

Bulletin of the Museum of Comparative Zoölogy

AT HARVARD COLLEGE.

VOL. LXVIII. No. 7.

BIRDS COLLECTED BY DR. JOSEPH F. ROCK IN
WESTERN KANSU AND EASTERN TIBET.

BY OUTRAM BANGS AND JAMES L. PETERS.

WITH FIVE PLATES.

CAMBRIDGE, MASS., U. S. A.:
PRINTED FOR THE MUSEUM.

AUGUST, 1928.

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REPORTS ON THE SCIENTIFIC RESULTS OF THE EXPEDITION TO THE EASTERN TROPICAL PACIFIC, IN CHARGE OF ALEXANDER AGASSIZ, BY THE U. S. FISH COMMISSION STEAMER "ALBATROSS," FROM OCTOBER, 1904, TO MARCH, 1905, LIEUTENANT COMMANDER L. M. GARRETT, U. S. N., COMMANDING, IN PREPARATION: —

R. P. BIGELOW. The Stomatopoda.
O. CARLGREN. The Actinaria.
H. J. HANSEN. The Cirripeds.
——. The Cephalopods.
C. A. KOFOID. The Protozoa.
P. KRUMBACH. The Sagittae.

G. W. MÜLLER. The Ostracoda.
MARY J. RATHBUN. The Crustacea
Decapoda.
——. The Copepods.
——. Pteropods, Heteropods.

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No. 7.—*Birds Collected by Dr. Joseph F. Rock in Western Kansu and Eastern Tibet.*

BY OUTRAM BANGS AND JAMES L. PETERS.

INTRODUCTION

In the spring of 1925 Dr. Joseph F. Rock was commissioned by the late Professor Charles S. Sargent, Director of the Arnold Arboretum, to make an extensive trip into western China and to visit certain forest areas in search of botanical and horticultural material. Thanks to the generous interest of Dr. Thomas Barbour, Dr. Rock was enabled to take with him his two trained Chinese bird collectors.

The expedition was in the field from April 1925 until the autumn of 1926. For much of that time the work was carried on under extremely trying conditions, intertribal wars, open hostility towards the whites by some of the Tibetan tribes, and bandits interfering much with his movements. In spite of all these drawbacks Dr. Rock and his Chinese assistants collected over 1000 birds, which after passing through many delays, and Chinese civil wars, reached this country in perfect condition without the loss of a feather.

It must be clearly understood that bird collecting was entirely a secondary consideration with Dr. Rock; his visits to any locality and the length of stay there were governed entirely by the botanical aspect of the situation.

Dr. Rock has made a map, which we have seen and studied, of the whole region that he traversed, which certainly was badly in need of accurate mapping. This he expects to publish.

The photographs were taken by Dr. Rock and are published here by permission of the Arnold Arboretum.

Entering Kansu from northern Szechuan in April 1925, Dr. Rock proceeded up the Wutu and Minchow rivers to Choni, in the Tao River valley. He collected in the region about Choni during May and June, making a trip to Mt. Lieuhoashan between Choni and Titao in July; during August he visited the Minshan range. In September he crossed the Tibetan border and collected around Lake Kokonor, later moving north into western Kansu where he explored the northern slopes of the Richthofen and North Kokonor Barrier ranges in late September, October and November, returning to Choni to spend January, February and March 1926. In the spring he set out westward, crossing

once more into Tibet, and collecting during May and June in the Ba valley, the Jupar mountains and the Yellow River gorges near Radja. Sometime during the summer he made a hurried reconnaissance of the great sacred mountain of Anne Machin, but was prevented from doing any work there by the open hostility of the Golock tribesmen. Returning to Choni late in the summer, he crossed the Minshan range and spent late August, September and early October in the Tebbu country. This region is not indicated on any published map. Rock speaks of an "upper Tebbu country" and a "lower" or "Ha Tebbu country." In the Tebbu lands Rock collected in the forests of Pezlu, Drakana, Mayaku, Sambaku and Wantsang Ku.

In many instances we have not been able to reconcile Dr. Rock's orthography of Chinese place names with the spelling on modern maps; we have however, preserved his spelling in every case.

We find that the sexing of the Chinese taxidermists is not dependable, and have been obliged to disregard it entirely in many cases.

We are indebted to the authorities of the United States National Museum and the American Museum of Natural History for the loan of necessary specimens, and to Mr. N. B. Kinnear of the British Museum of Natural History: and to Dr. Herbert C. Robinson for comparing some of our material with types in the British Museum.

The sequence of families in this paper is that of Sharpe's Hand List, with two exceptions. Following the recent consensus of opinion we recognize the *Prunellidae* as a distinct family. We also follow Sushkin and remove the genera *Passer* and *Montifringilla* from the *Fringillidae* to the *Ploceidae*.

TETRAONIDAE

TETRASTES SEWERZOWI SEWERZOWI Przew.

Tetrastes Sewerzowi Przewalski, Mongol i. Strana Tangut, 2, 1876, p. 130, pl. 18
(Kansu mountains in the lower and middle mountain ranges).

The Kansu Hazel Hen is represented in the collection by a fine series of sixteen examples including adults, immature and chicks. There are three males and a female from the spruce forests between 9,500 and 11,000 feet altitude in the Tao valley near Choni, collected during May and June 1925. One of the males taken in June has begun the post-nuptial moult, the renewal of the feathers is most conspicuous on the head, throat and neck, though a few pin feathers are noted elsewhere on the anterior portions of the dorsal and lateral tracts;

wings and tail are as yet unmoulted. Two adult females and three chicks were collected on Mt. Lieuhoashan, between elevations of 10,500 and 11,000 feet. Two adult males, an adult female and two immature were secured in the spruce forests of Drakana, upper Tebbuland, altitude 9,500 feet, during September 1926; the female and one of the males have shed the tail, and some of the fresh inner primaries are about one quarter grown. Two females collected in October 1925 at 11,500 feet in the mountains of Babo are in fresh autumnal plumage, the feathers of the upper parts being broadly veiled with olive brown, while below the veiling is buffy anteriorly and white posteriorly.

Riley's *Tetrastes sewerzowi secunda* (Auk, 42, 1925, p. 423 near Tatsienlu, Szechuan), of which we have three skins, is a valid race. None of our examples of *s. sewerzowi* show the characters that distinguish *secunda*. We mention this as Riley had but a single specimen of the former race on which to base his comparison.

PHASIANIDAE

TETRAOPHISIS OBSCURUS (Verreaux)

Lophophorus obscurus Verreaux, Nouv. Arch. Mus. Paris, Bull. 5, 1869, p. 33, pl. 6 (eastern Tibet = Mupin, Szechuan).

Rock collected two specimens of this rare pheasant in the Maerku valley, Tao River basin, south of Choni. The two birds, both sexed as females by the Chinese taxidermist, were obtained in forests, one in June and the other in December 1925.

TETRAOGALLUS TIBETANUS PRZEWALSKII Bianchi

Tetraogallus tibetanus przewalskii Bianchi, Aves Exp. Koslowi Mongol. u Tibet or. 1907, p. 165 (eastern Tibet).

In May 1925 a male was secured at an elevation of 11,500 feet on the cliffs at Peshingai, beyond Taochow in southwestern Kansu; a juvenal about half grown was collected on talus slopes at 13,500 feet, high alpine zone of the Minshan range. Six adults were obtained in eastern Kokonor; four of them (two males and two females) on the rocky exposed slopes 12,000 to 13,000 feet; on the mountains south of the Yellow River opposite Radja, a male at 13,000 feet on the high rocky slopes of the Waro valley 4 June 1926, and a male at 14,500 feet on talus in the Totuchnira pass over the Jupar range, 2 July 1926.

ALECTORIS GRAECA PUBESCENS (Swinh.)

Caccabis chukar var. *pubescens* Swinhoe, P. Z. S., 1871, p. 400 (northern China to the upper Yangtse).

In May 1925 a single specimen was taken in a rocky mountain gorge of the Wutu River, north of Kaichow, altitude 4,600 feet; five more examples, adults and immature, were secured during September 1926 at an elevation of 7,000 feet on dry slopes above Wantsang gomba, Ha Tebbuland. A female collected in October 1925 along a gravelly stream in the Liyuan Ku valley, Richthofen range, we also refer to this subspecies although the bird is slightly paler above than specimens of *pubescens* from eastern China. It is completing the autumnal moult and the wing feathers are not fully grown out.

ALECTORIS GRAECA MAGNA (Przewalski)

Caccabis magna Przewalski, Mongol i. Strana Tangut, 2, 1876, p. 127 (south Kokonor mountains, northern Tibet and Tsaidam plains).

All the rock partridges collected in Kokonor belong to this very distinct form that some ornithologists regard as a species. Seven adults of both sexes were taken in the Yellow River valley near Radja between 12 and 26 May 1926. They were found on grassy slopes and rocky hills at altitudes varying from 10,000 to 11,500 feet.

A male obtained in the valley of Sining, 7,800 feet in September 1925 apparently extends the range of this bird into western Kansu; the specimen is in worn plumage and stained with red earth or sandstone and for these reasons is not comparable with topotypical examples. It is labelled as having the eyes brown, whereas the birds comprising the series from eastern Kokonor are variously labelled as having the eyes yellowish gray, clay colored, yellow clay color or yellow.

PERDIX HODGSONIAE SIFANICA Przew.

Perdix sifanica Przewalski, Mongol i. Strana Tangut, 2, 1876, p. 124 (alpine regions of Kansu).

Rock secured thirteen specimens of this Partridge in western Kansu, eastern Kokonor and in the Minshan range, all of them belonging to the same race. A female and two three-quarter grown young birds were taken in October 1925 at 10,000 feet on the grasslands of Peitattung; on October 5 four immature examples were collected in eastern Kokonor on the summit of a pass at 11,000 feet between Tangar and Machuang Ku; and an adult with the autumnal moult incomplete

was shot between 11,000 and 12,000 feet in the Laliku Gorge, Tangar-Kokonor divide.

In the region about Radja three males were collected during May 1926 where the species was found in spruce forest and grassy clearings; the alpine regions of Kwanke-shan, 12,500 feet on the Yangtze-Yellow River divide yielded two specimens — an adult female and an immature male, in October 1926.

ITHAGINIS SINENSIS SINENSIS David

Ithaginis sinensis David, Ann. Sci. Nat. **18**, art. 5, 1873, p. 1 (Shensi).

Dr. Rock sent back a fine series of this splendid Blood Pheasant. Thirteen adults were secured near Choni in the spruce and fir forests of the Tao River valley at altitudes ranging from 10,000 to 11,000 feet. While on Mt. Lieuhoashan in July 1925 he collected three adults, and three chicks about a week old. During September 1926 two adults were secured in the spruce and fir forests in the Laliku valley 9,500–10,000 feet, northern slopes of the Minshans; two more adults in the juniper forests of Pezlu, upper Tebbu country, at 9,000 feet, and an immature female in spruce forest of Sambaku, 10,000 feet, Ha Tebbu-land.

ITHAGINIS SINENSIS MICHAËLIS Bianchi

Ithaginis sinensis michaëlis Bianchi, Ann. Mus. Zool. St. Petersb. **8**, 1903, p. 4 (northern foothills of the Nanshans).

Two males and a female of this rare and very distinct race were taken in November 1925 in spruce forest at 9,000 feet on Mt. Nginsinshan (Bullock Heart Mountain), a mountain in the north Kokonor Barrier range facing the southern end of the Richthofen range.

The males are paler than *s. sinensis* both above and below; wing edgings more rusty and less reddish, and there is much more green on the shaft streaks of the wing coverts, long scapulars and the feathers of the posterior upper parts. The female is a much paler and more smoky gray than the corresponding sex of *s. sinensis*. Wing of males 205 and 220; that of female 210.

CROSSOPTILON AURITUM (Pallas)

Phasianus auritus Pallas, Zoogr. Rosso-Asiat. **2**, 1827, p. 86 (interior of China).

One of the outstanding features of Dr. Rock's collection is a series of eleven adults and three chicks of this magnificent bird. It was not uncommon in the North Kokonor Barrier range where he obtained

four males and two females at 9,000 feet on Mt. Nginsinshan in October 1925. He shot a pair 15 May 1926 in the juniper forests of the Serchen gorge, 10,500 feet altitude, 1 day east of Radja, eastern Tibet, and on 28 May 1926 collected a male and two females in spruce forest at 11,000 feet south of the Yellow River opposite Radja. The three chicks were found on 25 June 1926 at 11,000 feet in spruce forest on the mountains west of the Jupar valley; they were not over three or four days old.

In addition to the specimens listed above, the collection contains the skin of a female raised in captivity at Choni, where this bird is reared from eggs taken from the nests of wild stock found in the mountains of southwestern Kansu. From the captives the middle tail feathers, which are in demand as ornaments for the headgear of the Mandarins, are pulled out.

Rock's wild killed birds all have the ornamental middle tail feathers, which are lacking in the Choni example.

PUCRASIA XANTHOSPILA Gray

Pucrasia xanthospila Gray, P. Z. S., 1864, p. 259, pl. 20 (hills northwest of Pekin).

Two females were taken at an elevation of 7,500 feet in the scrub oak forests of Mayaku, Ha Tebbuland in September 1926. In the absence of any comparative material of either *P. x. xanthospila* or *P. x. ruficollis* David and Oustalet (Ois. Chine, 1877, texte, p. 408, Shensi) we cannot comment on these birds. Kleinschmidt and Weigold (Abh. u. ber. Mus. Dresden, 16, 1923, no. 2, p. 4) question the validity of the latter form.

PHASIANUS COLCHICUS SOHOKHOTENSIS Buturlin

Phasianus strauchi sohokhotensis Buturlin, Ibis, 1908, p. 576 (oasis of Sohokhoto, near Tshen-fan, 100 km. from the northern slopes of the eastern Nan Shan).

Dr. Rock sent in a female pheasant from the Liyüan Ku valley in the Richthofen foothills, where the bird was shot during November 1925 in willow scrub along a stream at an elevation of 7,000 feet.

This specimen is too pale for *P. c. strauchi*, of which we have a single female for comparison, and is rather too dark for *P. c. sat-scheuensis* Pleske, the race inhabiting the southern Gobi desert and westernmost Kansu of which we also have a female for comparison. We can find no description of the female of *sohokhotensis*, but infer that our bird is referable to that form, on geographic grounds.

PHASIANUS COLCHICUS STRAUCHI Przew.

Phasianus strauchi Przewalski, Mongol. i. Strana Tangut, **2**, 1876, p. 119, pl. 17 (Kansu mountains up to 10,000 feet).

According to Dr. Rock, Strauch's pheasant is very common in the Tao valley, but unfortunately he did not secure a series; a spring male with traces of a white collar was preserved, also a male shot during February 1926. Two chicks about ten days old from the Kadjaku valley, 9,500 feet, collected during August 1925, are doubtless referable to this race.

PHASIANUS COLCHICUS SUËHSCHANENSIS Bianchi

Phasianus suëhschanensis Bianchi, Bull. Ac. imp. Sc. St. Petersb. (5) **24**, 1906, p. 83 (Sungpan Szechwan).

The three specimens of pheasant from lower Tebbuland are certainly referable to this race. An adult female collected in September 1925 at 8,500 feet in the forests of Wantsangku agrees with a female in the Museum of Comparative Zoölogy from the upper Min valley in Szechuan, which may be considered topotypical. Two males taken September 1926 at 8,000 feet in the fields or scrub forests of Mayaku are moulting from the juvenal to the first winter plumage, but enough of the latter has appeared to make certain that these birds, too, belong to *suëhschanensis*.

COLUMBIDAE

COLUMBA LEUCONOTA GRADARIA Hart.

Columba leuconota gradaria Hartert, Nov. Zoöl., **23**, 1916, p. 85 (Sungpan, Szechwan).

Two males and a female of this pigeon were secured in June and August, 1925 amidst the snow fields and rocks on the summit of Mt. Kwang Kei (12,500 feet) in the western part of the Minshan range near the Kansu-Tibet border. During July of the same year three additional specimens were taken in the valley of Shiaoku, 10,500 feet, where the birds frequented larch forests and adjacent meadows. A seventh example, a female, was collected at 8,000 feet in the forest of Mayaku, Ha Tebbuland, September 1926.

We have carefully compared these skins with a series from Szechuan and can detect no differences at all.

COLUMBA RUPESTRIS RUPESTRIS Pall.

Columba Oenas δ *rupestris* Pallas, Zoogr. Rosso-Asiat. 1, 1827, p. 560 (Dauria).

This pigeon was met, with in southern Kansu along the Wutu River north of Kaichow at 4,000 feet where three females were secured in May 1925, and again in eastern Tibet where a male was collected at 11,500 feet 30 May, and a female 2 June 1926 on rocky cliffs among the junipers in the Sakatu ravine; two females were obtained a few days later at 11,000 feet in the meadows of the Shala valley.

COLUMBA sp. (domestic variety)?

Two very dark rock pigeons, σ and ♀ , were taken along the Wutu River, elevation 3,000 feet, south Kansu, in April 1925.

These birds are slaty-black all over with much iridescence on the neck and crop region. They do not agree with the description of Buturlin's *nigricans* of inner Mongolia, being too dark. We suspect, of course, that they are domestic birds gone wild.

COLUMBA HODGSONI Vigors

Columba hodgsoni Vigors, P. Z. S., 1832, p. 16 (middle Himalayas).

One of the surprises of the collection was a fine pair of these birds obtained at 9,500 and 10,000 feet in spruce forest on Mt. Lieuhoashan (between Taochow and Titao) in July 1925.

So far as we know, this constitutes the first Palaearctic record for the species. The two specimens are identical with Yunnanese examples, except that the female has a reddish nasal operculum.

STREPTOPELIA ORIENTALIS ORIENTALIS (Lath.)

Columba orientalis Latham, Ind. Orn. 2, 1790, p. 606 (China).

An adult female was secured near Laliku (8,600 feet) in the Tao River valley, July 1925; in September 1926 an immature female was taken at 8,500 feet in the forests of Wantsang Ku.

OENOPELIA TANQUEBARICA HUMILIS (Temm.)

Columba humilis Temminck, Pl. col. livr. 44, 1824, pl. 259 (Bengal, Luzon).

There is one female in the collection taken in the Kokonor grass country, 11,000 feet, facing the eastern sand dunes, September 1925.

This bird is very different from examples of the corresponding sex from Hupeh and Yunnan, but we cannot describe it as a new form from a single specimen, somewhat immature, with an uncompleted moult.

LARIDAE

STERNA HIRUNDO TIBETANA Saund.

Sterna tibetana Saunders, P. Z. S., 1876, p. 649 (Tibet).

The capture of five specimens of this Tern near the Kansu-Tibet border constitutes an extension of its range. On 10 May 1926 an adult male was shot at an elevation of about 11,250 feet on the grasslands bordering the Tsechu stream, four days west of Labrang, and on 28 July a pair of adults and two well-grown juvenals were secured at 11,800 feet on grasslands at Amnyi Gardang, about halfway between Radja and Labrang.

The juvenals are like examples of *S. h. hirundo* of the same age except that they are much darker above. This is a very distinct form, the adults recognizable at a glance by their much darker coloration both above and below.

LARUS ICHTHYAËTUS Pall.

Larus Ichthyaëtus Pallas, Reise versch. Prov. Russ. Reich, 2, 1773, p. 713 (Caspian Sea).

An adult female in the plumage of the second winter was shot in September 1925 along the southern shore of Lake Kokonor. A note on the label indicates that the irides are "grey" and the tarsi "lead colored"; these observations do not agree with the colors of these same soft parts given by Dr. Dwight in his monograph (Bull. Am. Mus. Nat. Hist. 52, 1925 art. 3, p. 256-260).

LARUS BRUNNICEPHALUS Jerd.

Larus brunnicephalus Jerdon, Madras Journ. Lit. & Sci., 12, 1840, p. 225 (India).

