

COMMENTS ON TYPES AND TAXONOMY IN THE  
JAY GENUS APHELOCOMA

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During a year's stay in Europe in 1957-58, I was able to study types and other specimens of the genus *Aphelocoma* in collections of British and continental museums. These opportunities permitted me to try to clear up some points left unresolved in my revision of that genus (Pitelka, 1951).

Of the types examined, two provide information which requires changes in racial taxonomy. These are *Cyanocitta superciliosa* Strickland 1845, which applies to the Scrub Jay (*Aphelocoma coerulescens*), and *Garrulus sordidus* Swainson 1827, which applies to the Mexican Jay (*Aphelocoma ultramarina*). For seven more types, information given here supplements that provided in the earlier paper. Details regarding any of these types, such as museum numbers or collecting locality, available in my 1951 paper, are omitted when they are not vital to the discussions in this paper. Page references given here without additional information regarding source pertain to my 1951 paper. Methods of taking measurements are described in that paper on page 202.

Finally, racial taxonomy of *Aphelocoma ultramarina* and the use of subgenera in the genus *Aphelocoma* are discussed briefly.

TYPES REQUIRING TAXONOMIC CHANGES

CYANOCITTA SUPERCILIOSA Strickland 1845 [= ? Indeterminate]

The type of *superciliosa* Strickland at Cambridge University was examined by van Rossem (1933) and considered to represent the race of the central valley and foothills of interior California known earlier as *immanis* Grinnell (see p. 396). Van Rossem brought the type to the British Museum and compared it there with the "ample series of all the races." He added, "It agrees minutely with specimens from the Sacramento Valley." No critical details are given regarding color or size, and it is merely stated that Strickland's specimen "certainly is neither *californica* nor *oocephtica*." These comparisons were repeated by me in January, 1958, and reconsidered several times after that at the British Museum. I disagree with van Rossem. In brief, the specimen, a first-year individual, is too purplish and too dark to represent the interior race. It belongs to one of the coastal races (*californica*, *oocephtica*, or *caurina* of my revision), but no definite determination can be made.

In the following discussion, "*superciliosa*" in quotation marks will refer to the populations bearing this name as delimited in my revision (pp. 248, 395), in Grinnell and Miller (1944:287), and in the A.O.U. Check-list (1957:373).

The sex of the type is unknown. Among first-year individuals, as among adults, extremes in head coloration and in development of the collar pattern, considered together, can be identified as to sex, but in these characters Strickland's specimen falls into the overlap between sexes. But, as noted by van Rossem (1933), the specimen is in fresh, unabraded plumage and in good condition, so that informative comparisons can still be made.

The pertinent material in the British Museum available to van Rossem consisted of the following:

	Adults	First-year individuals	Juveniles
<i>A. c. oocephtica</i>	6	2	
<i>A. c. californica</i>	7	3	1
<i>A. c. "superciliosa"</i>	4	2	1
<i>A. c. obscura</i>	9	5	1

Among the specimens of "*superciliosa*," only five were suitable for comparison with the type: three from the central Californian valley (an adult male, an adult female, and an unsexed first-year individual, all from Stockton), and two from the central Sierra Nevada foothills (an adult female from Amador County and an unsexed adult from Nevada County). The type, a first-year specimen, was more purplish to my eyes than all of these five specimens. Mr. Derek Goodwin, ornithologist at the British Museum, kindly performed the same comparisons at the same time and place as mine and agreed about the direction of difference in the first four specimens, but the fifth (an adult) he considered to be similar to the type.

As is brought out in my revision (pp. 209-214, 279), in *Aphelocoma coerulescens* there is a four-step progression from adult males, through first-year males and adult females, to first-year females in average hue and intensity of purplish-blue coloration. These age and sex differences are most strongly expressed on the head and chest. Thus, when a first-year specimen, without regard to sex, matches the average purplishness of a series of adults comprising a geographically circumscribed sample, or when such a first-year specimen is more purplish than adults from that sample, the probability of its having come from the area represented by the sample is low. This is the conclusion drawn from the previously mentioned comparison of Strickland's specimen with the available and usable material of "*superciliosa*" in the British Museum.

Comparison of Strickland's type with specimens of the coastal races *californica* and *ooceptica* add support to this conclusion. Compared with nine specimens of *californica* from Monterey and Santa Barbara counties, the type was more purplish than three adult females and one first-year female; similar to one first-year male and one first-year female; and less purplish than three adult males. Compared with eight specimens of *ooceptica* from Marin, Contra Costa and San Francisco counties, the type was more purplish than one first-year female; similar to one adult female; and less purplish than four adult males, one first-year male, and one adult female.

