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Systematic Notes on Palearctic Birds. No. 19 Fringillidae: the Genera *Fringilla*, *Serinus*, *Carduelis*, and *Acanthis*

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The following notes were made during a study of the genera named in preparation of a contemplated check list of the birds of the Palearctic region. They include the description of a new subspecies of *Serinus leucopygius* and a discussion of the morphology and affinities of *Serinus serinus* and *S. canaria* which I suggest are separate species. Among the other species discussed, those reviewed in detail are *Carduelis chloris*, *C. carduelis*, and *Acanthis flavirostris*.

I am grateful to my friends Dr. Dean Amadon and Capt. Jean Delacour for their help and advice. Dr. Amadon has read and criticized the manuscript, and Captain Delacour has discussed with me *Serinus serinus* and *S. canaria*, giving me the benefit of his long experience with these birds in life.

Fringilla coelebs

The Chaffinch is represented in the Azores by the subspecies *moreletti* Pucheran which appears to vary slightly in the different groups of islands. This variation was noticed by Hartert and Ogilvie-Grant (1905, *Novitates Zool.*, vol. 12, pp. 122–124) in their basic paper on the Azores, but they state that although at first they believed it to be geographical they came to the conclusion “that only one somewhat variable form exists.” Chavigny and Mayaud (1932, *Alauda*, vol. 4, pp. 416–420), discussing the statement of Hartert and Ogilvie-Grant, believe that such variation as does exist is individual and slight if birds of the same age

are compared. They make no mention of the possibility of geographical variation. However, in view of the fact that the material I have examined shows some evidence of geographical variation (besides age and individual variation), these birds may be briefly discussed.

In the long series of 90 adult males available to me, which include specimens from all the islands, those from the two islands of the eastern group (Santa Maria and São Miguel) average somewhat paler and brighter on the head and back than specimens of the same age in comparative plumage from the islands of the central group (Terceira, Graciosa, São Jorge, Pico, and Fayal) and western group (Flores and Corvo). In addition, the specimens from the eastern islands are somewhat more extensively suffused with green than those from the central islands, while those from the western islands show the least amount of green. It seems also that the birds from the two western islands may be very slightly larger. The range of variation in the wing length of adult males is about the same in all the islands, from 82 to 90 mm., but whereas the average varies between 84 and 85 in the eastern and central islands, it is 86.5 on Flores, and the only two birds measured from Corvo measure 87 and 88. It must be emphasized, however, that all the differences are slight and not perfectly constant and do not warrant the nomenclatural separation of any one population.

Three races are recognized in northwestern Africa. Ranging from west to east they are: *koenigi* Rothschild and Hartert, 1893, type locality, Tangier, for the populations of Morocco; *africana* Levaillant, 1850, type locality, Algeria, for the populations of this country; and *spodiogenys* Bonaparte, 1841, type locality, Sfax, southern Tunisia, for those ranging from Tunisia eastward to Cyrenaica. In my opinion, however, *koenigi* (discussed below) is a synonym of *africana*, and it might be more constructive not to admit even this latter but to recognize *spodiogenys* alone.

In the material that I have examined, topotypes of *spodiogenys* are separable from topotypes of *africana* by being paler, but at the eastern end of the range of the species in northern Africa, namely, in Cyrenaica, the population of which has hitherto been called *spodiogenys*, the population becomes darker again. My material from Cyrenaica is more or less intermediate in coloration between topotypes of *spodiogenys* and *africana*, while the material recently collected in Cyrenaica and studied by Hall and Goodwin (1954, in Sanford, Ibis, pp. 621-622) is closer to *africana* and referred to this race by these authors. In view of the fact that the geographical variation is irregular, it might be better to recognize nomenclaturally only one race in northwestern Africa, observing that

this race is paler in Tunisia, but, as stated above, the fact remains that topotypical *spodiogenys* and topotypical *africana* are separable.

Hall and Goodwin observed that the bill is longer and more attenuated in their specimens from Cyrenaica than in either *africana* or *spodiogenys* but that the difference is slight and insufficient to warrant nomenclatural separation. In the males they measured, it was 16–18 in length in specimens from Cyrenaica as against 14–16 in *spodiogenys* and 15–16 in *africana*. My specimens from Cyrenaica show the slight difference noted by these authors, but it is not constant and apparently less well indicated than in their specimens. In adult males measured by me, those from Cyrenaica have a bill length of 16.5, 17, 17, 17.5, 17.5, 17.5, 17.8, 18 as against 16, 17, 17, 17.5, 17.5 in topotypes of *spodiogenys* and 15, 15, 15.5, 15.5, 16, 16, 16.5, 16.5, 16.8, 17 in specimens of *africana* from Algeria taken at random.

The validity of *koenigi* has already been questioned by Lynes (1924, *Novitates Zool.*, vol. 31, p. 67) who thought it was “just” barely recognizable, and by Meinertzhagen (1940, *Ibis*, p. 132) who rejected it altogether, observing that “there appeared to be no constant differences between Algerian, Tangier, and Moroccan specimens.” Hartert, who had formerly included Marrakech in southern Morocco within the range of *koenigi*, later restricted this form to northernmost Morocco, to Tangier and the Rif, but a large series of adult males examined by me confirms Meinertzhagen’s observation. The series consists of 12 specimens from the Rif and Tangier which include the type and paratypes of *koenigi*, 37 from the Moyen, Grand, and Anti Atlas collected as far south as Tiznit, and 25 from Algeria.

Many races have been described from continental and insular Europe, and one from western Siberia, on small differences in coloration, such as the general degree of saturation or variations in the tinge of cinnamon or pink on the cheeks and under parts, or whether the color of the back is more or less extensively mixed with chestnut or green. These differences are very slight, and most populations, including the population of Sweden, the type locality of nominate *coelebs* Linnaeus, 1758, show, besides, a rather high degree of individual variation. Hartert and Hartert and Steinbacher (1904–1932, *Die Vögel der paläarktischen Fauna*), who were fully aware that nominate *coelebs* is not uniform throughout its range, contrary to the assertion advanced by Harrison (1947, *Ibis*, pp. 411–418) that they failed to recognize this, synonymized virtually all of the proposed races with nominate *coelebs*. However, some subsequent authors, notably Harrison (1934, *Ibis*, pp. 396–398; 1945, *Bull. Brit. Ornith.*

Club, vol. 61, pp. 4-7; and 1947, *loc. cit.*) have revived most of them and described still others.

While it is of interest to note that this species is very plastic, such excessive splitting seems to me most misleading and an abuse of the subspecies concept. It confuses the pattern of geographical variation, and I therefore follow Hartert and Hartert and Steinbacher in considering the following forms admitted by some subsequent authors to be synonyms of nominate *coelebs*: *hortensis* C. L. Brehm, 1831, type locality, central Germany; *tyrrhenica* Schiebel, 1910, type locality, Corsica; *balearica* von Jordans, 1923, type locality, Balearic Islands; and *sarda* Rapine, 1925, type locality, Sardinia. To these I add *wolfgangi* Teplouchow, 1921, type locality, western Siberia, and three forms described since the last revision of this species by Hartert and Steinbacher in 1932. These, described by Harrison (1945, *loc. cit.*), are *iberiae* from the Iberian Peninsula, *syriaca* from Syria, and *cypriotis* from Cyprus.

