

THE BREEDING BIRDS OF PEKING AS RELATED TO THE PALEARCTIC AND ORIENTAL LIFE REGIONS.

(SHOWING THAT THE MARITIME PLAIN OF EAST CHINA BELONGS
NOT TO THE PALEARCTIC BUT TO THE ORIENTAL REGION.)

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It is thrill enough for any ornithologist simply to discover a new species breeding in his vicinity. But the finding of a new species breeding in the Peking area has all the delight of discovery with the added interest of having a bearing on a scientific problem. This problem is no less than that of a great change in a provisionally accepted boundary between two great life regions, the Palaearctic and the Oriental (embracing India, Burmah, Siam, Indo-China, South China, Malay Archipelago and the Philippines).

The great master of faunal geography, Alfred Russell Wallace, in his final work on the subject of 'The Geographical Distribution of Animals,' 1876, consciously left the problem unsolved. He frequently refers to the fact that the boundary between the Manchurian sub-region of the Palaearctic and the Indo-Chinese sub-region of the Oriental region in east China is indefinite, provisional, and needed further study of the fauna of the territory involved. For instance on page 223, he says: "To give an accurate idea of the ornithology of this Manchurian sub-region is very difficult, both on account of its extreme richness and the impossibility of defining the limits between it and the Oriental region." Again, page 179, speaking of the countries of the Palaearctic region including China and Japan, he says: "Their boundaries (between life zones) are often indefinable, and those here adopted have been fixed upon to some extent by considerations of convenience, dependent upon custom and upon the more or less imperfect knowledge we possess of some of the intervening countries."

Newton's 'Dictionary of Birds,' 1893, under "Geographical Distribution" says of China, "This is a branch of the subject in which it is as yet impossible to form an opinion."

These quotations show sufficiently that the question of this

boundary in the last century was left entirely open awaiting further study of the Chinese fauna and flora. The boundary has, however, been generally accepted as correct by authors.

Wallace depended upon the researches of two first class contemporary ornithologists, Swinhoe and David. They had listed 807 species for China but since then about 250 species and 490 subspecies have been added. For the province of Hopei, (formerly Chihli), in which Peking lies, these two men and von Möllendorff totalled 316 species in 1877. But now La Touche, Sowerby, Weigold, Hubbard and the writer, with the advantage of long years of residence in the province, have added some 100 species to the list for this, a critical province for the solution of the problem. Although much needs to be done still in the study of nesting habits and ranges the breeding range of many species has been more exactly determined, so that we are now in a much better position than was Wallace to give the argument from the birds for this boundary.

In the great work which we have quoted Wallace places the northern boundary of the Oriental region in Tibet at about 28° north latitude. From there eastward in southwest China it rises to 30° with two lobes extending northward, one at Moupin where David worked to about 34°. Thence it dips southeast across the Yangtzu River to a point northwest of Canton, at 24° and then rises to the northeast along the coastal ranges of mountains to 30° again on the seacoast below Shanghai at Ningpo. This excludes 700 miles of the middle and lower Yangtzu basin from the Oriental Region. From the China coast in the Yellow sea it dips south almost to Formosa at 26°.

Some Japanese ornithologists, notably Dr. Kuroda, are arguing for the continuance of the line from the China coast along the 30th parallel through their Amami Sea just south of Kiushiu Island where Nagasaki lies, thus pushing the boundary north in Japan by some four degrees. This helps to confirm the thesis of the present paper.

Our additions to the known breeding birds in Hopei indicate that this line on the China coast should be ten degrees farther north at 40°, the latitude of Peking and Shanhaikuan on the seashore. This is 16° deg. or over 1000 miles north of its lowest dip, above

Canton, according to Wallace. This throws all the great maritime plain of east China into the Oriental Region instead of the Palaearctic. The temerity of the writer in suggesting so great a change is mitigated in that Wallace himself so clearly indicated the tentative nature of his boundary at this point.