In other words, on the basis of comparisons made at the British Museum, the type falls easily within the limits of color variation of *californica* and *ooceptica*. In particular, omitting adult males now, this unsexed first-year specimen is similar to or more purplish than all coastal specimens of both races (of a combined total of 10) except the two *ooceptica* just mentioned. These facts further increase the probability that the type was obtained along or near the coast. It follows that because of the similarity in color of *ooceptica* and southern populations of *caurina* (p. 225), including that near Fort Ross, Sonoma County, the type would also fall within the color variation of the latter.

Measurements of the type are as follows: wing, 116 mm.; tail, 124; bill length, 19.7; bill depth, 9.3; tarsus, 40.7. These fall within the limits of first-year age classes of all three of the coastal races. They also fall within the combined limits of first-year age classes of the population in the Sacramento Valley ("*superciliosa*," part). In other words, evidence from a consideration of mensural characters is neutral. Other interior populations, belonging to any race of the "*californica*" group of races (p. 207), are not relevant to the problem here because in color, size, or both, their variational patterns exclude Strickland's specimen, and because circumstances of historical explorations which produced that specimen also exclude those populations.

Strickland obtained his specimen from J. F. Brandt, St. Petersburg, in 1844, and it is now necessary to consider its possible source.

*Historical background for Strickland's specimen.*—An entrée into the literature on scientific exploration along the central Californian coast before 1844 is provided by Alden and Ifft (1943) and by Ewan (1955). Russian settlement and travel in California

are summarized compactly by Essig (1933), and a number of scientists are mentioned by him. A useful resumé of the historical setting of early explorations along the Pacific coast is given by Hammond (1955). Various other sources, both published and in manuscript, in the Bancroft Library of the University of California, were utilized in developing the historical background for this discussion; but I shall cite only those immediately relevant to the problem of assigning Strickland's name.

Either of two views may be taken in disposing of *Cyanocitta superciliosa* Strickland 1845: (1) It is based on a specimen obtained by the Russians themselves and sent to St. Petersburg, from where Brandt sent it to Strickland. Or (2), it is based on a specimen among others obtained by several collectors of other nationalities who visited the central Californian coast prior to 1844; such specimens were sent to European centers, from one of which Brandt obtained the jay sent to Strickland in 1844.

Taking the first of these possibilities, so far as I can make out, two voyages clearly yielded specimens of birds brought safely to St. Petersburg: The first was a voyage of Otto von Kotzebue (1830). This, his second world voyage, included the naturalist Eschscholtz, who, in a "Review of the Zoological Collection" appended to Kotzebue's account, reports an unitemized total of 165 specimens of birds obtained on the expedition. Although he mentions several Californian birds, the jay is not one of them.

The second was the long visit of Vosnesensky, who remained in central California from July, 1840, to September, 1841 (see Essig, 1931:777-779 and references cited in footnotes; see also Blomquist, 1951). Vosnesensky was evidently the last of Russian explorers collecting in central California, as the colony was closed down at the end of 1841.

As can be determined from a reconstructed itinerary for Eschscholtz, most of his time was spent in the immediate vicinity of San Francisco Bay. For Vosnesensky, only bits of information are available in publications, mainly in conjunction with collection localities of insects, which received a lot more formal taxonomic attention once they arrived in St. Petersburg than did the birds he obtained. This is reflected by the fact that there is no mention of Brandt or Vosnesensky in Grinnell's (1909, 1924, 1939) bibliographies of Californian ornithology. Still, what evidence we have tells us that Vosnesensky also spent most of his time along the coast, about Fort Ross, Bodega Bay and San Francisco Bay. Like Eschscholtz, he visited the Sacramento Valley and apparently only once.