A single specimen of the Indian Brown-headed Gull was obtained at about the same time and place as the foregoing species. The bird is a female in plumage of the second winter. The label describes the irides as "pale gray" and the bill and legs as "red."

CHARADRIIDAE

VANELLUS VANELLUS (Linn.)

Tringa Vanellus Linné, Syst. Nat. ed. 10, 1, 1758, p. 148 (Europe, Africa = Sweden).

The Lapwing was secured only during October 1925. A male was collected in swamps near Kanchow, western Kansu, and a male and a

female in a little grassy valley between the Nanshan ranges. These birds were doubtless migrants from further north.

CHARADRIUS DUBIUS CURONICUS Gm.

Charadrius curonicus Gmelin, Syst. Nat. **1**, pt. 2, 1789, p. 692 (Curonia).

A female Little Ringed Plover was taken during May 1925 in the bed of the Wutu River one day north of Kaichow. This specimen still has obsolete rusty edges on the feathers of the back.

CHARADRIUS PLACIDUS Gray

Charadrius placidus Gray, Cat. Bds. Mamm. etc., of Nepal & Tibet in Brit. Mus., ed. 2, 1863, p. 70 (Nepal).

A female in very worn and abraded plumage was taken along the Tao River near Choni in June 1925.

IBIDORHYNCHA STRUTHERSII Vigors

Ibidorhyncha Struthersii Vigors, Proc. Comm. Zool. Soc. **1**, 1831, p. 174 (Himalaya).

During June and July 1925 Dr. Rock encountered this species at rather low altitudes in the Tao River valley and its tributaries near Choni; taking a pair in the Kwadjaku valley at 9,600 feet, and two females in a small lateral valley at 8,600 feet. In December of the same year a male was secured in the valley of Payenrung, north of the Yellow River, at 10,000 feet. A male was obtained along the Yuvaku stream at 9,000 feet in the Drakana district of upper Tebbuland, September 1926.

SCOLOPACIDAE

TOTANUS TOTANUS EURHINUS Oberh.

Totanus totanus eurhinus Oberholser, Proc. U. S. Nat. Mus. **22**, 1900, p. 207 (Tso Moriri Lake, Ladak).

Dr. Rock collected six Redshanks; three breeding adults and three autumnal specimens. Of the former a pair was secured on 10 May 1926 along the banks of the Taechu (11,200 feet) 4 days west of Labrang, and a female in the Ba valley at 9,500 feet, July 1926, where the species was encountered in swampy meadows. The autumn birds were taken in September 1925 at 10,700 feet along the south shore of Lake Kokonor.

Oberholser described *Totanus totanus curhinus* from Ladak on the basis of larger size. Ticehurst in the Ibis for 1924, p. 120-121 upheld Oberholser's name, and with a series of both spring and winter birds from northwestern India before him pointed out certain color characters, in addition to the mensural ones, by which he believed the Indian birds could be differentiated. Still more recently, however, Colonel and Mrs. Meinertzhagen, (Bull. B. O. C., 46, 1926, p. 85) after an examination of seven breeding birds from Ladak conclude that the difference in size between Ladak birds and those from western Europe is only average, and that the coloration is identical, but find that the form still further east differs in precisely the same color characters as pointed out by Ticehurst (whose note the Meinertzhagens' do not mention), as well as average larger size. They, therefore, regard Oberholser's name as a synonym of *t. totanus*, and name the form from further east *terrignotae*, with their type specimen from Kokonor.

To clear up the situation we borrowed the type and three other Ladak specimens from the U. S. National Museum. After a careful comparison with European material as well as with birds from Kokonor and eastern Tibet, we are convinced that the bird Oberholser described is the eastern Redshank. Regardless of what the breeding bird of Ladak may be, the type is as extreme as any of the rusty examples that we have seen, while the three paratypes though not quite as extreme, have more rufous above than in European examples. Our Kokonor skins agree in color with the type of *curhinus*, but are slightly redder than the paratypes. The type and one paratype of *curhinus* were taken on July 29; the third specimen is merely labelled "July," while the fourth was taken on the 15th of August. Considering the lateness of the dates, it is wholly possible that the birds were migrants and not the breeding form of the region.

In any event *terrignotae* must fall as a direct synonym of *eurhinus*.

ACTITIS HYPOLEUCOS (Linn.)

Tringa Hypoleucos Linné, Syst. Nat. ed. 10, 1, 1758, p. 148 (Sweden, apud Hartert).

This common, wide ranging species is represented in the collection by an immature male collected in September 1925 on the grass lands bordering Lake Kokonor.

PISOBIA TEMMINCKII (Leisl.)

Tringa Temminckii Leisler, Nachtr. zu Bechstein's Naturg. Deutschl., 1812, p. 67-73 (Hanau am Main, Germany).

A male Temminck's Stint in juvenal plumage was obtained along the south shore of Lake Kokonor in September 1925.

PHALAROPODIDAE

LOBIPES LOBATA (Linn.)

Tringa lobata (sic = *lobata*) Linné, Syst. Nat. ed. 10, 1, 1758, p. 148 (Hudson Bay).

Dr. Rock shot a female of this phalarope along a stream in the Mayaku district of the lower Tebbu country in September 1926.

MEGALORNITHIDAE

MEGALORNIS NIGRICOLLIS (Przew.)

Grus nigricollis Przewalski, Mongol. i. Strana Tangut, 2, 1876, p. 135 (Kokonor).

A male of this splendid crane was taken at 10,900 feet on the Kokonor swampy meadows in September 1925; a second example, also a male was shot 10 May 1926 at 11,300 feet on the banks of the Tsechu River, 4 days west of Labrang. A note on the label of the latter specimen indicates that the eyes were white.

THRESKIORNITHIDAE

NIPPONIA NIPPON (Temm.)

Ibis Nippon Temminck, Pl. col., 1835, pl. 551 (Japan).

The Japanese Ibis was secured only in southern Kansu, here a male was shot along the Wutu River, one day north of Kaichow in May 1925, where it was nesting in trees along the river. In February 1926 two additional specimens were obtained in the same valley.

All three birds are in the white phase of plumage.

ARDEIDAE

ARDEA CINEREA JOUYI Clark

Ardea cinerea jouyi Clark, Proc. U. S. Nat. Mus., 32, 1907, p. 468 (Seoul, Corea).

The eastern Asiatic race of the Gray Heron was found nesting in the poplar trees bordering the Wutu River in southern Kansu. An adult

male was secured there in May 1925. An adult female was shot along the Tao River near Choni in July 1925 and an immature female was taken at about the same place in October 1926.

These birds are like examples from Szechuan and Hupeh, having the neck less grayish and the middle and greater wing coverts paler than European specimens of typical *cinerea*.

ANATIDAE

ANSER ANSER (Linn.)

Anas anser Linné, Syst. Nat. ed. 10, 1, 1758, p. 123 (Sweden, apud Hartert).

Rock found the Gray Goose in the fields along the Tao River valley near Minchow in the spring of 1925, where he collected a male. Another male was secured in September 1925 on the east shore of Lake Kokonor.

ANSER INDICUS (Lath.)

Anas indica Latham, Ind. Orn. 2, 1790, p. 839 (India).

A male bar-headed goose was taken 23 May 1926 on the Yellow River at Radja, eastern Tibet. The skin is labelled as having the "iris gray, pupil bluish black."

TADORNA TADORNA (Linn.)

Anas Tadorna Linné, Syst. Nat. ed. 10, 1, 1758, p. 122 (Sweden, apud Hartert).

A female Sheld-duck was shot on the Wutu River, north of Kaichow in April 1925.

CASARCA FERRUGINEA (Pall.)

Anas ferruginea Pallas, Vroegs, Cat., Adumbr. 1764, p. 5 (Tartary).

The Ruddy Sheld-duck is represented in the collection by a single specimen, a female, collected on the Tao River below Choni in September 1926.

ANAS CRECCA Linn.

Anas Crecca Linné, Syst. Nat. ed. 10, 1, 1758, p. 125 (Sweden, apud Hartert).

Two Teal, both of them males either in immature or eclipse plumage, were collected during September 1925. One on the southern shore of

Lake Kokonor, the other along a small stream between Sining and Taerhssu (Kumbum).

We believe that *Anas crecca* and *Anas carolinensis* should be regarded as distinct species.

SPATULA CLYPEATA (Linn.)

Anas clypeata Linné, Syst. Nat. ed. 10, 1, 1758, p. 122 (restricted type locality, South Sweden, apud Hartert).

A mated pair of Shovelers was taken on the Minchow River in southwestern Kansu during April 1925.

MERGUS MERGANSER ORIENTALIS Gould

Mergus orientalis Gould, P. Z. S., 1845, p. 1 (Amoy).

This merganser appears to be a permanent resident in southwestern Kansu. In June 1925 an adult female and a duckling about three weeks old were secured on the Tao River near Choni, while another female was taken there in January 1926 and a male the following month. A female in very worn plumage was collected 23 June 1926 in the Ba valley, eastern Tibet, at an elevation of 9,900 feet. A male was taken in December 1925 along the Tapetchüen River between Sincheng and Sining.

All the adults have the more slender bill, supposed to be characteristic of the east-Asiatic race of *Mergus merganser*.

PHALACROCORACIDAE

PHALACROCORAX CARBO SINENSIS (Shaw & Nodd.)

Pelecanus sinensis Shaw and Nodder, Nat. Misc. 13, 1801, pl. 529 and text (China).

While Rock was at Lake Kokonor in September 1925, he collected three cormorants. In March and April 1926 he shot two more on the banks of the Tao River near Choni. One of these is a female in late winter plumage with the ornamental feathers on head and neck fully grown in.

We thoroughly agree with Ticehurst that *P. c. sinensis* and *P. c. subcormoranus* (Brehm) are identical, though we regret that Brehm's name, of which the type is still in existence, must be relegated to synonymy. Now that the Common Cormorant of Europe must be called *sinensis*, this seems an opportune time to point out once more the fallacy of bestowing geographic names.

AEGYPIIDAE

AEGYPIUS MONACHUS (Linn.)

Vultur monachus Linné, Syst. Nat. ed. 12, 1, 1766, p. 122 (Arabia).

A female of this large vulture was collected at the end of November in the valley of Peitaitung, 10,000 feet, in the eastern Nanshan ranges.

Lönnberg (Ibis, 1924, p. 322) lists specimens of *Gyps himalayensis* Hume from the Tibet-Kansu border, but Rock did not secure that species.

FALCONIDAE

(Owing to the differences of opinion as to the families of Hawks and their limits we follow the arrangement of Sharpe's Hand List.)

ACCIPITER NISUS MELANOSCHISTUS Hume

Accipiter melanoschistus Hume, Ibis, 1869, p. 356 (Simla).

An adult female Sparrow Hawk collected at 11,000 feet in the spruce forests near Choni, May 1925 probably represents the breeding bird of the Tao valley. She is very dark, almost black above and without doubt referable to *melanoschistus*. An immature male collected in December 1925 near the Chinssu Lamasery, 10,000 feet, south of Labrang is likewise much darker than corresponding examples of *nisosimilis* from different parts of China, as are three males, one of them fully adult, from the forest of Drakana 9,500 feet October 1926.

BUTEO BUTEO JAPONICUS Temm. & Schl.

Falco buteo japonicus Temminck and Schlegel, in: — Siebold's Faun. Jap. Aves, 1844, p. 16; 1845, pl. 6 and 6 b (Japan).

A specimen of the Japanese Buzzard was taken at Kadjaku (9,000 feet elevation) in the Tao valley, 13 January 1926.

BUTEO FEROX HEMILASIUS Temm. & Schl.

Buteo hemilasius Temminck and Schlegel, in: — Siebold's Faun. Jap. Aves, 1844, p. 16; 1845 pl. 7 (Japan).

An adult was taken in May 1925 on Tibetan grasslands at 11,000 feet in southwestern Kansu; this specimen appears to be a male, since the wing measures but 450 mm.; tarsal feathering is short and sparse

(especially on the distal portion), a condition doubtless due to season. A female taken in the mountains beyond Obo in extreme northeastern Kokonor has a wing of 495 mm., the tarsal feathering is long and dense, as is also the same character in another winter example—a female from Kadjaku, Tao River valley, collected in January 1926. The latter bird has a wing of 485 mm. The plumage of this example is pale, especially on the nape and sides of the head which are largely white; the rusty edgings on the anterior upperparts are also pale.

We cannot see that Streseman has made out a clear case (Abh. u. ber. Mus. Dresden, 16, 1923, no. 2, p. 61) for the recognition of *B. f. leucocephalus* Hodgs.; his measurements mean nothing, and the alleged color characters are of no value in a bird so notoriously variable.

GYPÆTUS BARBATUS GRANDIS Storr

Gypætus grandis Storr, Alpenreise, 1784, p. 69 (Switzerland).

A male, not quite adult, was taken just east of Lake Kokonor, September 1925. The bird was shot while feeding on the carcass of a yak. In the region of the Yellow River gorges in eastern Tibet three birds, two adults and an immature, were secured during the spring of 1926 as follows— one on sandstone cliffs near Dzangar 15 May; one on the sandstone cliffs of the Serchung valley, 16 May; and one on cliffs in the Waro valley, 20 June.

AQUILA CHRYSÆTOS DAPHANEA Menzb.

Aquila daphanea Menzbier, Orn. Turkestan, 1, 1888, p. 75 ("High Asia").

A Golden Eagle was taken 25 April 1926 on the Tibetan grasslands 11,000 feet between Ankor and Hetzu (southwestern Kansu?).

We refer this specimen to *daphanea* on geographic grounds, though the bird has a wing measurement of only 655 mm. Because of its dark coloration our specimen might possibly be referred to *A. c. obscurior* Sushkin, but there are certain discrepancies, notably in the color of the tarsal feathering, that we cannot reconcile.

CIRCAËTUS GALLICUS (Gm.)

Falco gallicus Gmelin, Syst. Nat., 1, pt. 1, 1788, p. 259 ("Gallia").

A male in worn plumage was taken on the grasslands of Hetso, 9,000 feet, in April 1926.

This species was not found by Sjölander, Weigold or Zappey in western China which leads us to believe that the bird is rare there.

HALIÆTUS LEUCORYPHUS (Pall.)

Aquila leucorypha Pallas, Reise Versch. Prov. Russ. Reich, 1, 1771, p. 454 ("Iaikum").

Two examples of this Eagle, one partly adult, the other immature, were collected at 11,000 feet in the western hills of Kokonor grass country in September 1925. A splendid adult was shot on the south shore of Lake Kokonor also in September. The latter bird had the eyes "clear crystal, outer part of pupil reddish" and the legs "pale flesh color."

MILVUS LINEATUS (Gray)

Haliaetus lineatus Gray, in:—Hardwick's Ill. Ind. Zoöl. 1, 1832, p. 1, pl. 18 (China).

An adult male of this Kite was secured 23 June 1926 at 10,000 feet in the Ba valley. In August of the previous year two males and a female were taken in a deep rock gorge leading south through the Minshan range into the Tebbu country.

FALCO SUBBUTEO SUBBUTEO Linn.

Falco Subbuteo Linné, Syst. Nat. ed. 10, 1, 1758, p. 89 (Sweden, apud Hartert).

An adult female, together with three large young, the latter just ready to leave the nest, was collected in September 1925 in the Sining valley.

We have not enough material to discuss the Asiatic forms of *Falco subbuteo*, but whatever may be the status of *centralasiæ* Buturlin, our birds certainly do not belong to that race. The adult female is identical in color with European examples and has a wing of 261 mm. The three juvenals are exactly like a young female, probably only a few days older, collected in Holland in late August.

FALCO CHERRUG MILVIPES Jerd.

Falco milvipes Jerdon, Ibis, 1871, p. 240 (Umballa, India).

Two examples of this fine falcon were secured in November 1925. The first was taken on the banks of the Kanchow ho, north of the Kanchow Nanshan mountains, at an elevation of 5,500 feet; the other at the foot of the Nanshans at the entrance to the Pientuku gorge.

FALCO TINNUNCULUS INTERSTINCTUS McClell.

Falco interstinctus McClelland, P. Z. S. for 1839; 1840, p. 154 (Assam).

A single adult female Kestrel was secured in the mountains of Pikow, 6,000 feet, in southern Kansu, just over the Szechuan border, late April or early May 1925.

The two most recent revisers of the Kestrels (Rothschild, Nov. Zool. **33**, 1925, p. 231-232) (Stuart Baker, Bull. B. O. C. **47**, 1927, p. 102-107) are not entirely in accord in their treatment of the Asiatic races of that species. According to the former, *interstinctus* is identical with *japonicus*, but different from *saturatus* with which it had previously been united, while the latter maintains all three races as distinct. From Stuart Baker's account however we judge that *japonicus* is only very slightly different from *interstinctus*, the characters appearing only in the male. Our single female is clearly not *tinnunculus*, and we refer it to *interstinctus*, which is probably the correct name for it, whether *japonicus* (1844) is identical with *interstinctus* (1839) or not.

BUBONIDAE

BUBO BUBO subsp.

A nestling Eagle Owl was taken near Choni in May 1925. Neither parent was secured. The bird is still too young to show any diagnostic characters. The distribution of the central Asiatic forms of *Bubo bubo* is not sufficiently well known to identify this bird subspecifically even on geographic grounds.

ATHENE NOCTUA IMPASTA subsp. nov.

Type.—Adult female, No. 239416 Mus. Comp. Zool.; grass country south of Lake Kokonor, 10,700 feet; collected September 1925 by Joseph F. Rock (orig. no. 408).

Characters.—Similar to *A. n. plumipes* (*Athene plumipes* Swinh., P. Z. S. 1870, p. 448, Shato, north China) in having feathered toes, but much darker; pale markings on the top of the head linear rather than guttate; light tail bands interrupted; markings below darker and more extensive.

Measurements

| Number | Sex | Wing | Tail | Tarsus |
|--------|----------|------|------|--------|
| 239416 | ♀ (type) | 167 | 108 | 38 |
| 239417 | ♀ | 168 | 102 | 34 |
| 239418 | ♀ (♂?) | 157 | 91 | 34 |

Athene noctua plumipes from Shansi

| | | | | |
|-------|--------|-----|----|------|
| 87567 | ♀ | 166 | 92 | 34.5 |
| 87568 | ♀ (♂?) | 155 | 85 | 35 |

Of the specimens of our new form listed, in addition to the type, one was secured on the grasslands at the head of the Serchen valley (13,300 feet) three days east of Radja, 26 July 1926; and the third was taken in May 1925 in the forests covering the slopes of the mountains of Choni (9,000 feet). The latter specimen as might be suspected on geographic grounds, is somewhat intermediate between *impasta* and *plumipes*. It approaches the latter in having the light tail spots almost forming bands, but tends toward the former in the extent of the streaking below and in having linear pale crown-stripes — on the whole it is best placed with *impasta*.

We have not seen *Athene noctua ludlowi* Stuart Baker of southern Tibet, but that form is said to be about the color of *A. n. plumipes*. Our new form is much darker, in fact but little paler than *A. noctua noctua* of Europe. Our bird also comes from a region that is quite different faunally, and although we hesitated at first, we now see no course open but to name it.

CUCULIDAE

CUCULUS CANORUS BAKERI Hart.

Cuculus canorus bakeri Hartert, Vög., Pal. Faun. 2, heft, 7, 1912, p. 948 (Shilong).

Cuckoos were taken in the region about Choni during May and June 1925 in willow, spruce and poplar forests; a juvenal female in the red phase was secured in spruce forests at 10,000 feet on Mt. Lieuhoashan in July 1925. An adult was shot in the Yellow River gorges near Radja, 20 May 1926 and another in the willows of the Ba valley 23 June 1926.

We have come to exactly the same conclusion in regard to these cuckoos that Lönnberg (Ibis, 1924, p. 318) reached concerning birds from Aschuen and the Minshans. Our two from eastern Tibet are larger than the Tao River birds, but the entire series falls within the limits of the dimensions given for *bakeri* by its author.