How far up the Yangtzu river this new boundary should branch northeast from the old line we do not now attempt to decide by faunal proof but probably it should be from the point where the river debouches from the famous Yangtzu gorges above Ichang, only 600 feet above the sea. From there it would pass the eastern slopes of Tapaishan and the foot of the Tsingling, which Hartert recognizes as the limit of many species, and thence follow the foothills of the 5000 ft. mountains northeast to Peking on the 40th parallel, which it follows to the coast at Shanhaikuan. For the establishment of this line as the boundary we submit the following avifaunal evidence.

It is now commonly recognized that far flying migrants are not good indicators of faunal areas except strictly within their breeding range. Wallace himself offers a list of 15 genera which he says had been wrongly classified as Indian and therefore Oriental, because, though they do occur in India, it is only as winter visitors from the heights of the Himalaya Mts. In the light of this principle "the gradual merging" of Palaearctic and Oriental forms in east China, which Wallace mentions, disappears. Owing partly to the predatory and omnipresent Magpie and Jungle Crow the breeding birds on the China plain are very few and are far outnumbered by the transients of spring and fall and the winter visitors. This fact may have misled Wallace into viewing this area as Palaearctic owing to the absence of knowledge of the breeding habits and the range of many species. Swinhoe expressed his inability often to discriminate between native residents and birds of passage.

It is needless to point out why the breeding birds are far better indicators of life-zones than are transients. Suffice it to say that we restrict ourselves to the sedentary birds and the breeding areas only of migrants in this discussion of the birds as evidence of this boundary.

The province of Hopei is a critical region for this boundary, because it embraces the greatest natural life barrier north of Kuang-

tung province which is the definitely Oriental life region of south China. The coastal range of southeast China which Wallace recognized as the northern limit of the Oriental, is bounded on the north by the almost sea-level warm plain, characterized by rice-fields, water buffalo and bamboo. The Yangtzu River itself is no barrier even to hamsters, much less to the birds that we know; and the low divide between it and the Huai River offers no difficulty to southern species occupying to the north. Neither do the mountains of Shantung, 3000 feet elevation, oppose a barrier. Their historic military pass at Hsüchowfu, Kiangsu province, is out-flanked by rivers, marshes and plains to the west, that are difficult for armies but not for birds. From there north the Yellow river and Peiho basins form one plain to the mountains at the 40th parallel approximately, stretching from Shanhaikuan on the sea westward to Peking and thence southwest to the Yangtzu. This line is a real barrier for its southern side at Peking is the warm low plain, 50 ft. above sea level and the northern edge, 50 to 100 miles away is 6000 ft. above the sea on the cold Mongolian plateau. This line embraces some peaks 7000 to 10000 ft. high, as Hsiao Wu T'ai Shan. The climate of the Mongolian plateau north and west of this line is far colder and drier than that of the maritime plain. But northeast from Shanhaikuan lie maritime plains of South Manchuria similar to those of east China. An analysis of the breeding birds of the province exhibits the truth of the statement that these mountains on this line form a barrier far more formidable to breeding birds than any other in eastern China.

We have 130 species of birds that have been found breeding in the province, including a very few whose nests and young have not been found, but which remain all summer and which can hardly be classified as sexually immature or senile, as some waders and ducks seem to be. Of these 130 we find 65 to be cosmopolitan, breeding in both Oriental and Palaearctic Regions of no debate. We therefore exclude them from consideration. The remaining 65 are of prime significance to this boundary problem. These may be divided into three groups as follows:

I. Permanent residents limited on the south by this line	20
II. Migrants whose breeding range is limited on the south by this line	26
III. Migrants and residents whose northern limit is this line	19
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Total breeding birds of significance to the problem	65

We subjoin annotated lists of these three groups, the numbers in parenthesis referring to the numbers in the 'Tentative List of Chinese Birds' published by the Peking Society of Natural History, 1926-7.