A recent letter from Professor A. I. Ivanov of Leningrad provides some critical facts. Following his departure from Fort Ross, Vosnesensky spent the period November, 1841, to March, 1842, in a voyage to Baja California, visiting Loreto, Carmen Island, and Puerto Escondido on the gulf side of the peninsula. There are five specimens of *Aphelocoma coerulescens* taken by Vosnesensky still in the Leningrad collections: two are without original labels; the other three were taken, respectively, in "California" [presumably referring to the Spanish part of the coast around 1840, and not to New Albion north of San Francisco Bay]; at "Nova Helvetia" [later Fort Sutter, now Sacramento]; and at Escondido, mentioned above. We therefore have definite evidence that Vosnesensky collected a jay in the Sacramento Valley, but this does not alter the arguments regarding Strickland's specimen. The latter plus two more specimens in Leningrad are without original labels and may have been taken by Vosnesensky at some base of operations such as Fort Ross where he did not bother with labels, but there is no way of determining this one way or another. It may be added that the specimen from Nova Helvetia was taken March 16, 1841, whereas Strickland's specimen, "in good condition and in fresh, unabraded plumage" (van Rossem, 1933), was clearly taken in one of the fall months not long after the annual molt.

We therefore have these facts: (1) Strickland's specimen is clearly assignable to a coastal race; and (2) from evidence on Eschscholtz's and Vosnesensky's travels, it is clear that they both spent most of their time coastally, within the ranges of *A. c. oocleptica* and *A. c. caurina*; and (3) for Vosnesensky there is definite evidence that he collected Scrub Jays in areas falling within the distributions of at least three, and possibly four or five presently recognized races.

Van Rossem's (1933) designation of the type locality as the Sacramento Valley and his assignment of the type to the race of the interior earlier known as *immanis* (Swarth, 1918) must both be rejected. Assuming, as van Rossem did, that Brandt obtained the specimen from one of the Russian expeditions, there is no basis now on which one may definitely restrict the type locality and assign the type to one of the recognizable races. *Cyanocitta superciliosa* Strickland 1845 may be an older name for *Aphelocoma californica oocleptica* Swarth 1918; if new evidence becomes available to justify use of Strickland's name, no particular problem arises if this change is made because of the revision of the concept of the interior Californian race of the Scrub Jay developed beyond under "Taxonomic changes." If, however, *Cyanocitta superciliosa* Strickland 1845 proves to be an older name for *Aphelocoma coerulescens caurina* Pitelka 1951, then another one of those regrettable name transfers faces us, and frankly I do not see what would be accomplished by it. Finally, a slim possibility remains that *Cyanocitta superciliosa* Strickland 1845 refers to *Garrulus californicus* Vigors 1839.

This brings us to the second of two views that may be entertained in the disposal of Strickland's name. It must be acknowledged that in the first decades of the 19th century, collectors other than Russian ones were visiting central California, and the specimens obtained by Strickland from Brandt, now without date or place of collection, could have come to the latter from Berlin, London, Paris, or some other center. Between 1826 and 1837 central Californian birds were brought to Europe by Collie (on Beechey's voyage), Botta, Deppe, and Neboux (see Alden and Ifft, 1943; Ewan, 1955). Finally, from reports in the 1840's by Brandt in the Bulletin Scientifique de l'Academie Imperiale des Sciences de St. Petersburg (as also the article about Vosnesensky by Gilson translated from the Russian in full in Essig, 1931:778-789), it is evident that there was an exchange traffic between St. Petersburg and at least Berlin and London. Indeed, in the Compte Rendu for 1843 appended to the Bulletin, Strickland himself is mentioned in connection with some specimens of Siberian birds sent to England. As mentioned earlier, Strickland's specimen of the Scrub Jay from Brandt has no locality data, and unless some very specific information turns up in the archives of the Leningrad Museum, there is no hope of resolving the present dilemma. All circumstantial evidence points to the likelihood that Strickland's specimen was one of those taken by Vosnesensky. Ivanov (*in litt.*) subscribes to this view, and indirectly Stresemann (*in litt.*) does likewise by expressing doubts that any specimens taken by Botta, Neboux, and especially Deppe were ever acquired by the St. Petersburg museum.

Thus, at present, we have no more than strong circumstantial evidence with which to associate Strickland's specimen with Vosnesensky, and no good evidence as to where it really came from. In this situation I consider it best to follow Hellmayr (1934:52, footnote). He states, "There being no means of telling whence the specimen described by Audubon [under his *Corvus ultramarinus*] originated, *C. superciliosa* [offered by Strickland as a new name for *Corvus ultramarinus* Audubon 1838] should not come into use and may stand as a doubtful synonym of *G[arrulus]. californicus*, with which it was subsequently identified by Strickland [1845] himself."

*Taxonomic changes.*—The evidence that *Cyanocitta superciliosa* Strickland 1845

is inapplicable to the race of interior central California and adjacent areas requires an adjustment in the names used for the coastal or "*californica*" group of races. In developing the rationale for this adjustment, I must emphasize at the outset, as others have in recent years, that application of trinomials to a complex of nonconcordant clines is necessarily an arbitrary procedure serving the practical needs of museum taxonomy, and little more. A margin of mistreatment to *all* the facts collectively is unavoidable.

