurements Baird gives point unmistakably to the smaller of the two American forms of the White-fronted Goose. Consequently, I believe this should now stand as *Anser albifrons frontalis* Baird.

As to the subspecific identity of the White-fronted Goose of eastern Asia I cannot say, as I have seen no specimens, but I strongly suspect that it will prove to be the same. Alphéraky's list of measurements indicates that eastern Asiatic specimens tend to be larger than European birds. The breeding population of Alaska might very well migrate southward along both coasts of the Pacific.

Of the larger form I have examined only one adult and two immature examples from the Mackenzie Delta, collected by Dr. Twomey in the season of 1942. Their measurements compare favorably with those of the two individuals from the Arctic coast cited by Kuroda, and with those of winter specimens from California. The adult bird is moulting the wings, but it is remarkable for its large bill, heavy tarsus, and brownish coloration, as compared with Saskatchewan spring birds.

Coming now to the question of what name this large form should bear, it becomes necessary to re-examine Hartlaub's original description of his "*Anser Gambelli*" (1852). Swarth and Bryant reproduce this description, as also does Kuroda; the latter author adds in brackets the metric equivalents of Hartlaub's measurements. However, he is quite unable to reconcile these measurements with his own of the supposed type series in the Berlin Museum, and he suggests that the latter may not be the actual types. But it evidently never occurred to him to check Hartlaub's figures for *albifrons* against the measurements of specimens of that race. Moreover, he assumed (as probably did also Swarth and Bryant) that Hartlaub's measurements were in English inches and twelfths of an inch ("lines"), and gave the metric equivalents accordingly. As a matter of fact, however, Hartlaub was accustomed to use the French inch ("Pied du Roi"), which is

somewhat longer than the English unit of the same name (*cf.* Ridgway, 1886, pl. 17). The proper millimetric equivalents for his measurements are as follows:

	<i>A. gambeli</i>	<i>A. albifrons</i>
Length of bill from forehead	63	43
Length of bill from gape	66	47.5
Height of sides of bill	31	24
Length of tarsus	78	58.5
Middle toe	77	70

With this correction made, it will be noted that the figures for *albifrons* correspond very well with my own measurements of our European specimens of that race, also with the measurements given by Alphéraky, and more recently by Dalgety and Scott, and by Salomonsen. By analogy, the figures for *gambeli* should be equally accurate, and so they prove to be upon comparison. The discrepancy between Hartlaub's figures and the actual measurements of his alleged types is thus even greater than Kuroda indicated, because of the difference in the respective units of measurement. Under the circumstances there can be no valid reason for further doubting the pertinence of Hartlaub's name *gambeli* on the basis of his original description, but there also can be no question that the specimens in the Berlin Museum purporting to be his types are not the types at all.

The summer range of this form is still imperfectly known. Preble (1908:302) lists the references known to him, but since at that time the entire breeding population in Arctic Canada was supposed to be *gambeli*, all these records require re-examination. Unfortunately, breeding specimens are still few in number. Such as there are, however, indicate a breeding range extending along the Arctic coast from the Mackenzie Delta east to Repulse Bay, and inland for an indefinite distance. Kortwright (1942:124) recounts the discovery of a breeding colony near the Perry River, south of Queen Maud Gulf, in 1941, by Angus Gavin. Curiously enough, Gavin "also found a nesting colony of the smaller White-fronted Geese about six miles away from the nesting Tule Geese, and states that the two varieties of White-fronts kept strictly apart. A specimen of the large Tule Goose and of the smaller White-fronted Goose were shot." These observations, if confirmed, would go to show that the differences between the two forms are more fundamental than we had supposed—that they are in fact specific and not racial.

The winter range of the large form is also a matter for further investigation. It appears that a certain proportion of the breeding population follows the same route as their neighbors the Ross Goose, and find their way to California, as we learn from Swarth and Bryant and other authorities. But others apparently follow a more direct route to the Gulf coast. One of the implied arguments against the acceptance of the name *gambeli* has been that it was described from "Texas," where it was not known to occur. I cannot at this writing lay my hand on a Texas record supported by a specimen, but Oberholser (1938:89-91) claims that this form is the only one occurring in winter in Louisiana; so I consider it entirely possible that it occurs in Texas, also. The allocation of White-fronted Goose records in the eastern United States will have to be settled by actual examination of specimens. One thing appears fairly certain, however, and that is that the total population of this larger form is much smaller than is that of the smaller kind.

