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Charles Vaurie

TIBET AND ITS BIRDS



Frontispiece

Photo: F. Kingdon Ward

Southeastern Plateau, Gorge of the Yigrong Chu looking down-stream, probably between Talu and Boyu, or about 3017 9435, and 2800 m. Mixed deciduous and coniferous forest in the bottom of the gorge, with moist coniferous forest above it on the slopes; conifers are *Picea spinulosa* and hemlock (*Tsuga dumosa*). Habitat of *Psittacula derbiana*.

TIBET AND ITS BIRDS

CHARLES VAURIE

The American Museum of
Natural History

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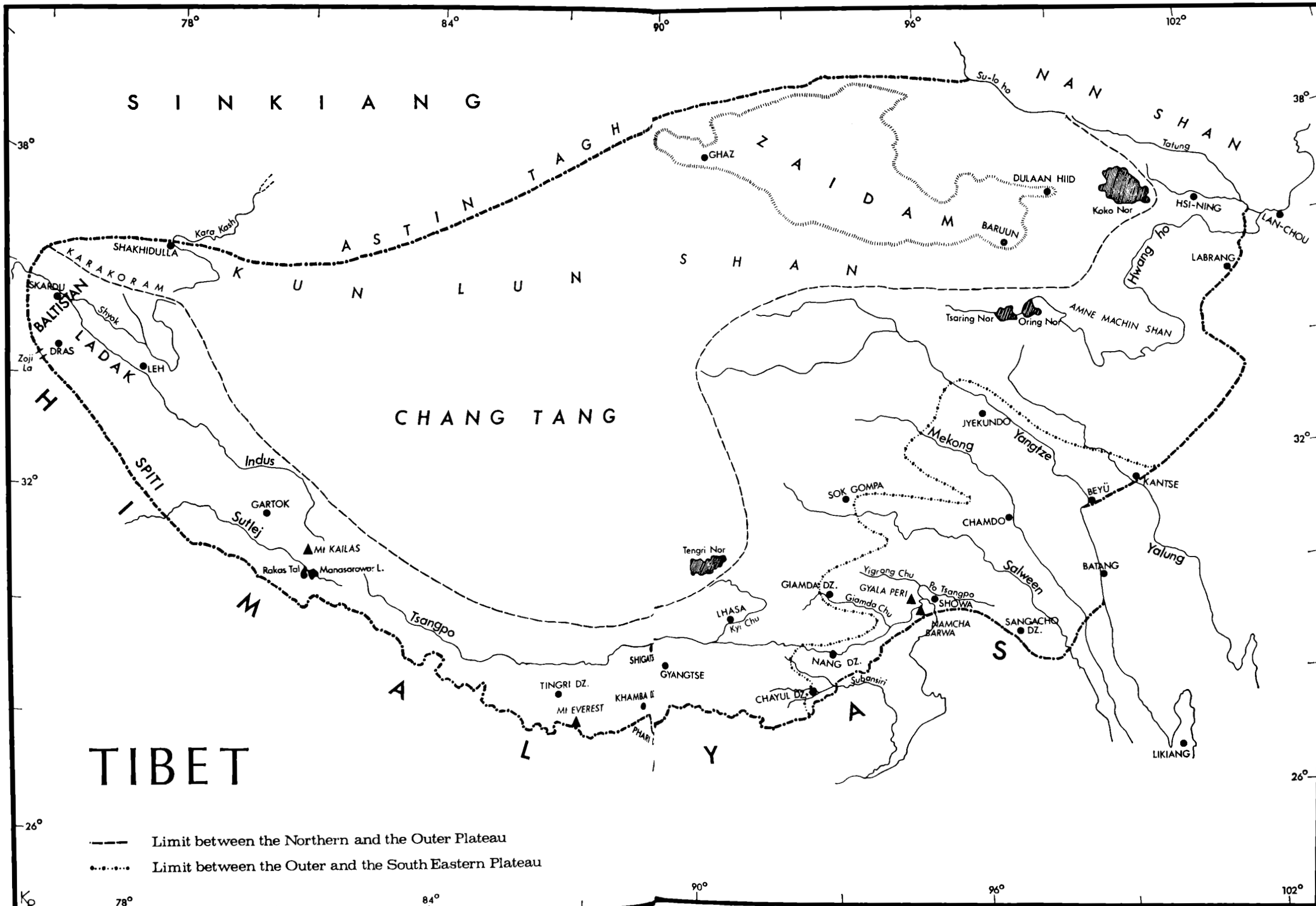
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To Frank Ludlow,
in sympathy and with gratitude for much help

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Introduction

THIS book is devoted chiefly to an account of the distribution of the birds of Tibet expressed in terms of its three main natural regions. These regions are of fundamental importance and have to be taken in consideration to obtain a correct understanding of Tibet and its avifauna.

A large part of Tibet is desolate and has a very harsh climate and in other parts vegetation is poor and the avifauna relatively impoverished. For historical or other reasons attention has been largely concentrated on these regions, which are the least favoured, but other regions are temperate and some valleys of the southeast are almost semi-tropical with a rich flora and avifauna. The common belief that the whole of Tibet is disinherited and has a poor avifauna is false and I attempt to correct it in this book. The avifauna is very far from poor, as I have been able to compile a list of 505 species recorded to date, but unfortunately little or no information is available for most of these birds in Tibet beyond bare records. This lack of information has prevented me from writing the fuller account on the birds of Tibet that I would have wished, but I hope, at any rate, that this book provides a base for a more comprehensive account in the future.

The book is composed of two parts. The first is of general interest and the second presents the data.

Four chapters make up the first part, starting with a description of geographical Tibet divided into its three main natural divisions. This first chapter should be of interest to all naturalists and has been strongly influenced by the publications of the eminent botanist, F. Kingdon Ward, which were first made known to me by my friend Frank Ludlow.

The second chapter relates the history of ornithological exploration from the start. It retraces the itineraries of the collectors, some of which are illustrated by three simplified maps. Some bird records are mentioned in this chapter and a few are briefly discussed, but my main consideration in this chapter has been to indicate the kind of collection that was made and its importance. I have tried to account also for the disposal of these collections, mentioning where the material is now held, but I have been defeated in some instances when the specimens were too widely dispersed to be traced, or have been lost or destroyed. This chapter shows that Europeans have penetrated into virtually all parts of

Tibet, but only too clearly that much collecting has been superficial only and that great areas of Tibet are still unexplored.

The three maps cannot show more than a few key localities, but all the localities, geographical features, and regions mentioned in this chapter (as also throughout the book) are accounted for in the gazetteer supplied in the second part of this book.

The third chapter is devoted to a discussion of the distribution, composition, and origin of the avifauna, and the fourth chapter to an account of the migration. The third chapter discusses also my concept of the zoogeographic position of Tibet. One of the three natural divisions of Tibet is the Southeastern Plateau which I consider is a part of the Sino-Himalayan region. My concept of the latter and of its status as one of the three major subdivisions of the Palearctic region concludes the discussion.

The second part of the book consists of the list of species recorded to date in Tibet, the gazetteer, the list of the publications cited, and an appendix consisting of a working list of Sino-Himalayan species.

In the list of the birds of Tibet I mention all the records by region, locality, and date. I try also to indicate the status of the species and include a few taxonomic remarks reduced to a minimum as this book is not concerned with taxonomy except in a very minor way.

The list names 505 species, as stated above, which is about twice the number which had been generally assumed to occur in Tibet when I started this work. Shortly after I started, a nominal list of the birds of China was published by Cheng (1964) which names 345 species for Tibet, but the areas included in Cheng's list and mine are not equivalent and I have been unable to find records of about 30 species listed by Cheng. My list is based as far as possible on specimens that I have examined personally which account for nearly all the records. These specimens are in the collection of the American Museum of Natural History, or other collections abroad or in America mentioned below in my acknowledgements.

Acknowledgements

I have been assisted by many persons and institutions, but my greatest debt is to Frank Ludlow whose unrivalled experience in southern Tibet and with its birds he has shared with me constantly from the start with the greatest goodwill. My book is dedicated to Ludlow with gratitude and in appreciation for his great contribution to the ornithology of Tibet to which I associate—in memory—the names of other men who have also made great contributions, such as Przhevalsky, Kozlov, and Beick.

During the search for specimens I examined the material in a number of

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institutions and in two private collections, and I have also received loans. Gratitude for this privilege and many courtesies when working abroad, or away from New York in the United States, is due to the Academy of Natural Sciences (Philadelphia), Academy of Sciences of the U.S.S.R. (Leningrad), British Museum (Natural History) of London, Field Museum of Natural History (Chicago), Museum of Comparative Zoology (Cambridge, Massachusetts), Muséum National d'Histoire Naturelle (Paris), Museum of Zoology of the University of Michigan (Ann Arbor), Naturhistoriska Riksmuseum (Stockholm), Zoological Museum of the University (Moscow), and Zoologisches Museum (Berlin). The private collections are those of the late Colonel Richard Meinertzhagen, now incorporated by deed with that of the British Museum, and the collection of Mr J. G. van Marle of Amsterdam who received me with cordial hospitality in his home to which he had invited me and where his collection is kept. Loans were made from some of the institutions mentioned above, and also by the museum of Princeton University, United States National Museum of the Smithsonian Institution, and the Zoologische Sammlung des Bayerischen Staates of Munich.

For photographs, the authorization of reproducing them, or for help in securing these photographs, I am indebted to Dr Salim Ali, Dunod (Editeur of Paris), Etnografiska Museet of Stockholm, Geographic Institute of the University of Utrecht, Dr A. G. Johnels, Mr Frank Ludlow, Mrs L. A. Marks, Mrs J. Rasmussen (formerly Mrs F. Kingdon Ward), Royal Botanic Gardens of Edinburgh, Royal Geographical Society of London, Mr J. A. Sillem, Dr B. Sommarström, Professor R. A. Stein of the Collège de France, the Sven Hedin Foundation, and Colonel Ilia Tolstoy. The names of the photographers (who include Ali and Ludlow mentioned above) are given in credit for the photographs. The colour plates were painted by Mr Arthur Singer. I am grateful for his fine work done promptly, and also to my publisher, Mr Antony Witherby, for his generosity in providing these plates.