In the following discussion, the main features of character geography are reviewed for the Pacific coast races of the Scrub Jay. I hope that the streamlining needed to make this review brief will place into good perspective the main facts with which I justify my revised application of trinomials to those races. For background details and original documentation, see Pitelka, 1951:209-269, 389-398.

In the discussion of clines, the extremes of color and size among the Pacific coast races will be denoted by appropriate and easily understood adjectives. But use of the word "intermediate" requires comment. It refers not to intergrades but to taxonomically recognizable mid-intervals of a total range of geographic variation for particular characters of color or size within the entire complex of Pacific coast races. Thus the coastal race of Scrub Jay in central California, *A. c. californica*, is in this sense more or less intermediate in both color and size between the large, pale race of the San Joaquin Valley and the small dark race of northern Baja California.

Omitting peripheral races not relevant to the problem before us, there is a south-to-north color trend along the coast from very dark in northern Baja California (*A. c. obscura*) to intermediate in central California (*californica*). This reverses north of Monterey Bay, and there is then a gradual darkening which reaches an extreme in southwestern Oregon (*caurina*). Eastward and inland there are lighter and paler populations (*immanis* versus *caurina* in the north; "*superciliosa*" versus *californica* in central California). Thus, from central California northward, we have a cline along the coast giving basis for two racial names, and a cline interiorward giving basis for a third. Along a south-to-north axis, the interior populations more or less parallel or reflect the coastal cline so that color of the northern interior populations (Willamette Valley, Oregon) is similar to that of the central coastal ones (Santa Barbara to Monterey counties, California).

In size variation, the situation is somewhat simpler. North of the range of *obscura*, the coastal populations are intermediate in size, the interior ones are significantly larger. One complication arises, however; populations similar in size to those of the interior interrupt the consistency of size characteristics along the coast in the San Francisco Bay area. Thus, using size differences, there is basis for two racial names, one applying to coastal populations, the other to interior populations but including the Bay-region intrusion.

It is possible to accommodate the change provoked by the new evidence regarding *Cyanocitta superciliosa* Strickland 1845 in a reasonably simple way, with appropriate emphasis on the facts of character geography and without introducing a new name. I propose that populations of interior California previously called "*superciliosa*" be combined with those of the San Francisco Bay area to be named collectively *Aphelocoma coerulescens oocleptica* Swarth 1918. In my revision, *oocleptica* was recognized as a segment in the coastal color cline (*californica* to *caurina*) having, however, the size characteristics of interior populations. The A.O.U. Check-list (1957) recognizes one less race along the Pacific coast than I did; but in letting *oocleptica* stand as originally delimited geographically by Swarth, the check-list arbitrarily sets aside evidence I gave (1) that coastal populations north of Marin County do not show size characteristics that Swarth

attributed to them (see pp. 219, 389); (2) that at their northern end, coastal populations become dark (see pp. 223, 225) while Swarth used only size distinctions in justifying the description of *ooceptica*; and (3) that the size distinctions drawn by Swarth (1918, table opp. 408) between *ooceptica* and *californica* were exaggerated by his failure to segregate age classes, which results then led him to consider *obscura* a synonym of *californica* (see p. 393).

I will now go along with the A.O.U. Check-list in recognizing only four races where earlier five were recognized. My reasons are as follows: Coastally, we have populations intermediate in size, but some are intermediate in color (central coast) and others are dark in color (north coast). This justifies use of the names *californica* and *caurina*. Interiorward, we have populations large in size, but those to the south are pale in color while those to the north are intermediate in color. Atop the coast-to-interior size cline, there is, in the interior, a south-to-north increase. This justifies use of the name *immanis* to the north and, now, as the only available name, *ooceptica* to the south to include both interior populations and those of the San Francisco Bay region inserted between populations of smaller size to both north and south.

This arrangement may seem anomalous because of the fact that the type locality of *ooceptica* is in Marin County and that this name has always been associated with coastal populations. But for reasons just given, the overall geographic variation is more correctly reflected in an arrangement which links the San Francisco Bay region with interior populations to stress size similarities and the nonconcordance in clines along the coast. The name then applied to these interior populations also serves to denote the coast-to-interior color cline.