I. PERMANENT RESIDENTS WHOSE SOUTHERN LIMIT IS THIS 40° LINE 20

With two or three exceptions these are all characteristic of the Palearctic.

1. (156) *Lyrurus tetrix ussuriensis* (Kohts). EASTERN BLACK GROUSE.—This occurs only in the extreme northern parts of the province at about 42° according to the statements of the dealers who sell it in Peking game markets occasionally.

2. (165) *Alectoris graeca pubescens* (Swinhoe). EASTERN RED-LEGGED PARTRIDGE.—This bird occurs down to the foot of the hills all along the line.

3. (167) *Perdix barbata barbata* Verreaux and Des Murs. DAURIAN OR BEARDED PARTRIDGE.

4. (185) *Crossoptilon manchuricum* Swinhoe. EARED PHEASANT.—Rare in Hopei; it is more common in the heavier forests of Shansi.

5. (190) *Pucrasia xanthospila xanthospila* Gray. NORTH CHINA PUCRAS PHEASANT.—This species occurs in pine forests northeast of Peking with allied subspecies to the north and west.

6. (195) *Syrnaticus reevesii* (Gray). REEVES' OR LONG-TAILED PHEASANT.—This fine pheasant occurs on our line like the last at the Eastern Tombs and west of it in isolated areas. It also occurs south in Kiangsi which may be an island of Palearctic terrain in the Oriental or the bird may be considered common to both regions like the Ring-neck Pheasant.

7. (280) *Ibidorhynchus struthersii* Vigors. IBIS-BILL.—This strange red-billed "curlew" in blue-gray, white and black, is mistakenly called a marker for the Oriental Region in Wallace's plate of Indian birds and animals. Its range falls north of our line from the seacoast to western Szechuan as a resident. Beddard has corrected Wallace's mistake by placing it in his Palearctic list.

8. (446) *Yungipicus kizuki wilderi* Kuroda. WILDER'S PYGMY WOODPECKER.—This subspecies is confined to the mountains northeast of

Peking but its related subspecies are found southeastward to the Island of Tsushima south of Korea, and to the northern Japanese Islands.

9. (452) *Dryocopus martius reichenowi* Kothe. EASTERN BLACK WOODPECKER.—Since the destruction of the Eastern Tombs forest this great Woodpecker has been seen on the plains near Peking but not farther south. It ranges west into Shansi and northeast into Siberia and Korea.

10. (511) *Pterorhinus davidi davidi* Swinhoe. DAVID'S HILL BABBLER.

11. (705a) *Laiscopus collaris erythropterus* (Swinhoe). RED-RUMPED ACCENTOR.—Our line is the southeastern limit except for an isolated hill region in Shantung.

12. (742) *Rhopophilus pekinensi* (Swinhoe). PEKING HILL BABBLER.—

13. (854) *Sitta europaea amurensis* Swinhoe. AMUR NUTHATCH.—Other races occur in the Fukien mountains and in Kiangsi, which are either to be considered as islands of Palearctic terrain or the species is common to both regions.

14. (855) *Sitta villosa* Verreaux. CHINESE GRAY NUTHATCH.

15. (888) *Corvus corax ussuriensis* Taczanowski. MANCHURIAN RAVEN.

16. (903a) *Nucifraga caryocatactes interdictus* Kleinschmidt and Heigold. HOPEI NUTCRACKER.

17. (908) *Pyrrhocorax pyrrhocorax* (L). CHOUGH.

18. (969) *Pyrrhula cineracea* Cabanis (formerly *cassini*). GRAY-BACKED BULLFINCH.

19. (970) *Pyrrhula pyrrhula griseiventris* Lafresnaye. ORIENTAL BULLFINCH.

20. (971a) *Pyrrhula erythaca wilderi* Riley. HOPEI BULLFINCH.—*Pyrrhula* is considered a Palearctic genus. One species, *P. nipalensis ricketti* La Touche, is recorded from Fukien and Kuangtung in the south.