This treatment differs from that of Hartert and Steinbacher only in that I believe that *gengleri* Kleinschmidt (1909, type locality, England) is a valid race, although it was synonymized by them with nominate *coelebs*. The differences between nominate *coelebs* and *gengleri* are slight but are constant in the material examined. Male *gengleri* differs, in worn plumage, by being darker on the lores, sides of the face, and under parts; browner, less reddish. I have examined material from Scotland and agree with the official check list of the birds of Great Britain and Ireland (1952, London, British Ornithological Union, p. 98) that *scotica* Harrison (1937, Bull. Brit. Ornith. Club, vol. 57, p. 65, type locality, southwestern Scotland) is a synonym of *gengleri*. Specimens from southwestern Ireland are not available to me, but I believe that it is best to synonymize provisionally with *gengleri* the form recently described from this region as *hibernica* by van Marle (1949, Bull. Brit. Ornith. Club, vol. 69, p. 118). Additional specimens in various plumages should be collected from southwestern Ireland to ascertain whether or not *hibernica* is sufficiently well differentiated and constant.

Hartert and Steinbacher were unable to comment on *wolfgangi*, listing it with a query. Specimens from western Siberia are not available to me, but *wolfgangi* is listed as a synonym of nominate *coelebs* in the "Birds of the Soviet Union" (1954, vol. 5, p. 287). Its validity is accepted by Johansen (1944, Jour. Ornith., vol. 92, pp. 56-57), but it must be too poorly differentiated from nominate *coelebs* to warrant its recognition, because Johansen states that, although *wolfgangi* averages paler, the difference between it and nominate *coelebs* is very slight and not constant. The Siberian populations average larger, but the individual

measurements given by Johansen show a great deal of overlap, the wing length in males of nominate *coelebs* from western Russia being, according to Johansen, 83, 85, 85, 86, 86, 86, 87, 88, 89, 90 as against 87, 87, 88, 88, 88, 89, 89, 89, 89, 90, 90, 91, 91, 93, 93, 94 in males from Tomsk, the type locality of *wolfgangi*. The author of *wolfgangi* is variously quoted as being Salessky (by Hartert and Steinbacher) or Johansen (in the "Birds of the Soviet Union") but, according to Johansen, the correct author is Teplouchow (1921, Anz. Tomsk Ornith. Ver., p. 70).

Fringilla montifringilla

Some authors, such as Johansen (1944, Jour. Ornith., vol. 92, pp. 58-59), who cites a similar opinion of Portenko, believe that an eastern race (*subcuneolata* Kleinschmidt, 1909, type locality, Japan) of the Brambling is recognizable. He states that the eastern populations are brighter, "more strongly pigmented," than those of western Siberia and Europe but adds that the differences are not great. However, the "Birds of the Soviet Union" (1954, vol. 5, p. 292) and most other authors consider this species to be monotypic. I too fail to see any constant differences between specimens from the extremes of the range. Hartert long ago came to the same conclusion (1920, Novitates Zool., vol. 27, p. 157). The material examined by me consists of nearly 200 specimens, about equally divided between birds collected at the western end and those from the eastern end of the range of the species.

Serinus leucopygius

This species ranges from Senegal and Gambia eastward through French Soudan, Niger, and northern Nigeria to the valleys of the White and Blue Niles and extends rather far north, penetrating into the Air Massif. It is divided into two subspecies: nominate *leucopygius* Sundevall, 1850, type locality, Sennar, Anglo-Egyptian Sudan, for the populations in the valleys of the White and Blue Niles; and *riggenbachi* Neumann, 1908, type locality, Thiès, Senegal, for the remaining populations. In my opinion, however, birds from northern Nigeria northward through Zinder and Damergou to the Air are a distinct form, separated below as a new subspecies.

The material examined consists of 13 specimens of *riggenbachi* (one from Gambia, and 12 from Senegal, the latter being the type and paratypes of *riggenbachi*), 13 of nominate *leucopygius* from the valley of the White Nile, and 10 specimens of the new race. The latter, which were discussed by Hartert (1921, Novitates Zool., vol. 28, p. 135), include two from Kano in northern Nigeria, three from Zinder, three from

Damergou, and two from Azzal, north of Agadés, in the Air Massif. Hartert stated that those from northern Nigeria, Zinder, and Damergou agree with *riggenbachi* from Senegal, but although they agree in having the same pattern (*riggenbachi* and the new race differ from nominate *leucopygius* by having the throat and upper breast whitish mottled with dusky, rather than a uniform gray brown) they are distinctly paler than the type and paratypes of *riggenbachi*. The two specimens from Azzal are still paler, and Hartert suggested that they possibly represented a new subspecies which, however, he refrained from describing, stating that two specimens were insufficient. Nevertheless, he was much struck by the color difference, as his manuscript notes on the labels show. In my opinion these two specimens, as well as those from northern Nigeria, Zinder, and Damergou, cannot be referred to *riggenbachi*, and I propose to separate them as:

Serinus leucopygius pallens Vaurie, new subspecies

TYPE: A.M.N.H. No. 713404, Rothschild Collection; adult female; Azzal, north of Agadés, Air Massif; July 14, 1920; A. Buchanan, collector.

DIAGNOSIS: Similar to *riggenbachi* but conspicuously paler above and on the wings and tail, shaft streaks of the feathers of the upper parts narrower, these and the dark centers of the feathers paler, dusky streaks at the sides of the throat and on the breast on the average paler and less numerous.

RANGE: Air Massif, as well as northern Nigeria, and the regions of Zinder and Damergou. Specimens from these last three regions are less pale than the specimens from Azzal, as stated above, but nevertheless should be referred to *pallens*, because when compared as a series to topotypical *pallens* and topotypical *riggenbachi* they are very much closer in coloration to the former.

There is no agreement as to the vernacular English name of this species. Sclater (1924, *Systema avium Ethiopicarum*) calls it the "White-rumped Seedeater" and he is followed by Cave and Macdonald (1955, *Birds of the Sudan*). Bannerman (1948, *The birds of tropical West Africa*, vol. 6) calls it the "White-rumped Serin" or the "Grey Canary," and another name in use is the "Gray Singing Finch."

Serinus serinus and *Serinus canaria*

Serinus serinus of Europe and northwest Africa and *Serinus canaria* of the Canaries, Madeira, and the Azores are treated as conspecific in all modern standard works, but this is open to question. Mr. Jean Delacour,

who has had a long experience with these birds in aviaries, has called my attention to this question, telling me that he has no doubt that the two are separate species. Their songs are very different. The well-known song of the canary is clear, rich, and melodious, but that of the serin is sibilant and jangling. The difference in song is not necessarily conclusive, but the specific distinctness of the two is supported by important morphological differences. *Serinus canaria* is a larger bird in every way (table 1), and Delacour believes that it is probably Ethiopian in its affinities rather than Palearctic and more closely related to *Serinus canicollis* of South Africa than it is to *S. serinus*.

Table 1 shows that *S. canaria* has a longer tail than *S. serinus*, similar in size and proportions to that of *S. canicollis*, but its wing length is only slightly longer than that of *S. serinus*. The difference in proportions is quite striking. In well-made skins of birds in fresh plumage, the tip of the wing in *S. canaria* usually falls well short of the longest upper tail coverts, but in *S. serinus* it extends distinctly beyond the coverts. The feet of *S. canaria* are very much larger. The tarsus is thicker, much longer, and the toes and claws are almost twice as strong and large. The bill is distinctly larger in *S. canaria* in every way. The bill and feet of *S. canicollis* are similar or very much closer to those of *S. canaria* than they are to those of *S. serinus*.