I am also under obligation to the National Science Foundation of the United States Government (grant GB-4026) for financial support for travel abroad and in the United States; and for maps, or other geographical information, to the Academy of Sciences of the U.S.S.R., American Geographical Society of New York, Royal Geographical Society of London, and in Berlin to the Geographisches Institut and Ostasiatisches Institut (Abteilung für Sinologie) of the German Democratic Republic and library of the von Humboldt University.

Many individuals have also helped me, in addition to those named above, and for their assistance, given in many ways, I thank the late Colonel F. M. Bailey, Dr B. Biswas, Mrs C. Burrows, Miss Theresa Clay, Mr M. Desfayes, Dr C. Edelstam, Dr I. C. J. Galbraith, Mme T. Gidaspova, Dr A. I. Ivanov, Mme E. V. Kozlova, Mme Irène Kürschner, Dr G. Mauersberger, Dr D. H.

INTRODUCTION

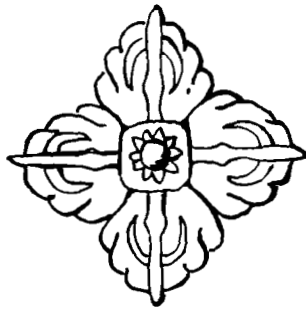
Nicolson, Dr R. A. Paynter Jr, Mr A. Poggenpohl, Dr L. A. Portenko, Dr S. Dillon Ripley, Mr C. H. Rogers, Thakur RupChand, Dr E. Schäfer, Mr R. M. de Schauensee, Dr L. L. Short, Dr R. W. Storer, Dr E. Stresemann, Dr J. W. Stübs, Mme A. M. Sudilovskaya, Mr M. A. Traylor, Frau von Vietinghoff-Scheel, Dr K. H. Voous, Dr G. E. Watson, and Dr A. Wetmore. The expert help given to me by Mme Kürschner with the magnificent collections in Leningrad was especially valuable.

My wife, Patricia, has helped me constantly and devotedly as always. I cannot express my appreciation to her adequately.

CHARLES VAURIE

New York and Kutztown
May, 1970

Part One



CHAPTER ONE

Geography and natural regions of Tibet

THE greatest mountain assemblage of the world separates Central Asia from India and southern China. It spreads from west to east for about 33 degrees of longitude from the Pamirs to Kansu and western Szechwan in more or less parallel ranges and forms the Tibetan Plateau which probably averages well over 5000 metres in altitude.

The ethnographic, political, and geographical boundaries of Tibet do not agree and I recognize only the geographical boundaries as far as possible because I am not concerned with ethnographic and political Tibet. The boundaries I follow are shown on my map and the outline of Tibet resembles that of a pear lying on its side, with the top to the west and the base to the east. The superficial area enclosed is 2,164,360 square kilometres and lies between about longitudes 75–103 and latitudes 28–39, the greatest dimensions measuring about 2475 kilometres from west to east and 1275 from north to south. This area represents somewhat less than one-third of the area of the continental United States or about a quarter less than that of Europe.

The geographical boundaries of Tibet are simple and can be defined sharply with the major exception of the east where the boundary that I have adopted is arbitrary from a geographical point of view.

The western end of Tibet is dominated almost entirely by the great massif of the Karakoram which rises to over 8600 metres and is only slightly inferior in height to Everest.

The northern Boundary is formed by the wall of the Astin Tagh,¹ which

¹ The Astin Tagh and Altin Tagh are often confused. As far as I can determine, the Altin Tagh (or lower mountain) faces north toward Sinkiang and is somewhat lower as a rule than the Astin Tagh (or higher mountain) which faces south toward Tibet, and runs very closely parallel to the Altin Tagh. The Kun Lun, rather than the Astin Tagh, is shown as extending north of the Karakoram on some maps, but the Astin Tagh and Kun Lun are said to differ geologically, and the latter apparently runs almost directly eastward toward the Zaidam south of the Astin Tagh. A range called the Arka Tagh (inland or back mountain) seems to be attached to the Kun Lun, or lies very closely parallel to it, on the north between about the 86th and 90th meridians. The political frontier between Sinkiang and Tibet is drawn more or less along the Kun Lun and Arka Tagh, but the true northern geographical border of Tibet consists of the Astin and Altin Taghs.

forms a shallow crescent north of the Karakoram and then runs northeast to join the Nan Shan. The latter forms the northeastern border of Tibet, but I have drawn the boundary for my purpose at the valleys of the Su-lo ho and Tatumg River (Ta-t'ung ho) which occupy a more or less central position among the parallel ranges of the Nan Shan which form an irregular chain tending strongly to the southeast.

The southern boundary of Tibet is formed by the Main Range of the Himalayas, which forms a true wall on the south as the Astin Tagh does on the north. The Main Range ends at Namcha Barwa (pl. 12) in the bend of the Tsangpo. After this, I have drawn the Tibetan boundary along the snowy range south of the Ngagong Chu, and turned back north toward the Yangtze south of Sangachö Dzong. This is the only boundary that makes sense if we want to understand the distribution of the flora and fauna of southeastern Tibet and of the eastern Himalayas, but most geologists do not agree that the Himalayas continue eastward toward the Yangtze east of the bend of the Tsangpo. They hold that the Himalayas fold abruptly southwards into Burma beyond the bend of the Tsangpo. This important question has been discussed by Ward in 1935 and other papers and also by Ludlow in 1944. I certainly agree with Ward and Ludlow whatever the geological merits may be, and I believe with Ludlow that this question is still open when he says "the geology of the country between the bend of the Tsangpo and that of the Yangtze seems to be even less known than are the flora and fauna."

The eastern boundary of Tibet that I have adopted follows the right bank of the Yangtze north to Beyü and then swings northeast to rejoin the frontier of Tsinghai which it follows north toward the mouth of the Tatumg River. This boundary is arbitrary from a geographical point of view but I had to adopt it *faute de mieux* because the region east of the Yangtze, and east of Tsinghai in Amdo, are zones where the Tibetan avifauna becomes mixed with Chinese elements.

Tibet can be divided into three natural regions which were well discussed by Ward (1935). These are the Northern Plateau, Outer Plateau, and Southeastern Plateau which Ward calls the "River Gorge Country".

The Northern Plateau

The Northern Plateau has a superficial area of about 1,106,000 square kilometres, almost exactly half of the total area of Tibet. It consists of two main regions of unequal size, a smaller one in the northeast occupied by the basins of the Zaidam and of the Koko Nor, and a much larger one in the west called the Chang Tang. The Chang Tang (the name means "Northern Plain") occupies most of Tibet west of about the 91st meridian with the exception of the trough

of the Indus and Tsangpo in the south, but becomes greatly constricted in the extreme northwest by the huge massif of the Karakoram.

The Chang Tang (pls. 1 and 2) was virtually the only part of Tibet that could be visited by Europeans until almost the end of the first decade of this century and their reports still influence unfavourably the common concept of Tibet. The explorers found an empty, desolate land with one of the harshest climates of the earth, and thus gave a false impression of Tibet, as its other regions are very different from the Chang Tang. The Outer Plateau is temperate on the whole, and some of the valleys of southeastern Tibet are almost semi-tropical and clothed with great dense primeval forests.

The northern boundaries of the Northern Plateau are those of northern Tibet which were outlined above. The southern boundaries are formed by the Karakoram in the extreme west, and, farther east, by the complex mountain ranges which prolong the Karakoram, and to which Hedin (1917b) gave the not very satisfactory name of "Transhimalaya". The southernmost of these ranges is called the Kailas Range on the International Map of the World; and east of about 86°, the rim of the plateau is formed by the Nyenchen Tanglha Range which turns sharply to the northeast south of the Tengri Nor and separates the latter from Lhasa. East of the Tengri Nor, the Northern Plateau is very deeply indented by the basins of the Salween and Mekong, and especially the Yangtze, and after that the southern boundary runs directly east, north of the Yangtze and Hwang ho, to the western end of the Amne Machin Shan from where it bends very sharply northeast toward the eastern end of the Koko Nor. The latter has no connection with the Hwang ho and its basin lies entirely on the Northern Plateau. The line then skirts the northern barrier range of the Koko Nor to the headwaters of the Tatung River, an affluent of the Hwang ho which it joins about 93 kilometres east of Lan-chou.

The southern boundary of the Northern Plateau that I have traced follows the water divide with one exception which is discussed below with the Outer Plateau. The drainage of Tibet is of fundamental importance as it is the main agent which has modified the Tibetan plateau into its three natural divisions. The Northern Plateau is all that remains of the original plateau and its drainage is still internal. The Outer Plateau is the first stage in its reduction and was created by the escape of the rivers to the sea; this is certainly true of eastern Tibet but the very long trough of the Indus and Tsangpo is still unexplained and may represent an ancient depression which has been partly reshaped by erosion. The Southeastern Plateau, or "River Gorge Country" of Ward,¹ is

¹ The term "River Gorge Country" proposed by Ward (1935) is persuasive, but is a little too precise in my opinion and I prefer "Southeastern Plateau" for this region as a whole. One of the objections is that the southern part of the gorge country extends considerably farther south than the geographical boundaries of Tibet, as mentioned by Ward himself.

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the third and last stage in the reduction of Tibet. This was achieved chiefly by the big rivers which converge in the southeast and then turn almost due south, cutting great parallel gorges which become progressively deeper and narrower. These gorges are separated by high and narrow mountain ridges, but the heights of these divides are remarkably uniform and it is quite clear that this region "was once part of the plateau and still shows abundant evidence of its original plateau structure" as Ward emphasizes (1935).

The three regions merge, especially the last two, and the water divide between the Northern and Outer Plateaux is not always formed by a mountain range or sharply defined. Ward believes the latter is true in the east where the three big rivers with external drainage arise, but this region is still unexplored, as Ward mentions, so we cannot define the boundary exactly. Definite information exists for the mountains of the west. Burrard and Hayden (1907) report that the divide between the upper tributaries of the Shyok and Kara Kash Rivers is "imperceptible" and consists only of "a few yards" of apparently flat ground. Hedin (1917b) was much surprised to find that only a "flat threshold" separates some of the tributaries of the Sutlej and of the Surnge Rivers, the latter flowing north on to the plateau to empty in the Nganglaring Tso. It is possible that this is true also in the case of other streams which drain the valleys which lead north to the plateau between the folds of the Kailas Range.