CUCULUS INTERMEDIUS INTERMEDIUS Vahl

Cuculus intermedius Vahl, Skriv. af Nat. Selskab. Kjöbenhavn, 4, 1789, p. 58 (Tanquebaria).

A female of this cuckoo was taken at 10,000 feet in the Choni mountains 25 June 1925.

PICIDAE

PICUS CANUS GUERINI (Malh.)

Chloropicus Guerini Malherbe, Rev. et Mag. Zool., 1849, p. 539 (China).

During April and early May 1925 while Dr. Rock was traveling north through southern Kansu he shot four males and a female of this woodpecker in the mountains (6,000 feet) south of Pikow. Five more were secured near Choni: a male in very worn plumage at 9,000 feet, May 1925, two immature in spruce forest at 9,000 feet in the valley of Tayüku, and two females, also in spruce forests, in February 1926.

Upon comparing these specimens with an adequate series of *Picus canus* (upwards of forty specimens) from Hupeh, Szechuan, Anwhei, and Kiangsu, we do not see how *P. c. jacobsii* (LaTouche) (Bull. B. O. C. 41, 1919, p. 50, Chang-yang hsien, Hupeh) and *P. c. setschuanus* Hesse (Orn. Monatsb., 1911, p. 193, Tatsienlu) can be maintained. There is not a single constant character by which we can distinguish them, and the minor differences visible are due either to age, season, wear, stain or individual variation. La Touche in describing *jacobsii* made direct comparison with *ricketti* from Fokien instead of with *guerini* from the lower Yangtze valley. Our ten topotypes of *jacobsii* cannot be distinguished from twelve examples of *guerini* collected in Kiangsu, Anwhei and the Yangtze valley near Hupeh.

Five specimens from Omeih sien, Kwanhsien, and Dcheto, western Szechuan, do not bear out the characters assigned to *setschuanus* by its describer or subsequently by Rensch; with the exception of one unusually dark female, we can match them bird for bird with our series of *guerini*. Likewise Rock's ten birds listed above can be matched skin for skin by *guerini* and we, therefore, place both *jacobsii* and *setschuanus* in the synonymy of *guerini*.

Lönnerberg had a single specimen from the Minshans that he identified as *sordidior* (Rippon).

DRYOBATES MAJOR STRESEMANNI Rensch

Dryobates major stresemanni Rensch, Abh. u. ber. Mus. Dresden, 16, no. 2, 1923, p. 38 (Tsaliea, western Szechuan.)

Dryobates major beicki Stresemann, Orn. Monatsb. 35, 1927, p. 134 (Lan-hukou, northern Kansu).

Dr. Rock sent in a series of fourteen specimens of the Great Spotted Woodpecker from a number of localities in Kansu. Early in May 1925 he collected a pair at 5,000 feet altitude in the mixed forest between

Pikow and the Szechuan border; later in the same month two males and three females in the poplar forests along the Tao River near Choni, a male among willows and poplars in the Choni forests in June 1925, a female in the mountains of Choni between 9,000 and 10,000 feet, 4 June 1925; a female was taken in spruce forest in the Tao River valley in February 1926. In December 1925 two females were collected at 7,000 feet in the valley of the Yellow River near Shunhoa. The region north of the Nanshans is represented by two males taken on the Kan-chow plain 6,000 feet in November 1925.

We do not recognize *beicki*, because among the birds collected by Rock, which include skins from both south and north of the type locality of *beicki*, supplemented by material from Szechuan and Yunnan, we find a great deal of variation in the color of the underparts, independent of season; some of the birds from Kansu are as dark as the darkest specimens of *stresemanni* from western Szechuan, others again are but little darker than *cabanisi* (series of 30 from Hupeh, Anwei and Kiangsu examined). *Stresemanni* can be distinguished from *cabanisi* by the character of the marking on the two outer pairs of tail feathers and by the generally browner tone of the underparts, but any further separation based on the latter character alone cannot, in our opinion, be maintained.

DRYOBATES PERNYII PERNYII Verr.

Picus pernyi Verreaux, Rev. et Mag. Zool. 1867, p. 171 (nomen nudum), p. 271 (orig. descr.), pl. 16 (north China).

An adult female of this rare woodpecker was taken at 6,000 feet in April 1925 near Chingchuan in the forests of northern Szechuan.

Compared with two examples from Hupeh, we find this bird to be much browner on the forehead, sides of head, neck and throat; flanks browner and more heavily streaked; the black spot on the breast much larger and extending onto the abdomen; the light bars on the tail are browner and less buffy, besides being more restricted. In all particulars except the extent of the black on the under parts, the skin agrees with that of a male from the Lichiang range 10,000 feet, in Yunnan (Am. Mus. Nat. Hist. 143341, Andrews and Heller).

Verreaux in his introduction to the catalogue of the collection made by Mgr. Perny states that the birds in that collection came from the north of China; but since Mgr. Perny was Bishop of "Su-tchuen," it is practically certain that his birds came from Szechuan. The plate is not colored with sufficient accuracy to determine exactly whether the

dark form of western China, or the much paler race from Hupeh is the one figured; on the whole, however, it agrees much better with the darker bird and we designate Szechuan as the type locality; for the race inhabiting Hupeh we propose the name:—

DRYOBATES PERNYII INNIXUS subsp. nov.

Type.—Adult male; No. 52287 Mus. Comp. Zool. from Chang Yang Hsien, Hupeh; collected 24 January 1909 by W. R. Zappey.

Characters.—Similar to *D. p. pernyi* Verr. but the sides of head and neck, throat, flanks and light tail bars much paler, (buffy, not brownish), streaks on sides and flanks narrower, becoming obsolete posteriorly; black tail bars narrower.

Measurements

| | | | | |
|----------------------|---|------------|----------|----------|
| <i>D. p. pernyi</i> | ♂ | Wing, 106; | Tail, 77 | Bill, 21 |
| | ♀ | “ 105 | “ 78 | “ 21 |
| <i>D. p. innixus</i> | ♂ | “ 107 | “ 78 | “ 22 |
| | ♀ | “ 106 | “ 77 | “ 20 |

PICOIDES TRIDACTYLUS FUNEBRIS Verr.

Picoides funebris Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 33 (mountains of Chinese Tibet = western Szechuan).

A pair of adults was collected at 10,000 feet in the spruce forest on Mt. Nginsinshan, northern slopes of the north Kokonor Barrier range, in September 1925. This record marks a still further extension of this bird's range. Formerly known to occur only in the mountains of western Szechuan, Rothschild records it from the Mekong-Salwin divide and the Lichiang range, northwestern Yunnan, and Lönnberg has a specimen from the Minshans.

DRYOCOPUS MARTIUS KHAMENSIS (Buturl.)

Picus khamensis Buturlin, Ann. Mus. Zool. Ac. Imp. St. Petersb. 13, 1908, p. 229 (eastern slopes of the great plateau of Tibet).

Rock sent in a series of seven specimens of the Black Woodpecker. A male from Babo in spruce forest at 10,000 feet, north slope of the north Kokonor Barrier range, October 1925; a female taken in a like location and altitude near Choni May 1925; a female from spruce and fir forest at 10,000 feet south of the Minshans near the Tibet-Tebbu-

land border, June 1925, and four from the forests of Drakana, 9,800 feet, upper Tebbuland, September 1926.

We can detect no differences between any of these specimens; they are all referable to *khamensis* by reason of their less feathered tarsi and slightly smaller bills. These birds also appear much deeper black, than does *D. m. martius* when a series of each is laid side by side. It is quite possible, however, that this difference may be due to the relative freshness of the skins, and that it would tend to disappear if recently killed specimens of both forms were compared.

JYNX TORQUILLA PALLIDIOR Rensch.

Jynx torquilla pallidior Rensch., Abh. u. ber. Zool. Mus. Dresden, **16**, 1923, no. 2, p. 40 (Tatsienlu, Szechuan).

Five examples, an adult male and four adult females of this well-marked race were collected in southwestern Kansu during May and June 1925. One of them was taken at 9,000 feet in the mountains of Choni, the others on the grasslands en route to Hetso and on the loess cliffs northwest of Choni and Taochow.

HIRUNDINIDAE

DELICHON URBICA CASHMERIENSIS (Gould)

Chelidon cashmeriensis Gould, P. Z. S., 1858, p. 356 (Cashmir).

A single house martin was taken at an elevation of 9,500 feet in the forest of Drakana, September 1926.

RIPARIA RUPESTRIS (Scop.)

Hirundo rupestris Scopoli, Annus, **1**, Historico-Nat. 1769, p. 167 (Tirol).

The crag martin is represented in the collection by one specimen taken on the rocky cliffs of the Wutu River gorge in southern Kansu, May 1925.

HIRUNDO DAURICA DAURICA Linn.

Hirundo daurica Linné, Mantissa, 1771, p. 528 (Siberia).

An adult taken during May 1925 in the Tao valley near Choni is referable to this form, being narrowly streaked below with no trace of shaft stripes on the rufous brown rump, and the wing measuring 124 mm.

MUSCICAPIDAE

MUSCICAPA SIBIRICA ROTHSCHILDI (Stuart Baker)

*Hemichelidon*¹ *sibirica rothschildi* Stuart Baker, Bull. B. O. C. **43**, 1923, p. 156
(Lichiang range, northwestern Yunnan).

A male was collected at 10,000 feet in the Kwadjaku valley, Minshan range in June 1925; this specimen must represent the breeding form of the region. The bird is so much darker than specimens of *cacabata* Penard from Szechuan collected by Zappey, that we cannot do otherwise than refer it to the form recently described by Stuart Baker from northwestern Yunnan.

Rothschild (Nov. Zoöl. **33**, 1926, p. 294) refers two adults and four immature *Muscicapa sibirica* in the La Touche collection from Mengtze, Yunnan, to *rothschildi*. One of the adults and all of the immature are now before us; they are typical *Muscicapa sibirica* just as La Touche identified them in his paper on the birds of southeast Yunnan (ibis, 1923, p. 380).

MUSCICAPA PARVA ALBICILLA Pall.

Muscicapa albicilla Pallas, Zoogr. Rosso-Asiat. 1827, p. 462 (Dauria).

A male was secured in the mountains of Choni, at 9,000 feet in May 1925.

MUSCICAPA TRICOLOR CERVINIVENTRIS (Sharpe)

Digenea cerviniventris Sharpe, Cat. Bds. Brit. Mus. **4**, 1875, p. 460 (Manipur Hills).

Rock sent in three examples of this rare little flycatcher. In June 1925 a male was collected at 9,500 feet in the mountains of Choni; during late September or early October 1926 a male and female were secured in the forests of Wantsang Ku at 8,500 feet elevation.

These birds agree with a series from southeastern Yunnan in the La Touche collection that are certainly *cerviniventris* and not *tricolor*. Rothschild allocates La Touche's Mengtze birds as *tricolor*, apparently because birds from the Lichiang range belong to that form quite regardless of the wide faunal disparity between the two places.

¹ We follow Hartert in rejecting most of the genera into which *Muscicapa* has been divided.

MUSCICAPA HODGSONII (Verr.)

Siphia Hodgsonii Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 34 (mountains of Chinese Tibet = Mupin).

This species was found in the region about Choni during May and June 1925 in the spruce and poplar forests at elevations between 8,500 and 10,000 feet, where four males and two females were secured. In September 1926 the species was met with abundantly in the forests of Wantsang Ku. Here seventeen specimens were taken: five adult males, four adult females, and nine juvenals, either entirely in the spotted plumage, or moulting into the olive immature dress. The juvenals agree with Weigold's description (Abh. u. ber. Mus. Dresden 15, no. 3, 1922, p. 26) except that in none of our nine specimens is there any trace of white at the base of the tail.

SEICERCUS BURKII VALENTINI (Hart.)

Cryptolopha burkii valentini Hartert, Vög. Pal. Faun. 1, heft 4, 1907, p. 497. (Taipaishan).

This species was taken only in the lower Tebbu country during September 1926. One was secured at 9,000 feet in the forests of Mayaku and seven more in the forests of Wantsang Ku. We have no means of telling whether these birds were migrants or represent the breeding form of the region. One was moulting the wings, otherwise the length of wing in the series is 58; 59; 59; 60; 62; 64.

Weigold had difficulty in placing the birds he collected in western China, but referred them — some, however rather doubtfully — to *tephrocephala* (Anderson).

With a long series, which includes all the skins from the La Touche collection, before us, we believe there is a large northern form, *valentini*, and a small southern form, *tephrocephala*. We cannot appreciate the characters other than size claimed by Hartert to distinguish the two races. The case, however, is much complicated by the fact that the females are constantly smaller than the males, although the sexes are alike in plumage. Thus females wrongly determined as males by the collector, might entirely obscure the facts. Rock's Chinese bird collector made so many palpable mistakes, even in spring and summer and with birds where the sexes are different in plumage, in determining the sex of specimens, that we place no reliance whatever upon the sex marks on his labels.

As the larger birds in the present series have the long wing of *valen-*

tini, we are forced to assume that all belong to that form and that the larger ones are males and the smaller ones females. The other alternative would be to throw *valentini* and *tephrocephala* together; this we are not yet quite prepared to do.

CAMPOPHAGIDAE

PERICROCOTUS BREVIROSTRIS ETHOLOGUS Bangs & Phillips

Pericrocotus brevirostris ethologus Bangs and Phillips, Bull. M. C. Z. **58**, no. 6, 1914, p. 283 (Hsien Shen, Hupeh).

Two males of this minivet were taken at 9,000 feet in the forests near Choni during May 1925. In September 1926 three males were secured in the spruce and pine forests of Wantsang Ku at 9,000 feet, and a male and two females at 8,500 feet in the oak and pine forests of Mayaku.

These birds are quite the same as the Hupeh bird of which we have five males and two females available for comparison in addition to a bird from Peking and three migrants from southeastern Yunnan. Stuart Baker's description of *styani* (Bull. B. O. C. **40**, 1920, p. 117) is very vague; he did not appreciate any characters in the male except to say that it might "perhaps" be paler below than in *affinis*, while the characters he attributed to the female are very variable ones. Lacking material from Szechuan we cannot express any definite opinion, but we rather suspect, that *styani* will prove synonymous with *ethologus*. Unfortunately Stuart Baker made no comparison with *ethologus*, apparently having overlooked the fact that the Hupeh bird already bore a name.

PYCNONOTIDAE

SPIZIXOS SEMITORQUES SEMITORQUES (Swinhoe)

Spizixus semitorques Swinhoe, Ibis, 1861, p. 266 (Peling plateau near Amoy).

Dr. Rock collected a pair of this bulbul in southern Kansu. The birds were shot at an elevation of 4,500 feet in the bushes along the Minchow River between Kaichow and Minchow in May 1925. As far as we are aware this is the first record of the occurrence of this bird in Kansu.

Spizixos cinereicapillus (Swinhoe) of Formosa, we consider only subspecifically distinct from *semitorques*.

TIMALIIDAE

IANTHOCINCLA DAVIDI DAVIDI (Swinhoe)

Pterorhinus davidi Swinhoe, Ibis, 1869, p. 61 (Peking).

Seven examples of David's Babbler were secured in the general region about Choni during May and June 1925 and again in January 1926. The birds were met with at elevations between 8,500 and 10,000 feet in scrub forest or low bushes, usually along streams.

We have available for comparison but two examples of *I. d. concolor* Stresemann (J. f. O. 71, 1923, p. 365, Sungpan, western Szechuan) both from the type locality. Of *I. d. davidi* we have over twenty-five specimens from Shansi and Chihli measuring as follows:—

♂ wing 86-94; bill from base 26-27.5

♀ wing 83-94; bill from base 25-29

The skins collected by Rock measure:—1 ♂, wing 90; bill from base 26. 6 ♀ ♀, wing 88-91; bill from base 25-29.

We cannot find the slightest difference either in color or size between birds from northeastern China and those from southwestern Kansu, and whatever *I. d. funebris* Stresemann (Orn. Monatsb. 36, 1927, p. 134, Lan-hu-ko, northern Kansu) may be, our specimens are certainly true *davidi*. *I. d. concolor* appears to be a localized race in western Szechuan, characterized by longer wing and shorter bill.

We follow Rothschild¹ in combining the so-called genera Trochalopteron, Babax, Kaznakowia, Ianthocincla and Pterorhinus, as we fail to see where any line can be drawn between them, but believe that Garrulax should be retained as a distinct genus, as Hartert² kept it.

IANTHOCINCLA DAVIDI EXPERRECTA subsp. nov.

Type.—No. 238760 Museum of Comparative Zoölogy, adult female, from Liyuan Ku, northern slopes of the Richthofen range, elevation 7,000 feet. Collected November 1925, by J. F. Rock (orig. no. 453).

Characters.—Similar to *I. d. davidi* but larger, coloration much clearer and paler gray; black and white of the loreal feathers more contrasted; bill longer, stouter and more decurved.

¹ Nov. Zoöl. 33, 1927, p. 398.

² Pal. Faun. 1, p. 624.

Measurements

| <i>Sex</i> | <i>Wing</i> | <i>Bill from base</i> |
|------------|-------------|-----------------------|
| ♂ | 95 | 27 |
| ♀ | 100 | 30 (Type) |
| ♀ | 95 | 29 |
| ♀ | 96 | 29 |

In addition to the type, Rock secured the three specimens listed above, at the same time and place.

As will be seen, the measurements exceed those already given for *dauidi*. Comparison with birds from Chihli taken in November and from southwestern Kansu collected in January shows that the pale gray tone of the plumage of the new form is not seasonal, but is definitely correlated with mensural characters. The examples of typical *dauidi* at our disposal are all distinctly brownish gray. This race is not *I. d. funebris* Stresem. (Orn. Mon. 35, Sept. 1927, p. 134, Lan-hu-kou, northern Kansu), whatever that bird may be.

IANTHOCINCLA SUKATSCHEWI (Berezowski and Bianchi)

Trochalopteron Sukatschewi Berezowski and Bianchi, Aves Exp. Potan, Gansu, 1891, p. 59, pl. 1, f. 1 (coniferous forests, high mountains of Kansu).

Rock collected a pair of this rare babbler in February 1926 in a lateral valley of the Tao River near Choni, the slopes of which were covered with willow scrub and spruce.

IANTHOCINCLA ELLIOTII PERBONA subsp. nov.

Type (and only specimen). — No. 238772 Museum of Comparative Zoölogy, adult male, from Liyuan Ku, northern slopes of the Richthofen range, elevation 7,000 feet. Collected November 1925 by J. F. Rock (orig. no. 452).

Characters.— Similar to *I. e. elliotii*, but the mantle slightly darker; white terminal spots and dusky subterminal bands of the feathers of the upper parts larger; sides of head, throat, and chest darker, much more blackish gray, and white marginings broader; bill heavier; feet and tarsi stronger.

Remarks.— This form agrees more nearly with *elliotii* than with *prjevalskii*, in having the central rectrices greenish above. The white edgings on the anterior under parts and on the mantle of *I. e. elliotii* wear off rapidly, but our new form shows a greater development of this character, when compared with specimens of *elliotii* from Hupeh

taken in November, December and January. The effect of the dorsal markings gives a speckled effect not to be seen in any examples of either *elliottii* or *prjevalskii* that we have examined. The eye is noted on the label as being "watery." Hartert quotes "dunkel zimmetfarben," for the color of the eye in *I. e. elliottii*.

IANTHOCINCLA ELLIOTTII PRJEVALSKII (Menzbier)

Trochalopteron prjevalskii Menzbier, Ibis, 1887, p. 300 (Kansu).

Two females were taken in low bushes on hillsides on the mountains of Minchow in southern Kansu at an elevation of 5,000 feet during May 1925. In May, June and July 1925 the species was met with on the mountains of Choni and along the upper Tao valley. The two examples of each sex taken here were in bushes, near the ground.