TABLE 1
MEASUREMENTS AND PROPORTIONS OF TEN ADULT MALES EACH OF
Serinus serinus, *Serinus canaria*, AND *Serinus canicollis*

	<i>S. serinus</i>	<i>S. canaria</i>	<i>S. canicollis</i>
Wing	67-73 (71)	72-77 (73.5)	74-80 (77.5)
Tail	44-49 (45.5)	53-60 (56.5)	52-58 (54.0)
Wing/tail ^a	64	72	70
Tarsus	11-13 (12)	16-19 (17.5)	15-18 (16.2)
Bill length	5-6 (5.3)	6-6.5 (6.1)	5.5-6.5 (6.1)
Bill width ^b	10-11 (10.6)	12-13.5 (12.8)	12-13.5 (12.7)

^a Proportion, in per cent, of the length of the tail to that of the wing.

^b Measured at the base of the nostrils.

In general coloration and pattern, *S. canaria* is about intermediate between *S. serinus* and *S. canicollis*, with the exception of its heavily streaked back which is similar to that of *S. serinus*. This is shown by the pattern of the head and under parts which in *S. canaria* is closer to that

of *S. canicollis*. *Serinus canaria* is less streaked on the flanks than *S. serinus*, and the yellow pigments reach farther down. It thus approaches more closely *S. canicollis* below. *Serinus canaria* and *S. canicollis* are grayer on the crown than *S. serinus*, and the patch of yellow on the fore-crown is not so clearly indicated as in *S. serinus* and with wear does not become very sharply delimited and pure yellow as it does in *S. serinus*. The latter shows also a more or less sharply indicated band of yellow at the hind neck which is lacking or reduced to a trace in *S. canaria* and lacking altogether in *S. canicollis*.

Carduelis chloris

The geographical variation of the Greenfinch has been discussed by Clancey in several papers and summarized in two which deal chiefly with the European forms (1943, Bull. Brit. Ornith. Club, vol. 64, pp. 27-31; and 1948, *ibid.*, vol. 68, pp. 137-141). Meinertzhagen has commented on the forms of western Europe (1947, Bull. Brit. Ornith. Club, vol. 68, pp. 21-22), and Voous (1951, *Limosa*, vol. 24, pp. 81-91) has reviewed the species. This last author recognized nine subspecies, two of which have been described since Hartert and Steinbacher's "Die Vögel der paläarktischen Fauna" (1932, suppl. vol., pp. 37-38). They are *harrisoni* Clancey (1940, *Ibis*, p. 92, type locality, southwestern Scotland), and *vanmarli* Voous (1951, *loc. cit.*, type locality, Portugal). Another race has been described by Clancey from Great Britain which he called *restricta* (1943, Bull. Brit. Ornith. Club, vol. 63, p. 65, type locality, Wiltshire, southern England) which Voous considers a synonym of *harrisoni*.

Because my treatment differs from that of Voous in that I believe that the geographical variation of this species is adequately expressed nomenclaturally by the recognition of only four subspecies, these are briefly discussed below. About 350 specimens were examined.

1. Nominate *chloris* Linnaeus, 1758, type locality, Sweden, with *harrisoni* and *restricta* as synonyms, as well as *madaraszi* Tschusi, 1911, type locality, Corsica, which is recognized by Clancey and Voous. About one-third of the one hundred odd specimens that I have examined from England are not separable in my opinion from nominate *chloris* from the continent and Sweden. In the others, the males when compared in series average somewhat greener below, less yellow, while the females are very slightly browner above. It is only in northern England and southern Scotland that specimens can be found that are appreciably darker than nominate *chloris* in both sexes, above and below. Apparently, as stated by Voous, a cline of increasing saturation runs northward through England to southern Scotland. In my opinion, however, it is sufficient to note

the existence of this cline without separating these populations nomenclaturally from nominate *chloris*, and I therefore follow the opinion of the official check list of the birds of Great Britain and Ireland (1952, London, British Ornithological Union, p. 98) in considering *harrisoni* and *restricta* to be synonyms of nominate *chloris*. It may be objected that it is desirable to give a name to the populations at the end of the cline (in this case it would be sufficient to recognize *harrisoni* only), but this is open to question, as apparently the cline is reversed in central and northern Scotland, and the populations are again, according to Clancey (1940), virtually identical with topotypical nominate *chloris*.

The populations (*madaraszi*) of Corsica and Sardinia are said to be darker and browner than nominate *chloris*, but this is not confirmed by a series of 12 specimens of both sexes examined from the two islands, all the specimens falling perfectly within the range of individual variation of nominate *chloris*.

2. *Carduelis chloris aurantiiventris* Cabanis, 1850, type locality, southern France, with *mallorcae* von Jordans, 1923, type locality, Balearic Islands, and *vanmarli* as synonyms. This race, which replaces nominate *chloris* in southern and southeastern Europe, Asia Minor, the Mediterranean islands with the exceptions of Corsica and Sardinia, and northwestern Africa, is brighter green above and more yellow below, a brighter and more golden yellow. Voous refers all the birds of the Iberian Peninsula and those of the region of Tangier in Africa to *vanmarli*, which he states is darker and purer green above and brighter and more golden, less sulphur yellow, on the abdomen than *aurantiiventris* in the males and purer green and yellow, less grayish, in females. I am unable, however, to separate a series of seven males and two females from Spain and a similar series of nine specimens from Tangier from a large series of *aurantiiventris* and do not consider that *vanmarli* is valid. The best that can be said is that two of the seven males from Spain and three of the seven from Tangier are somewhat darker and purer green above than is usual in *aurantiiventris*, but the difference is very slight.

Voous upheld the validity of *mallorcae*, stating that birds from the Balearic Islands are very similar to those of Spain but are less green, grayer on the crown and sides of the head and less bright golden yellow, and differ also from all the other populations of the species by having a proportionately shorter tail, 59 per cent of the length of the wing as against 61–64 per cent. Six males from the Balearic Islands examined by me fail to confirm any difference whatever in coloration or proportion, and I consider that *mallorcae* is not valid. Ticehurst and Whistler (1930, Ibis, p. 643) had found already that specimens from Mallorca match

specimens in comparative plumage from Spain and from southern France. Concerning measurements, seven males from Spain measure, wing 83–90 (86), tail 49–55 (52.1), while six from the Balearic Islands measure, respectively, 84–88 (86.3), 49–56 (52).

Only a few specimens are available from Crete and Cyprus. They differ slightly from *aurantiiventris* but not sufficiently so as to warrant their separation from this race. Three males from Crete average a little less golden yellow below, while five from Cyprus average a little grayer on the crown and back than is normal in *aurantiiventris*. Immatures from Crete are not separable from immatures from northwestern Africa. The population of Cyprus is occasionally referred to *chlorotica* but judging by the specimens mentioned should be called *aurantiiventris* instead.

3. *Carduelis chloris chlorotica* Bonaparte, 1850, type locality, Syria. This race, which replaces *aurantiiventris* in the Near East, is similar to that race but paler above and below. In fresh plumage it is grayer above, and in worn plumage the upper parts, particularly the forecrown, are distinctly more invaded by yellow.