All the drainage of the Northern Plateau is internal, as stated above, but the Kun Lun and its eastern extensions create a secondary divide as all the rivers which arise north of it, such as the Charchan Darya, flow north to the Tarim Basin, with the exception of one or two which flow east toward the Ghaz Kul in the Zaidam. The rivers which arise north of the Karakoram flow also into the Tarim Basin, and in the northeast the rivers of the western ranges of the northern Nan Shan, such as the Shara Gol and Su-lo ho, flow north to the oases of northern Kansu. The rivers of the Chang Tang, south of the Kun Lun, empty into innumerable lakes which are salty or brackish and which usually lie in the transverse folds of the numerous mountain ranges which cross Tibet from west to east. Many of these lakes are still very large, such as the Tengri Nor which has an area of about 1900 square kilometres, but formerly were much larger, as shown by the broad terraces which surround them, some of which rise to 170 metres or more over the surface of the water. This desiccation is ascribed to decreased rainfall caused by the rise of the Himalayas. The entire plateau is becoming not only drier, but also flatter, as most of the ranges now rise only a little above its general level.

The climate of the Chang Tang is very severe. Its most undesirable feature is probably the strong wind which is said to sweep the plateau throughout the year and has been mentioned by all travellers. The nights are quiet, but the wind starts early in the morning, rises with increasing force until the middle of

the day, and then declines and dies at dusk. This is the normal pattern, but storms may last throughout the night and continue for several days. Exact readings were taken by Hedin several times a day and were co-ordinated by Ekholm (1920). During the entire months of February and June 1908, when Hedin was exploring the Chang Tang, the wind at one in the afternoon was light on only three days in June, and for the other 27 days averaged between 25 and 31 kilometres an hour, reaching a velocity of 10 (the maximum on Hedin's scale) on one day, or more than 58 kilometres an hour. It was stronger in the winter, and for the 29 days of February blew at an average of 32-39 kilometres an hour, reaching the maximum of 10 on three of these days. On March 6, Hedin (1922a) reported a violent storm with winds of "at least 30 meters a second", or 108 kilometres an hour.

The Chang Tang is very cold. The lowest temperature that I have found mentioned was -44.5° C by Bonvalot on January 18, 1890, and the highest is 22.1° by Hedin on June 27, 1908, at Selipuk Gumpa near the Nganglaring Tso, but in the same region it fell to -11° nine days later on July 6, and three days later there was a heavy snowfall. In other words, the temperature may fall well below freezing on any day of the year and it may snow in the summer. The Chang Tang is also very dry and the scanty rain seems to be restricted to only about three months a year, starting sometimes in June and ending by the beginning or middle of September, but snowstorms are occasional in January and February. Records do not exist, but Ward (1935) estimates that the rainfall does not exceed 250 millimetres a year, which I believe is an overestimate.

The combination of high constant wind, low temperatures, and very low rainfall, together with the fact that the soil of extensive regions is much impregnated with salt, has a very depressing effect on the vegetation (pls. 1 and 2). The plants consist chiefly of grasses and herbs, with some bushes, but no trees. The entire list of flowering plants known to Ward is but 53 species, only three of which are woody. One gets the impression that the Chang Tang is a physiological desert, but this is not correct.

Kozlov (1899b) reported that he had found 19 species of mammals and 108 of birds in the northern Chang Tang, about half of the birds breeding locally. Additional mammals were reported elsewhere and mammals make up in numbers what they may lack in variety. Travellers speak repeatedly of "vast herds" of antelopes and wild asses roaming over the plateau, and yaks are also very numerous, especially toward the east. Another list of about two dozen species of birds, most of them breeding, has also been reported from the northwest that were not found in the north by Kozlov. Some high valleys of the northwest are apparently quite sheltered and support a rich animal life.

Mason (1927) describes a valley north of the Karakoram, the floor of which varies from about 4900 to 5500 metres in altitude, as "fertile with grass and

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burtsa [*Caragana?*]. At some period of the year, probably in the winter, animals must congregate here for shelter, for in many places the dung of wolves, burrhel [Blue Sheep], yak, and kyang lies together in the same sheltered but sunny spots. The valley is crossed by game tracks in all directions, and butterflies were common. The Tibetan snow-cock and many smaller birds were now in the valley with their broods." Fishes are also abundant in some of the lakes and rivers of the Chang Tang. For instance, Hedin says that the Targo Tsangpo is "very rich in fish [and that] a good deal of vegetation thrives between [its] branches; ducks and wildgeese are numerous in the swamps on both sides [of this river]" which empties in the Tangra Tso. In other words, animal life is abundant on the Chang Tang where conditions are favourable.

Most of the Chang Tang is avoided by man, but is frequented in the south by nomads who come to hunt, or to graze their flocks of sheep and goats, and by workers sent to gather salt or work the small gold-fields and very primitive mines that are very common according to Hedin. There are no permanent settlements other than a few isolated and poor small monasteries which probably have ceased to exist.

The Zaidam and the basin of the Koko Nor form part of the Northern Plateau but are usually considered separately as they are very different from the Chang Tang. The Zaidam is a vast depression which measures about 350 by 820 kilometers at the greatest and lies much below the rest of the plateau, the altitude at its bottom being only 2600 metres, as against 5000 or more for the general level of the Chang Tang. The name Zaidam means "salt marsh", and the Zaidam was probably once the largest lake in Asia and one of the largest lakes in the world. It is more or less oval in shape, tapering very narrowly in the southeast, and lies on an axis inclined east-southeast. The Zaidam is now almost completely dry, but some marshes persist and also quite a few lakes which fluctuate in content and shape and are gradually vanishing. The best known are probably the Ghaz Kul in the extreme northwest and Kurlyk Nor in the south.

The northern, western, and southern rims of the Zaidam are well defined and consist of the eastern ends of the Astin Tagh and Altin Tagh in the north, the Chimam Tagh in the west, and the eastern end of the Kun Lun in the south. The Chimam Tagh is inclined to the southeast and connects the Astin Tagh to the Kun Lun, the eastern end of which seems to bifurcate, forming the Burchan Buddha in the north and the Shurghan Ula in the south. The water divide between the Northern and Outer Plateaux is somewhat south of these two ranges, as the rivers which drain their southern slopes do not form part of the basin of the Hwang ho, but curiously cut north across the two ranges to become lost in the Zaidam. The eastern boundary of the Zaidam is confused and difficult to describe but is formed by the outer ranges of the western Nan Shan. The South Koko Nor Range separates the Zaidam from the basin of the Koko Nor

directly east of Dulaan Hiid which is situated below the passes which lead from the Koko Nor.

The climate of the Zaidam is very arid. A weather station exists at Dulaan Hiid and its graph in the *Fiziko-Geograficheskii Atlas* (1964) shows an annual rainfall of only 144 millimetres (fig. 1), and a range of temperature from 16° in July to -10° in December. Grenard (1929) gives some data on the Zaidam as a whole and states that the rainfall is 110 millimetres, and that 33° has been recorded in July, but that the mean for the year is only 2°, varying from 0° in spring, to 17° in summer, 3° in autumn, and -12° in winter, with 226 days of frost between September 30 and May 1. The wind appears to be much less strong and constant than on the Chang Tang, but is dry, similar to the föhn, and no doubt contributes greatly to the aridity.

The northern and broader part of the Zaidam is more arid than the south and appears to be completely barren or virtually so with a clay-like soil, strewn with pebbles, impregnated with salt over large areas, or to be sandy locally. The south receives more rivers, such as the Bayan Gol which empties into Kuryk Nor and which seems to be permanent. These rivers end in gravel beds or terraces, or form intermittent lakes and many swamps, and along them grow more or less dense bushes and tamarisks, and large beds of phragmites in the wetter parts. Xerophytic and solanaceous plants seem to be fairly common, together with some grasses and large beds of iris, and a few pastures and some patches of cultivation exist also along the lower course of the rivers of the southern Zaidam.

The upper reaches of some of these rivers are forested, as Kozlov (1899a) describes groves and good stands of conifers growing on the northern slopes of the canyon of the Karagayn Gol which drains the southern slopes of the Karagayn Uula, the largest trees attaining a height of 70 feet with a diameter of about 21 inches at the base, according to Kozlov. Conifers grow also in some of the river canyons of the Tömörtin Uula, Sarlag Uula, and southern slopes of the South Koko Nor Range, the conifers being replaced on the slopes above by junipers; the bottom of the canyon can also be thickly overgrown with bushes.

The presence of this vegetation suggests that some of the mountains of the southern Zaidam must receive more than the annual rainfall of only 144 millimetres recorded at Dulaan Hiid. The latter is also located in the southern Zaidam but apparently in a more exposed situation.

The Zaidam was very isolated until recently and was frequented chiefly by caravans served by a few small settlements. But this has changed since the discovery of petroleum in large quantity, and now large towns, one of which is said to be a big refinery, and which are served by airports, have made their appearance.

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The greater part of the Zaidam is a true desert which resembles the Tarim Basin of Sinkiang in many respects, but it is less evolved and has not become desiccated to the same degree, especially in the south. The basin of the Koko Nor is different and is a rather gently sloping watershed which was blocked by tectonic action at its lower end, creating a very large lake.

The basin of the Koko Nor is much smaller than the Zaidam. Its long axis is also inclined to the southeast as in the case of the Zaidam, but its greatest dimension is only about 330 kilometres, as against about 820, from the headwaters of the Buhaiin Gol in the west to those of the Ara Gol in the southeast, both of which empty into the lake from opposite directions. The maximum elevation is about 5000 metres in the west to 3205 on the southeastern shore of the lake.

The western (upper) and larger part of the basin consists of relatively low mountains which have been very poorly explored, but their average elevation probably does not exceed much over 4000 metres. These mountains seem to be drained almost entirely by the Buhaiin Gol and its affluents into the Koko Nor. The latter fills almost the whole of the lower half of the basin and is very large with an area of about 4220 square kilometres. The rivers seem to carry a rather large amount of water but the lake is brackish as it has no external drainage.