The only alternative to decisions presently offered above is to rename the interior populations while retaining *ooceptica* as defined in my monograph. This would only burden the trinomial nomenclature of the Scrub Jay in a futile way. Trinomials, if their use is to be continued, cannot succeed in denoting more than the main features of character geography in a given species; and in the Pacific coast races of the Scrub Jay, this can be accomplished with the available names.

The reduction of the number of races to the north within the coastal group of races requires that this be carried one step further if the application of trinomials within the species be reasonably consistent. As with *ooceptica* Swarth 1918, *cactophila* Huey 1942 proves not to be so well marked as claimed by the original describer chiefly because age-classes were not distinguished (p. 242). In view of the complex of minor geographic variations now subsumed by the name *ooceptica*, it is appropriate to revert to Hellmayr's (1934: 53) conception of the race *hypoleuca* and to include *cactophila* thereunder.

Taxonomy of the remaining races of *Aphelocoma coerulescens* to the east and south, that is, to the Rocky Mountains and southern México, is not affected by the arguments of this paper.

The recognizable races comprising the coastal or "*californica*" group then stand as follows:

- Aphelocoma coerulescens immanis* Grinnell 1901
- Aphelocoma coerulescens caurina* Pitelka 1951
- Aphelocoma coerulescens ooceptica* Swarth 1918 (including "*superciliosa*" of the A.O.U. Check-list, 1957, *not* of Strickland, 1845)
- Aphelocoma coerulescens californica* (Vigors) 1839
- Aphelocoma coerulescens cana* Pitelka 1951
- Aphelocoma coerulescens obscura* Anthony 1889

*Aphelocoma coerulescens hypoleuca* Ridgway 1887 (including  
*cactophila* Huey 1942 of the A.O.U. Check-list, 1957)  
*Aphelocoma coerulescens insularis* Henshaw 1886

**GARRULUS SORDIDUS** Swainson 1827 [= *Aphelocoma ultramarina ultramarina*  
(Bonaparte), p. 416]

In my revision, I followed Hellmayr (1934:56) in the use of the name *sordidus* and not van Rossem (1939), who reported that the type represents the nominate race. In January, 1958, I borrowed Swainson's specimen from the collections of Cambridge University and compared it with specimens in the British Museum and with the colored plate published by Swainson some years after the original description (1832:pl. 86). The type is an unsexed adult and unnumbered. After reviewing this matter several times in the British Museum, I now subscribe to the arguments given by van Rossem (*loc. cit.*) and also by Brodkorb (1944:401) regarding the disposal of the name *sordidus* Swainson.

Originally (pp. 413-416), I argued that the plate published by Swainson, in combination with other circumstances to be mentioned beyond, justified adherence to Hellmayr's views. The colored plate, however, is not an accurate depiction of the specimen now considered to be the type: the upper parts are painted too blue (not purplish enough), the back in particular is too blue (not grayish brown enough, with merely a purplish blue overcast), the light wash over the venter is too blue (this color was probably intended to suggest light gray, the actual color, although now the specimen is dirty). My measurements are as follows: wing, 175 mm.; tail, 158; bill length, 19.6; bill depth, 10.0; tarsus, 43.9. In color as well as size characters, the specimen clearly represents *A. u. ultramarina*.

There still remain at least three unresolved points: (1) Whether Swainson had one or more than one specimen in the interval from 1827 to 1832; (2) whether the first of them is the one now at Cambridge, and (3) whether that first specimen, granted that it is the specimen now in Cambridge, could have come from Real del Monte. It is highly unlikely that the Cambridge specimen could have come from Real del Monte, as the evidence now available places that locality within the race neighboring to the north; and I accept Brodkorb's (1944:401) reasons for restricting the type locality of *sordidus* Swainson to Río Frio, state of México. Any more discussion regarding points (1) and (2) or other details is futile. We have a specimen of Swainson's regardable as the type of *sordidus* and identifiable as to race. The facts given here and the circumstantial considerations set forth by van Rossem (1939) and Brodkorb (1944) permit a nomenclatural action more definite than any other. Moreover, the population of the southern part of the Sierra Madre Oriental bore a well-documented name for 35 years prior to the change promoted by Hellmayr. Therefore, in agreement with van Rossem and Brodkorb, *Garrulus sordidus* Swainson 1827 is here regarded as a synonym of *Corvus ultramarinus* Bonaparte 1825, and *Aphelocoma ultramarina sordida* of my revision (pp. 338, 412) and the Mexican check-list (Moore, 1957:124), occurring in San Luis Potosí, Hidalgo, Querétaro, and Guanajuato, should retake its former name *potosina* Nelson.