4. *Carduelis chloris turkestanicus* Zarudny, 1907, type locality, upper Chirchik River, Turkestan [near Tashkent, Uzbekistan], with the following as synonyms: *bilkevitchi* Zarudny, 1911, type locality, Ashkhabad, southern Transcaspia; *menzbieri* Moltchanov, 1916, type locality, Crimea; *kaukasicus* Gengler, 1920, type locality, Vladikawkas, northern Caucasus; and *smithae* Koelz (1939, Proc. Biol. Soc. Washington, vol. 52, p. 74), type locality, Balkh, Afghan Turkestan. This race is grayer than nominate *chloris*, less suffused with yellow than *chlorotica*, and paler and much less golden yellow below than *aurantiiventris*. It replaces these three races from the Crimea eastward through the Caucasus and Transcaucasia eastward through northern Iran to northern Khorasan and southern Transcaspia, reoccurring in the mountains of southern Russian Turkestan. It is migratory, wintering in Iran, Iraq, and northern Afghanistan. The "Birds of the Soviet Union" (1954, vol. 5, p. 185) has synonymized *menzbieri* and *kaukasicus* with *bilkevitchi*, but in my opinion as expressed in an earlier publication (1949, Amer. Mus. Novitates, no. 1424, pp. 6–8) *bilkevitchi* and *smithae* are not valid and are synonyms of *turkestanicus*. Zarudny separated *bilkevitchi* from *turkestanicus* on the basis of smaller size, and Koelz separated *smithae* from these two on differences in coloration. However, as I showed in 1949, the individual measurements of *bilkevitchi* and *turkestanicus* show too much overlap to warrant separation, while *smithae* is based on an individual variant singled out of four winter visitors of *turkestanicus* to northern Afghanistan.

Carduelis carduelis

The Goldfinch is split in about two dozen races, but, if exception is made of the color of the crown (black in the races of the nominate *carduelis* group, gray in those of the *caniceps* group), the geographical variation is relatively slight and the number of races can, I believe, be reduced to 12. The variation is chiefly clinal in character, and the races that can be eliminated are poorly differentiated intermediates or consist of insular or peripheral forms with slight or inconstant population characters. For a discussion of the Russian and Siberian populations, their clinal variation, and mixed populations between the black and the gray-headed races, see Johansen (1944, Jour. Ornith., vol. 92, pp. 34-37), and for a discussion and map of distribution of the races in Asia, see Vaurie (1949, Amer. Mus. Novitates, no. 1424, pp. 9-19). The races that seem to me to be sufficiently differentiated to warrant their nomenclatural recognition are the following.

BLACK-HEADED RACES

1. *Carduelis carduelis major* Taczanowski, 1879, type locality, Turkestan. This race, which is the largest and palest, with very whitish under parts and an almost pure white rump, represents the eastern end of the northernmost cline, one of increasing size and decreasing saturation, which runs from west to east from Scandinavia to Siberia. The western limits of *major* are difficult to define, although they are set at the Urals by the "Birds of the Soviet Union" (1954, vol. 5, pp. 190-200). Over a large area, extending from about Tobolsk in western Siberia, according to Johansen, westward across the Urals to the region east of the Volga in Russia and perhaps as far west as Moscow, the populations are intermediate to a varying degree in size and coloration between *major* and nominate *carduelis* from Scandinavia and western Russia. They have received the name *volgensis* Buturlin, 1906, type locality, Simbirsk, now Ulyanovsk, on the Volga. This race was recognized by Dementiev (1934, L'Oiseau, p. 274) in his "Systema avium Rossicarum" but dropped later by him and his collaborators in "Birds of the Soviet Union" (cited) where it is not mentioned, even as a synonym. Because birds that I have examined from eastern Russia are on the whole nearer in their characters to nominate *carduelis* than to *major*, it seems best to synonymize *volgensis* with nominate *carduelis*. Wolters (1953, Bonner Zool. Beitr., vol. 3, p. 280) has proposed the new name *frigoris* for *major* Taczanowski, because the latter becomes preoccupied by *Cannabina major* C. L. Brehm, 1835 (a synonym of *Acanthis c. cannabina* Linnaeus), if *Acanthis* Bork-

hausen, 1797, is merged with *Carduelis* Brisson, 1760, but I prefer to keep these genera separate.

The clinal variation in size, as expressed in the wing length of adult males measured by me, is: nominate *carduelis*, East Prussia and Germany, 79, 80, 81, 81, 83; Scandinavia, 81, 82, 82, 83; Pskov in western Russia, 82; "*volgensis*" from eastern Russia, 83, 84, 84, 85, 86, 88; *major* from Turkestan, 84, 84, 85, 86, 87, 88, 89. Johansen (*loc. cit.*) gives the wing length of males of nominate *carduelis* as 78–84, of "*volgensis*" from Moscow, Urals, and Tobolsk as 85–87, and of *major* as 85–89.

2. *Carduelis carduelis carduelis* Linnaeus, 1758, type locality, Sweden, with the following as synonyms: *volgensis* Buturlin (discussed above); *rumaeniae* Tschusi, 1909, type locality, Romania; and *celtica* Mayaud (1932, *Alauda*, p. 214), type locality, western France. The birds of northern, western, and central France are also intermediate to a varying degree along a cline of decreasing size, increasing saturation, and change in the color of the mantle towards gray rather than rufous, which runs from north to south through western continental Europe to northwest Africa, nominate *carduelis* and *parva* Tschusi (see below) representing the two ends of the cline. This fact was noted by Mayaud in his description of *celtica*, but in 1953 (*Alauda*, pp. 59–60) this author, in his corrections to his check list of the birds of France (1936, *Alauda*, pp. 155–156), made no mention of *celtica*, even as a synonym, although he had recognized it in 1936. In 1953, Mayaud divided the birds that breed in France between two races, *parva* for those of the Pyrenees and Mediterranean region and *britannica* Hartert (see below) for the other populations. I agree with Mayaud as far as the southern populations are concerned, but it seems to me that the others are better called nominate *carduelis* (of which *celtica* becomes a synonym) than *britannica*, and it should be noted that Mayaud had some reservations in referring them to *britannica*.

Tschusi described *rumaeniae* as "the darkest of all goldfinches," and this race is usually recognized, although it does not seem to have been studied critically. Only four specimens are available to me from Romania which have already been discussed by Hartert (1921, *Die Vögel der paläarktischen Fauna*, p. 2049). They were collected from March to May and may have been local birds. They are not darker above than nominate *carduelis* in comparative plumage from Scandinavia, and although they vary below individually their variation falls within the range of the individual variation of birds from Scandinavia or Germany. Hartert stated that *rumaeniae* required further study, and until then, I believe this name is best considered as a synonym of nominate *carduelis*.

3. *Carduelis carduelis parva* Tschusi, 1901, type locality, Madeira, with the following as synonyms: *africanus* Hartert, 1903, type locality, Morocco; *weigoldi* Reichenow, 1913, type locality, Portugal; and *propeparva* von Jordans, 1923, type locality, Balearic Islands. This race differs from nominate *carduelis* chiefly by being smaller (the wing length of 10 adult topotypical males measured by me being 72–78, average 75, as against 79–83, average 81.4, in the 10 males of nominate *carduelis* listed above). It differs also, though the differences are not constant, by usually having a weaker, shorter, and more slender bill, by being usually grayer and darker, less rufous on the mantle, and by being somewhat more saturated, darker brown, on the breast and flanks. All the populations combined under the name of *parva* (from southern France and the Iberian Peninsula to north Africa, the Balearic Islands, Canaries, Madeira, and the Azores) differ very slightly from one another when compared in series, and no other group of populations of the species has been discussed so extensively in the literature with so many contradictory assertions and opinions. In recent years, however, it has become increasingly clear as stated, for instance, by von Jordans and Steinbacher (1942, Ann. Naturhist. Mus. Wien, vol. 52, pp. 208–209) that it is impossible to uphold the validity of the three forms listed above as synonyms. The material examined, consisting of the following specimens, confirms this opinion: southern France and Pyrenees, five specimens; Spain, seven; Portugal, nine; Balearic Islands, 12; Madeira, 16; Canaries, 16; Azores, 21; and north Africa from Morocco to Cyrenaica, 64. The type and paratypes of *africanus* and some paratypes of *propeparva* are included.