The lake varies from azure to soft blue and is said to be exceptionally beautiful. "Koko Nor" is literally "Blue Lake", but in this case it is always translated as "Blue Sea", the Chinese translation of which is "Tsinghai" (or "Ch'ing Hai"), the official name of the lake and of the entire province of northeastern Tibet.¹

The Koko Nor has shrunk considerably. Its immediate shore is sandy, but wide meadows and broad grassy steppes stretch along the northern and western shores where the lake was more shallow and has receded. These meadows and steppes, which are said to be pleasant and very rich pastures much frequented by pastoral nomads, are found also along the lower Buhaiin Gol which divides in many channels. I have found no data on the climate of the basin, but it would appear to be more temperate and less arid than that of the Zaidam, and is said to be pleasant around the lake, at least during the good season. The lake freezes in winter, and the ice provides the only access to the small community of monks on an island in the centre when the ice is compact, but it does not consolidate every year.

The faunas of the Koko Nor and southern Zaidam differ somewhat but both are characterized by a great abundance of waterfowl and waders. More than 200 species of birds have been recorded so far, many of them migrants, which

¹ Kozlov and his party visited the Koko Nor for about one month in 1908, including the small inhabited island at its centre, and he has described it well (Kozloff, 1909-1910). He was much impressed by the great beauty of the lake and its surroundings and says it is "more like a sea than a lake . . . simply enchanting [by day] . . . and truly bewitching [by evening]."

suggests that the number is probably greater as both regions seem to be astride a major migration route. But most mammals are less abundant than on the Chang Tang, and less well represented, as only 12 species were reported by Kozlov. Fishes are said to be very abundant in the Koko Nor and in the streams which empty into it, and also in those which reach the Zaidam.

The Outer Plateau

The Outer Plateau has a superficial area of about 839,850 square kilometres and extends for nearly 3500 kilometres south of the Northern Plateau from Baltistan in the west to the region of Hsi-ning and the headwaters of the Tatung River in the east. It is relatively narrow, especially in the west and south, and its southern boundary is formed by the Main Range of the Himalayas as far east as about $92^{\circ} 30'$, then by the northern boundary of the Southeastern Plateau, and farther north by northwestern Szechwan and southwestern Kansu. It is the best populated part of Tibet with most of its large towns, settlements, and monasteries, such as Leh in the west, Shigatse, Gyantse, and Lhasa in the south, and Hsi-ning and Labrang in the northeast, with broad gaps without large centres in between.

The presence of large and old-established residential areas, supported by a well-developed agriculture, is one of the most important differences which distinguish the Outer from the Northern Plateau. This is made possible by a much more temperate climate, and the flora and fauna are richer, especially in the southeast where the Outer and Southeastern Plateaux merge. Another important difference is the presence of trees. The Outer Plateau is not forested as a rule, but trees grow in some river valleys, in cultivated areas when protected, and true forests exist north of Lhasa and in northeastern Tibet, although, to be sure, the forest is really characteristic only of the Southeastern Plateau. The difference in the drainage, external on the Outer Plateau but internal on the Northern Plateau, was discussed above.

The Outer Plateau spreads over an enormous distance from west to east and is far from uniform. The variation is best described by regions, but these regions form two broad types which have been discussed by Ward (1935). One, called the "gravel lands" by Ward, consists of the more arid west and south which have a sparse flora, whereas the more humid east and northeast are dominated by grassy steppes and are called the "grassland" by Ward.

The western end of Tibet and of the "gravel lands" are formed by Baltistan and Ladak.

Ladak passed under European control in the middle of the last century and is the most thoroughly known part of Tibet. The extreme northeast is a very bleak plateau which lies north of the Karakoram, but, with this exception,

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Ladak is best compared to a very high mountainous corridor inclined from the northwest to the southeast through which the Indus flows. The corridor is bounded by the Main Range of the Himalayas in the south and by the Karakoram in the north and is crossed by two internal ranges, the Ladak Range north of the Indus and the Zaskar south of it, all the ranges and the river being roughly parallel.

The Indus flows closer to the foot of the Ladak Range in a gorge which broadens out below Leh and receives a number of powerful affluents, the most important of which are the Shyok, Zaskar, and Dras Rivers. These receive other large rivers such as the Nubra in the case of the Shyok, and the Suru in the case of the Dras. Nearly all of Ladak is drained by the system of the Indus with the exception of some lakes in the east and of the major part of the northeastern plateau, the drainage of which is internal.

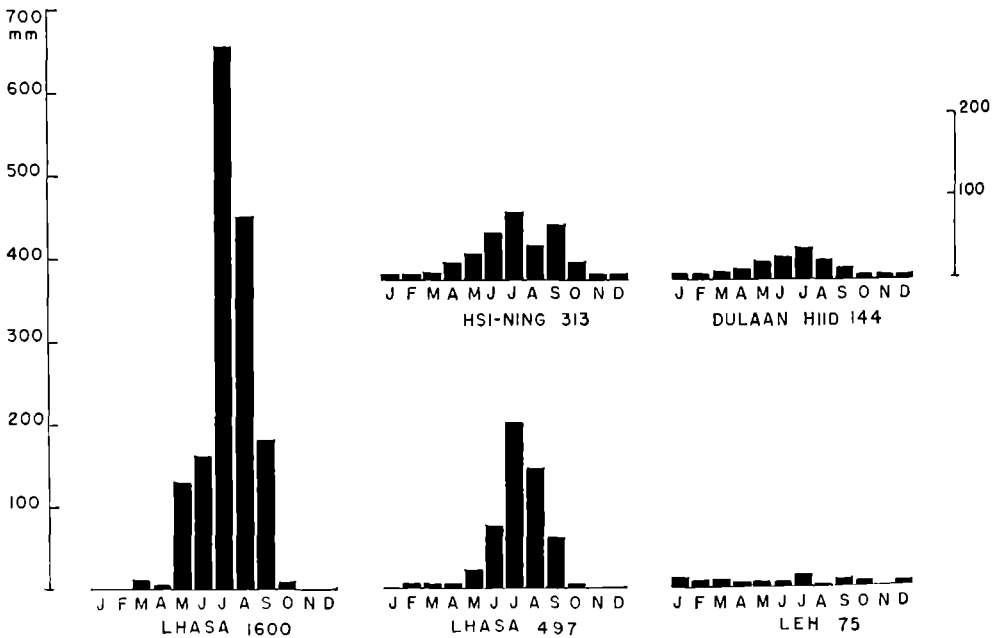


FIG. 1. ANNUAL RAINFALL AT FOUR LOCALITIES

Ladak is very well watered by the many streams which arise in the snow-fields and glaciers, but receives very little rainfall and is extremely arid (pl. 3). The waters from the streams create many small and well-cultivated oases, but "with the exception of these oases, and in the beds of the rivers and streams, the country is practically devoid of vegetation, and where plant-life is found it is either in the shape of sparse grass, herbaceous plants, or low thorny scrub," as stated by Osmaston (1925). The monsoon scarcely penetrates beyond the Main Range and the precipitation nowhere exceeds 250 millimetres a year and

is usually much less. At Kargil, which seems to represent about the maximum, the annual rainfall is 9.3 inches (about 236 mm.), according to Mason (1936), but it is much lower in the valley of the Indus and averages only about 75 mm. at Leh (fig. 1). The graph in the *Fiziko-Geograficheskii Atlas* (1964), which does not state the length of the record, shows an annual rainfall of 91 mm. for Leh, and a relative humidity varying from zero in June to 25 per cent in February. Trinkler (1932) states that Leh received only 49.26 mm. in 1906, and an average of 82.71 for six years between 1923 and 1928.

Radiation and insolation are intense, and the annual range in temperature is great, from -35° C at Dras according to Osmaston (1925) to 37° at Leh according to Grenard (1929). At Leh, which is sheltered, the mean monthly range is from -8° in January to 18° in July and August, according to the *Atlas*, and -8.2° to 17° for the same months, with an average of 5° for the year, according to Schenk (1939).

The natural vegetation is very poor and scanty, and most of Ladak is covered by "Alpine Steppe" (Schweinfurth, 1957), a type of vegetation characterized chiefly by sparse bushes, such as *Artemisia*, or scrub and leguminous thorny shrubs, such as *Caragana* and *Astragalus*. The vegetation of the Indus Valley is still poorer, with xerophytic plants or shrubs such as *Capparis* and some *Tamarix*, and is of the "Subtropical Semi-desert" type, but Schweinfurth's map shows also some restricted patches of vegetation of the "Moist Alpine Scrub and Meadows" type on the slopes of the mountains which divide the Dras from the Suru River, and of the Ladak Range above Leh; some of the characteristic plants of this type of vegetation in the western Himalayas are junipers. The oases raise a variety of crops, the chief of which are barley and alfalfa, and trees grow well, the most common being apricots, poplars, and willows, and one occasionally meets with protected cedars and tree junipers of very great size.

Some of the lakes of eastern Ladak have no external drainage, a fact which requires comment as it constitutes the most important exception to the drainage of Tibet, the pattern of which I have stressed above, internal on the Northern Plateau, external on the Outer Plateau. The largest and best studied of these lakes are the Tso Morari in Rupshu which is brackish, and Lake Pangong north of the Indus which is salty and extends far into western Tibet. However, the consensus now is that these lakes are probably of very recent origin and have been formed by damming of the valleys. This may have been caused by accumulation of rock débris in talus (which by itself seems to be the least likely), by a rise in the mountains, or by an elevation of the river bed at a rate greater than the rate of erosion of the river; the progressive desiccation of Tibet would contribute to the latter, and the result may have been achieved by a combination of several factors.

Damming seems to explain especially well the origin of Lake Pangong, which is really a series of four interconnected lakes, 155 kilometres long, but only 2.4 wide on an average. This question has been discussed by several authors. One of them, Hedin (1922b), believes these lakes are "very ephemeric phenomena", and concludes by saying that "I feel perfectly convinced that the Panggong Lakes *are* a river [formerly part of the Indus system] whose water has been dammed by secular movements of the surface in connection with the rise of the mountain ranges" (*italics in original*). In other words, these lakes are not an exception of critical importance to the fundamental pattern of the drainage, and the fauna of their regions is certainly much more similar to that of the western Outer Plateau than it is to that of the Chang Tang.