#### SUPPLEMENTARY INFORMATION ON OTHER TYPES

*Corvus ultramarinus* Bonaparte 1825 [= *Aphelocoma ultramarina ultramarina* (Bonaparte), p. 416]

A specimen of *A. u. ultramarina* in the Rijksmuseum van Natuurlijke Historie at Leiden was considered by van Rossem (1942) possibly to be the type. I examined it in January, 1958, but have little to add to the discussions in his and my papers (see p. 417). My measurements are as follows: wing, 177 mm.; tail, 172; bill length, 19.6; bill depth, 9.7; tarsus, 42.3. The specimen is an adult, not a

first-year individual as reported earlier by van Rossem in notes quoted in my paper (p. 417). Its status as a type remains doubtful, and without new evidence the situation remains as reported in my 1951 paper.

*Cyanocitta ultramarinus* Bonaparte 1850 [= *Aphelocoma ultramarina potosina* Nelson, p. 412 ("sordida")]

Another specimen at the Leiden Museum discussed under *A. u. ultramarina* in my revision (p. 417) is the basis for the first name given above, but it is not a synonym of *ultramarinus* Bonaparte 1825. Van Rossem's notes (quoted p. 417) led him to assign it to *wollweberi*, but data on color were lacking. I consider that it clearly represents *A. u. potosina*. The pileum is strong blue (duller and lighter blue in *wollweberi*); the back is strongly suffused with blue (not so in *wollweberi*); the sides of the face are a clear blue similar to that on the crown and contrasting strongly with the white throat (not so in *wollweberi*); the chest is crossed by a broad band of dull light blue (frequent in *potosina*, rare in western Mexican races). With regard to evaluation of color characters, van Rossem was handicapped for lack of adequate comparative material at Leiden, and moreover did not have benefits of either recent, concentrated restudy of specimens of *Aphelocoma* such as I had in London and Paris or of such background experience as my revision provided. My measurements agree closely with those of van Rossem: wing, 164 mm.; tail, 140; bill length, 19.5; bill depth, 10.0; tarsus, 42.4. These collectively fall into the ranges for *potosina* (p. 339) and not of *wollweberi* of Zacatecas (p. 331). Finally, it is doubtful that specimens from the Sierra Madre Occidental (that is, of *wollweberi*, *sensu stricto*) were available to Bonaparte at the time he made his studies. The above name should therefore appear in the synonymy of *potosina* Nelson and not of *wollweberi* Kaup.

*Pica sieberii* Wagler 1827 [= *Aphelocoma ultramarina ultramarina* (Bonaparte), p. 416]

There is an unsexed adult specimen in the Munich Museum labelled as a cotype of *Pica sieberii* Wagler and listed by Hellmayr (1934:57). I examined it in April, 1958. The specimen clearly represents the dark, large race of southeastern México. Its measurements are wing, 180 mm.; tail, 170; bill length, 20.8; bill depth, 10.6; tarsus, 41.4.

*Aphelocoma wollweberi* Kaup 1854 [= *Aphelocoma ultramarina wollweberi* Kaup, p. 408]

Hellmayr (1934:56) states that the type is in the Darmstadt Museum, but in my paper, the type is designated "unknown." This discrepancy may have resulted merely from my oversight of Hellmayr's information, or it may have resulted from an impression based on notes taken by A. J. van Rossem in 1939 on a specimen in the Brussels Museum which he thought might be the type. I do not know now why the discrepancy occurred. The bird collection of the Darmstadt Museum was destroyed by bombs during World War II, and during my visit there in April, 1958, I found no information which could throw any light on the supposed type.

The specimen in the Brussels Museum reported by van Rossem to be one of Kaup's original specimens from Zacatecas and discussed in my revision (p. 409) was examined by me in Brussels. It is an unsexed adult (no. 5250) collected in late spring or early summer; it was entered in the catalog of the museum on November 9, 1855. My earlier comments left racial assignment of this specimen undecided for lack of information regarding color, and the choices left open were *A. u. "sordida"* or *A. u. wollweberi*. The blue coloration of the specimen is pale and grayish and within the range displayed by *wollweberi*. My measurements of it fall close to those of van Rossem: wing (chord), 154 mm.; tail, 130; bill from nostril, 17.8; bill depth at nostril, 8.4; tarsus, 37.4. The measurements, even without the datum of sex, also place the specimen into *wollweberi* (my table 49, p. 331) and not "*sordida*" (my table 54, p. 339). In other words, there is no reason now for doubting that the specimen represents the Zacatecas population of the race *wollweberi*.