Nominate *carduelis* reaches central Spain on migration as shown by two specimens collected in Madrid on March 3, 1953, by Mr. and Mrs. R. van Allen.

4. *Carduelis carduelis britannica* Hartert, 1903, type locality, Sussex, England. This race, which is restricted to the British Isles and possibly is also the breeding form on the Channel Islands, is very near nominate *carduelis* in characters. It is, however, somewhat darker, more tawny brown, less rufous on the mantle, browner on the breast and flanks, the white on the head is less pure, and the red is not so dark and rich.

5. *Carduelis carduelis tschusii* Arrigoni, 1902, type locality, Sardinia, with *bruniventris* Schiebel (1934, Onith. Monatsber., vol. 42, p. 86), type locality, Sicily, as a synonym. This race, found on Corsica, Sardinia, and very probably Sicily, is very near also to nominate *carduelis*. It differs by being duller, more tinged with gray on the mantle, less rufous, or tawny as in *britannica*. The under parts are as in *britannica*, therefore darker than in nominate *carduelis*, and its bill is distinctly weaker, more

slender, and measures somewhat shorter than in the other two. The validity of *bruniventris* is open to question. Schiebel did not compare it to *tschusii*, but von Jordans and Steinbacher (1943, *Senckenbergiana*, vol. 26, p. 76) found a very long series from Sicily identical in coloration with *tschusii*. They recognized *bruniventris* on the basis of a difference in measurements, but the bill measurements they give for this form and *tschusii* are the same, and the wing length of the birds of Sicily given by them "74-81 bzw. 70-78" does not seem to differ appreciably from that of adult males measured by me from Sardinia: 74, 75, 75.5, 76, 76, 76.5, 77, 77, 77.5, 78. Schiebel in the description of *bruniventris* gave its wing length in males as 76-76.5. Specimens from Sicily are not available to me, but it seems best not to recognize *bruniventris*.

6. *Carduelis carduelis balcanica* Sachtleben, 1919, type locality, Macedonia, with *schiebeli* von Jordans and Steinbacher (1943, *loc. cit.*), type locality, Crete, as a synonym. This race is paler above and below and grayer above than nominate *carduelis* or *tschusii* and is intermediate in coloration between these races and *niediecki* from Asia Minor and the Near East. The population of Crete does not seem to be sufficiently distinct to warrant nomenclatural separation, although it was described as *schiebeli* by von Jordans and Steinbacher who state that it is darker and grayer above than *balcanica* and less gray and pale above and below than *niediecki*. However, Niethammer (1943, *Ann. Naturhist. Mus. Wien*, vol. 53, p. 20) states, quoting also the similar opinion of two other workers who examined his material, that there is no appreciable difference between *balcanica* and birds from Crete. The material examined by me from Crete is very restricted, consisting of only three adults, but supports the findings of Niethammer and his colleagues.

7. *Carduelis carduelis niediecki* Reichenow, 1907, type locality, Asia Minor, with *iranensis* Zarudny, 1913, type locality, Zagros Mountains, southern Iran, as a synonym. This race and the following (*brevirostris*) were discussed briefly in my 1949 paper. The question of whether or not they are separable must await the comparison of adequate series of breeding birds. It is possible that *niediecki* differs from *brevirostris* (of which I have examined only one breeding specimen from the Caucasus) by being somewhat paler and slightly warmer in tinge on the back and by showing in worn plumage some traces of yellow pigment on the breast in most specimens. In fresh plumage, winter birds from Iran which may be *brevirostris* differ from other winter birds which may be *niediecki* by being somewhat darker on the mantle, more earthy brown, and by having the yellow patch in the wing somewhat more restricted and paler, less golden yellow.

It is certain, however, that *niediecki* and *brevirostris* are both paler than *balcanica* or *loudoni*. As stated in my 1949 paper, specimens in worn plumage collected during the breeding season in the Zagros are not separable from comparative specimens of *niediecki* from the Near East.

8. *Carduelis carduelis brevirostris* Zarudny, 1889, type locality, Baku, with *nikolskii* Moltchanov, 1916, type locality, Crimea, as a synonym. According to the "Birds of the Soviet Union" (cited) *brevirostris* ranges north of the Caucasus to the region of Stavropol, south to Transcaucasia. As stated above it winters in Iran. This work recognizes *nikolskii*, which is restricted to the Crimea, but as it states that this race is not well differentiated and differs only very slightly in size and coloration from *brevirostris*, it seems best not to recognize it.

9. *Carduelis carduelis loudoni* Zarudny, 1906, type locality, Gilan, northern Iran. This race, which lives in a region of relatively heavy precipitation from Talych and neighboring Azerbaijan eastward through the southern Caspian districts of northern Iran, is a very dark race, dark earth-brown above, with large breast patches of the same color. Its validity has been questioned, but it is one of the best differentiated of all the black-headed races of the species.

GRAY-HEADED RACES

10. *Carduelis carduelis parapanisi* Kollibay, 1910, type locality, Tian Shan, with the following as synonyms: *subcaniceps* Zarudny, 1916, type locality, Kopet Dag; and *ultima* Koelz (1949, Auk, p. 208), type locality, southeastern Fars. This race has a very wide distribution from Turkestan westward through Afghanistan to southern Transcaspia and eastern Iran. In my 1949 paper I have shown that *subcaniceps* is not separable from *parapanisi*. In that paper I recognized *ultima*, but the present study, not restricted to southwestern Asia, has shown that it would be misleading to recognize it. This form differs from *parapanisi* only through extremely slight color differences and by having a longer bill, but the difference is one of average only, and there is a good deal of overlap in individual measurements. In *ultima* the bill averages about 1.5 mm. longer, the range of variation in males being 18.5–20 in six specimens as against 17–19.5 in 43 specimens of *parapanisi*.

11. *Carduelis carduelis caniceps* Vigors, 1831, type locality, Simla-Almora district. This Himalayan race is darker than *parapanisi*.

12. *Carduelis carduelis subulata* Gloger, 1833, type locality, Yenisei, with *poliakovi* Sushkin, 1925, type locality, Russian Altai, as a synonym. This race is larger and paler above and below than *parapanisi*. A cline of decreasing size and increasing saturation runs from north to south

from *subulata* to *paropanisi*. The difference between these two is clear cut, but it seems unnecessary to recognize in the nomenclature a vaguely differentiated intermediate such as *poliakovi*. As stated in 1949 this latter seems best synonymized with *subulata*.

Acanthis flavirostris

The Twite breeds in southwestern, middle, and central Asia, with isolated colonies in Scandinavia and the British Isles. The western populations can be divided into two subspecies: nominate *flavirostris* Linnaeus, 1758, which breeds in Scandinavia, Lapland, and the Kola Peninsula in northwestern Russia, and *pipilans* Latham, 1787, from the British Isles. Meinertzhagen (1934, *Ibis*, p. 55) has separated the population of the Outer Hebrides from *pipilans* as *bensonorum*, type locality, South Uist. This last form is not recognized by the official "Check-list of the birds of Great Britain and Ireland" (1952, London, British Ornithological Union), and it is considered to be a synonym of *pipilans* in "The handbook of British birds" (1943, vol. 1, p. 75).