The northeastern plateau which extends from the Karakoram to the Kun Lun, and the eastern part of which is called the Aksai Chin, is really a part of the Chang Tang and has the same very rigorous climate and a similar fauna, including the characteristic herds of wild yak and antelopes. But the water divide between the Northern and Outer Plateaux crosses the northeastern plateau in the west, and the rivers south of this divide, such as the Chipchap and Chang Chenmo, are affluents of the Shyok and eventually of the Indus. The main natural divisions of Tibet merge in this region as elsewhere, as emphasized by Ludlow in his correspondence with me.

Baltistan (known also as "Little Tibet") is not precisely defined on any map that I have seen, but is situated west of Ladak from about the 75th meridian east to about the 77th in the valley of the Shyok River, and south of the latter extends to the Chorbat La in the Ladak Range which forms the divide between the Shyok and Indus, and east to the Dras River in the region south of the Indus. The valley of the Indus is a transition zone between India and Tibet up to a point some kilometres below Skardu, but the remainder of Baltistan is Tibetan and consists chiefly of the Deosai Range and Plateau south of the Indus.

The Deosai Plateau averages about 4000 metres high and was described by Osmaston (1930) as a vast and uninhabited "moorland and swamp some 300 square miles in area, drained by numerous big streams, full of fish, surrounded by lofty snow-clad mountains and subject to icy blizzards in almost every month of the year . . . with lush green grass and carpets of alpine flowers alternating with drier stony or sandy areas". Osmaston mentions beds of dwarf willows along the streams, and, on his way to the plateau from the Dras River, he encountered "a scattered forest of juniper and *Pinus excelsa*" on a large cultivated plateau at Matiyal above the Shigar River¹ "the presence of forest trees indicates a moister climate" than normal for Baltistan and Ladak. This restricted region near the junction of the Shigar and Shigo Rivers, which extends

¹ Not the affluent of the Indus of the same name.

also to the upper valley of the Dras, is indicated as having a "Steppe Forest" by Schweinfurth, a type of vegetation which is characterized chiefly by junipers.

The valley of the Indus and the valleys of the lower Shyok and Shigar Rivers are very arid. Their vegetation is of the "Subtropical Semi-desert" type, but there are small patches of coniferous forest, birch, and junipers at the headwaters of the Shigar River. These are shown on Schweinfurth's map, and the existence of some forest was noted on the label of a bird collected in the valley of the Braldu River, an upper affluent of the Shigar. The aridity of the valleys is shown by the annual rainfall which averaged only 144 millimetres for a consecutive period of six years at Skardu, according to Trinkler.

Spiti (the name means "Middle Country") does not form a part of Ladak. It was attached to the Punjab by the British for purely political reasons, but is situated north of the Main Range of the Himalayas and is, as Whistler says (1923), "Tibetan from every aspect, and really a portion of Tibet . . . carved off to form a buffer between the Indian and Tibetan Empires". Spiti is about as remote and inaccessible a region of the Himalayas as one could wish for, and lies east of Kulu and Lahul at an average elevation of about 5500 metres with peaks rising over 7000. The country consists for all practical purposes only of the valley of the Spiti River and of one or two small side valleys, the most important of which is that of the Pin River, with villages and their irrigated fields varying in elevation from about 3350 to 4300 metres.

Spiti was visited briefly in 1922 by Whistler who gave a dismal description of its flora and "very limited" avifauna, but Shuttleworth (1922) and Koelz (1937) received a better impression. Koelz, who was more experienced than Whistler as a botanist and bird collector, found three times the number of bird species reported by Whistler, and says the flora is varied and "exceedingly interesting". The upper part of the valley is an "Alpine Steppe", but the vegetation improves farther down and good and abundant shrub growth is reported and also "tall clumps of roses", "good groves of poplar and willows", pastures, junipers, and stands of cedar and pines.

Western Tibet, or Nari, extends from Ladak east to the Mayum La and is bounded on the north by the Kailas Range and other ranges (all called collectively the Transhimalaya Range by Sven Hedin), and on the south by the Main Range of the Himalayas. Most of this region consists of very extensive plains (pl. 4) with an average elevation of about 4500 metres. It is a dull region and its most interesting feature consists of the twin lakes, the Rakas Tal (pl. 5) and Lake Manasarowar, dominated in the north by Mount Kailas.

The religious associations of this region are profound and it is sacred to both Hindu and Tibetan alike. To the former, Mount Kailas is the paradise of the great god Siva where exemption from metempsychosis may be obtained. To the Buddhist it is the cosmic centre around which the world rotates. The waters

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of Manasarowar are so sacred that some of the ashes of Gandhi were carried there in pilgrimage to be scattered.

Mount Kailas (pl. 6) is "intermediate between heaven and earth . . . and the holy river of Ganges issuing from the foot of Vishnu and washing the moon, falls here from the skies, and after encircling the city of Brahma divides into four mighty rivers flowing in opposite directions", as the legend is told by Sherring (1906). Tradition is roughly correct, and (ignoring the "encircling" river of faith) the four rivers are the Indus in the north, the Tsangpo in the east, the Sutlej in the west, and the Karnali in the south which is one of the main sources of the Ganges; but in the extreme west, the drainage is internal and toward Lake Pangong, a question discussed above.

Western Tibet is bleak and its vegetation is an "Alpine Steppe". I have found little information on its meteorology but it is probable that the annual rainfall does not exceed 250 millimetres. It is probably very cold in winter also, but the days can be very hot in summer, although the nights are cold. Ali says (1946) that the temperature in June at Lake Manasarowar varied from -2° C at night in his tent, to 32° in the shade during the day, but that the normal temperature during the day was between 21° and 24° with "violent fluctuations". The mean temperatures recorded at Gartok by Hedin from September 17 to October 20 were -0.3° at seven in the morning and 11.1° at one in the afternoon, according to Ekholm (1920). Some days are "comparatively windless", according to Ali, but on other days he recorded velocities between "17 and 33 miles" an hour, or about 27 to 53 kilometres. Gartok, the capital of western Tibet, which appears to be so big on the map, is abandoned in winter and consists actually of only about a dozen poor houses and structures of mud brick.

Southern Tibet is very extensive and merges into the "grassland" of the Outer Plateau in the northeast, and into the Southeastern Plateau in the southeast. Its two most important provinces are Tsang with Shigatse and Gyangtse, and Ü with Lhasa, these regions being among the best known in Tibet, especially along the trade route from Phari Dzong to Lhasa.

Ludlow was stationed for three years at Gyangtse from October, 1923, to October, 1926, and for one year at Lhasa from the spring of 1942 to the spring of 1943. He published his observations on Gyangtse and its bird life in 1927-1928, and in 1950 in the case of Lhasa. Information on southern Tibet has been given also by Waddell (1905), Walton (1906), Hedin (1909, 1917), Wollaston (1922a), and by other authors; meteorological information is included in some of these reports and is given also by Hann (1911), Grenard (1929), and Lu (1939).

The climate of southern Tibet is milder and more humid than that of western Tibet and Ladak, and becomes temperate in some regions such as Lhasa which is "one of the most delightful residential places in the world", according to

Waddell, "with a refreshing and luxuriant vegetation". Ludlow gives also a very favourable description, stating "Lhasa, with an annual rainfall of 15-18 inches [375-450 millimetres], enjoys a most perfect climate. Nearly the whole of this precipitation occurs in summer, for the winters are dry and the snowfall almost negligible. Temperatures seldom fall below 0° F [-18° C] in winter, and hardly ever exceed 80° F [27° C] in summer. The only unpleasant features of the climate are winds and occasional dust storms which sweep over the valley in late winter and early spring. For the greater part of the year Lhasa is drenched in sunshine."

Hann (1911) states that the temperature varies at Lhasa from 7.8° to 35° C, with a mean of 19.5° in August, and from -0.6° to 31.7°, with a mean of 16.7° in September. The means vary from 0° in January and December to 17° in July, and the annual rainfall is 497 millimetres, according to the graph in the *Fiziko-Geograficheskii Atlas*, but Schweinfurth (1957) reports an annual mean of 1600 mm. for four years. These four years (fig. 1) were a period of unusually high rainfall, according to Schweinfurth, but the variation, which was very great during these years, is not mentioned by him.

The amount reported by Schweinfurth was merely quoted by him from Flohn (1947), who had obtained it from Lu (1939), but Flohn had cited it without sufficient comment. Lu's data, which are original, were for the four years 1935 to 1938. On three of these years (1935, 1937, 1938), the rainfall was "normal", with a mean of 451.8 millimetres for the three years, an amount which is only somewhat inferior to the 497 mm. reported in the *Atlas*, but in 1936 a tremendous downpour of 5035.5 mm. was recorded by Lu, which would make Lhasa one of the wettest places on the earth if constant. However, this precipitation was highly abnormal (more than ten times the total for the other three years), and the enormous variation during the four years is explained by Lu by "the strength of the Indian summer monsoon [which] varies greatly from year to year".

Lu comments also on the great mildness of the climate. His means for the temperature are the same as those reported by the *Atlas*, but he adds further information, saying the mean for the four years was 9°, the absolute maximum 28.7° for this period, and the absolute minimum -14.3°. He also says the wind was "very feeble and averages 1.1 only on the Beaufort scale . . . [and] gales are rarely observed", although Ludlow found that winds were "unpleasant" during his visit, at least occasionally.

The climate of southern Tibet is normally classified as ETH or EF (tundra and frost climates) in the classification of Köppen, but Lu concludes that its climate "as revealed by the observations of Lhasa . . . undoubtedly belongs to the Cwb type of Köppen's classification" (warm temperate rainy climate with dry winter and warm summer).

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Waddell says "the rainfall was not accurately gauged; but at Gyantsé, in the Yamdok Basin, and at Lhasa about 30 inches [750 mm.] must have fallen during the summer and early autumn." Ludlow (1927) states that "the average annual rainfall at Gyantse is only 8 inches [200 mm.]," but he recorded "12.50 inches", or 312.5 mm. for the 12 months from May 1925 to April 1926, "when the precipitation was considerably above normal". This is only about half of the amount mentioned by Waddell, but the precipitation apparently varies widely from year to year as the amounts for Lhasa show, though it is probable that Gyantse, and also Shigatse, receive less rain than Lhasa. They are also somewhat colder, but much less so than Phari Dzong farther south where about -32° is not unusual in midwinter; it is probably a few degrees colder on the exposed Tang La, which is 13 kilometres above Phari, and these temperatures seem to be the minimum for southern Tibet. But other regions south of the Tsangpo are not much warmer, as Ward (1926b) estimated a temperature of about -28° at 10 at night on February 3 at an elevation of about 4600 metres east of the Trigu Tso.