The gray (instead of greenish) pair of central rectrices seems to be the only certain character by which *I. e. prjevalskii* can be distinguished from *I. e. elliottii*. Apparently *Ianthocincla elliottii* abrades its plumage very rapidly, and fresh examples are uncommon. The additional characters enumerated by Lönnberg (Ibis, 1924, p. 314) for separating the two forms seem to us to be due to wear, and the larger bill that he claims for *prjevalskii* is not borne out in our series.

IANTHOCINCLA MAXIMA (Verreaux)

Pterorhinus maximus Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 36, pl. 3, fig. 1 (mountains of Chinese Thibet).

This fine babbler was very common locally. Rock secured twelve specimens as follows:—four males and two females during February 1926 in the valley of the Tao River basin in the region about Choni. Two males and a female in June 1925 in spruce and fir forest on the southern slopes of the Minshan range in the Tebbu country. Two males in the forests of Drakana, upper Tebbu country, 9,500 feet, September 1926. One immature male at 9,600 feet on Mt. Lieuhua (shan) south of Lanchow, July 1925.

IANTHOCINCLA CANORA NAMTIENSIS (La Touche)

Trochalopteron canorum namtiense La Touche, Ibis, 1923, p. 317 (nom. nov. pro *T. canorum yunnanensis* La Touche, nec. *T. elliotti yunnense* Rippon, Howkow, Yunnan).

One male from the mountain of Minchow, 5,000 feet elevation, May 1925.

The single specimen secured does not differ materially from birds from Yunnan and Hupeh.

IANTHOCINCLA SANNIO (Swinhoe)

Garrular sannio Swinhoe, Ibis, 1867, p. 403 (Amoy).

Dr. Rock took an adult female of this bird in the mountains of northern Szechuan, 6,000 feet altitude, during April 1925.

FULVETTA CINEREICEPS FESSA subsp. nov.

Type.— No. 238787 Museum of Comparative Zoölogy, adult male, from the Choni spruce forests, Tao River basin, southwestern Kansu, 9,000 feet, February 1926. Collected by J. F. Rock, original no. 586.

Characters.— Similar to *Fulvetta cinereiceps cinereiceps* (Verreaux) but darker above, much less reddish, more olivaceous on the back, rump and upper tail coverts; sides of head and neck darker gray; flanks much more olivaceous, less ochraceous. Size as in *cinereiceps*.

In all twelve specimens of this tit-babbler⁶ were taken — two males and a female from the region about Choni during January and February 1926; six males and two females from the forests in the Wantsang Ku valley, Ha Tebbuland, September 1926, in spruce, fir and maple at an elevation of 8,500 feet; one female in the juniper forests of Pezlu, banks of the Chulungapu, upper Tebbuland, elevation 7,200 feet, September 1926.

We have had a great deal of difficulty in determining exactly what *F. c. cinereiceps* is. It was first described by Verreaux (*Siva cinereiceps*, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 37, "mountains of Chinese Tibet") in a rather unsatisfactory Latin diagnosis. Later David and Oustalet (*Les Oiseaux de la Chine*, 1877, text p. 220, Atlas, pl. 73) state that the types came from Moupin, and append a careful description based apparently on examples taken on the Tsinling range in Shensi. This latter description was translated literally in the Catalogue of Birds of the British Museum 7, 1883.

We consider as practically topotypical a series of six birds collected by Zappey in west-central Szechuan (May, June, September, October) and can detect no difference between them and a series from Hsien Shanhsien, Hupeh, taken in December. All of these birds have a lighter head and much redder back than our new form.

There is in the La Touche collection recently acquired by the Museum of Comparative Zoölogy, one of the nine cotypes of *Proparus fucatus* Styan (Bull. B. O. C. 8, 1899, p. 26; figured Ibis, 1899, pl. 4, f. 1).

One skin collected by Zappey in April at Ho Cha Ping, Hupeh, also belongs to this form. The Styax specimen is a juvenal; Zappey's is adult. These two birds agree with one another, and differ from all those we refer to *cinereiceps* in having more chestnut back and flanks; darker, more brownish crown; small bill, and especially in that the five inner primaries are wholly black and the secondaries lack the rufescent edging. In *cinereiceps* the sixth and seventh primaries are black, but the remaining three innermost, as well as the secondaries, are externally edged with brownish olive. In this pattern of the wing, *fuscatus* agrees with *guttaticollis* (*Proparus guttaticollis* La Touche, Bull. B. O. C. 6, 1897, p. 50, Kuatun, northwestern Fokien). The plate of *fuscatus* in the Ibis, however, shows the wing with the secondaries and three inner primaries edged with rufescent. If it were not for this, we should consider the status of *fuscatus* definitely settled; as it is we hesitatingly apply this name to the breeding bird of the region about Ichang.

FULVETTA RUFICAPILLA RUFICAPILLA (Verreaux)

Siva ruficapilla Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 37 (mountains of Chinese Tibet).

A single specimen of this species — an adult female — was secured at Chingchuan in the mountains of northern Szechuan, elevation 5,000 feet, April 1925.

FULVETTA STRIATICOLLIS (Verreaux)

Siva striaticollis Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 38 (mountains of Chinese Tibet = Moupin, northern Szechuan).

Three fully grown juvenals were taken in the forests of Drakana, 9,500 feet elevation, upper Tebbuland, September 1926.

We fully agree with Stresemann (Abh. u. ber. mus. Tierk. Dresden 16, no. 2, 1923, p. 21) that *striaticollis* does not belong in the same "Formenkreis" with *guttaticollis*.

MYIOPHONUS CAERULEUS IMMANSUETUS Bangs and Penard

Myiophonus caeruleus immansuetus Bangs and Penard, Occ. Papers, Boston Soc. N. H. 5, 1925, p. 147 (Ichang, Hupeh).

Rock collected two males of this bird during September 1926 in the forests of Wantsang Ku, Ha Tebbuland, at elevations of 7,000 and 7,600 feet. Both specimens were shot along streams. They are fully adult and in the autumnal moult.

While we have retained this genus where Sharpe placed it, among the *Timaliidae*, we do so only for convenience, being convinced that in reality it belongs with the *Turdidae*.

LEIOTHRIX LUTEA LUTEA (Scopoli)

Sylvia lutea Scopoli, Del. Flor. et Faun. Insubr. **2**, 1786, p. 96 (hills of the province of Anwhei south of the Yangtse, designated as type locality by Stresemann, J. f. O. **71**, 1923, p. 364).

Two males and a female were taken in April 1925 at an elevation of 6,000 feet in the mountains of northern Szechuan in the forests along the Kansu border.

These examples agree with Stresemann's description of *Leiothrix lutea kwangtungensis* (J. f. O. **71**, 1923, p. 364, Suihang, Kwangtung) and with *some* specimens from Mengtze, southeastern Yunnan. After careful comparison with a very large series of *L. lutea* from Szechuan, Hupeh, Fokien and southeastern Yunnan, we are struck with the fact that all the most deeply colored examples, regardless of locality, were collected in February, March, and April (Stresemann's type was taken in March), though not all the birds taken at that time are brightly colored.

However the "Japanese Robin" as is well known to bird fanciers, after a year or two of captivity usually loses its lipochrome pigment, with consequent dulling of yellows, oranges and reds, the result no doubt of deficiencies in its artificial diet. We believe it to be a corollary that unusual vigor in a wild individual, or particularly favorable food supply, would result in the temporary intensification, possibly only at certain seasons, of the lipochromes, producing such individuals as Stresemann has named *kwangtungensis*. We cannot find that *kwangtungensis* has any range of its own, individuals of its type of coloration occurring in various widely separated regions. We therefore cannot recognize *kwangtungensis*.

SUTHORA WEBBIANA SUFFUSA Swinhoe

Suthora suffusa Swinhoe, P. Z. S., 1871, p. 372 (middle Yangtse).

Rock collected two males of the Yangtse Crow-tit on the foothills of the mountains of northern Szechuan, altitude 3,000 feet, during April 1925.

The specimens do not differ in any way from comparable material from the Yangtse valley in the region of Hupeh. The occurrence of this race in northern Szechuan marks a considerable extension of its range to the north and west.

SUTHORA CONSPICILLATA CONSPICILLATA David

Suthora conspicillata David, Nouv. Arch. Mus. Paris, Bull. 7, 1871, p. 14 (easternmost Kokonoor).

Ten examples of this interesting *Suthora* were secured as follows: an adult from south of the Tao River, southwestern Kansu, June 1925, 9,500 feet; and nine from upper Tebbuland, 7,200 to 9,500 feet; September 1926. Of the latter one is an adult female, badly worn, the autumnal moult just commenced; an adult male and an adult female with the moult nearly complete; and six juvenals of both sexes.

These are the first specimens of true *conspicillata* from near the type locality that either of us have seen, and we find a very different bird from Hupeh, one secured at Hsien-tien-tsze by Zappey, and one from Ichang taken by Styan (in the La Touche collection) both labelled *conspicillata*. These agree with *conspicillata* in having a white eye-ring, but differ at once in being paler throughout with lighter brown head, and in having very much stouter bills with the culmen more arched. (See text figure below.) The much exaggerated bill of the Hupeh bird is very different from that of any of the small Chinese *Suthoras*, and is best characterized as a slightly reduced counterpart of that organ as developed in *Suthora unicolor*. We propose to call the Hupeh form

SUTHORA CONSPICILLATA ROCKI subsp. nov.

Type.—No. 50711 M. C. Z. from Hsien-tien-tsze, Hupeh, 6,000 feet altitude, adult ♂, collected 2 June 1907 by Walter R. Zappey.



Suthora c. conspicillata
M. C. Z. 238810
Kansu



Suthora c. rocki
Type, M. C. Z. 50711
Hupeh

The two skins afford the following measurements: — wing, 54 and 56; tail, 65; tarsus, 22; bill from base, 10; height of bill at base, 8 and 8.5.

In four adults of *S. c. conspicillata* the bill from base is 7.5-8; height of bill at base, 6-6.5.

The text figures above were drawn by Miss H. Saunders and are twice the natural size of the specimens.

TROGLODYTIDAE

NANNUS TROGLODYTES IDIUS (Richmond)

Olbiorchilus fumigatus idius Richmond, in: - Research in China, **1**, pt. 2, Carn. Publ. no. 54, p. 498 (Wang-kuai-chon, Chihli).

Five wrens were taken along the Yellow River gorges in eastern Kokonor: — an adult female, 13 May 1926, in spruce forest, 10,300 feet, two days above Radja, and two males and two females on rocky cliffs or in juniper forests of the Sakutu Ravine, 10,500 feet, 1 June 1926.

After comparison with a fine series from northeastern Chihli we are unable to separate this series, all the birds in somewhat worn plumage, from *idius*, but it is of course possible that birds from eastern Kokonor in fresh plumage might reveal some differences.

Rock also secured two fully grown juvenals in August 1926 in the forests of Doyaya, Ha Tebbuland, and one intermediate between juvenal and immature plumage in August 1925 in the Minshan range at 12,000 feet elevation. These three specimens are not sufficiently mature to offer diagnostic characters, but are very dark below, agreeing with two juvenals of *szetschuanus* collected by Zappey in western Szechuan, and probably are referable to that race.

CINCLIDAE

CINCLUS CINCLUS CASHMERIENSIS Gould

Cinclus cashmeriensis Gould, P. Z. S., 1859, p. 494 (Kashmir).

The Kashmir Dipper was secured in every region that Rock visited, a series of ten being taken. A male and two females were collected during May and June 1925 at elevations of 8,500 feet in the Tao valley near Choni; a male at 10,000 feet in the Minshan range, July 1925; a pair in the Jupar valley, 11,600 feet, June 1926; an adult male at 8,000 feet in the forests of Wantsang Ku, Ha Tebbuland, September 1926; a juvenal male and a juvenal female, 8,000 feet, in the forests of Maya Ku, Ha Tebbuland; and a female in the Kanglungssu valley, Richthofen range, 8,000 feet, November 1925. This last specimen

appears somewhat larger and darker with a slightly longer bill than the specimens from Kansu and Kokonor, but it may be wrongly sexed, since its size can be approached by some males from further south, and the difference in color is so slight that it may well be an individual variant.

CINCLUS PALLASII SOULIEI Oustalet

Cinclus Pallasi var. *Souliei* Oustalet, Ann. Sc. Nat. Zool. (7), **12**, 1892, p. 299 (Tatisien Lu and Moupin).

A male and two females were taken in the mountains of Chingchuan, northern Szechuan, near the Kansu border. The date and altitude have both been omitted from the labels.

TURDIDAE

TURDUS CASTANEUS GOULDII (Verreaux)

Merula Gouldii Verreaux, Nouv. Arch. Mus. Paris, Bull. **6**, 1870, p. 34 (western Szechuan and Moupin).

Eight adults of both sexes were taken in southwestern Kansu in the region about Choni between May and July 1925. The birds were always found among willows or in bushes beside the streams. Four juvenals from Mt. Lieuhoashan and the valley of Tayuku, collected in July 1925, were taken in forests of spruce and fir between 9,000 and 10,000 feet.

A fully grown juvenal was secured during September 1926 at 9,600 feet in the Drakana forest, upper Tebbuland, while an adult male was killed at 7,500 feet in shrubs and bushes on the outskirts of the forests of Wantsang Ku, Ha Tebbuland, September 1926.

We can detect no difference between the specimens here listed and topotypical material from western Szechuan.

TURDUS MUPINENSIS MUPINENSIS Laubmann

Turdus mupinensis Laubmann, Orn. Monatsb. **28**, 1920, p. 17 (Nom. nov. pro *Turdus auritus* Verreaux, nec Gmelin, Moupin).

Two males and a female, all in transition from juvenal to immature plumage, were taken during September 1926 in the forests of Wantsang Ku, 8,000 to 8,500 feet, Ha Tebbuland.

TURDUS RUFICOLLIS RUFICOLLIS Pallas

Turdus ruficollis Pallas, Reise Verch. Prov. Russ. Reich. **3**, 1776, p. 694 (Dauria).

Three birds, collected by Rock in May 1925 doubtless represent wintering birds that had not yet moved north. All were very fat. A male was collected in scrub forest, 5,000 feet elevation near Minchow; a male and a female were taken at 10,000 feet in the scrub forest of the Tao valley near Choni.

TURDUS RUFICOLLIS ATROGULARIS Temminck

Turdus atrogularis Temminck, Man. d'Orn. **1**, 1820, p. 169 (Austria and Silesia).

In February 1926 Rock shot a female of the black-throated thrush in spruce forest on the southwest bank of the Tao River near Choni. Apparently this thrush seldom straggles on its migration so far east in China.

TURDUS KESSLERI (Przewalski)

Merula kessleri Przewalski, Mongol i. Strana Tangut, **2**, 1876, p. 62, pl. 10 (mountains of Kansu).

Thirteen specimens represent Kessler's Thrush in the collection. A male and a female were taken during May 1925 in the Tao valley, 9,000 to 10,000 feet, near Choni, where they occurred in "spruce forests and outskirts"; two more were secured in the spruce forests or on alpine meadows of the Minshan range in July 1925. Four males and two females were collected late in May 1926 in juniper forest at 11,000 feet altitude south of the Yellow River opposite Radja, Tibet; a female along a brook near the same place 30 May, a male (sexed as a female) in much worn plumage, Dachso canyon 10,500 feet, Yellow River basin, north of Radja 2 June; and a male along a stream in the upper Jupar valley, 11,500 feet June-July 1926.

MONTICOLA SOLITARIA PANDOO (Sykes)

Petrocincla pandoo Sykes, P. Z. S., 1832, p. 87 (The Ghauts, India).

One male was taken along a water course in the forests of Mayaku, Ha Tebbuland, 8,000 feet, September 1926.

ENICURUS SINENSIS Gould

Enicurus sinensis Gould, P. Z. S., 1865, p. 665 (Shanghai).

Two examples were taken near Chingchuan, northern Szechuan, in April 1925, where the species was always seen along rivers and wooded brooks. A third specimen, a male, was collected during September 1926 near Zhega, 8,500 feet, in the forests of Mayaku, Ha Tebbuland. It was just completing the autumnal moult.

CHAIMARRORNIS LEUCOCEPHALA (Vigors)

Phoenicura leucocephala Vigors, Proc. Comm. Zool. Soc. London, 1, 1831, p. 35 (Himalaya).

Two males were secured in May 1925 near Choni, where Rock found the species common along streams. A third specimen, also a male, was taken 2 June 1926, on the Dachso stream, 10,500 feet, Yellow River drainage north of Radja, eastern Kokonor.

PHOENICURUS OCHRUROS RUFIVENTRIS (Vieillot)

Oenanthe rufiventris Vieillot, Nouv. dict. hist. Nat. 21, 1818, p. 431 (India adopted as type locality by Hartert, Vög. Pal. Faun. 1, p. 723).

Rock secured a series of twelve specimens of the eastern Indian redstart. A male and a female were taken during April 1925 at 5,000 feet in the spruce forest on the mountains of northern Szechuan near the Kansu border; a female in willow bushes along the Tao River, 5 June 1925; two females on Mount Lissedzadza 11,000 feet, Minshan range, July 1925, where the species was found in bushes and juniper forest. In eastern Kokonor two males were taken in spruce forest along the Yellow River gorges, 10,300 feet, five miles below the Dzangar monastery, 13 May 1926; two females in the Dachso canyon, Yellow River gorges, 11,000 feet, 1 June 1926; a female and two juvenals in the Dzomo valley, 11,800 feet, 22 June 1926.

PHOENICURUS HODGSONI (Moore)

Ruticilla hodgsoni Moore, P. Z. S., 1854, p. 26, Aves, pl. 58 (Nepal).

Six examples of Hodgson's Redstart were taken. A male in poplar forest, Tao River valley, 8,500 feet, May 1925; a male in the mountains of Choni south of the Tao River, 10,000 feet, June 1925; a female, spruce forests of Choni, 8,500 to 9,000 feet, February 1926. The species

was also met in eastern Kokonor where two males were taken in scrub or in bushes along the Yellow River near Radja in May 1926. An adult male, collected September 1926 in the forests of Mayaku, Ha Tebbuland, at an elevation of 8,000 feet, was just completing the autumnal moult, the fresh feathers on the breast are tipped with gray.

PHOENICURUS AUROREUS Pallas

Motacilla aureora Pallas, Reis. Versch. Prov. Russ. Reichs. **3**, 1776, p. 695 (Selenka, Lake Baikal).

A male was collected in evergreen forest on the mountains of northern Szechuan near the Kansu border in April 1925; a male in worn breeding dress was taken in the willow groves at 9,500 feet elevation on Mt. Lieuhoashan, Minshan range, 16 July 1925; an immature male in the juniper forests in the upper Tebbu country, 7,200 feet, September 1926, and an immature female in the forests of Wantsang Ku, 8,000 feet, lower Tebbu country, September 1926.

We believe that Stuart Baker is correct in reducing both *filchneri* and *leucopterus* to the synonymy of *aureus*.

PHOENICURUS ERYTHROGASTER MAXIMUS Kleinschmidt

Phoenicurus erythrogaster maximus Kleinschmidt, Abh. u. Ber. Mus. Tierk. u. Völk. Dresden, **16**, no. 2, 1923, p. 42 (Janeti, Rombatsa and Chuwo, eastern Tibet).

Eight specimens of this large redstart were taken: three males in forest and scrub at 11,000 feet altitude in the Rako gorge, eastern Kokonor, September 1925; a female at Babo 10,000 feet, north slope of the Kokonor Barrier range, September 1925; a male and two juvenals July 1926 on rocky cliffs below the Totuchsura pass, 14,300 feet elevation, Jupar range, a male in the spruce forests of Choni, shot in barberry bushes, February 1926.

The wing measurements of the five adult males are: 108, 106, 104, 106, 105; of the female 102. These measurements taken across the chord of the wing correspond with Kleinschmidt's 107 to 110.5 for males and 104 for the female, taken against the flattened wing.

The differences in sizes between *grandis* and *maximus* were first noted by Hartert (Vög. Pal. Faun. **1**, p. 727), though Kleinschmidt, when he named the latter form, did not give credit to that author.