Meinertzhagen and Clancey (1948, *Bull. Brit. Ornith. Club*, vol. 68, pp. 53-54) have discussed the populations of the British Isles. Meinertzhagen is of the opinion that his own *bensonorum* is not separable from *pipilans*, but Clancey believes it is valid, stating, "In fresh, clean plumage *A. f. pipilans* is altogether more tawny and richer than the Outer Hebridean race, *A. f. bensonorum*, which is colder in tone throughout and with blacker striations." While I agree with Clancey that birds from the Outer Hebrides show such a tendency, it is nevertheless true that the difference is not very well marked between the 11 specimens that I have examined from these islands and a series in comparative plumage from England and Scotland. The difference seems to me to be much too slight and not constant enough to warrant the recognition of *bensonorum*.

Thirteen subspecies have been described from Asia, but I believe the geographical variation can be adequately expressed by reducing this number to six. This species is difficult to study because it is a great wanderer and varies seasonally as well as individually. It requires further study, but in view of the complicating factors mentioned it seems to me that its subspecific treatment should be strict and that when in doubt it is wiser to eliminate from the nomenclature forms which at best seem to be but very slightly differentiated.

In my opinion the six valid races from Asia are as follows:

1. *Acanthis flavirostris brevirostris* Moore, 1855, type locality, Armenia. This race is paler above, more tawny, than nominate *flavirostris*,

paler below but with the streaks blacker, less brownish. It ranges from the Caucasus and Armenia eastward to northern Iran.

2. *Acanthis flavirostris korejevi* Zarudny and Härms, 1914, type locality, Russian Turkestan, with *kirghizorum* Sushkin, 1925, type locality, Turgai Province, Kirghiz Steppes, as a synonym. This race is not well differentiated from *brevirostris* but is generally paler, with duller and dustier streaks and with the pale edges of the feathers whiter. Sushkin gave a very detailed and lengthy description of *kirghizorum* which can be summed up by stating that he considers this form to be paler than *korejevi*, but the three specimens of *kirghizorum* available to me, which include a topotype, are identical in the general tone of coloration or streaking with a series of 14 specimens of *korejevi*. Among these are two specimens collected by Zarudny at the type localities of *korejevi* (Dzharkent and Ili). The range of *korejevi* is Kirghiz Steppes, Russian Turkestan, and apparently northern Afghanistan (see Meinertzhagen, 1938, Ibis, p. 502; and Vaurie, 1949, Amer. Mus. Novitates, no. 1424, pp. 19-20).

3. *Acanthis flavirostris altaica* Sushkin, 1925, type locality, northwestern Mongolia. This race which is generally recognized by the Russian authors has not been examined by me. It ranges from northwestern Mongolia and the Gobian Altai westward to the southeastern and central parts of the Russian Altai and is said to be somewhat darker and larger than *korejevi* and more mealy in appearance, with more diffuse markings.

4. *Acanthis flavirostris montanella* Hume, 1873, type locality, near Sanju, Chinese Turkestan, with the following as synonyms: *pamirensis* Zarudny and Härms, 1914, type locality, Alai Range south to the Pamirs; *baltistanicus* R. and A. Meinertzhagen, 1926, type locality, Baltistan; and *pallescens* Sudilowskaya (1938, Bull. Acad. Sci. U.R.S.S., Cl. Sci. Math. Nat., ser. biol., p. 119), type locality, region west of Kashgar. This race is the palest of all the races, grayish sandy and with the streaks more diffused or less sharply marked than in the other races. It ranges from southeastern Russian Turkestan in the region extending from the Alai Ranges south to the Pamirs, then east to Gilgit, and from the region of Kashgar in Chinese Turkestan south along the southern rim of the Tarim Basin in the Kun Lun to the Keriya Range and is said to continue eastward to the mountains north of the Zaidam to about longitude 94° E. or the northern end of the Nan Shan. I did not examine specimens from the Pamirs or the western end of the range, the populations of which were separated as *pamirensis* by Zarudny and Härms, and *pallescens* by Sudilowskaya, but Hellmayr (1929, Publ. Field Mus. Nat.

Hist., zool. ser., vol. 17, no. 3, p. 45) found that specimens from this region are identical with toptotypical *montanella*. He believes that *pamirensis* may have been based on individual variants or on birds that were not in comparative plumage. Nevertheless, as Sushkin (1925, Proc. Boston Soc. Nat. Hist., vol. 38, no. 1, p. 9), who recognized *pamirensis*, states that it is a rather dark race and sharply streaked below, it is possible that it represents a form intermediate between *korejevi* and *montanella*. In this connection it is interesting to note that breeding birds that I have examined (1949, Amer. Mus. Novitates, no. 1424, pp. 19-20) from Badakhshan (directly south and west of the Pamirs), as well as from other parts of northern Afghanistan, though too worn to be truly diagnostic, seem to be referable to *korejevi*, therefore too dark for *montanella* in any plumage. Meinertzhagen (1938, Ibis, p. 502) made the same observation concerning his specimens from Afghanistan which were also in worn plumage. The race described by Sudilowskaya would, judging by its description, seem to be still paler than *pamirensis* and therefore very doubtfully distinct from *montanella*. The region from whence the three forms have been described is so complex geographically that until its populations become better known it seems best to recognize but one race.

The race (*baltistanicus*) described by the Meinertzhagens requires confirmation, as it is based on a unique specimen, less gray than is normal in *montanella* but with its characteristic small bill. It was collected within the breeding range of *rufostrigata* on August 19 from a flock which at this date may have been wandering *montanella*.

5. *Acanthis flavirostris miniakensis* Jacobi, 1923, type locality, north-east of Kangting, eastern Sikang, with the following as synonyms: *leimonias* Meise (1933, Ornith. Monatsber., vol. 41, p. 81, type locality, near Sining, northeastern Tsinghai); and *sushkini* Sudilowskaya (1938, *ibid.*, p. 120), type locality, Gashun, southern Koko Nor Range. This race, which ranges from the southern Nan Shan and neighboring Kansu southwestward through the mountainous region east and south of the Koko Nor to the mountains of Tsinghai and of eastern and central Sikang, probably extends into eastern Tibet, grading into *rufostrigata*. It is a rather dark race, approaching *brevirostris* in general degree of saturation, but is rather browner, more rufous above, with more diffuse streaking, and with the pale edges of the feathers more buffy.

In view of the fact that, according to Meise and also Sudilowskaya, the populations in the region of the Koko Nor and southern Nan Shan are paler than those of Sikang, it is probable that a cline of increasing saturation runs south along the Nan Shan from the pale *montanella* to

the regions occupied by the dark *miniakensis*. However, this does not necessarily warrant the nomenclatural separation of an intermediate along this cline. As stated above, under *montanella*, this pale race is said to extend in Chinese Turkestan eastward to the northern end of the Nan Shan. The forms described by Meise and Sudilowskaya are from the northern end of the range of *miniakensis*.

The material that I have examined is insufficient but raises some doubt as to the validity of *leimonias*. It consists of one cotype of *miniakensis* which is perfectly identical with specimens in comparative plumage in a series of seven specimens of *leimonias*. Included in this series are two paratypes of *leimonias* collected at the same time of the year, only four days apart from the cotype of *miniakensis*. Until further study it seems to me that these specimens suggest that *leimonias* is best synonymized with *miniakensis*. The form described as *sushkini* by Sudilowskaya appears to be a redescription of *leimonias*, the existence of which was apparently not known to Sudilowskaya.