The rainfall mentioned above seems sufficient to maintain tree growth, but the precipitation is not at all well distributed throughout the year and Schweinfurth's map shows that the vegetation of southern Tibet is an "Alpine Steppe". However, trees do grow here and there in sheltered river valleys, or where they are protected in or near settlements, and Waddell states that "many trees, chiefly walnut, apricot, willow, elm, birch, and alder" grow near Lhasa. Waddell visited Lhasa in 1904, and many of these trees or groves have apparently been cut down since, as Ludlow writes to me that "old photographs show much more extensive growth than is observable nowadays."

The most important and interesting exception to the "Alpine Steppe" is a forest near Reting Gompa which is located about 80 kilometres north-northeast of Lhasa. It was very briefly mentioned by Ludlow (1950), but is not shown on Schweinfurth's map which does not extend much beyond Lhasa. Ludlow tells me in correspondence that this is "a fairly thick forest of conifers" that his servant, who visited it, described to him as "just like his own native Kashmir . . . which, from him, was high praise indeed". Species from this forest mentioned by Ludlow are "the Tibetan Stag (*Cervus affinis*), bears, and leopards to say nothing of *Crossoptilon harmani* [which are or were found there] in considerable numbers".

The annual rainfall of southern Tibet is fairly high and sometimes abundant, but the vegetation is an "Alpine Steppe" with local exceptions. This is probably due to the fact that the rain is brought by the monsoon and is extremely seasonal. Virtually all of it falls in only five months of the year, from May to September, with a marked peak in July (fig. 1). The other months are completely dry or essentially so, and very little snow falls during the winter. The

combination of a very prolonged period of aridity, high winds, low temperature, and intense insolation creates the "Alpine Steppe".

A roughly triangular strip of territory, about 55 kilometres broad by 80 long, called the "Chumbi Valley" by British authors, extends south from the plateau, between Sikkim and Bhutan, to a point about 20 kilometres south of Yatung. It is drained by the Amo Chu and its affluents, one of which is the Tromo Chu which comes down from the region of Phari Dzong to join the Amo Chu on the left at Yatung. The valley of the Tromo Chu is called "Chumbi" by Europeans and Indians from a village of this name downstream of Yatung, but is always referred to as the valley of the Tromo Chu by Tibetans.

This valley is mentioned often in the ornithological literature of southern Tibet, but the whole of it lies south of the Main Range of the Himalayas and the altitude drops down to only 2987 metres at Yatung in the south. However, the flora and fauna of the upper part of the valley (pl. 7) are Tibetan and I have drawn the limit of Tibet in this valley along the southern limit of the "Alpine Steppe", or to about three or four kilometres north of Gotsa.

Southern Tibet merges into the "grassland" in the northeast. The "grassland" has been extended to the extreme northeastern limit of the Outer Plateau by Ward (1935), but this is incorrect as it really ends at the Hwang ho and Amne Machin Shan, beyond which grassy steppes are only a very minor element. North of the Amne Machin Shan, trees begin to grow on sheltered slopes or in canyons (pl. 17).

Eastern Tibet north to the eastern Kun Lun and Hwang ho is dominated chiefly by great broad plains broken by high bare rocky mountain ranges. The most extensive of these plains is drained by the upper Yangtze and its affluents and measures about 220 by 500 kilometres at its greatest, and varies in altitude from about 3800 to 4700 metres, sloping to the northwest.

The rainfall is not recorded but is sufficient to maintain grassy steppes (pl. 16) which become progressively poorer as the precipitation evidently decreases to the northwest. The grass cover becomes less uniform, more impoverished, moors become frequent, and arid areas appear with a very sparse, low, xerophytic vegetation. The drainage is sluggish in the west and there are many sinks, small marshes, and small lakes. The steppes are visited by pastoral nomads, but are not inhabited with the exception of a few poor semi-permanent rest stops along the main caravan route.

Schäfer visited this region in June and July, 1935, west to the 94th meridian, and divided the steppes in his report (1938) into three merging belts, from south to north and east to west, which he named after the animal he found to be most characteristic. These are the "*Gazellensteppe*", "*Kiangsteppe*", and "*Wildyaksteppe*". The first is really a part of the Southeastern Plateau, not of the

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Outer Plateau, but Schäfer was apparently unaware of the basic division of Tibet into the three main natural divisions emphasized by Ward. The “*Wildyaksteppe*” is the most impoverished and its moors were compared to a tundra by Schäfer, which suggests that these plains are essentially similar to the Chang Tang in the west (as suggested also by Ward), although their drainage is external.

The region of the “grassland” is much more mountainous in the east, with no extensive plains, and has a better climate and vegetation, a richer fauna, and merges into the Southeastern Plateau in the southeast where the big rivers begin to flow faster in well-defined valleys and start to erode the edge of the Outer Plateau.

This eastern region was crossed by Kozlov in June and July, 1900, on his way south from the Tsaring Nor to Jyekundo. Kozlov’s report, translated into English by Lindsay (1908), mentions that the grassy vegetation is very rich, with many beds of alpine flowers, in the north in the region of the Tsaring Nor and Oring Nor, but that even in June the temperatures were low, falling as low as -3.8° at night, and that the weather was most unpleasant with much rain and snow.

The weather and country improved very considerably when Kozlov went farther south to enter the basin of the Yangtze in July. The day temperature was 13° , and “Nature seemed literally to fawn upon us . . . everyday, as we descended along the nullah, the weather became milder . . . [and] everywhere around us the ground was carpeted with variegated plants, above which butterflies (*Parnassius*) fluttered, and from flower to flower of which flew bees, wasps, bumble-bees, and many other insects disturbing the silence with their humming . . . but the large mammals . . . disappeared—squeezed out, in fact, by man . . . whom we were soon to meet.” The first fields, consisting of barley, appeared on their approach to the valley of the Yangtze, which, Kozlov was told, “freezes over in October and is open again in March”. He mentions also “handsome grasses”, many shrubs, bushes of bog-myrtle “almost 14 feet [high] with a diameter of 7 inches at the root of the stem”, and the first trees consisting of willows, and of “a forest of juniper, the trees of which grow to as much as 70 feet in height, with a width at the root of 20 inches”, the species concerned being apparently *Juniperus pseudo-sabina*.

Kozlov reached the Yangtze at Sogon Gomba, about 72 kilometres north-west of Jyekundo, and it is evident from his account that the Outer Plateau and Southeastern Plateau meet and merge in this region.

Northeastern Tibet, north of the Hwang ho and Amne Machin Shan, and east of the Northern Plateau, forms part of the Outer Plateau but differs from it in important respects. It lies entirely within the basin of the Hwang ho. The latter is deflected to the southeast to about the 102nd meridian by the Amne

Machin Shan and its eastern extension¹ and makes many great loops and abrupt bends before it reaches the sea. The first bend which concerns me is the very sharp one to the north around the eastern end of the Amne Machin Shan. The second is a right-angle turn to the east at Kung-ho-ku-chich, some 260 kilometres north of the first bend, and the third is to the north near Lan-chou, some 290 kilometres down river from Kung-ho-ku-chich.

The region to the east, between the first and second bends, and to the south, between the second and third bends, is a high mountainous plateau called Amdo which rises to a maximum of about 5000 metres. Western Amdo is purely Tibetan and its drainage is into the basin of the Hwang ho, but the eastern part of the plateau (which is not included in my work) is partly "Chinese" and slopes down toward southern Kansu and northwestern Szechwan, and in the southeast drains into the basin of the Yangtze.

Amdo was first visited by Przhevalsky in 1880 south to the Jahar Range, after he had visited the mountains on the left (west) bank of the Hwang ho opposite Amdo. Przhevalsky was followed by other Russian explorers, and also by Rock in 1926, who visited southern Amdo north to the Jupar Range and the valley of the Ba River on his way to Ragya Gomba from and back to Labrang; Rock also visited the mountains west of the Hwang ho for a short distance in a vain attempt to reach the Amne Machin Shan.

Przhevalsky visited the mountains on the left bank of the Hwang ho as far south as the Churmyn River which empties in the Hwang ho at a point opposite the mouth of the Ba River; the Ba drains the Jupar Range in western Amdo. Przhevalsky described the mountains west of the Hwang ho as extremely rugged "wild alpine country", with "impenetrable mountains" rising to very high plateaux, and cut by very steep river canyons. His visit was in April and May and the climate was very stormy, changing abruptly every day from "warm" sunny periods to hard rain and snow storms. He visited the Jahar mountains in Amdo in June and July, but the weather had not improved, rainy storms, often mixed with snow, and blizzards being almost daily occurrences at high altitudes, even in late July.

The rivers of western and northwestern Amdo are short, or relatively short, and are usually rapid. The valley of the Mujik ho in northwestern Amdo, or at least its lower part, is cultivated, according to Przhevalsky. The largest river is the Ba which flows westward in a valley which is relatively broad and the floor of which is about 3000 metres high. It is well frequented by pastoral nomads and their flocks, and Rock (1956) says it is entirely covered with loess, grown with grass, shrubs, and tussock-forming bushes; gravel beds, willow groves,

¹ The correct extent and altitude of the Amne Machin Shan are doubtful. It has never been surveyed or climbed; its greatest height is estimated as anywhere between 6500 and 8535 metres, the truth being probably closer to the lower estimate.

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and swampy meadows line the river. The latter, together with other smaller streams, drain the Jupar Range which rises to about 4430 metres. The range (pl. 20) is very densely forested with spruce (*Picea asperata*), according to Rock, and willows, poplars, and birches grow also in its ravines; "the spruces extend to an elevation of a little over 11,000 feet [3353 m.], " some of the trees reaching "a height of 150 feet, with trunks three and four feet in diameter", and alpine meadows stretch above the tree line. Spruces are found in pure stands at least as far east as Labrang, but the flora becomes poorer toward the east.