In his original notes, van Rossem expressed the view that the Brussels specimen could even be Kaup's type because of the agreement between this specimen and Kaup's original description with regard to shortness of the central pair of rectrices. All evidence now available supports van Rossem's suspicion that the Brussels specimen is at least a cotype. This possibility cannot be considered further without some new evidence from journals, catalogs, or correspondence about the history of the specimen now in Brussels and the one said by Hellmayr to have been in Darmstadt. As Kaup gives inclusive measurements for *wollweberi* in his table (see p. 409), he evidently had at least two specimens.



One question is whether Kaup's type was in Darmstadt in the decade prior to 1940. As the museum is supposed to have contained additional types of North American birds such as those described by Bonaparte, Bechstein, Kaup, and Malherbe, there remains some hope that the uncertainty regarding the present whereabouts of the type of *wollweberi* Kaup may be cleared up.

*Aphelocoma gracilis* G. S. Miller 1896 [= *Aphelocoma ultramarina gracilis* G. S. Miller, p. 411]

The type, in the British Museum, is number 1906.12.7.3736; earlier it was number 230,470 in the Museum of Comparative Zoology. It is an unsexed adult, but in his original description, Miller (1896) states it to be a male. In his catalog (now deposited in the British Museum), it is also listed as a male. The type now lacks an original label. My measurements indicate the type to be exceptionally small for a male and suggest it may have been a female: wing, 146 mm.; tail, 126; bill length, 17.5; bill depth, 8.0; tarsus, 34.9 (compare with data in table 50, p. 333).

The name *gracilis* was used by me to apply to the smallest of three western Mexican races occurring from north to south in the Sierra Madre Occidental, but the original sample of that race was small. Additional specimens from northwestern Jalisco and Nayarit examined by me in recent years confirm the racial diagnosis given in the revision (p. 332). *A. u. gracilis* is recognized in the Mexican check-list (Moore, 1957:124).

*Cyanocorax unicolor* Du Bus 1847 [= *Aphelocoma unicolor unicolor* (Du Bus), p. 420]

The type in the Brussels Museum was examined by me in April, 1958. It is an unsexed adult. My measurements are wing, 169 mm.; tail, 164; bill length, 19.8; tarsus, 43.2. This information supplements that given by van Rossem (1942) and my revision (p. 420).

"*Corvus palliatus* Drapiez," in Bonaparte 1850 [= *Aphelocoma coerulescens californica* (Vigors), p. 389]

Particulars regarding this specimen provided by van Rossem are given in my revision, p. 389. I examined the specimen in the Brussels Museum in April, 1958, and confirmed all those particulars except the following: The specimen is an adult, not a first-year specimen. My wing measurement (119.3) is close to that of van Rossem's (120), but the tail measured 124.0 (not 133). The size characteristics together with weakness of collar pattern suggest a female, probably of the race *californica*, as van Rossem also surmised.

#### RACIAL TAXONOMY OF APHELOCOMA ULTRAMARINA

The possibility of an additional race of the Mexican Jay from the southern part of the Mexican plateau was considered in my 1951 paper (pp. 346, 419), but this is not supported by additional specimens examined by me since then from Querétaro, Guanajuato, northeastern Jalisco, Aguascalientes, and southern Nayarit (that is, from areas not represented by specimens in my revision; see map page 320).

While the populations on the mountain ranges over the southern part of the plateau, scattered and isolated from each other, are still poorly known (see pp. 316-317), the variation appears to represent merely different degrees of intermediacy between *potosina* to the northeast, *wollweberi* to the northwest and *gracilis* to the west. Also, in spite of the striking size difference between *gracilis* and the race neighboring to the south, *colimae* in western Jalisco, the few specimens I have examined from either side of the Río de Santiago suggest that there are transitional populations between these races.

Specimens from Querétaro in the Museum of Vertebrate Zoology represent *potosina*, and Moore (1957:124) assigns specimens from Guanajuato to that race, also. Those from Aguascalientes and interior Jalisco are best called *wollweberi*. By this usage, the name *wollweberi* is applied to a distinguishable population in the central part of the Sierra Madre Occidental, but included under it are more or less intermediate populations of the southern part of the plateau centrally placed with reference to other, better defined and named populations, but still resembling *wollweberi* most.