With the exception of *Syrnaticus reevesii*, *Laiscopus collaris erythropterus* and *Sitta europaea*, as noted, these species are all unquestionably Palearctic and with the exception of these same they find their limit of southern range in east China exactly at the line mentioned.

II. MIGRANTS WHOSE BREEDING RANGE IS LIMITED ON THE SOUTH BY THIS 40° LINE. 26

Of this list the first thirteen are mountain and forest dwellers and so after crossing the plain on migration begin their breeding range in the mountains of this line and extend northward. One half, the second thirteen, are plain dwellers and begin their nesting in smaller numbers on the northern extremity of the plain at Peking,

or in the broad valleys to the northeast beyond Shanhaikuan but still approximately at the 40° line.

21. (143) *Butastur indicus* (Gmelin). GRAY-FACED BUZZARD EAGLE.—This bird breeds at both Eastern and Western Tombs near Peking but not south on the plain so far as we know.

22. (469) *Galerida cristata leautungensis* (Swinhoe). NORTH CHINA CRESTED LARK.

23. (478) *Anthus roseatus* Blyth. HIMALAYAN WATER PIPIT.—There is but one isolated mountain summit 10,000 ft. above the sea where we know of their breeding aside from southwest China and Tibet.

24. (485) *Dendronanthus indicus* (Gmelin). FOREST WAGTAIL.—The western and southern limit of breeding in Hopei is the hills west of Peking but it may breed also in southwest China and Kuangsi where it is recorded in August.

25. (648) *Monticola saxatilis* (L). WHITE-BACKED ROCK THRUSH.

26. (649) *Monticola gularis* (Swinhoe). WHITE-THROATED ROCK THRUSH.

27. (651) *Monticola philippensis philippensis* (Müller). RED-BELLIED ROCK THRUSH.

28. (708) *Prunella montanella* (Pallas). CHINESE MOUNTAIN ACCENTOR.—This is both resident and migrant in Northern Hopei.

29. (747) *Phragmaticola aëdon* (Pallas). THICK-BILLED WARBLER.

30. (803) *Ptyanoprogne rupestris* (Scopoli). CRAG MARTIN.

31. (830) *Lanius bucephalus* Temminck and Schlegel. BULL-HEADED SHRIKE.

32. (894) *Coloëus dauuricus dauuricus* (Pallas). DAURIAN JACKDAW. *Coloëus neglectus* (Schlegel). BLACK JACKDAW.—These are two forms of the same species.

33. (978) *Carpodacus pulcherrimus davidianus* Milne-Edwards. BEAUTIFUL ROSE FINCH.—Is found breeding on the top of Hsiao Wu Tai with *Anthus roseatus*.

The following thirteen species, with the exception of two or three as noted, begin their breeding range on the plain near the 40th degree.

34. (4) *Podiceps cristatus cristatus* (L.). GREAT CRESTED GREBE.

35. (7) *Podiceps nigricollis nigricollis* Brehm. BLACK-NECKED GREBE.—This is one of the species present in summer but nest not yet found.

36. (22) *Phalacrocorax carbo sinensis* (Shaw and Nodder). CHINESE CORMORANT.—It haunts the Peking Summer Palace lakes and the seashore in summer, but its breeding place has not been found in Hopei.

37. (30) *Egretta alba modesta* (Gray). EASTERN WHITE EGRET.

38. (73) *Anas platyrhynchos platyrhynchos* L. MALLARD.—Its rare occurrence in summer in pairs, is the only evidence of breeding on the plain, but it is common in Mongolia with other Ducks, Geese and Swans

39. (74) *Anas poecilorhyncha zonorhyncha* Swinhoe. YELLOW-NIB OR SWINHOE'S DUCK.