Przhevalsky (1883) described the vegetation of the Jahar Range in essentially the same terms, saying that the conifers (which he calls fir, and names *Abies Schrenkiana*, not spruce, as Rock did) grow from the foothills up to an elevation of 10,000–11,500 feet [3048–3505 m.], are replaced above that by a zone of bushes between 11,500–13,000 feet [3505–3962 m.], and above that by alpine meadows up to 15,000 feet [4572 m.]. A tree mentioned by Przhevalsky, but not Rock, from this range, and also from the mountains west of the Hwang ho, is aspen (*Populus tremula*).

The walls of the gorge of the Hwang ho (pl. 18) were described by Rock and illustrated with excellent photographs. The walls are precipitous in many places, higher on the left bank, and broken here and there by very steep ravines. The slopes that are sheltered are "densely forested with spruces, poplars, and birches, while above them the highest slopes are covered with a mass of the shrubby, aromatic, small-leaved *Rhododendron capitatum* . . . the shallow grassy head [of the gorge merging into the] grass-covered plateau". Rock mentions also that junipers grow on the slopes, the junipers "facing south or southeast [whereas] the spruces face north or northeast". The latter was presumably "cooler", and Przhevalsky has emphasized also that "the forest is nearly always restricted to the northern slopes."

In another river valley (pl. 19), situated about 23 kilometres north of Ragya Gomba, flows the Tagso, which is relatively small, and in its lower, narrow valley Rock found a very dense forest of "tall spruces . . . [of] huge dimensions, the ground thickly covered with Mnium moss, while on the outskirts of the dark spruces grow lovely rich green birches which give the valley its name. Where the spruce forest almost comes to an end in a flat amphitheatre-like part of the valley, we found huge groves of Junipers (*Juniperus tibetica*), mighty monarchs, centuries old [but] the opposite valley wall facing south was entirely bare and traversed by innumerable small trails made by the grazing sheep of the nomads."

The account given above shows that Amdo and the mountains west of the Hwang ho differ strongly from all the regions of Tibet described so far by being densely forested. This is caused by the abundant precipitation emphasized by both Przhevalsky and Rock. But Rock also emphasizes that the "ligneous

flora . . . and herbaceous plants” are poor in species, because of “the short summers and cold temperatures”, combined with “the proximity of the desert and the prevailing northern or northwestern winds from the barren, waterless wastes . . . [which] do not permit the development of a varied flora, and allow only those species to become established which are hardy in such a climate”. “Hardy” is the correct term, as it freezes on nearly every day of the year, and Przhevalsky remarks on flowers covered with snow on one day, but blooming unaffectedly on the next.

The precipitation is not recorded, but it is abundant from at least April until mid-August, as “terrific” storms, hard rains occasionally lasting throughout the night, “as many as four [thunderstorms] a day”, snow, and blizzards are mentioned by Przhevalsky and Rock. A few temperatures are mentioned by both men, the highest was 68° F (20° C) at three in the afternoon of May 27, but it was only 42° F (6° C) at the same hour on June 21. The early morning temperature hovered around freezing: it was 25° F (−4° C) on July 20, according to Rock, and −12.5° C at night on May 25 according to Przhevalsky.

The region to the north is much more arid with the exception of the Tatung Valley on the confines of Tibet. The valley of the Hwang ho is narrow and arid with large deposits of loess which are irrigated where possible and are very fertile. The largest of the oases is Kuei-te which is irrigated by water from the Mujik ho and another smaller river which both come down from the Jahar Range. It is famous for its melons and fruit trees, chiefly pears, apricots, and cherries, but, together with other oases of this region, grows also barley and wheat which ripen in June, and other products such as flax, peas, beans, oats, buckwheat, and hemp. It was visited by Przhevalsky in 1880, who says the temperature in July is about 27°, and by Kozlov from October, 1908, to January, 1909. The latter (Kozloff, 1909–1910) says that “the weather . . . was in general good, especially in the autumn months, October and November, when mild, sunny days were the rule. December was generally cloudy, and east or north-east winds brought frost and also dry weather, and thin snow covered the valley for a time. The finest dust of loess fell on the ground whenever it was bare.”

The natural vegetation probably consists of not much more than groves of poplars, willows, and acacias, thickets of tamarisk, roses, *Lonicera* and other shrubs or bushes, and herbs—along streams or springs. The valley of the Hwang ho has now probably been transformed by the erection of a very large dam below Kuei-te.

A range of relatively low mountains, which rises to an average of about 3600 metres, separates the valley of the Hwang ho from that of the Hsi-ning ho. The latter arises on steppes north of the North Koko Nor Barrier Range, and after crossing very extensive plains of loess, joins the Tatung River at an elevation of

only 2270 metres. The central and lower parts of the valley are very densely inhabited and intensely cultivated with huge rice-fields below Hsi-ning. Very little probably remains of the natural vegetation which seems to have been about similar to that of the valley of the Hwang ho, with the addition of some pines which remain where protected.

The climate is temperate and dry. The weather graph for Hsi-ning in the *Fiziko-Geograficheskii Atlas* shows that the mean temperatures vary from -7° in December and January to 18° in July, the relative humidity from 5 in March to 30 per cent in September, and that the annual rainfall is only 313 millimetres (fig. 1). Licent (1924), who visited Hsi-ning from August 22 to 25, recorded a maximum of 36° during the day, and a minimum of 12° at night.

The slopes of the South Tatung Range, which rises north of the Hsi-ning Valley, probably receive more rain as they were forested locally with conifers, but they have been deforested for timber and charcoal. In the late 1920's, stands of conifers remained only in the vicinity of a few monasteries where they were protected, according to Beick; the largest one was near Kuo-mang Ssu at an altitude of 2865 metres, and Beick says it was the only large and fine forest which had been spared in the whole of the region of Hsi-ning. These forests face south.

The South Tatung Range rises to about 4500 metres. Its northern slopes receive an abundant rainfall and are densely forested below about 3000 metres down to the valley of the Tatung River. This region was visited by Przhval'sky, who says (Morgan translation, 1876): "The climate is exceedingly damp, especially in summer, part of autumn and spring; in winter, the people told us, that it was generally clear, cold winds alternating with calm weather. It rained constantly during the summer. We registered twenty-two rainy days in July, twenty-seven in August, and twenty-three in September; of the latter number twelve were snowy; from September 28, it snowed frequently. Owing to the heavy rainfall the soil is very moist, nearly every ravine having its stream. The temperature in summer is low, if it be remembered that this region lies in the thirty-eighth parallel. Even in July the greater heights were covered with hoarfrost; in August thick flakes of snow fell, thawing, however, during the daytime, and after the beginning of September the snow remained on the ground.

"The heat in summer was never oppressive, the highest temperature registered in July being 88° Fahr. [31° C] in the shade. Light winds prevailed from the SE., and thunderstorms were most frequent in July and September, in the latter month accompanied by snow and hail.

"The flora is rich and varied, as one would have expected from the moisture and richness of the soil, and the other favourable conditions for its development. Forests, however, in our sense of the word, only grow on the northern slopes of the southern range. . . Even in this moist atmosphere trees apparently

avoid the sun, which certainly does not make its presence often felt during the summer. As usual, the lower zones are the most thickly wooded, from the bottom of the valleys up to 9,500 or 10,000 feet above sea-level. Fine tall trees, dense underwood and a variety of flowers reminded us of the forests in the Amur country. . .”

Many trees and other plants are listed by Przhevalsky, such as two species of birch, aspen, poplars, willows, mountain ash, pines, and spruce fir (*Abies obovata*); many different kinds of bushes including four species of rhododendrons, seven or eight species of honeysuckle (*Lonicera*), various berries such as gooseberry, currant, wild pepper, and raspberry, and many kinds of herbaceous plants and flowers, which he says “were in full flower” by July, although “the constant rains in the alpine zone were often accompanied by snow and frosts at night.”

The altitudinal distribution of the vegetation varies as follows: dense forest from the Tatum River (about 2500 metres) up to 10,000 or 10,500 feet [3048–3200 m.], alpine bushes from the latter to 12,000 feet [3657 m.], and alpine meadows above this to 13,000 or 13,500 feet [3962–4115 m.]. Beick enumerates four levels of vegetation in the Rangta Gol (mixed forest, junipers, alpine bush, and alpine meadows, the latter apparently above 3600 or 4000 metres), which, however, are about the same as the three of Przhevalsky, and Beick gives lists of the birds characteristic for each level.

The levels of vegetation mentioned by Przhevalsky from both the Jahar Range in Amdo and the northern slopes of the South Tatum Range are about the same, but the flora of the latter is less restricted to a favourable exposure and is very much richer and more varied. The only other region of Tibet with a richer vegetation is the Southeastern Plateau.

The Southeastern Plateau

The Southeastern Plateau has a superficial area of about 218,510 square kilometres, or only one-tenth of the total area of Tibet, but the flora of this comparatively small region is incomparably richer than those of the other regions of Tibet combined, and the avifauna is much richer than in any region on the Outer Plateau.

The Southeastern Plateau was of great interest to Ward who visited it in the south on several occasions and described it in three accounts of the geography and vegetation of Tibet (1935, 1936, 1941). He calls this region the “River Gorge Country” or “River Gorge Region”, but I believe that these terms are too narrowly descriptive and I prefer Southeastern Plateau which conforms to the names of the other two main natural divisions of Tibet, the Northern Plateau and Outer Plateau. The Southeastern Plateau of my study is also

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restricted to geographical Tibet and is not identical in extent to the region described by Ward which extends south of geographical Tibet.

Ward stated in 1941 that "here are found the only forests in Tibet," but the emphasis is unfortunate because true forests exist also on the Outer Plateau as mentioned in my description of the latter, especially in the northeast where they are extensive and well developed. However it is quite correct to emphasize that the forest is truly characteristic of the Southeastern Plateau only and the western and northern boundaries of the Southeastern Plateau that I have drawn follow the natural limits of the trees. The southern boundary follows the geographical limits of Tibet which, as stated above, consist of the Main Range of the Himalayas and of the "great snowy range" east of the bend of the Tsangpo which is called Nyimo Chomo on the International Map of the World. The eastern limits selected are arbitrary and follow the Yangtze north to Beyü, then east to Kantse.