Referring to the "nomenclatorial tangle" outlined by McAtee (1944), and based on the erroneous spelling of the patronymic name by Hartlaub ("*Gambelli*"), I think that this is rather a nomenclatorial quibble. Unhesitatingly, I contend that this spelling is a slip of the pen or a typographical error, and should be corrected, the "one-letter rule" of the Code to the contrary notwithstanding. Accordingly, I believe that the American races of the White-fronted Goose should stand as follows:

Anser albifrons flavirostris Dalgety and Scott, Bull. Brit. Ornith. Club, 68, No. 6, May 7, 1948 (North Slab, Wexford, Eire). Breeds in western Greenland; winters in the British Isles; casual or accidental in eastern North America.

Anser albifrons gambeli Hartlaub, Rev. et Mag. Zool., (2), 4, 1852, 7 ("Texas et l'un du sud de l'Amérique du nord" = Texas). Breeds along the Arctic coast, from the Mackenzie Delta east to Repulse Bay, and inland for an indefinite distance; winters on the Gulf coast of Louisiana and Texas, also in California. Migration route imperfectly known.

Anser albifrons frontalis Baird, in Baird, Cassin, and Lawrence, Rep. Expl. and Surv. R. R. Pacific, 9, 1858, 762 ("Selkirk settlement and Fort Thorn" [New Mexico] = Fort Thorn). Breeds in Alaska (probably also in the District of Mackenzie); winters in the western United States and south to Central Mexico.

MEASUREMENTS OF ADULTS

Carnegie Museum No.	Sex	Locality	Wing	Tail	Exposed culmen	Height of bill	Tarsus
<i>Anser albifrons albifrons</i> :							
10791	♀	Bergen-op-Zoom, Holland	402	122	43	23.5	57
10792	♀	Leiden, Holland	392	123	42	24	58.5
10793	♂	Leiden, Holland	393	118	46	26.8	60.2
108245	♂	Petronell, Austria	390	113	42	24	65
108246	♀	Petronell, Austria	385	112	43	24	62
108247	♀	Petronell, Austria	403	112.5	47	24	60
112699	♂	Crni Zar, Albania	402	125	44.8	24.9	63.8
<i>Anser albifrons frontalis</i> :							
4852	♂	La Barca, Jalisco, Mexico	442	137	48	26	70
21692	♂	Emporia, Kansas	398	123	49.5	27	70
36065	♀	Merced Co., California	398	123	47	27	67
36066	♂	Merced Co., California	417	126	48	26	70
36080	♂	Merced Co., California	415	124	49.3	25.5	66
107046	♂	West Butte, California	423	123	53	25.5	73.5
111459	♀	Pennington, California	412	121	49	23.5	65
111879	♀	Last Mt. Lake, Sask.	432	129	55	26.4	75
111880	♀	Last Mt. Lake, Sask.	426	128.8	55.5	28	75.2
111881	♂	Last Mt. Lake, Sask.	435	130	51	28	71
111883	♂	Last Mt. Lake, Sask.	415	114.5	52	25.9	62
111884	♀	Last Mt. Lake, Sask.	396	124	47.5	25	63
111899	♀	Last Mt. Lake, Sask.	425	124	50.5	26.5	66
111900	♀	Last Mt. Lake, Sask.	420	126	47.8	22.6	68
111902	♂	Last Mt. Lake, Sask.	430	123.5	55	27.3	73
111905	♂	Last Mt. Lake, Sask.	445	133	53	26.5	75.5
111916	♂	Last Mt. Lake, Sask.	125	53.3	29	76
111917	♂	Last Mt. Lake, Sask.	420	123	57	28.6	69.2
111918	♂	Last Mt. Lake, Sask.	445	139	55	28.5	69.5
111949	♂	Last Mt. Lake, Sask.	425	125	56	28	70
111950	♂	Last Mt. Lake, Sask.	425	132	57	29	73
119312	♂	The Pas, Manitoba	415	126.5	49.8	26	69.8
119313	♂	The Pas, Manitoba	420	130	53	29	70.5
<i>Anser albifrons gambeli</i> :							
129536		Loon Channel, NW. Terr.		121.5	60	28	77

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