40. (85) *Nyroca ferina ferina* (L). POCHARD.—This bird has recently been discovered lingering in small numbers in the Peking lakes all summer and may breed here as its southern limit.

41. (104) *Falco vespertinus amurensis* Radde. EASTERN RED-LEGGED FALCON.—This exquisite little falcon breeds at intervals on the plain in Hopei and Shantung and probably still further south but in greater numbers farther north in Manchuria and Siberia.

42. (132) *Accipitur nisus nisosimilis* (Tickell). EASTERN SPARROW HAWK.

43. (292) *Sterna hirundo hirundo* L. COMMON TERN.—Although this is a cosmopolitan species we do not know of breeding records farther south than Hopei.

44. (416) *Micropus apus pekinensis* (Swinhoe). NORTH CHINA SWIFT.

45. (913) *Spodiopsar cineraceus* (Temminck). GRAY STARLING.

46. (916) *Agropsar sturninus* (Pallas). DAURIAN STARLET.

Having now listed 46 birds breeding on the Palaearctic side of our line we turn to 19 southern birds which find their range entirely on the southern, or as we contend, the "Oriental Region" side of the line. Most of these seem to have been discovered in Hopei since the publications of Wallace or the researches of Swinhoe and David. All but four or five I consider to be definitely Indian, that is Oriental, region birds. Many of them have long been considered definite markers for the Oriental. This indicates the special significance of the following group in our problem. I simply append the list slightly annotated and omit the, to me, dramatic details of the discovery of some of the most important items of the list.

III. MIGRANTS AND RESIDENTS WHOSE NORTHERN LIMIT OF RANGE IS THIS 40° LINE. 19

47. (35) *Bubulcus ibis coromandus* (Boddaert). CATTLE EGRET.

48. (68) *Nettapus coromandelianus* (Gmelin). PYGMY GOOSE OR COTTON TEAL.—In July 1926 two pairs were repeatedly seen in the lakes of the Summer Palace where the bird finds warm fresh water with old trees and palace ruins in which it delights to nest as on the Yangtzu River where it is common.

49. (211) *Amaurornis phoenicura chinensis* (Boddaert). CHINESE WHITE-BREADED WATER HEN.—Common on the Yangtzu, it has been taken in summer twice in and near Peking.

50. (213) *Gallixrex cinerea* (Gmelin). WATER COCK.—This very secretive and crepuscular bird has been found to be a regular summer

visitor on the plain and even into the lower valleys of Manchuria beyond Shanhaikuan to the northeast.

51. (228a) **Charadrius alexandrinus dealbatus** (Swinhoe). KENTISH PLOVER.—This member of a cosmopolitan genus might well be disregarded but this particular species finds its farthest north in breeding range so far as we know, on the coasts of South Manchuria and Hopei. It belongs to temperate and warm coasts.

52. (284) **Hydrophasianus chirurgus** (Scopoli). WATER PHEASANT, OR JACANA.—Since the summer of 1916 both young and adult birds have been repeatedly seen and taken in the lakes and marshes of Peking and southward. One set of the beautifully polished chocolate colored eggs was collected in the drying bed of a lake in Peking. A mere depression in the mud lined with the decaying water plants in situ formed the nest. A brood of the young birds remained until Oct. 15th in 1924. It is common on the Yangtzu.

53. (339) **Streptopelia chinensis chinensis** (Scopoli). CHINESE SPOTTED-NECK DOVE.—This species finds its northern limit at Peking. Three other members of the Genus extend into south Manchuria, one of them, *S. orientalis*, into Siberia.

54. (341) **Streptopelia tranquebarica humilis** (Temminck). RUDDY TURTLE DOVE.—This dove recently discovered breeding at the Western Tombs, is also recorded in South Manchuria even to the Ussuri valley.

55. (374) **Ceryle lugubris guttulata** Stejneger. HIMALAYAN PIED KINGFISHER.—This Kingfisher has been found beginning to lay on the 5th of March at the southern extremity of the province in high Loess banks by warm streams that never freeze probably for many miles.