PHOENICURUS FRONTALIS Vigors

Phoenicura frontalis Vigors, Proc. Comm. Zoöl., Soc. London, 1, 1832, p. 172 (Himalaya).

Phoenicurus frontalis sinæ Hartert, Bull. B. O. C. 38, 1918, p. 78 (mountains of China; type from Kansu).

The series of eighteen blue-fronted redstarts secured by Rock illustrates nearly every phase of plumage that this species undergoes. A male, shot in April 1925 in the mountains of northern Szechuan, still retains the rusty olive edgings on the feathers of the upper parts; two females were taken in the spruce forests on the mountains of Choni, 9,500 feet, in May and June; from the Minshan range we have two males in normal spring dress taken on the summit of Mt. Koang Kei, 13,000 feet June 1925, while a third example taken at the same time and place has but a sprinkling of blue feathers on the throat and breast, although the lesser wing coverts and some of the scapulars are blue; a worn adult female and two juvenals from the spruce and fir forests of Mt. Lieuhoashan 10,000–11,000 feet, July 1925; and four juvenals at the Rock Gate of the Minshans, July–August 1925.

In Kokonor two adult males in different stages of the autumnal moult were secured in September 1925 at 10,000 feet altitude in the Rako gorge; and a female was taken 22 June of the following year at 11,800 feet in the Dzomo valley.

From Tebbuland Rock sent an adult female, moult not yet commenced, taken at 9,500 feet in the forests of Drakana, and an adult in an advanced state of moult, taken at 8,500 feet in the forests of Wantsang Ku, both examples being collected in September 1926.

Most authors who have recently dealt with this species doubt the validity of *P. f. sinæ* Hartert, an opinion that we share.

PHOENICURUS SCHISTICEPS (Gray)

Ruticilla schisticeps Gray, Cat. Mamm. Bds. Nepal Coll. Hodgson, 1846, p. 69 (Nepal).

Of the twenty examples of the white-throated redstart in the collection, five males and two females were secured in the region about Choni during May and June 1925 at altitudes ranging from 9,000 to 10,500 feet and in a variety of situations — spruce and open forest, and alpine meadows; during February 1926 two males and four females were secured in the same region at an elevation of about 9,000 feet, generally in forests. A male and a female were collected in the Kadjaku

valley, Minshan range, 9,500 to 10,500 feet in July and August 1925, where Rock states that the species was "a common bird." The specimens secured in Kokonor in 1926 are: a male on 2 June in the Dachso canyon north of Radja, a female 22 June on the rock slopes of the Dzomo valley, and a male on the 26th at 12,500 feet, on the northern slopes of the Jupar range. From Ha Tebbuland we have a juvenal, unfortunately not dated, taken at 8,500 feet in the forests of Wantsang Ku, and an adult male with the autumnal moult well begun, collected at 9,000 feet, forests of Sambaku, September 1926. Stresemann (Orn. Monatsb. 35, Sept. 1927, p. 134) has described *P. s. beicki* from Lan-hu-kou, northern Kansu, solely on the basis of slightly shorter wing-length. This variation is not borne out by our material, measuring with the wing flattened out on the rule, European fashion; the wings of 9 males from southwestern Kansu and eastern Kokonor are 82, 83, 83.5, 83.5, 84, 84, 84, 84, 85.5 and we, therefore, cannot bring ourselves to regard *beicki* as a valid subspecies, since the dimensions of that race as given by its describer are 81 to 83.5 for the male against 82-88 for the corresponding sex in typical specimens of *P. s. schisticeps*.

RHYACORNIS FULIGINOSA FULIGINOSA (Vigors)

Phoenicura fuliginosa Vigors, P. Z. S., 1836, p. 185 (Himalaya).

Sixteen specimens of the water redstart were secured. A female from the mountains of northern Szechuan, April 1925; two males from the mountains of Choni, 9,000 to 10,000 feet, June 1925, where the species was found along streams in the spruce forests. In the Minshans an adult male was secured in the Kadjaku valley, a juvenal from along the Drakana trail into Tebbuland, both in August 1925, and an immature in June 1925 in the forests of spruce and fir, 9,800 feet, on southern slopes of the mountains. During September 1926 the species was common in the forests of Wantsang Ku, Ha Tebbuland, where ten examples of both sexes, adults and immature were secured, without exception along streams.

We cannot recognize *R. f. tenuirostris* Stresemann, our extensive series proving that that form was based upon inconstant characters.

HODGSONIUS PHOENICUROIDES ICHANGENSIS Baker

Hodgsonius phoenicuroides ichangensis Baker, Bull. B. O. C. 43, 1922, p. 18, (Ichang, upper Yangtze valley).

Rock sent in four examples of this handsome species — a male and a female from the vicinity of Choni were secured beside brooks in the

forest during May 1925; a female apparently adult, in fresh autumnal plumage, taken in the forests of Mayaku, 8,000 feet, Ha Tebbuland, September 1925, and a specimen sexed as a male (and with the wing measurements of that sex) but in female livery, taken in the forests of Wantsang Ku at 8,500 feet, September-October 1926.

We have no topotypical material of *H. p. phoenicuroides* for comparison, but refer our specimens to *ichangensis* on the basis of the wing measurements, which are 70.5 and 71.5 in the two males. Baker gives 69 to 71 for the wing of Chinese birds as against 73 to 79 for Indian specimens.

CALLIOPE CALLIOPE (Pallas)

Motacilla Calliope Pallas, Reise Versch. Prov. Russ. Reich. **3**, 1776, p. 697 (Jenissei to the Lena).

Only five specimens of the ruby-throat were taken; two males and two females May and July 1925, from the region about Choni at 9,500 feet altitude, and a male at 10,000 feet in the Kadjaku valley, Minshan range, June 1925.

IANTHIA CYANURA (Pallas)

Motacilla cyanurus Pallas, Reise Versch. Prov. Russ. Reich. **2**, 1779, p. 709 (Jenissei).

A male was taken at 9,000 feet in the mountains of Choni, May 1925; a female in spruce forest at 10,000 feet, near Babo, northern slopes of the north Kokonor Barrier range, September 1926.

IANTHIA RUFILATA PRACTICA Bangs and Phillips

Ianthia practica Bangs and Phillips, Bull. M. C. Z. **58**, 1914, p. 292 (Loukou Chai, Yunnan).

Rock collected eight specimens of this bush robin. Two of these, a male and a female, were taken in the mountains of Choni in the spring (May and June) of 1925; a juvenal was secured on Mt. Lieuhoshan in the Minshan range, July 1925, and the remaining five — juvenals, immatures and a moulting adult — are from the forests of Tebbuland, all killed in September 1926.

The single adult male in our series agrees with the characters claimed by Riley (Proc. U. S. Nat. Mus. **70**, Art. 5, 1926, p. 39) for a male from the Taipeishan district of Shensi, which that author believes "prob-

ably represents a distinct form." However, there is a large amount of individual variation in the shade of blue of the upper parts and in the extent of white in the superciliary stripe, and we do not believe that these examples are in any way separable from the Yunnan bird.

SAXICOLA TORQUATA PRZEWALSKII (Pleske)

Pratincola maura var. *Przewalskii* Pleske, Wiss. Res. Przewalsky's *Reisen* Vög. 1, 1889, p. 46, pl. 4, fig. 1, 2 and 3 (Kansu).

A male was shot in the scrub bordering the gorge of the Wutu River, in southern Kansu, May 1925; in September of the same year a female was secured at 10,000 feet on Mt. Nginsinshan, near Babo, on the northern slopes of the north Kokonor Barrier range.

OENANTHE ISABELLINA (Cretzschmar)

Saxicola isabellina Cretzschmar, Atl. zu Rüppell's Reise, Vög. 1826, pl. 52, pl. 34, b. (Nubia).

A single female of this wide-ranging species was shot on 20 May 1926 on the grassy banks of the Yellow River at Radjagomba, 10,000 feet, eastern Kokonor.

OENANTHE PLESCHANKA PLESCHANKA (Lepechin)

Motacilla Pleschanka Lepechin, Nov. Comm. Pet. 14, 1770 (= 1771), p. 503, pl. 24 (Saratow, on the Volga).

This species was met at an elevation of 3,000 feet near Kaichow, south Kansu, where a male was killed beside the river bank during May 1925.

PRUNELLIDAE

PRUNELLA COLLARIS TIBETANUS (Bianchi)

Accentor collaris tibetanus Bianchi, Ann. Mus. Zoöl. Ac. Petersb. 9, 1904, p. 128 (east Tibet).

This species was met with only at great altitudes; a female was taken on the limestone crags at 13,000 feet altitude on Mt. Koang Kei in the Minshan range, June 1925; and two males at 14,600 feet, the highest point in the Jupar range, eastern Kokonor, June 1926.

PRUNELLA RUBECULOIDES BEICKI Mayr

Prunella rubeculoides beicki Mayr, Orn. Monatsb. **35**, Sept. 1927, p. 149 (Lan-lu-kou, northern Kansu).

Ten examples of the Robin Hedge Sparrow were secured as follows: a male and a female 21 September 1925 in the Laliku gorge, near Lalatapan in the Tangar-Kokonor Barrier range; a male and a female in October 1925 beyond the Tangar Mountains of Lassa, 10,000 feet elevation; a male and a female in November 1925 in the valley of Liyuan Ku near Hayotung, 6,000 to 7,000 feet, in the Richthofen range; a male in spruce forest and willow scrub on the outskirts of Choni, February 1926; a female on the grassy hills, Upper Dachso, north of Radja, 11,400 feet, 4 June 1926, and two females in spruce forest at 10,500 feet, gorges of the Yellow River, near Radja, June 1926.

Compared with specimens from Szechuan, our skins agree with Mayr's description in having a grayer head, and we therefore adopt his name from the birds from western Kansu and northeastern Tibet.

PRUNELLA STROPHIATA MULTISTRIATA (David)

Accentor multistriatus David, Ann. and Mag. Nat. Hist. (4), **6**, 1871, p. 256 (Mupin).

Rock collected a male in the Wutu Ho gorge, 4,000 feet, in southern Kansu, May 1925, a female in the mountains of Choni between 9,000 and 10,000 feet during June 1925, and two males and a female in the Tao valley, near Choni, February 1926. During August a juvenal female was taken on the alpine meadows at 12,500 feet of Mt. Kwanghei in the Minshan range. The species was apparently breeding in the eastern Kokonor country about Radja, where a male and two females were taken during June 1926 between 10,500 and 11,000 feet. A female in fresh immature plumage was collected in October 1926 on the grasslands of Peitatumg, 10,000 feet between Kokonor and the Liangchow Nanshan.

All these specimens agree closely with one another and with skins from western Szechuan.

PRUNELLA FULVESCENS NADIAE subsp. nov.

Type.— No. 238898 Museum of Comparative Zoölogy, adult male from the Tao River valley, near Choni, southwestern Kansu, 8,200 feet, February 1926, collected by J. F. Rock, original no. 548.

Characters.— Similar to *Prunella fulvescens khamensis* Sushk. and agreeing with that race in being strongly streaked above, but lacking the streaks on the upper tail coverts and on the sides.

When Professor Sushkin (Proc. Boston Soc. Nat. Hist. **38**, No. 1, 1925, p. 48-55) revised the forms of *Prunella fulvescens* he had seen but a single specimen from Kansu, a female from Old Tao Chow, in the British Museum. He noted the characters by which this example differed from *khamensis*, but hesitated to name it on account of the poor state of its preservation. The series of sixteen specimens listed below confirms the characters pointed out by Prof. Sushkin for the Kansu bird. We take great pleasure in naming the form for Mrs. Sushkin.

Two males and ten females were taken during February 1926 in the valley of the Tao River near Choni. In September 1925 a female in fresh autumnal plumage was shot in spruce forest at 10,000 feet elevation near Babo in the north Kokonor Barrier range. A female in somewhat worn dress was taken 13 May 1926 on grassy bluffs overlooking the Yellow River gorges two days above Radja and five miles below the Dzangar monastery. A male and a female, both slightly worn, were secured along the grassy banks of the Yellow River at Radja elevation 10,000 feet, 23 May 1926.

SYLVIIDAE

TRIBURA THORACICA PRZEVALSKII (Sushkin)

Dumeticola thoracica przewalskii Sushkin, Proc. Boston Soc. Nat. Hist. **38**, no. 1, 1925, p. 41 (Dshachar mountains, upper Hwang-ho).

Rock secured a male of this species at 11,500 feet in tall alpine grass on Mt. Lieuhoashan, Kansu, 16 July 1925. We have compared this specimen with the type of *davidi* (*Tribura thoracica davidi* La Touche, Bull. B. O. C. **43**, 1923, p. 168, Chinwangtao, northeastern Chihli) and with Sushkin's description of *prezvalskii* (supra), and find that our bird belongs to the latter, though to us the two races appear to be very close.

PHYLLOSCOPUS AFFINIS (Tickell)

Motacilla affinis Tickell, Journ. As. Soc. Bengal, **2**, 1833, p. 576 (jungles of Borabhum and Dholbum).

One male was taken at 10,500 feet in a willow forest in the gorge of the Serchen stream, one day east of Radja, 16 May, 1926.

PHYLLOSCOPUS ARMANDII (Milne-Edwards)

Abrornis armandii Milne-Edwards, Nouv. Arch. Mus. Paris, Bull. 1, 1865, p. 22, pl. 2, f. 1 (north China).

Twelve examples of this warbler were collected, three males and three females during May and June in the Tao River valley near Choni, where the birds haunted either willow or poplar forest or willow scrub; a female from the Kwadjaku valley in the Minshan range, June 1925; a female, spruce forest, 11,000 feet, Dachso canyon, Yellow River gorges north of Radja, 2 June 1926; a male in willow groves 9,900 feet along the Ba stream, 25 June 1926, and a male at 11,500 feet in the mountains opposite Radja, June 1926. During September 1926 a male was secured at 8,000 feet in the forests of Wantsang Ku, Ha Tebbuland, and a female at 9,500 feet, forest of Drakana, upper Tebbuland.

PHYLLOSCOPUS PROREGULUS PROREGULUS (Pallas)

Motacilla Proregulus Pallas, Zoogr. Rosso-Asiat. 1, 1827, p. 499 (Ingoda River, Dauria).

A male and a female in somewhat worn breeding plumage were both taken 2 June 1926 in spruce forests in the Dachso canyon, 11,000 feet, eastern Kokonor. Two examples in fresh autumn plumage were taken during September 1926 in the forests of Pezlu, upper Tebbuland.

PHYLLOSCOPUS HUMEI PRAEMIUM (Mathews and Iredale)

Reguloides humei praemium Mathews and Iredale, Austr. Av. Rec. 3, 1915, p. 45 (nom. nov. pro *Motacilla superciliosa* Gmel. nec Bodd., Russia).

Ten specimens of this puzzling willow warbler were secured; a pair in poplar forest along the Tao River near Choni during May 1925; a pair in the willow forests of the Kwadjaku valley, 10,000 feet, Minshan range, June 1925; a pair at 11,500 feet, in the spruce forests south of the Yellow River opposite Radja 26 May 1926; two males and a female from the spruce forests of the Dachso canyon, 11,000 feet, 2 June 1926, and a female in fresh autumnal plumage from the forests of Wantsang Ku, Ha Tebbuland, 8,500 feet in September 1926.

Stuart Baker (The Fauna of British India, second ed., vol. II, p. 470, Apr. 1924) places *Phylloscopus mandellii* Brooks (1879) in the synonymy of *P. h. praemium*, saying that dark-headed and richly colored birds occur everywhere throughout the ranges of both subspecies. If he is right in considering *mandellii* the same as *praemium*, then the

name must, of course, be *mandellii*. Perhaps, however, Baker means that *mandellii* cannot be surely identified as either one or the other race. We have adopted the latter interpretation of his remarks.

PHYLLOSCOPUS MAGNIROSTRIS Blyth

Phylloscopus magnirostris Blyth, Journ. As. Soc. Bengal, **12**, 1843, p. 966 (Calcutta).

Four males of this species were taken during May or early June near the banks of the Tao River at Choni, where the birds frequented willow scrub; four were secured in eastern Kokonor, a female 26 May 1926 at 11,500 feet in the spruce forests south of the Yellow River and opposite Radja, two males in the spruce and birch forests, 11,000 feet, in the Dachso canyon 2 June 1926, and a female at 11,500 feet in the mountains southwest of the Yellow River opposite Radja, June 1926; during September and October two males and two females were collected at 9,500 feet in the forests of Drakana, upper Tebbuland.

PHYLLOSCOPUS TROCHILOIDES CLAUDIAE (La Touche)

Acanthopneuste trochiloides claudiae La Touche, Bull. B. O. C. **43**, 1922, p. 22 (Mengtsz, Yunnan).

An immature male was taken at 8,000 feet in the forests of Wantsang Ku September 1926.

LANIIDAE

LANIUS BUCEPHALUS SICARIUS subsp. nov.

Type.— No. 239069 Mus. Comp. Zoöl., adult female from mountains in the Tao valley near Choni, 9,000 feet. Collected May 1925 by J. F. Rock (orig. No. 84).

Characters.—Somewhat similar to *Lanius b. bucephalus* Temm. and Schl. but crown, nape and auriculars much darker — almost burnt-umber — sharply defined against the dark olivaceous gray of the back, the latter without trace of brownish; tail more slaty; below much more heavily and completely barred, and bars much blacker; bill entirely black and relatively more slender.

Measurements.—Wing, 82; tail, 89; bill from base of forehead, 18; height of bill at base, 8 mm.

The single example of this form secured by Dr. Rock differs so radically from any specimen in a large series of *bucephalus* from Japan and eastern China that we have no alternative but that of describing it;

the heavy black barring of the underparts, covering even the abdomen, serves to separate our bird at once from even the most heavily barred immature autumnal females of true *bucephalus*, while the dark olivaceous gray of the upper parts and dark brown cap cannot be matched.

LANIUS TEPHRONOTUS (Vigors)

Collurio tephronotus Vigors, P. Z. S., 1831, p. 43 (Himalayas).

This Shrike was found near Choni during May and June 1925, and Rock's notes show that it was common in the willow forest, where two males and a female were secured; 24 May 1926 two adult males were collected at 11,000 feet in the mountains across the Yellow River from Radja; two juvenal males were taken in the forests of Drakana, upper Tebbuland, one at 10,500 feet in August, 1925, the other at 9,500 feet in September 1926.

LANIUS CRISTATUS CRISTATUS Linn.

Lanius cristatus Linn., Syst. Nat. ed. 10, 1, 1758, p. 93 (Bengal).

A single female was taken in June 1925 at an elevation of 9,600 feet in the mountains of Choni. The bird quite probably was a straggler or or belated migrant, since the species is not known to breed in any part of Kansu. A note on the label reads "rare."

PARIDAE

PARUS SONGARUS AFFINIS (Przewalski)

Poecile affinis Przewalski, Mongol i. Strana Tangut, 2, 1876, p. 52 (Ala-shan and Kansu).

Eleven specimens of this willow tit were secured; three males and three females from the region about Choni, May and June 1925, and January 1926; four more examples were collected in eastern Kokonor, a male in spruce forest at 11,000 feet, south of the Yellow River opposite Radja, 26 May 1926, and three males and a female in the Dachso canyon, Yellow River gorges at a like elevation, 2 June 1926.

PARUS SONGARUS WEIGOLDICUS Kleinschmidt

Parus weigoldicus Kleinschmidt, Falco, 1921, p. 3 [*Nom. nov. pro Parus salicarius weigoldi* Kleinsch., Berajah, 1921, p. 19 (Atentze, northern Yunnan) **nec** *Parus cristatus weigoldi* Tratz, Orn. Mon. 1914, p. 50 (Portugal)].

The collection contains four males, two from the forests of Pezlu, two from the forests of Drakana, 7,200 and 9,500 feet respectively, upper Tebbuland, September 1926.