In the light of the facts given here along with those given earlier in the discussion of

*Garrulus sordidus* Swainson 1827, the names of the races of *Aphelocoma ultramarina* should stand as follows:

- Aphelocoma ultramarina ultramarina* (Bonaparte) 1825
- Aphelocoma ultramarina potosina* Nelson 1899
- Aphelocoma ultramarina couchii* (Baird) 1858
- Aphelocoma ultramarina colimae* Nelson 1899
- Aphelocoma ultramarina gracilis* G. S. Miller 1896
- Aphelocoma ultramarina wollweberi* Kaup 1854
- Aphelocoma ultramarina arizonae* (Baird and Ridgway) 1873

A list such as this and the use of trinomials in general often obscures basic speciation problems of continuing interest. One deserves emphasis here. In *Aphelocoma ultramarina*, a major break in the pattern of geographic variation occurs in Hidalgo. There is a large gap in both size and color characteristics between *potosina* and the nominate race (see pp. 321, 340-341). Additional specimens from Hidalgo emphasize this gap, but critical collecting of specimens from localities where the races occur close to each other or even together remains to be done. There is a possibility of circular overlap here between *potosina* and *ultramarina*, the circle being formed by populations to the northwest and west, through *potosina* and *wollweberi*, then to the southwest through *colimae*, then back east through *colimae* and *ultramarina*, or the circle may be smaller in geographic scale. This intriguing possibility is worth investigating notwithstanding the fact that man-induced changes in vegetation and particularly the reduction of forest cover used by Mexican Jays may make the study more than ordinarily difficult.

#### USE OF SUBGENERA IN APHELOCOMA

The 5th and latest edition of the A.O.U. Check-list (1957) continues the use of subgeneric names *Aphelocoma* and *Sieberocitta* given in the 4th (1931) edition. These were rejected, with explicit reasons, in my monograph, page 420. The chief criterion (Oberholser, 1919) for separation of these subgenera was whether the wing/tail ratio was  $>1$  or  $<1$ . This breaks down and, in fact, broke down prior to the 4th edition, when van Rossem (1928) assigned all forms of the Unicolored Jay to one species, *Aphelocoma unicolor*. Additional criteria originally set forth by Coues (1903:497) also have broken down because the characters either vary intraspecifically (egg patterning in *Aphelocoma ultramarina*; see Pitelka, 1951:317) or never did rank above those of ordinary species differences (color pattern).

Generic limits among the American jays remain uncertain (see Pitelka, 1951:203-206) and need close study by modern standards. As presently delimited, *Aphelocoma* is a compact group of three species hardly calling for use of subgenera. If there is any new evidence or rationale for their use, it should be published if the latest edition of the A.O.U. Check-list is to be taken seriously on this point.

#### SUMMARY

Types of species and races of the jay genus *Aphelocoma*, not seen in conjunction with a revision of that genus published in 1951, were examined in European museums in 1957-58. These relate to the following names: *Corvus ultramarinus* Bonaparte 1825, *Pica sieberii* Wagler 1827, *Garrulus sordidus* Swainson 1827, *Cyanocitta ultramarinus* Bonaparte 1850, *Aphelocoma wollweberi* Kaup 1854, *Aphelocoma gracilis* G. S. Miller 1896, *Cyanocorax unicolor* Du Bus 1847, "*Corvus palliatus* Drapiez," and *Cyanocitta superciliosa* Strickland 1845.

In the light of new evidence, two changes in trinomial nomenclature are proposed: *Aphelocoma ultramarina potosina* Nelson 1899 is re-applied to Mexican Jays of the

southern part of the Sierra Madre Oriental; and *Aphelocoma coerulescens oocleptica* Swarth 1918 is applied to Scrub Jays not only of the San Francisco Bay region but to all interior Californian populations earlier called *supercilliosa* Strickland 1845. The latter name is based on a type specimen not from an interior, but from a coastal population. However, its assignment to a coastal race now cannot be made satisfactorily; without new evidence, it should be considered unusable.

It is proposed additionally, as a result of the change emending *oocleptica* Swarth 1918 and eliminating one racial name, that application of trinomials to racial variation of the Scrub Jay would be more consistent if an additional name be dropped (*cactophila* Huey 1942) since the arguments applicable in the two cases are in part similar. The number of races recognized within the Pacific coast group is thus reduced from ten to eight.

Use of subgenera in *Aphelocoma* as now delimited should be discontinued because all criteria proposed to date are inadequate or invalid.

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