6. *Acanthis flavirostris rufostriata* Walton, 1905, type locality, southern Tibet, with *ladacensis* R. and A. Meinertzhagen, 1926, type locality, Ladak, as a synonym. This race is darker below than *miniakensis*, with the ground color darker buff and the streaks more rufous; it also averages larger and has a more massive bill. It ranges, west of *miniakensis*, from Tibet westward to Ladak and northern Kashmir. Specimens in worn plumage examined by me from Gyangtse in southern Tibet are identical with ones from Ladak. The Meinertzhagens remarked that such specimens are scarcely separable but nevertheless described the birds of Ladak as *ladacensis*, because they stated that specimens in fresh plumage from this region are less red above than those of Tibet. I lack specimens in fresh plumage from Tibet, but, because Hellmayr (*loc. cit.*) states, after examining the specimens collected by the Meinertzhagens, that those of Ladak are "very close" to those of Tibet though not quite so intensely colored, I believe that it is best not to burden the nomenclature by the recognition of a form which apparently is so poorly differentiated.

Acanthis cannabina

The geographical variation of the Linnet follows two clines. Not included in or not directly a part of these clines are the insular populations of Madeira and the Canaries which are briefly discussed below. One of the clines runs from west to east, from Europe to Asia, and is one of increasing size and decreasing saturation. The other, which is one of decreasing size and saturation, runs from northwestern Europe south to the Mediterranean and north Africa. Within this second cline a subsidiary

one probably runs from south to north in Great Britain, because the population of Scotland is darker than that of southern England. However, none of the populations is sharply differentiated, even at the extremes of the clines, and it seems sufficient to me to recognize nomenclaturally but two races, one in Asia (*bella* C. L. Brehm, 1845, type locality, Lebanon) and another in the west for Europe and north Africa (nominate *cannabina* Linnaeus, 1758, type locality, Sweden) which is darker than *bella* and, generally speaking, somewhat smaller. An additional race may possibly be admitted for Scotland (*autochthona* Clancey, 1946, Bull. Brit. Ornith. Club, vol. 66, p. 84, type locality, southwestern Scotland).

I consider that *mediterranea* Tschusi, 1903, type locality, Dalmatia; *taurica* Kudashev, 1916, type locality, Crimea; and *sejuncta* Clancey (1946, *loc. cit.*), type locality, southern England, are synonyms or are best synonymized with nominate *cannabina*. I fully agree with Meinertzhagen (1947, Bull. Brit. Ornith. Club, vol. 68, pp. 22–23) that *sejuncta* is not valid. The populations of southern Europe, the Mediterranean islands, and north Africa are usually separated under the name *mediterranea*. While it is correct that these populations average smaller and paler and, sometimes, brighter than the populations of northwestern Europe, a large series shows that these differences are much too slight and much too inconstant to warrant the recognition of *mediterranea*. The differences in coloration are slight at best, and I have examined topotypes of this form that were identical with topotypes of nominate *cannabina* in comparative plumage. The same is true of measurements. The individual wing measurements given below show a great deal of overlap, and the average difference varies from only 1 to 3 mm. greater in the northern populations.

I do not believe *taurica* can be upheld, but whether this name should be synonymized with nominate *cannabina* or with *bella* is open to question. The description of *taurica* shows that the population of the Crimea is intermediate in characters as well as geographically between the last two and suggests that it is probably very poorly differentiated. This is confirmed by three specimens that I have examined from the Crimea. These specimens are vaguely intermediate, and nominate *cannabina* and *bella* are not sharply differentiated enough from each other to permit the recognition of such a poor intermediate as *taurica*.

In an earlier paper (1949, Amer. Mus. Novitates, no. 1424, pp. 21–23) I have shown that only one race (*bella*) can be recognized east of nominate *cannabina*, the following two names being synonyms of *bella*: *merz-*

bacheri Schalow, 1907, type locality, Tian Shan; and *persica* Kudashev, 1916, type locality, northern Iran.

Specimens from Scotland, of which seven were examined, are darker above and below in both sexes than topotypical nominate *cannabina*, they show a tendency to be more heavily streaked above, and in the males the crown and nape are darker gray. Clancey has separated this population as *autochthona*, but while it is distinct from that of Sweden and seems to be constant I am inclined to agree with Meinertzhagen (*loc. cit.*) that it probably would have been better to draw attention to its characters without giving it a name.

Three closely related subspecies can be recognized in Madeira and the Canaries that average smaller and more brightly colored than the other races. The first, *nana* Tschusi, 1901, occurs on Madeira and is, relatively speaking, very dark and richly colored, chestnut above and very buffy below, rusty or chestnut on the flanks. The second, *meadewaldoi* Hartert, 1901, in the western Canaries, is very close to *nana* in coloration but has a much larger bill, the bill being slightly more massive than in even the larger races of northern Europe and Asia. The third, *harterti* Bannerman, 1913, in the eastern Canaries, differs from *meadewaldoi*, not only through its smaller bill, but also by being distinctly paler above, less dark on the flanks, and distinctly whiter on the abdomen than either *meadewaldoi* or *nana*. In these three races the males in worn plumage are usually brighter crimson on the breast than in nominate *cannabina*, a tendency that begins to appear in the southern populations ("*mediterranea*") of nominate *cannabina*, particularly in those from northwestern Africa.

Over 600 specimens were examined. The individual wing lengths of adult males in some populations are listed below; for additional measurements of the populations of Asia, see Vaurie (1949, *loc. cit.*).

Northwestern Russia (Pskov), 80, 81, 82, 84, 86 (82.6)
 Sweden, 79, 80, 81, 81, 82, 83, 83, 83, 83 (81.7)
 Germany, 78, 78, 79, 80, 80, 80, 80, 81, 81, 82, 82, 83 (80.4)
 Dalmatia, 78, 78, 80, 81
 Spain and Portugal, 75, 77, 78, 78, 79, 80, 80, 80, 81, 82 (79)
 Northwestern Africa, 78, 78, 79, 79, 79, 79, 80, 81, 81, 82 (79.6)
 Madeira, 75, 76, 76, 76, 76, 76, 77, 77, 77, 78 (76.4)
 Western Canaries, 75, 76, 76, 76, 77, 78, 79, 79, 80, 80 (77.6)
 Eastern Canaries, 74, 75, 75, 76, 76, 77, 77, 77, 77, 78 (76.2)
 Near East, 79, 80, 80, 80, 81, 82, 82, 83, 83 (81)
 Iran, 80, 81, 82, 82, 83, 83, 83, 84, 84, 85 (82.7)
 Russian Turkestan, 80, 82, 82, 83, 83, 83, 84, 85, 85, 85, 86 (83.5)

Acanthis flammea and *Acanthis hornemanni*

These two redpolls are almost universally considered to be separate species. The notable exceptions are Salomonsen and the "Birds of the Soviet Union" (1954, vol. 5, pp. 216-222) which may be following Salomonsen. This last author discussed these birds at length in his monograph (1928, Vidensk. Medd. fra Dansk Naturhist. For., vol. 86, pp. 123-202) and again in his "Birds of Greenland" (1950, Copenhagen, Munksgaard, pp. 502-522). Much evidence is accumulating, however, to show that they are sympatric to some extent in many regions of both the New and Old Worlds: see Wynne-Edwards (1952, Auk, pp. 380-381) and Johansen (1944, Jour. Ornith., vol. 92, pp. 40-42) who quotes the findings of Portenko in his "Birds of Anadyrland."