These specimens are easily distinguished from *affinis* by their much deeper coloration, particularly the top of the head and nape which are dull blackish, and the back which is a deeper brownish.

The birds recorded from western Szechuan by Thayer and Bangs (Mem. M. C. Z. 40, no. 4, 1912, p. 183) as *Penthestes affinis* are, of course, referable to *P. s. weigoldicus*.

Many Europeans consider that the Willow Tits of the Old World are so closely related to the American Chickadee, *Parus atricapillus*, that they list them as subspecies of that bird. This procedure does not properly represent the facts. The American forms are quite unlike their Old World cousins in life, and have very different voices, and we unhesitatingly consider them specifically distinct.

PARUS DAVIDI (Berez. and Bianchi)

Poecile Davidi Berezowski and Bianchi, Aves, Exped. Potanini, 1891, p. 113, pl. 2, fig. 4 (southern Kansu).

A male and two females of this species were secured at an elevation of 8,000 feet in the forests of Wantsang Ku, Ha Tebbuland, in September 1926, and a third female was taken there at 8,500 feet.

PARUS SUPERCILIOSUS (Przew.)

Poecile superciliosa Przewalski, Mongol i. Strana Tangut, 2, 1876, p. 54 (alpine regions of the Kansu mountains).

This species apparently occurs sparingly over western Kansu. A female in worn breeding plumage was taken in the poplar groves of the Tao valley in May 1925; another female in still more worn plumage is from 11,000 feet in the Minshan spruce forests of the Tebbu country, August 1925, while a male and a female in fresh autumnal feather were collected in the Babo district of the north Kokonor Barrier range in October 1925.

PARUS DICHROUS DICHROIDES (Przew.)

Lophophanes dichroides Przewalski, Mongol i. Strana Tangut, 2, 1876, p. 54 (lower mountain ranges of Kansu).

Rock collected a series of fourteen examples of this titmouse. A female was taken in the spruce forests of the Tao River valley in January 1926; a juvenal male at 11,000 feet in the forests of the Minshan range in June 1925; a male in the spruce forest at 11,500 feet at the Great Rock Gate of the Minshan range August 1925. In the Tebbu

country the species appeared to be very numerous, ten examples being secured during September 1926 at elevations ranging between 8,000 and 9,500 feet. One of these is a juvenal, but the others have the long crest feathers fully developed. The westernmost locality where a specimen was collected is the Dachso canyon of the Yellow River in eastern Kokonor, where a male was secured at 11,000 feet 2 June 1926.

Some of the birds, regardless of season bear a note on their labels that the eyes are "brown," others that the eyes are "red." Przewalski's original diagnosis reads "iris rubiginosa."

The olive back, present in adults at all seasons, as well as in the immature, serves to distinguish this race at once from any of the other forms of the species.

Three specimens of the bird from the isolated Washan Mountain, where it is restricted to the upper coniferous slopes, belong to a separable form, as Kleinschmidt and Weigold have already pointed out (Abh. u. ber. Zool. Mus. Dresden, 15, 1922, no. 3, p. 13). This race we name

PARUS DICHROUS ARCEUTHINUS subsp. nov.

Type.—No. 50822 Museum of Comparative Zoölogy, collected on Washan Mountain (11,000 feet), western Szechuan, 4 June 1908, by W. R. Zappey.

Characters.—Similar to *P. d. dichroides* but much paler, more ashy gray above, the back nearly concolorous with the head; much paler fawn color below. Similar also to *P. d. wellsii* Stuart Baker, but much paler in color throughout.

PARUS RUFONUCHALIS BEAVANI (Jerd.)

Lophophanes beavani Jerdon, Bds. India, 2, 1863, p. 275 (Mt. Teringloo, Sikkim).

But four specimens of the Sikkim Black Tit were collected, all of them from the country south of the Minshan range. A male from the southern slopes of the Minshans at 9,800 feet in June 1925, a female in August 1925 in the Kadjaku valley at 9,500 feet, a male from the forests of Drakana, 9,500 feet, upper Tebbuland, September 1926, and a male from the forests of Wantsang Ku, 8,500 feet, September 1926.

PARUS VENUSTULUS Swinhoe

Parus venustulus Swinhoe, P. Z. S., 1870, p. 133 (Yangtse gorges, Hupeh).

Four of these birds were taken in the willow groves in the Tao valley near Choni, during May 1925, a fifth specimen was taken at

10,000 feet in the mountains of Choni, south of the Tao River, June 1925. An immature female was secured in the forests of Wantsang Ku, lower Tebbuland, 8,500 feet, September 1926.

PARUS MONTICOLUS MONTICOLUS Vigors

Parus monticolus Vigors, P. Z. S., 1831, p. 22 (Himalaya).

But one specimen of the green-backed tit was secured — a male from the forests of Wantsang Ku, 8,500 feet, September 1926.

This specimen, judging by our inadequate topotypical material, belongs to the nominate form, in any event it is not referable to *P. m. yunnanensis* La Touche, a slightly differentiated race, characterized by the rather brighter greenish yellow of the mantle and brighter yellow sides, points which are hardly appreciable except when the birds are viewed in series.

PARUS MAJOR TIBETANUS Hart.

Parus major tibetanus Hartert, Vög. Pal. Faun. 1, heft 3, 1905, p. 346 (Chaksam, Tsing Po valley, Tibet).

Rock secured ten specimens of the great tit as follows: an adult female in very worn breeding plumage from scrub beside the Minchow road, 5,000 feet in southern Kansu, May 1925; an adult female from the scrub forest in the Tao valley at Choni, May 1925; a male and two females from the Choni spruce forests, January 1926. Three males and two females were collected in the forests of Wantsang Ku and Mayaku in upper Tebbuland 8,000 to 8,500 feet, in September 1926.

We can detect no differences in these series from north and south of the Minshan range. Furthermore there are no constant characters that we can detect by which to separate the great tits of northwestern Yunnan, western Szechuan and southwestern Kansu; in our opinion they all belong to the same form, characterized by large size and a good deal of white in the second tail feather. The latter character is variable, altogether too variable a criterion on which to base any further subdivision within the above area, and we do not recognize *P. m. subtibetanus* (Kleinsch. and Weig., Abh. u. ber. Mus. Dresden, 15, 1922, no. 3, p. 11, Tatsienlu, Szechuan).

ÆGITHALISCUS FULIGINOSUS FULIGINOSUS (J. Verr.)

Mecistura fuliginosa J. Verreaux, Nouv. Arch. Mus. Paris, Bull. 5, 1869, p. 36 (eastern Tibet = western Szechuan).

Three males were taken during September 1926, one of them at 7,200 feet in the forests of Pezlu, upper Tebbuland, the others at 8,000

feet in the forests of Wantsang Ku, lower Tebbuland. The first mentioned specimen had the irides "yellow," one of the others "yellowish brown." None of these birds had completed the autumnal moult.

Verreaux's description of this species is too generalized to be of any use in determining subspecies, and the plate published (Nouv. Arch. Mus. Paris, Bull. 8, 1872, pl. 5), on which this bird is figured (fig. 4) with three other species, is not accurately colored. We must therefore assume our birds to be like those from western Szechuan and refer birds from Hupeh to a new race.

AEGITHALISCUS FULIGINOSUS SCURRULA subsp. nov.

Type: No. 50968 Mus. Comp. Zoöl. from Hsien Shan Hsien, Hupeh, collected 25 December, 1907 by Walter R. Zappey.

Characters.— Similar to *A. f. fuliginosus*, but the brown parts of the plumage much paler, about "Mummy Brown" of Ridgway. In *A. f. fuliginosus* the brown parts are very dark, between light seal brown and black. This difference is very conspicuous in the color of the breast band. Measurements: wing, male 56–60; female 56–57; tail, male 52–58; female 51–52. (9 males and 2 females.)

AEGITHALOS GLAUCOGULARIS VINACEA (J. Verr.)

Mecistura vinacea J. Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 39 (mountains of Chinese Tibet).

The northern Silver-throated Tit was common about Choni; a pair of adults in extremely worn plumage was taken in the forests there, at 9,600 feet in June 1925; during January and February 1926 the species frequented the willow scrub in the Tao River valley, where seven examples were secured. A much abraded male was shot on 23 June 1926 on the banks of the Ba River 9,900 feet, south of the Jupar range in eastern Kokonor. A male and two females were collected in September 1926 along the valley of Chulungapu in the juniper forests of Pezlu, upper Tebbuland, while lower Tebbuland is represented by a male taken in the forests of Mayaku, 8,500 feet, September 1926.

CEPHALOPYRUS FLAMMICEPS OLIVACEUS Roths.

Cephalopyrus flammiceps olivaceus Rothschild, Nov. Zoöl. 30, 1923, p. 263 (Tengyueh, northwestern Yunnan).

A single female of this strongly marked form was secured in April 1925 at 5,000 feet altitude in mixed forest on the mountains of northern Szechuan near Chingchuan.

REGULIDAE

REGULUS REGULUS COATSI Sushk.

Regulus cristatus coatsi Sushkin, Bull. B. O. C. **14**, 1904, p. 44 (subalpine zone of Sayan range).

Rock collected five Kinglets during the autumn of 1925. Two males were taken in October in willow scrub in a stream bed at Babo 9,500 feet between the Kokonor Barrier and the Richthofen ranges; in November two males and a female were secured in a similar situation at 7,000 feet elevation in the Liyuan gorge on the northern slopes of the Richthofen range.

These specimens all differ from *R. r. japonensis* Blakist. in being less washed with gray on the nape and sides of the head, in this particular agreeing with the original description of *coatsi*; they do not, however, confirm the difference in size between this race and *japonensis* as claimed by Buturlin (Mess. Orn. 1916, p. 100).

Western Kansu is some distance south of the region which *coatsi* inhabits, but the lateness of the season makes it reasonable to suppose that our birds are migrants from further north.

LEPTOPOECILE SOPHIAE DESERTICOLA Hartert

Leptopoecile sophiae deserticola Hartert, Vög. Pal. Faun. **1**, heft 4, 1907, p. 401 (Kara-Sai, eastern Turkestan).

Five specimens of this excellent race were collected in the Kokonor Barrier ranges; a male at 13,000 feet near a summit in the southeast Barrier range September 1925; three males and a female in spruce forest at 10,000 feet on Mt. Nginsin, north Barrier range in October 1925.

A collector's note on the labels of two of the males states that the eyes are "red."

LEPTOPOECILE SOPHIAE OBSCURA Przew.

Leptopoecile obscura Przewalski, Zapisk. Imp. Ak. Nauk St. Petersburg. **55**, 1887, p. 80 (mountain forests of northeastern Tibet.)

During January 1926 four males and two females were secured in willow scrub or in the willow and poplar forests in the Tao River valley near Choni.

LOPHOBASILEUS ELEGANS (Przew.)

Leptopoeile elegans Przewalski, Zapisk. Imp. Ak. Nauk St. Petersburg. **55**, 1887, p. 77 (upper Yellow River and temple of Tschertyngon).

In eastern Kokonor this species was secured in rhododendron scrub at 11,000 feet in the Rako gorge, September 1925 and in willow bushes south of the Yellow River opposite Radja 26 May 1926, in both cases a single male collected. An adult female was taken in October 1925 at 10,000 feet altitude in spruce forest, Babo district, north Kokonor Barrier range. During September 1926 three males and a female were shot in the forests of Drakana, upper Tebbuland, between 9,000 and 9,500 feet; two of the males are juvenals, but with "red" irides, as in the adults.

SITTIDAE

SITTA EUROPÆA SINENSIS Verreaux

Sitta sinensis Verreaux, Nouv. Arch. Mus. Paris, Bull. **6**, 1870, p. 34 (mountains of Chinese Tibet, error!).

Rock collected three male examples of this nuthatch in the forests of Mayaku and Wantsang Ku, lower Tebbu country in September 1926; all three have completed the moult and are in fresh autumnal plumage. These birds average a little larger than birds from either Fokien or Hupeh, wing 77, 78, 80, but in other respects they are identical with *sinensis*.

As Hartert has shown, Verreaux based this form on three specimens, a male from Kiukiang, northern Kiangsi, and a pair from Moupin, Szechuan, but the two latter belong to the race now known as *montium* La Touche, so that Hartert fixed the name on the Kiukiang bird (Vög. Pal. Faun. **1**, p. 333). La Touche (Handb. Bds. east. China, pt. 1, July 1925, p. 38) considers the Fokien bird to be *sinensis* and endeavors to uphold *itschangensis* Kleinschm. and Weig. as a valid race. With a large series before us, we can see no differences whatever between Hupeh and Fokien specimens. In any event the Hupeh birds must be called *sinensis* (not being preoccupied by *chinensis*) with the type locality fixed as Kiukiang, just south of the Hupeh border, and if there was any race to be named, it would be the Fokien bird.

SITTA LEUCOPSIS PRZEWALSKII Berez. and Bianchi

Sitta Przewalskii Berezowski and Bianchi, Av. Exp. Potanini 1891, p. 119, (upper Chuanche).

A male of the white-cheeked nuthatch was collected in the spruce forests of Choni in February 1926; three more examples (two males

and a female) were taken in the forests of Drakana at 9,500 feet, and a male at 8,500 feet in the forests of Wantsang Ku in September 1926.

SITTA CANADENSIS VILLOSA Verreaux

Sitta villosa Verreaux, Nouv. Arch. Mus. Paris, Bull. 1, 1865, p. 78, pl. 5, f. 1 (north of Pekin).

Three of this little nuthatch were collected; a male and a female at 7,000 feet in the Liyuanku gorge, northern slopes of the Richthofen range, and a female in the spruce forests of the north Kokonor Barrier range, all in October 1925.

It is difficult to distinguish some skins of *villosa* from some of *canadensis*. Usually however, the former is larger and paler, and has the black portion of the auriculars always flecked with whitish; *canadensis* normally has the same region solid black, but occasionally a specimen is found flecked with white as in *villosa*.

CERTHIIDAE

CERTHIA FAMILIARIS TIANSHANICA Hartert

Certhia familiaris tianshanica Hartert, Vög. Pal. Faun. 1, heft 3, 1905, p. 321. (Ak-su (River?), southern Tian Shan).

A male taken 31 May 1926 in juniper forest at 11,000 feet in the Howa valley, Yellow River gorges north of Radja, agrees with the original diagnosis of this pale form, except that the dusky spot on the under wing-coverts is not very distinct, thus approaching *f. familiaris*; however, it is a large bird (wing 69 mm.), and for this reason we refer it to *tianshanica*.

There is still much work to be done in clearing up the breeding ranges of the tree creepers in western China.

CERTHIA FAMILIARIS BIANCHII Hartert

Certhia familiaris bianchii Hartert, Vög. Pal. Faun. 1, heft 3, 1905, p. 321 (southern Tetung Mountains, Kansu).

There are five specimens in the collection characterized by dark upper parts, rusty spot on the outer web of the fourth primary and by rusty or fawn-colored abdomen and under tail coverts; in these details they agree with Hartert's description of *bianchii*. One of them is a female shot near Choni in February 1926; the other four are males collected in the forests of Drakana, 9,500 feet during September 1926.

Lönnerberg (Ibis, 1922, p. 312) records *Certhia f. khamensis* Bianchi from the Minshans, but our examples from upper Tebbuland are not referable to that race.

CERTHIA FAMILIARIS KWANHSIENENSIS Kleinsch. & Weig.

Certhia familiaris kwanhsienensis Kleinschmidt and Wiegold, Abh. u. ber. Zoöl. Mus. Dresden, **15**, No. 3, 1922, p. 7 (Kwanhsien, Szechuan).

The single specimen from Ha Tebbuland, a male from the forests of Sambaku, 9,000 feet, taken in September 1926, lacks the rusty spot on the outer web of the fourth primary and has a distinctly gray wash over the abdomen; these characters force us to place the bird in the form recently described by Kleinschmidt and Weigold.

The bird recorded by Thayer and Bangs as *Certhia familiaris khamensis* (Mem. M. C. Z. **40**, no. 4, 1912, p. 186) from Lianghow Kow, western Szechuan, is referable here.

It seems to us that the length of the bill in *Certhia familiaris* is too subject to individual variation to serve as a really reliable diagnostic character.

CERTHIA HIMALAYANA YUNNANENSIS Sharpe

Certhia yunnanensis Sharpe, Bull. B. O. C. **13**, 1902, p. 11 ("Shayang, Chutung Road").

Four examples of this bird were secured: — a male in the gorges of the Wutu River in May 1925, a male in the Taochow valley, 31 May 1925, a female near Choni in February 1926, and a male in the forests of Drakana, 9,500 feet September 1926.

These four specimens are all alike and agree with Sharpe's original description of *yunnanensis*, but lacking topotypical material of that form we sent one of our specimens to Mr. N. B. Kinnear at the British Museum (Natural History) who writes "the tree creeper agrees in every way as far as I can see with *C. h. yunnanensis*."

TACHODROMA MURARIA (Linn.)

Certhia muraria Linné, Syst. Nat. ed. 12, **1**, 1766, p. 184 (southern Europe).

Four specimens of the Wall Creeper were taken. A male at Peshingai, 10,600 feet, southwestern Kansu, 30 May 1925; a male on the rocky banks of the Tao River below Choni in March 1926; a female 20 May 1926 along the Yellow River near Radja, and a male at the mouth of the Deyang valley, 10,000 feet, near Radja, June 1926. The May specimens are in the process of acquiring the black throat, which the June bird has completely assumed.

MOTACILLIDAE

MOTACILLA ALBA LEUCOPSIS Gould

Motacilla leucopsis Gould, P. Z. S., 1837, p. 78 (India).

The White-faced Wagtail is represented by three males: an adult taken along the Tao River near Choni in June 1925, another adult from the Yellow River near Radja 20 May 1926, and an immature male taken in September 1926 at an elevation of 10,700 feet on the south shore of Lake Kokonor.

BUDYTES CITREOLA CITREOLA (Pallas)

Motacilla citreola Pallas, Reis. Versch. Prov. Russ. Reich, 3, 1776, p. 696 (eastern Siberia).

Neither of the two examples of Yellow-headed Wagtails sent in by Rock is *B. c. citreoloides*, the breeding bird of the region. Undoubtedly both were migrants belonging to the form of more northerly breeding range. A male in the plumage of the first spring was secured in May 1925 near Choni, and an immature female was taken along a water course near Wantsang Ku, Ha Tebbuland, in September 1926.

ANTHUS HODGSONI Richmond

Anthus hodgsoni Richmond, Carn. Inst. Wash. publ. no. 54, 1, pt. 2, 1907, p. 493 [*Nom. nov. pro* *Anthus maculatus* Hodgs. (Nepal), *nec* *Motacilla maculata* Gmel. = *Anthus campestris* (Linn.)].

During June and July 1925 this species was met with in alpine meadows on the summits of the Minshan range at elevations ranging between 11,500 and 13,000 feet, where three males and two females in somewhat worn summer dress were secured. A male taken in May along the rocky gorges of the Minchow River in southern Kansu, 5,000 feet altitude is also abraded. In September 1926 two additional examples were collected in the forests of Ha Tebbuland: a female with the first immature plumage not yet complete, and an adult female in an advanced state of moult.

We have examined very large numbers of specimens of *A. hodgsoni* from many different regions, and are wholly unable to recognize either *A. h. yunnanensis* Uchida and Kuroda or *A. h. berezowskii* Sarudny. Every series, if long, presents rather striking differences due entirely to season, age, wear or individual variation, but we fail to find any real characters by which the species can be subdivided.

ANTHUS RICHARDI RICHARDI Vieillot

Anthus Richardi Vieillot, Nouv. Dict. Hist. Nat. **26**, 1818, p. 491 (France).

Rock secured a male and two females of Richard's Pipit near Taichow in the Tibetan grasslands of southwestern Kansu, elevation 10,000 feet, in May 1925; a third female was taken in June of the same year on the alpine meadows of the Choni mountains.