56. (379) **Halcyon pileata** (Boddaert). BLACK-CAPPED KINGFISHER.—This bird nests in banks at the Western Tombs and the Chinese who steal its young for pets say that it also nests in hollow trees.

57. (462) **Pitta nympha nympha** Temminck and Schlegel. BLUE-WINGED PITTA.—One specimen in the Peking market was said to have been taken in the reed beds near by. Others have been taken in Shantung, Anhui and Kiangsu to the south.

58. (607) **Xanthopygia elisae** (Weigold). ELIZA'S FLYCATCHER.—Thus far this bird has been found only by the describer and the writer, both finding it breeding in the limited area of oak forest in the Eastern Tombs at 40° north latitude.

59. (660) **Myiophonus coeruleus coeruleus** (Scopoli). WHISTLING WATER THRUSH.—Generally considered an Oriental region bird, it is only found in the deep wooded hills near clear streams in the mountains west of Peking.

60. (812a) **Volvocivora lugubris melanoptera** Rüppell. BLACK-WINGED CUCKOO-SHRIKE.—This Indian bird is fairly common in south China and north into Shansi, which may prove to be a lobe of Oriental territory. It has also been found twice near Peking on the plain.

61. (819a) *Chibia hottentotta brevirostris* (Cabanis). CHINESE HAIR-CRESTED DRONGO.

62. (864) *Pardaliparus venustus venustus* (Swinhoe). YELLOW-BELLIED TIT.

63. (892) *Corvus torquatus* Lesson. WHITE-NECKED CROW.

64. (897) *Urocissa erythrorhyncha erythrorhyncha* Boddaert. BLUE MAGPIE.—*U. e. brevixilla* Swinhoe was separated as a northern form but is not universally recognized. This genus said to be distinctive of the Oriental region we now know ranges from the Peking hills along this 40th parallel to Kansu up to 1650 meters above sea level, resident.

65. (1007) *Passer rutilans rutilans* Temminck. RUDDY SPARROW.—This is uncommon in Hopei, has not been found nesting and its range not well known, except that it is common in the southeast and into central China.

To sum up, of all the native breeding birds of this Hopei region, 46 are predominantly Palearctic and breed to the north from the 40° line. The 19 that breed south from this line are distinctly Oriental with only three or four exceptions, of species belonging to cosmopolitan genera, Nos. 51, 53, 58.

It should be noted that the area we have been considering is at the extreme north of the plain. A study of the Lower Yangtzu basin to the south will disclose many more birds of the Oriental region that enter the plain but do not reach the latitude of Peking.

We might observe that our contention for the extension north of the Oriental region by 1000 miles in east China makes the name Oriental much more appropriate.

Our attention is also called to a confirmatory feature of the climate on this coastal plain. The tropical rainy season advances up the coast as far as Peking where it begins about the first of July and continues usually from four to six weeks. Very little rain falls at any other part of the year. This is tropical rather than "Palearctic."

There are two striking confirmations of our thesis among the mammals. In the Eastern Tombs forest there is a thick-furred monkey, *Macachus tsheliensis* Milne-Edwards. This short-tailed macaque has been considered purely an Indian genus, but Pere David submitted specimens from the Eastern Tombs to Milne-Edwards for determination, the writer has seen a troop of fifty and the Chinese formerly caught them for training regularly in that region.

Planesta gangetica is a porpoise discovered in the Ganges and

named from the fact that it was thought peculiar to that river. We have several specimens that were captured in the Yangtzu and in the West Lake where it is well known to the Chinese as the "River Pig."

These are confirmations among the mammals of what the birds have been bringing to our attention, that the Oriental avi-faunal region extends farther north along the China coast than had been supposed, and we shall expect further researches in the fauna and flora of the region to add to the evidence that most of eastern China is not Palaearctic but Oriental.

Peking, China.