The map of distribution given in the "Birds of the Soviet Union" is therefore misleading. Limiting myself to the material examined, I find a good number of specimens of nominate *flammea* collected during the breeding season within the breeding range of *exilipes* [a race of *A. hornemanni*] as indicated on that map. I mention these specimens, although they are old, because they may nevertheless be new records or records that have been overlooked in the literature.

They were collected at Gizhiga at the northern end of the Sea of Okhotsk and at Bulun and "north of Bulun" at the mouth of the Lena, regions that are indicated as being within the range of *exilipes* in the "Birds of the Soviet Union." The series from Gizhiga consists of seven specimens of *exilipes* and 10 of nominate *flammea*, collected from April 16 to May 28 and on August 20 and September 25. It may include migrants, as the breeding season seems to extend from about the end of April to the middle of July, but in the series of nominate *flammea* are included two young birds going through the post-juvenal molt which had probably bred locally. The series from Bulun and north of Bulun consist only of nominate *flammea* (16 specimens), adults as well as very young birds, collected from July 7 to 14. It should be noted, however, that the two species could breed at or near Bulun and Gizhiga without actually occupying the same habitat, for these localities are on the border line between the taiga and forested tundra. On Baffin Island, however, Wynne-Edwards (*loc. cit.*) found them breeding and intermingled in a single community. They seem to be sympatric in Anadyrland according to Johansen, and I have three specimens from this region collected on May 25, two of which are *exilipes* and the third an undoubted specimen of nominate *flammea* of the variety "*holboellii*."

Acanthis flammea

It seems sufficient, in my opinion, to recognize only three races of this species: nominate *flammea* Linnaeus, 1758, type locality, Sweden; the larger and more heavily streaked *rostrata* Coues, 1861, type locality, Greenland, breeding in Greenland and Iceland; and the smaller and darker *cabaret* P. L. S. Müller, 1776, type locality, France, breeding in the British Isles and the Alps on the continent.

Other races have been described and are more or less widely recognized. Of these, I consider that *holboellii* C. L. Brehm, 1831, described from a migrant to central Germany, and *fuscescens* Coues, 1861, type locality, Labrador, are synonyms of nominate *flammea*; that *islandica* Hantzsch, 1904, type locality, Iceland, is best synonymized with *rostrata*; and that *britannica* Schmiedeknecht, 1906, type locality, British Isles, and *disruptis* Clancey (1953, Bull. Brit. Ornith. Club, vol. 73, p. 72), type locality, western Scotland, are synonyms of *cabaret*.

The form described by Coues (*fuscescens*) is recognized by Salomonson and the "Birds of the Soviet Union" but not by the check list of the American Ornithologists' Union. It is now almost universally admitted that the long-billed *holboellii* is an individual variant of nominate *flammea*. It has been suggested that it breeds north of nominate *flammea*, though no one has been able to define its range satisfactorily. Such birds seem to be more common in northeastern Siberia than in western Siberia or Europe, but it is known that long- and short-billed birds breed at the same localities, are not reproductively isolated, and that any one population may show all sorts of intermediates. For instance, in the series of breeding birds from the region of Bulun mentioned above, the bill in the adult males (measured from the skull) measures 8.5, 9.5, 10, 10, 10, 11, 12.5, 13, 13.5. The long- and short-billed birds are otherwise identical. In a series of 10 adult males of nominate *flammea* measured by me from Scandinavia, the bill measures 8.5, 9, 9, 10, 10, 10, 10.5, 11, 11.

The check list of the American Ornithologists' Union recognizes *holboellii* but the Russian authors, including those of the "Birds of the Soviet Union," do not, but quite correctly consider it to be a synonym of nominate *flammea*.

Birds collected during the breeding season in Iceland average very slightly paler and have the bill very slightly shorter than in birds from Greenland, but these differences are far from constant and so slight that the separation of *islandica* from *rostrata* does not seem to be warranted. In specimens measured by me the bill in five males from Iceland meas-

ures 9.5, 10, 10, 11, 12, and 10, 11.5, 12, 12, 12, 12, 12.5, 12.5, 12.5, 13 in males from Greenland.

I am unable to separate specimens from the British Isles (described as *britannica* and *disruptis*) from *cabaret* from the Alps. However, Meinertzhagen (1953, Bull. Brit. Ornith. Club, vol. 73, pp. 41–42) and Clancey (*loc. cit.*) state that these are darker. Meinertzhagen found that those of Ireland were darker and more heavily streaked than birds from the continent and “most” birds from Scotland and England. Clancey separated all the birds of the British Isles from those of the continent, stating that his *disruptis* was most typical in western Scotland and Ireland and denying that the birds of Ireland were in any way darker than those of western Scotland. Although a cline of increasing saturation may run northwestward in the British Isles, it seems very doubtful if it is sufficiently sharp to warrant the nomenclatural separation of these populations from *cabaret*. I have examined only one specimen from Ireland and three from Scotland, but these, as well as very large series from England, are not separable, as stated above, from *cabaret*.

ADDENDUM

In a report of the Taxonomic Sub-Committee of the British Ornithologists' Union (1956, Ibis, p. 167) received when the present paper was in the proof stage, a number of recommendations have been made which differ from the opinions expressed above. The recommendations are: that *Acanthis flavirostris pipilans* (Latham), 1787, type locality, England, is not valid and should be synonymized with nominate *flavirostris* Linnaeus, 1758, type locality, Sweden; that *Acanthis flammea disruptis* (Clancey), 1953, type locality, Scotland, is valid and should replace *A. flammea cabaret* (P. L. S. Müller), 1776, type locality, France, as the name of the British race; and that *Fringilla coelebs gengleri* Kleinschmidt, 1909, type locality, England, is not valid and should be synonymized with nominate *coelebs* Linnaeus, 1758, type locality, Sweden.

In the material that I have examined a large series of *pipilans* is perfectly separable from topotypical nominate *flavirostris*. It is darker throughout, especially above, the shaft streaks being darker and having darker buff edges, especially on the crown and nape, the flanks and most of the under parts are darker buff, and the wings and tail feathers are rather blacker.

The British populations of *A. flammea* do not appear to be separable from *cabaret* (after reexamination I see no reason to change this opinion), but if the Sub-Committee believes they are, it seems to me that their correct name is *britannica* Schmiedeknecht, 1906, type locality,

"British Islands; in winter in South England, Belgium, and France, . ." according to Meinertzhagen (1953, Bull. Brit. Ornith. Club, vol. 73, p. 41) who restricts it to south England. The name *disruptis* can be used only if *Acanthis* Borkhausen, 1797, is merged with *Carduelis* Brisson, 1760 (as is done by the Sub-Committee), *britannica* Schmiedeknecht becoming preoccupied by *Carduelis carduelis britannica* (Hartert), 1903.

I have given my reasons (p. 4) for recognizing *Fringilla coelebs gengleri* and need not discuss them again. I had no specimens from southwestern Ireland, the population of which was described as *hibernica* by van Marle in 1949, but suggested that, pending confirmation, *hibernica* was probably best considered as synonymous with *gengleri*. The Sub-Committee states it has examined specimens and finds that a cline [of increasing saturation] runs from England to western Ireland, but I cannot follow its recommendation "that British Chaffinches be designated *Fringilla coelebs* cl. *hibernica/coelebs*." This may be a convenient way to express the geographical variation in a very concise manner but cannot be entertained as a substitute for the present system of nomenclature. Either *hibernica* (as well as *gengleri*) is sufficiently distinct to warrant nomenclatural separation, or it is not.