One of the Taichow examples has a hind toe only as long as the hallux, one of the criteria for the determination of *A. r. striolatus*, but in the other two specimens from the same place, the hind claw is very long and the tip attenuated. This often seems to be the case among the species of pipits with long hind claws; they become worn very thin distally, and the tips eventually break off.

ANTHUS ROSEATUS Blyth

Anthus roseatus Blyth, Journ. As. Soc. Bengal, **16**, 1847, p. 437 (Nepal).

A. roseatus is the common pipit of the region, as evidenced by a series of fifteen specimens. During the breeding season Rock found the bird in alpine meadows on grassy mountain summits of the Minshan range between 11,500 and 13,000 feet, and in similar situations in the mountains of eastern Kokonor. In September 1925 one was secured in grasslands along the southwestern shore of Lake Kokonor. In November 1925 one was secured at the summit of a pass (9,600 feet) in the Richthofen range.

ANTHUS SPINOLETTA BLAKISTONI Swinhoe

Anthus blakistoni Swinhoe, P. Z. S., 1863, p. 90 (Yangtze River, 140 miles inland).

The Chinese water pipit was met with only in eastern Kokonor. A male was secured in the Dzomo valley, north of Dzomola, at an altitude of 11,300 feet on 21 June 1926, and another male, 26 June, at an elevation of 13,100 on the northern slopes of the Jupar range. The former bird was taken in willow scrub near a river bank; the latter in an alpine meadow. The plumage of both specimens is much worn.

ALAUDIDAE

EREMOPHILA ALPESTRIS NIGRIFRONS (Przewalski)

Otocoris nigrifrons Przewalski, Mongol i. Strana Tangut, **2**, 1876, p. 103 (Kansu, Kokonor, Zaidam and northern Tibet).

Twenty-two specimens of horned larks were taken, that, in spite of seasonal differences in plumage, are clearly referable to only one

subspecies. Five males and a female were collected on Tibetan grasslands between Taochow and Choni at an elevation of between 9,000 and 10,000 feet during May. On the Ba plains, 10,500 feet, two males and two females in worn breeding plumage were collected on June 24, 1926, and a three-quarters grown juvenal on June 22. During September 1925 seven specimens of both sexes were taken on the grasslands about Lake Kokonor. Four of these are apparently birds of the year in fresh immature plumage, a fifth still retains a number of feathers of the juvenal plumage on the head, while yet another is a fully grown juvenal, and the last an adult female at the height of the autumnal moult. In November 1925 three males and a female were secured at an elevation of 10,500 feet on the grasslands of Obo, north Kokonor Barrier range.

Although Hartert has placed *Otocoris nigrifrons* in the synonymy of *elwesi*, we are convinced that it is a valid race and occupies essentially the area assigned to it by its describer. Since Przewalski did not designate a definite type locality we suggest as such the grasslands about Lake Kokonor.

E. a. nigrifrons is readily distinguishable from *E. a. elwesi* by darker coloration above and by its smaller size (male, wing 109-115 mm. as against 115-125 in *elwesi*). From *khamensis*, *nigrifrons* is distinguished by its much smaller size, narrower black frontal band and shorter bill. The range of *E. a. brandti* probable adjoins that of *nigrifrons* on the north, but the former race may be readily distinguished by its much more sandy coloration above and lack of black frontal band (the black being restricted to the tuft of plumes over the nostrils), although the two forms are of about the same size.

ALAUDA ARVENSIS INOPINATA Bianchi

Alauda japonica inopinata Bianchi, Ann. Mus. Zoöl. St. Petersburg. **9**, 1905, p. 31 (eastern Tibet, Nan Shan, Kokonor, upper Mekong, upper Brahmaputra, Gyantze, Lhasa).

The only Skylark in the collection, a male, was taken on 4 June 1926, at an elevation of 13,700 feet, on the Waro Pass, north of Radja.

GALERIDA CRISTATA RETRUSA subsp. nov.

Type.—No. 238709 Mus. Comp. Zoöl., adult male from the Kanchow plain, foot of the northern Kanchow Nanshan, collected November 1925 by Joseph F. Rock (orig. no. 470).

Characters.— Similar to *Galerida cristata magna* Hume but smaller; more grayish, less brownish above with the central portions of the feathers darker; below more nearly white, less washed with rusty yellow.

Measurements

| <i>Number</i> | <i>Sex</i> | <i>Wing</i> | <i>Tail</i> | <i>Tarsus</i> | <i>Bill from base</i> |
|---------------|------------|-------------|-------------|---------------|-----------------------|
| 238709 | ♂ | 102 | 58 | 24 | 17 |
| 238710 | ♀ | 106 | 62 | 24.5 | 18 |

In addition to the type a second specimen, a female, was collected at the same time and place.

Dr. Herbert C. Robinson very kindly examined these specimens for us at the British Museum, and writes that they agree most nearly in color and other particulars with *Galerida cristata iwanowi* Louden, but that they are much too small for that form. They scarcely need comparison with the smaller and much redder *leautungensis* (Swinh.) to which they come nearest geographically.

MELANOCORYPHA MAXIMA Gould

Melanocorypha maxima Gould, Bds. Asia, 4, 1867, pl. 72 and text (type locality as substituted by Hartert, "Border of Sikkim," Vög. Pal. Faun. 1, heft 2, 1904, p. 211).

Four of these very large larks were collected September 1925 in the grassy country bordering the southern shore of Lake Kokonor. Two more, a male and a female were secured on grasslands at an elevation of 11,400 feet in Tsechu drainage, eastern Kokonor on 11 May 1926. Rock made a note on the label of one of the specimens that reads:—"These birds fly very low and can be hit with a stick."

MELANOCORYPHA MONGOLICA (Pallas)

Alauda mongolica Pallas, Reis. Versch. Prov. Russ. Reick, 3, 1776, p. 697 (between "Ononem et Agrunum.")

The single specimen of this species in the collection, is a male taken in the grasslands on the southern shore of Lake Kokonor September 1925. The bird, an adult, was moulting heavily and acquiring a new tail all at once, all the old feathers having been shed.

FRINGILLIDAE

CHLORIS SINICA SINICA (Linn.)

Fringilla sinica Linné, Syst. Nat. ed. 12, 1, 1766, p. 321 (China).

The Chinese Green Finch apparently is not numerous in this region. A male was secured near Minchow, 5,000 feet, in southern Kansu and five of both sexes in the vicinity of Choni and Taochow between 8,500 and 9,000 feet, all in poplars along streams, or in open situations. An immature male was collected at Babo, northern slope of the Kokonor Barrier range in spruce forest.

All of these specimens agree with birds from Szechuan and Hupeh, which we believe to represent typical *sinica*.

PERISSOSPIZA CARNIPES CARNIPES (Hodgs.)

Coccothraustes carnipes Hodgson, As. Res. 19, 1836, p. 151 (Nepal).

Twenty-two specimens of the White-winged Grosbeak were taken in the Tao valley, the Minshan range, the basin of the Yellow River in eastern Kokonor and the forests of Drakana in upper Tebbuland. In all cases the birds were found in spruce or in juniper forest. No examples were collected below 9,500 feet. A note by Rock on the label of a bird taken May 31, 1926, in the Howa gorge, 11,000 feet, eastern Kokonor, states that the species was then feeding on the hard juniper berries.

PERISSOSPIZA ICTEROIDES AFFINIS (Blyth)

Hesperiphona affinis Blyth, Journ. As. Soc. Bengal, 24, 1855, p. 179 (alpine Punjab).

One adult male of this species was taken at an elevation of 10,000 feet in the spruce and fir forests of Sambaku, Ha Tebbuland, September 1926. The specimen was in an advanced state of the autumnal moult.

FRINGILLA MONTIFRINGILLA Linn.

Fringilla montifringilla Linné, Syst. Nat. ed. 10, 1, 1758, p. 179 (Sweden, *apud* Hartert).

Rock secured one female Brambling at the edge of the forest near Choni, May 1925.

ACANTHIS FLAVIROSTRIS subsp.

We are at a loss to place the subspecies of the single Twite in the collection. It is sexed as a male. It is in fresh immature plumage and lacks the pink rump. The bird was taken at Hung Shui Ku, eastern end of the Kanchow Nanshan, 8,000 feet, October 1925.

The specimen is too pale for *miniakensis* which is represented in the Museum of Comparative Zoölogy by an adult male cotype collected by Weigold at Bameh, Szechuan, 11 November 1915. It seems to be in color more nearly like *montanella* Hume or *altaica* Sushkin, but is small for either (wing 73).

LEUCOSTICTE NEMORICOLA NEMORICOLA (Hodgson)

Fringalauda nemoricola Hodgs., As. Res. 19, 1836, p. 158 (central and north regions of Nepal).

Rock took ten specimens of this species, which he found on the summit of Mt. Koanzku of the Minshan range at 13,000 feet in June 1925; in alpine meadows, 12,500 feet during July and August 1925 in Tebbuland; at 12,500 feet below Kerab pass in the Jupar range, 24 June 1926, and as low as 11,300 feet on rocky cliffs in the Dzomo valley, north of Dzomola, 21 June 1926.

We retain this species in the genus *Leucosticte*, because we do not believe that the genus *Fringalauda* (type *F. nemoricola* Hodgs.) is sufficiently distinct. Most of the species of *Leucosticte*, it is true, have a dense tuft of short incurved feathers completely covering the nostrils, rather stout feet and a somewhat conical bill, while *nemoricola* is aberrant in having the nasal tufts less developed, more slender feet, and more elongate bill. The bird that Hartert described, however, as *Montifringilla brandti walteri* (Vög. Pal. Faun. 1, 1904, p. 138) is in our opinion a distinct species that bridges the differences between *Leucosticte* and *Fringalauda* and should stand as *Leucosticte walteri* (Hart.).

ERYTHRINA ERYTHRINA ROSEATA (Hodgs.)

Pyrhulinota roseata Hodgs., P. Z. S., 1845, p. 36 (Nepal and Hindustan).

This bird is represented in the collection by eighteen skins. Eight adult males and three females were secured near Choni during May and June 1925, at elevations ranging from 8,500 to 9,500 feet, taken in willow and poplar bushes along the Tao River, and at the borders of the spruce forests in the mountains of Choni. From the Tebbu country

we have one adult and one immature male and five females taken between the altitudes of 7,200 and 9,500 feet in bushes along streams and in alpine meadows at 12,900 feet.

All the adult males in the series are very deep and richly colored, slightly darker even than birds taken by Zappey in Szechuan at the corresponding seasons.

ERYTHRINA RUBICILLOIDES RUBICILLOIDES (Przew.)

Carpodacus rubicilloides Przewalski, Mongol i. Strana Tangut, **2**, 1876, p. 90. pl. 12 (mountains of Kansu).

Rock sent in three examples of this rare rose finch; an adult male and a female collected at 7,000 feet, November 1925 at Liyuanku on the northern slopes of the Richthofen range and another female from the Tao River valley, 9,000 feet, February 1926.

ERYTHRINA THURA DUBIA (Przew.)

Carpodacus dubius Przewalski, Mongol i. Strana Tangut, **2**, 1876, p. 92, pl. 13. (wooded hills in Ala-Shan and Kansu).

Rock sent in a series of twenty-four specimens of this form from the following places, the region about Choni, the Minshan range, the Yellow River gorges in eastern Kokonor, the valley of the Ba River and the forests of Mayaku, Ha Tebbuland. The species was met with in willows and in spruce forests at elevations between 8,000 and 11,500 feet.

ERYTHRINA DAVIDIANA (Milne-Edw.)

Carpodacus Davidianus Milne-Edwards, Nouv. Arch. Mus. Paris, Bull. **1**, 1865, p. 18-19, pl. 2, f. 2, ♂ (no type locality specified, but probably in the mountains of Shensi or southern Mongolia).

This appears to be a widespread species in southwestern Kansu and adjacent parts of Kokonor. Seven adult males and eight immature males or females were taken at the following localities: Minshan range, summit of Mt. Koang Kei 13,000 feet; Mt. Lieuhoashan 10,000 ft.; Rako gorge 10,500 feet; Tao River basin, Choni 8,500 feet; Yellow River opposite Radja, Dachso canyon; mountains north of Dzomola 12,800 feet; north slopes of the Jupar range, 13,100 feet; and the forests of Ha and upper Tebbuland between 8,500 and 10,000 feet. Most of the specimens were taken in spruce forest, but the species was also found in river gorges among birches and scrub and in alpine meadows.

All recent authors have confused *davidiana* with *E. pulcherrima* (Hodgs.). Hartert (Vög. Pal. Faun. 1, p. 103) considers the two identical; Thayer and Bangs had specimens of both species from western Szechuan, but did not comment, and called them all *pulcherrimus* . Jacobi (Abh. Ber. Mus. Tierk u. Volkerk Dresden, 16, 1922, no. 1, p. 26-27) also appears to have combined the two species. Rothschild considers *davidiana* "barely separable" as a subspecies of *pulcherrima* , while Stuart Baker follows the same course, but we suspect that his *pulcherrima* is *waltoni* and his *davidiana* is *pulcherrima* .

The males in Rock's series agree with the Milne-Edward's original description and plate, but apparently David and Oustalet (Oiseaux de la Chine, 1877, p. 354, pl. 95) described and figured *pulcherrima* under the name of *davidiana* .

In reality *davidiana* is a distinct species. It differs from *pulcherrima* in the following characters: larger size, proportionately longer wing-tip; in color it is paler and grayer, less brownish and with dark streaks above blacker; supercilium, sides of head and under parts much paler rose color with a strong silvery appearance; throat and chest with black shaft stripes, middle of abdomen white. Zappey took both species together in the breeding season at Cheto and at Yachiakun in western Szechuan.

Eight males of *pulcherrima* from western Szechuan have wings ranging from 71-79, two females, wing 70. In five males of *davidiana* from western Szechuan the wing is 83-85, one female 82. Six adult males of *davidiana* from southwest Kansu and eastern Kokonor, afford a wing length of 82-83; the adult females 81-85.

ERYTHRINA VINACEA VINACEA (Verr.)

Carpodacus vnaeacus Verreaux, Nouv. Arch. Mus. Paris, Bull. 6, 1870, p. 39 (mountains of Chinese Tibet).

One adult male from the forests of Wantung Ku, 8,500 feet, Ha Tebbuland, September 1926.

This bird was in badly worn plumage and was at the start of the autumn moult.

ERYTHRINA TRIFASCIATA (Verr.)

Carpodacus trifasciatus Verreaux, Nouv. Arch. Mus., Paris, Bull. 6, 1870, p. 39 (mountains of Chinese Tibet).

Rock secured two specimens of this rose finch in September 1926; an adult male at an elevation between 9,600 and 10,000 feet in the forests

of Drakana, upper Tebbuland, the other in the Wantsang forests, Ha Tebbuland at 8,500 feet. The latter was part way through the post-juvenal moult and acquiring a plumage in which the red of the old adult male is replaced by ochraceous.

PYRRHULA ERYTHACA TAIPAISHANENSIS Roths.

Pyrrhula erythaca taipaishanensis Rothschild, Nov. Zoöl. **28**, 1921, p. 63 (Mt. Taipaishan, Tsinling range).

Fifteen specimens of both sexes were taken in the mountains and along the Tao River valley near Choni, and between 8,000 and 10,000 feet in the forests of Ha and upper Tebbuland. Birds were taken both in spruce forest in the mountains and in willow brush along the river.

UROCYNCHRAMUS PYLZOWI Przew.

Urocynchramus pylzowi Przewalski, Mongol. i. Strana Tangut, **2**, 1876, p. 99, pl. 15 (sources of the Tetung and alpine regions of the mountains north of the Tetung).

Four examples, two adult males and two adult females of this little-known finch (if a bird with ten primaries can be called a finch) were secured the same day in June 1926 in willow and rhododendron scrub at an elevation of 14,000 feet north of the Dzomola in eastern Kokonor.

The plumage of these specimens is but little abraded, yet the whitish edges of the feathers on the lower parts of the male, so conspicuous in winter plumage, have worn off completely, greatly intensifying the rose color.

There appears to be no more known about this bird than there was when it was first discovered. Accounts of its notes, habits and appearance are still quoted from the original account by Przewalski.

EMBERIZA SPODOCEPHALA MELANOPS Blyth

Emberiza melanops Blyth, Journ. As. Soc. Bengal, **14**, 1845, p. 554 (Tipperah).

Four examples of this bunting were secured near Choni during May and June 1925. Rock met with the species there in forests, mountain meadows and along streams.

EMBERIZA GODLEWSKII NANSHANICA Sushk.

Emberiza godlewskii nanshanica Sushkin, Proc. Boston Soc. Nat. Hist. **38**, no. 1, 1925, p. 24. (Churmyk River, basin of the upper Hwang-ho).

Rock sent in eleven skins of this meadow bunting, breeding and winter birds, as follows: one from Chingchuan, 6,500 feet, northern

Szechuan, April 1925; two from Choni in May 1925 where the birds were then found in poplar forest, or poplar trees along the Tao River. During January and February 1926 four more birds were taken in the Choni forests along the Tao River valley between 8,500 and 9,000 feet elevation. Two females were secured near Radja 10,000 feet, in the Yellow River valley, eastern Kokonor 20 May 1926. A juvenal female was collected in the forests of Pezlu, 12,000 feet, Ha Tebbuland, September 1926.

Sushkin in 1925 (Proc. Bost. Soc. Nat. Hist. **38**, no. 1) recognized seven races of *E. godlewskii* of which four, *nanshanica*, *decolorata*, *khamensis* and *bangsi*, were described as new. For comparison we have *godlewskii*, *omissa*, *khamensis*, *bangsi* and *yunnanensis*, a fair series of each, whose value is much enhanced by reason of having been identified by Sushkin himself. The eleven skins collected by Rock fit into a uniform series, and agree with Sushkin's description of *nanshanica*, besides occurring within the limits assigned to its author. The six races of *E. godlewskii* that we have seen are very close to one another, and can be told apart only in adequate series.

PLOCEIDAE

MONTIFRINGILLA NIVALIS ADAMSI Adams

Montifringilla adamsi Adams, P. Z. S., 1858, p. 482 (Ladakh).

But three examples of this Snow Finch were secured, all in eastern Kokonor: a male in the Dzomo valley, north of Dzomola 12,000 feet, 21 June 1926, and a male and a female on the Ba plain, south of the Jupar range, at 10,500 feet, 22 and 24 June respectively.

The plumage of all these specimens is badly worn and abraded.

PASSER MONTANUS OBSCURATUS Jacobi

Passer montanus obscuratus Jacobi, Abh. u. ber. Mus. Dresden, **16**, 1923, no. 1, p. 32 (Hupeh and Szechuan).

One adult male, Ba valley, eastern Kokonor, 9,000 feet, in willow bushes along stream. 23 June 1926.

With a series of thirty specimens from the Yangtze valley in Hupeh we are unable to confirm the color characters attributed to this form by its original describer, neither is it as small as is claimed in the original description. Tree Sparrows from Central China, however, appear to average stouter billed than *P. m. montanus*, although this organ is not

as heavy as it is in *saturatus*; *obscuratus* is thus an intermediate form. Stuart Baker (Bull. B. O. C. **45**, 1925, p. 92) described *Passer montanus tibetanus* as differing in having a redder rump and much larger size (wing 76-82), but in volume 3 of his Birds of British India (1926, p. 179), he refers to *obscuratus* all Tree Sparrows from Tibet and Sikkim to Szechuan, apparently abandoning his *tibetanus*. Our series from the Yangtze valley varies in wing measurement from 65 to 74 and the one Kokonor example has a wing of 75.

PASSER RUTILANS RUTILANS (Temm.)

Fringilla rutilans Temminck, Pl. Col. **3**, 1829, p. 488 (Japan).

Rock sent a male from the mountains of northern Szechuan and a female taken in the spruce forest on the mountains of Choni at an elevation of 9,000 feet in May 1925.

STURNIDAE

SPODIOPSAR CINERACEUS (Temminck)

Sturnus cineraceus Temminck, Pl. Col., 1832, pl. 556 (Japan).

Seven specimens of both sexes were secured; five in the gorges of the Heu Hsien River near Pikow in extreme southern Kansu during May 1925, and two more in willow forests along the Tao River near Choni in June of the same year.

CORVIDAE

CORVUS CORAX TIBETANUS Hodgson

Corvus tibetanus Hodgson, Ann. & Mag. Nat. Hist. (2), **3**, 1849, p. 203 (Tibet).

Only one skin of a Raven was sent in. The bird, a female, was taken near Lake Kokonor, 10,700 feet elevation, in September 1925. A note on the label reads "grass country and desert sands, in flocks." Wing, 479.

Although we have not gone as thoroughly into the question of geographic variation in the Ravens as Meinertzhagen has, nevertheless we rather agree with him (Nov. Zoöl. **33**, 1926, p. 98) that the large circumpolar Ravens should all be united under one name. Meinertzhagen did not quite have the courage of his convictions, and did not finally dispose of *Corvus corax varius*, the Faroe Islands Raven, which is an older name than *tibetanus*. Thus the status of the Faroe Island bird

being still uncertain, we use *tibetanus* as a name of undoubted application for our specimen.

CORVUS DAURICUS DAURICUS Pallas

Corvus dauricus Pallas, Reise Russ. Reich. 3, Anhang 1776, p. 694 (region of Lake Baikal).

A male and a female, both in the dark phase of plumage, were taken during April 1925 in the mountains of Chingchuan, northern Szechuan. Two more were secured in the poplar forests along the Tao River valley near Choni in March 1926. Both of the latter are in the bicolored phase.

The measurements of all four specimens are small, and do not approach those of *khamensis*.

NUCIFRAGA CARYOCATACTES MACELLA Thayer and Bangs

Nucifraga hemispila macella Thayer and Bangs, Bull. M. C. Z. 62, 1909, p. 104 (Hsien Shan Hsien, Hupeh, 7000 feet).

This Nutcracker is represented in the collection by two specimens; an adult male in rather worn plumage taken at an elevation of 4 000 feet in the Wutu ho gorges, between Pikou and Kaichow, southern Kansu, April 1925 and an immature male in perfectly fresh plumage, at an elevation of 10,000 feet, in the spruce forests of Drakana, upper Tebbuland in October 1926.

CYANOPICA CYANUS SWINHOEI Hartert

Cyanopica cyanus swinhoei Hartert, Vög. Pal. Faun., 1, heft 1, 1903, p. 24 (Kiukiang).

Five specimens of both sexes were taken in May, north of Kaichow, southern Kansu, in willow trees along the river; a female was shot along the Tao valley near Choni, also in May 1925, and a fledgling was caught 23 June 1925 in willow trees along the Ba River.

As shown by Kleinschmidt (Abh. u. ber. Zoöl. Mus. Dresden, 15, 1922, p. 4) this species varies a great deal in the same region. The birds from Kaichow measure: wing 135-146 mm.; tail 212-233 mm.; the Choni bird wing 142 mm.; tail 238 mm.

GARRULUS GLANDARIUS PEKINGENSIS Reichenow

Garrulus bispecularis pekingensis Reichenow, J. f. O., 1905, p. 425 (Peking).

A single specimen, clearly referable to this subspecies, was secured in the valley of Sasuma, below Labrang, at an elevation of 8,000 feet, in December 1925.

GARRULUS GLANDARIUS SINENSIS Swinhoe

Garrulus sinensis Swinhoe, P. Z. S., 1871, p. 381 (south China westwards to Szechuan).

A male and a female from the juniper forests of Pezlu, 7,200 feet, upper Tebbuland, September 1926; a male and a female, forests of Wantsang, 6,500 to 8,000 feet, Ha Tebbuland, September 1926.

Both of the first mentioned specimens are birds of the year; the male had nearly completed the post juvenal moult, the female was in a transition stage between the juvenal and immature plumages. The birds from the Ha Tebbu country are in fresh autumn plumage. Both are darker above than usual in examples of *sinensis* from eastern China, but can be exactly matched by a bird in the La Touche collection from northwestern Fokien. Hartert (Vög. Pal. Faun, 3, 1921, p. 2033) has already commented on the occurrence of light and dark examples of *sinensis*. The immature of the European Jay is said to be darker above than the adult, and we are, therefore, inclined to consider the dark examples of *sinensis* as immature.

BOANERGES INTERNIGRANS Thayer and Bangs

Boanerges internigrans Thayer and Bangs, Mem. M. C. Z. 40, 1912, p. 200, pl. 6 (Shoo-O-lo, northern Szechuan, 14,500 feet).

Four examples, all of them females, of this rare Jay were secured. In June 1925 two adults in worn summer dress and a fully grown juvenal were collected in the spruce forests at 10,000 feet elevation in that part of the Tebbu country lying south of the Minshans, and an example in fresh immature plumage was taken in fir and rhododendron forests of Ha Tebbuland at an elevation of 10,000 feet in September 1926.

The characters on which this genus is based appear to us to be sufficiently trenchant to warrant its retention, and we, therefore, have not "lumped" *Boanerges* with *Perisoreus*, as has been done by Hartert and others.

PYRRHOCORAX PYRRHOCORAX HIMALAYANUS (Gould)

Fregilus himalayanus Gould, P. Z. S., 1862, p. 125 (Himalayas).

Choughs were common along the Tao valley near Choni, where a male and a female were taken in May 1925. A female was secured in eastern Kokonor near Mochur nira, a large pass between Ark'tsa and Dachso canyon at 12,000 feet altitude, 1 June 1926, and another female 4 June 1926 in the Waro valley, north of Radja.

All of the specimens listed agree with Kleinschmidt and Weigold's characterization of this race, and we agree with them that *himalayanus* is a perfectly recognizable form.

PODOCES HUMILIS Hume

Podoces humilis Hume, Ibis, 1871, p. 408 (Sanju Pass).

Of the nine specimens taken none were in fresh unworn plumage. Apparently abrasion takes place very quickly in this species.

Two females were collected, 31 May 1925, near Old Tao Chow, where the birds were found frequenting meadows and loess ditches; five males and a female were taken during September 1925 on the grasslands about Lake Kokonor and an adult female in very badly worn plumage was shot on the Ba plain, 10,500 feet, south of the Jupar range, 24 June 1926.

Rock's notes state that "this bird has a peculiar habit of bowing his head with a jerk several times after alighting."

We have not been able to make comparison with toptotypical examples from Turkestan.

EXPLANATION OF PLATES.

PLATE 1.

A

Kansu, Laliku. The backbone of the Minshan range, as seen from the top of Laliku ridge. Elevation 12,000 feet. Oct. 18, 1926.

B

Kansu, Babo. The valley of the Kanchow ho beyond its confluence with the Hei ho. Looking upstream. To the left is the peculiar volcano-like mountain at the foot of which is situated the village of Huan fantassu. In the center is Nginsin shan (Bullock Mountain). To the right is the valley of the Hei ho, elevation 9000 feet. Looking southeast. Oct. 18, 1925.



A



B

PLATE 2.

A

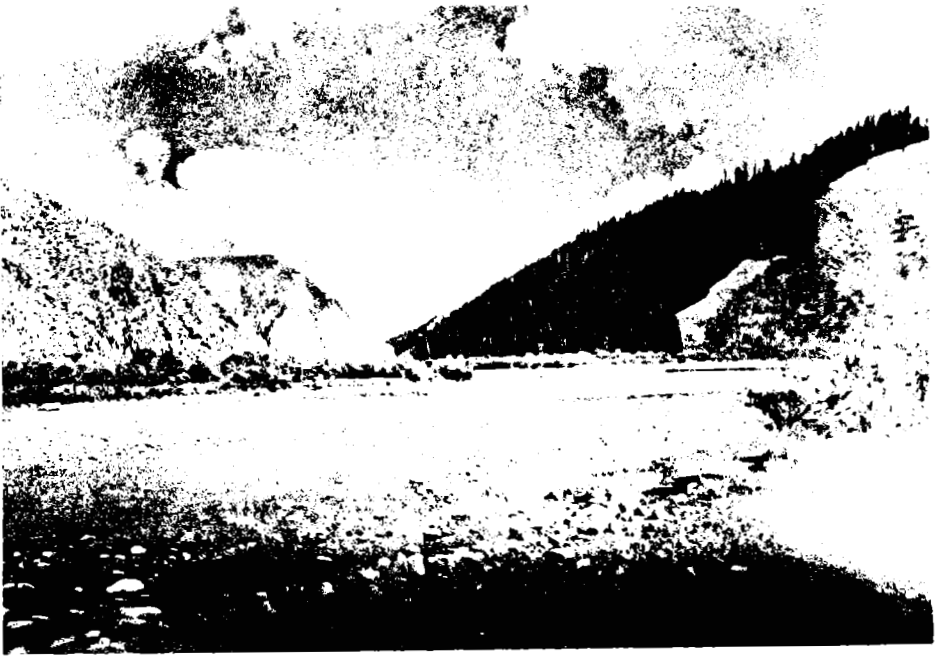
Kansu, Arketassu. Looking across the valley of the Babo ho, near the tent lamasery of Arketassu, towards the north Kokonor Barrier range. Babo district. Oct 16, 1925.

B

Kansu, Babo. The Babo ho looking upstream near the junction of the Arketassu ho and the Babo ho at the foot of Nginsin shan (Bullock Mountain). Spruces cover the hillsides. Oct. 16, 1925.



A



B

PLATE 3.

A

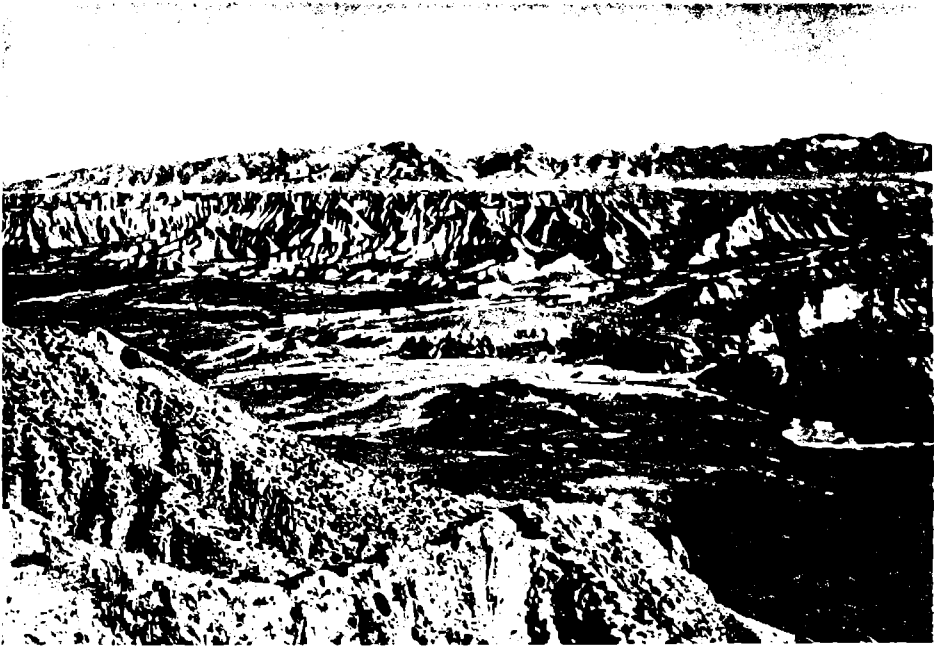
Tibet, Jupar valley, looking up the Jupar valley on the northern slopes of the Jupar range from a bluff opposite the camp, elevation 11,300 feet. Showing the spruce forest, the only region in which the Jupar range is forested. The triangular peak in the center of the valley is Jupar shimying, said to be the second highest peak of the Jupar range. June 28, 1926.

B

Tibet, Ba valley. View of the Ba valley from its southern rim in the Ba plain, elevation 10,400 feet. Looking north and showing the willow-lined Ba stream and the eroded loess and gravel slopes of the valley. On the terraces in the valley are visible the only two Tibetan villages for many days' journey, called Saoch rongwo meaning: "The people living under the ground," a name given them by the nomads who would never live in a house. This settlement is only six years old. In the distance are visible the southern slopes of the Jupar range, which are absolutely bare. July 3, 1926.



11



12

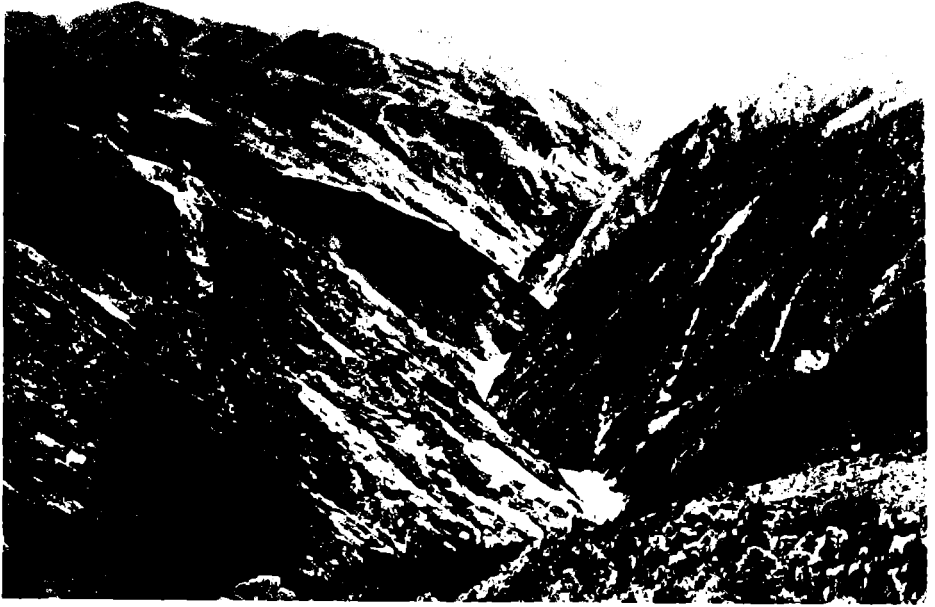
PLATE 4.

A

Tibet, H'tchachen valley, The Hwang ho (Yellow River) looking upstream from a bluff above it and west of it. Northwest of H'tchachen valley. Elevation 10,500 feet. July 17, 1926.

B

Tibet, Drakana. In the limestone amphitheatre of Drakana, upper Tebbu-land. Looking down from a meadow, the camping place, to the village of Towa and the Lamasery of Lassungomba above it. It is one of the finest scenic spots of the whole Tebbu country. Aug. 30, 1926. Elevation 9,700 feet.



A



B

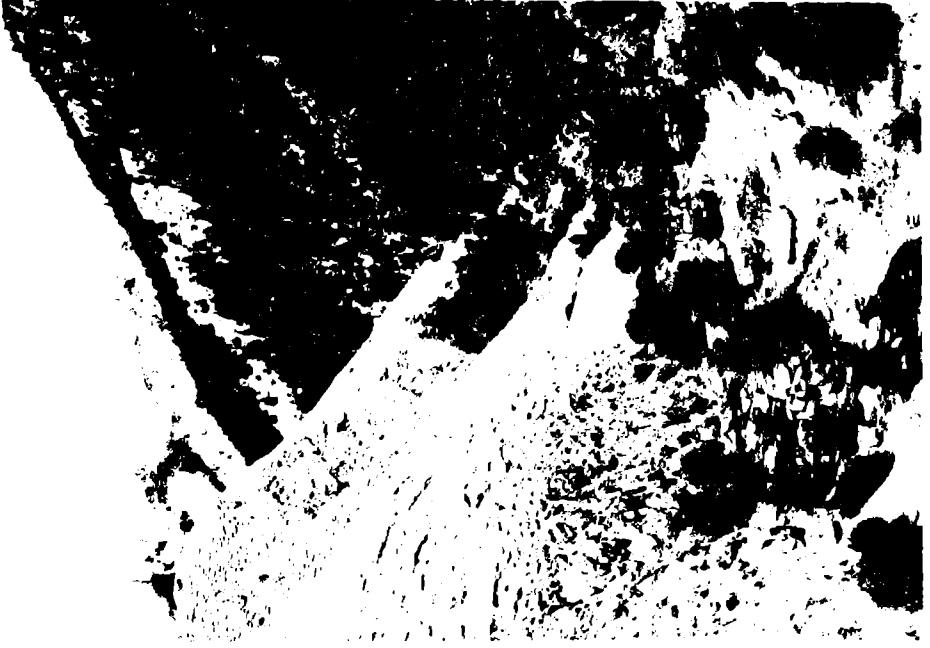
PLATE 5.

A

Tibet, Wantsang Ku. Forests of *Abies* and *Picea* in Wantsang Ku (valley). Lower Tebbu country. Sept. 12, 1926.

B

Tibet, Dachso. Looking down on to the camp in Dachso canyon, among spruces, birches, and willows, from the trail leading to Ngarki Ngongina bluff. Elevation of camp, 10,146 feet. June 2, 1926.



R



L

The following Publications of the Museum of Comparative Zoölogy are in preparation:—

Reports on the Results of Dredging Operations in 1877, 1878, 1879, and 1890, in charge of ALEXANDER AGASSIZ, by the U. S. Coast Survey Steamer "Blake," as follows:—

A. E. VERRILL. The Alcyonaria of the "Blake."

Reports on the Results of the Expedition of 1891 of the U. S. Fish Commission Steamer "Albatross," Lieutenant Commander Z. L. TANNER, U. S. N., commanding, in charge of ALEXANDER AGASSIZ, as follows:—

K. BRANDT. The Sagittae.

K. BRANDT. The Thalassicolae.

O. CARLGREN. The Actinarians.

REINHARD DOHRN. The Eyes of Deep-Sea Crustacea.

H. J. HANSEN. The Cirripeda.

H. J. HANSEN. The Schizopoda.

———. The Ascidians.

S. J. HICKSON. The Antipathids.

P. SCHIEMENZ. The Pteropods and Heteropods.

H. B. WARD. The Sipunculids.

Reports on the Scientific Results of the Expedition to the Tropical Pacific, in charge of ALEXANDER AGASSIZ on the U. S. Fish Commission Steamer "Albatross," from August, 1899, to March, 1900, Commander Jefferson F. Moser, U. S. N., commanding, as follows:—

G. W. MÜLLER. The Ostracods.

MARY J. RATHBUN. The Crustacea Decapoda.

———. The Copepods.

L. STEJNEGER. The Reptiles.

———. The Corals, Recent and Fossil.

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There have been published of the BULLETIN Vols. I. to LIV., LVI. to LXV. and also LXVII.; of the MEMOIRS, Vols. I. to XLII., and also XLIV. to XLIX.

Vols. LV., LXVI. and LXVIII. of the BULLETIN, and Vols. XLIII., L., LL., LII., and LIII. of the MEMOIRS, are now in course of publication.

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The following publications are in preparation: —

Reports on the Results of Dredging Operations from 1877 to 1880, in charge of Alexander Agassiz, by the U. S. Coast Survey Steamer "Blake," Lieut. Commander C. D. Sigsbee, U. S. N., and Commander J. R. Bartlett, U. S. N., commanding.

Reports on the Results of the Expedition of 1891 of the U. S. Fish Commission Steamer "Albatross," Lieut. Commander Z. L. Tanner, U. S. N., commanding, in charge of Alexander Agassiz.

Reports on the Scientific Results of the Expedition to the Tropical Pacific, in charge of Alexander Agassiz, on the U. S. Fish Commission Steamer "Albatross," from August, 1899, to March, 1900, Commander Jefferson F. Moser, U. S. N., commanding.

Reports on the Scientific Results of the Expedition to the Eastern Tropical Pacific, in charge of Alexander Agassiz, on the U. S. Fish Commission Steamer "Albatross," from October, 1904, to April, 1905, Lieut. Commander L. M. Garrett, U. S. N., commanding.

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