The boundary starts near Chayul Dzong in the southwest. This village is situated in an arid and windy valley, but groves of trees grow above Chayul Dzong in the valley of the Loro Karpo Chu, according to Ward (1941). From Chayul Dzong to the Tsangpo, I have followed the advice and information given to me by Ludlow who wrote that "a certain amount of thin forest growth occurs in the upper reaches of the Chayul Chu and Char Chu above Chayul Dzong and Sanga Choling. There is also thin forest to the west of Nang Dzong as far as the Putrang La." Chayul Dzong is situated about 20 kilometres west of the 93rd meridian, and the limit of the Southeastern Plateau was drawn roughly by me in this region because rainfall becomes regular on the plateau east of this meridian.

After following the valley of the Tsangpo east of the Putrang La toward the mouth of the Giamda Chu (pls. 10 and 11), the boundary then ascends the valley of the Giamda Chu to Giamda Dzong and then turns north to the Trasum Kye La on the Tsangpo-Salween Divide (pl. 15). At this pass, Ward found (1926a) that "The forest, which had been rapidly dwindling, now disappeared entirely, and we descended into a very bleak and desolate valley, where there was not a stick of firewood." The Tsangpo-Salween Divide continues to the southeast and probably incorporates the ranges which enclose the densely forested valley of the Yigrong Chu (or Po Yigrong). These ranges were named the Po Yigrong Range by Ward (1941) who says that "it acts to some extent as a rain screen, just as farther west the Great Himalayan range acts as a rain screen."

The boundary east of the Trasum Kye La is uncertain but it probably turns eastward to skirt the eastern end of the Nyanchen Tanglha Range to reappear in the upper Salween Basin east of Sok Gompa. In this basin, some forest grows apparently as far west as Aio (94° 03') which is located about 28 kilometres east of Sok Gompa. This information is supplied by Oustalet (1893) who says that

the specimens taken at Aio by Bonvalot and the Prince d'Orléans were collected "dans une vallée boisée, à 3708 mètres d'altitude". Bonvalot himself (1892b) mentions "regular woods of juniper trees", and, in this region and elsewhere, junipers are apparently the first trees which appear as a rule, sometimes closely followed by pines. On Bower's map (1893), a line drawn at about longitude $94^{\circ} 25'$ indicates where the forest begins, or slightly farther east than stated by Bonvalot.

The International Map shows that a very high but unexplored mountain range rises at about the 33rd parallel well north of Sok Gompa and trends to the southeast toward Chamdo, ending approximately 40 kilometres west of Riwoche at about latitude $31^{\circ} 20'$. The northern boundary of the Southeastern Plateau undoubtedly skirts this range and trees probably reappear somewhat west of Riwoche, as Teichman (1922) describes the general region of Riwoche as "a pleasant region of grassy vales alternating with pine forests, in one of which we came upon a flock of monkeys hanging in trees at an elevation of over 13,000 feet". Riwoche is at longitude $96^{\circ} 32'$, about 75 kilometres northwest of Chamdo, and at Ngemda (now Enta), situated about 40 kilometres southeast of Riwoche, Pereira (1924) noted that the slopes of the valleys were "occasionally . . . covered with spruce, maple, and acacia", or "grass-grown . . . covered with wild flowers" when not forested. The boundary thus seems to follow a line drawn from Aio to Sari Sumdo and Denchin in the Salween Basin, and through Denchin to some point west of Riwoche in the Mekong Basin.

The forest then reaches to about the 33rd parallel in the valleys of the Mekong Basin as shown on Schäfer's map (1938), and to Sogon Gompa in the Yangtze Valley. This locality is about 72 kilometres northwest of Jyekundo, and, as I have mentioned in the description of the Outer Plateau, groves of willows and large junipers reach north to at least this point in the Yangtze Valley. The boundary then folds back toward Kantse on the Yalung River. In the valley of the latter, Schäfer's map indicates that the forest extends to a point about 150 kilometres above Kantse, and patches of it to about 190 kilometers, or to a point on about the same level as Tengko on the Yangtze, that is to about latitude $32^{\circ} 30'$ North.

The most important factor which determines plant growth anywhere is the relative humidity of the atmosphere, but the latter is virtually unknown as it has been recorded on the Southeastern Plateau on only a few days at a single and arid locality. Rainfall and its seasonal variations give a rough indication of the humidity but the rainfall has never been recorded. It is quite evident, however, that most of the rain which reaches this region is contributed by the summer monsoon which penetrates the plateau from the south through low passes, breaches in the rim of the plateau, or deep river gorges.

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The variations in altitude then determine the penetration of the rains, and altitude varies much more on the southern rim of the eastern plateau than in any other region of Tibet. In the west, the Main Range of the Himalayas sinks to a comparatively low level east of the 93rd meridian. It no longer forms the great wall and perfect rain screen that it does farther west, as Ludlow (1944) emphasizes, as it passes "between the 93rd and 95th meridians probably do not average more than 13,500 feet [4115 m.], whilst some are as low as 12,000 feet [3657 m.] with conifers growing on their summits". Ward (1936) says that "east of the 93rd meridian—we merely pass from one forest climax to another . . . [and] for the last 150 miles, the main range is forested on *both sides*" (*italics in original*). He restates this in another account (1941) which mentions the rain, saying that "By the time the 94th meridian is reached, there is such a concentration of moisture in the eastern Himalayas that a great deal of rain, taking advantage of the low passes, spills on the Tibetan side, causing thick forest to flourish. There is also an unparalleled development of alpine plants."

The Main Range ends at the 95th meridian at Namcha Barwa (pl. 12), a magnificent peak which rises to 7715 metres. Namcha Barwa is faced on the north by the only somewhat lower peak of Gyala Peri (pl. 13) which rises to 7150, the distance between the two great mountains measuring only 22 kilometres from summit to summit. The Tsangpo flows to the east between the two mountains, cutting a very narrow gorge which sinks from 2835 metres at Gyala at the entrance of the gorge, to 1615 at Gompo Ne, a few kilometres east of Gyala Peri, where it receives the turbulent Po Tsangpo on the left. Then the Tsangpo folds very sharply south to escape Tibet.

The altitude of Gompo Ne is the lowest in Tibet and the dramatic contrast in altitude from 7715 to 1615 metres is nowhere greater. The importance of this deep gap on the rim of the plateau can hardly be overestimated and is emphasized by the fact that the region to the north is not much higher. The altitude is only 6500 feet [1981 m.] at Trulung, about 20 kilometres north of Gompo Ne, according to Ludlow (1944). It is 2057 metres at the junction of the Po Tsangpo and Yigrong Chu, north of Trulung, and remains low for relatively long distances in the valleys of these two rivers which, respectively, flow from the east and west. At Boyu on the Yigrong Chu, about 70 kilometres above the junction, the altitude seems to be only about 2400 metres, and is about 2600 at Khata on the Po Tsangpo, about 60 kilometres above the junction of the latter with the Yigrong Chu.

The altitude rises very quickly again east of Gompo Ne and the bend of the Tsangpo. The divide between the latter and the Po Tsangpo is called the Su La Range and the pass which crosses it above Showa is the Su La which is at 4096 metres, but the contours on the map rise higher on both sides of the pass to permanent snow line which is probably at 5000 metres or higher. The altitude

rises to 6523 metres at a point 35 kilometres east of the pass, and the range becomes known as the Nyimo Chomo, rising to 6193 in the west and to 6462 in the east. This range extends unbreached toward the southeast to end south of Shugden Gompa where a pass, called the Ata Kang La (4603 m.), leads to Shugden Gompa. East of this pass, the altitude rises steeply again to 6157 metres to drop very abruptly down to 2772 at Loma. The Zayul Chu flows through Loma to escape the plateau, and, beyond this other important breach, the rim of the plateau rises again to form a divide between the Salween and upper Irrawaddy which is probably close to 6000 metres high.

The Salween flows south in a deep and narrow gorge which drops to between 5000 and 6000 feet [1524–1829 m.] at the bed of the river at Menkong according to Ward (1936). East of the Salween, the altitudes of the beds of the Mekong and Yangtze at the same latitude as Menkong (28° 33' N), are 6000–7000 feet [1829–2134 m.] in the case of the Mekong, and 7000–8000 feet [2134–2438 m.] in the case of the Yangtze, according to Ward. At this latitude, the altitude of the divides between the great rivers is about 5100 metres or somewhat more, and the rivers run south in virtually perpendicular and vertical canyons which are only 40 kilometres apart. North of this the three rivers begin to diverge slightly at about the 29th parallel, and spread farther apart as they cut back on to the plateau between the 30th and 31st parallels.

The exact courses of the Salween, Mekong, and Yangtze have not been surveyed between the 30th and 31st parallels, as is shown by interrupted lines on the map, but it is very noteworthy that their beds seem to rise only slightly and very gradually to the north for very long distances. The map indicates a contour of only 2700 metres on the Salween at a distance of about 280 kilometres above Menkong in a straight line. The valley of the Mekong is about 3200 metres at Chamdo, about 325 kilometres to the north, and that of the Yangtze is about 3600 metres at the 33rd parallel, some 600 kilometres north of Menkong along the river. In other words, the fact that the river valleys and their gorges start at a low altitude which rises slowly to a maximum of only about 1100 metres over a great distance favours greatly the deep penetration of the plateau by the monsoon.

The altitudinal limit of the trees seems to be around 4500 metres or somewhat lower in the valleys at the 30th parallel and reaches about the same height in the north in the basin of the Mekong according to Teichman (1922). The forest is not, however, evenly distributed below this altitude. It forms galleries along the three great rivers when they begin to diverge more broadly toward the north, and, away from the rivers, is restricted to the valleys of their affluents. On the high divides, and with a general increase in altitude, the trees are replaced by a zone of bushes above them, and, above the bushes, by alpine meadows.

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The grasslands of the Outer Plateau also extend south between the great rivers, but not to the great extent shown on Weigold's map (1935) which was reproduced by Dolan (1939). In the regions which intervene between the rivers, the steppe or grasslands are much interrupted by forested valleys, most of which are well cultivated and are designated collectively as the "Rong" in southeastern Tibet.

In the Rong, Teichman mentions that the valley of the Dzin Chu is forested; this river rises at about latitude $31^{\circ} 30'$ in the Yangtze-Yalung Divide, not far from the Yalung, but flows west to empty in the Yangtze. Kozlov (1905) reports also that the valley of the upper Re Chu is forested; this river is at about the same latitude as the Dzin Chu, but is situated farther west, between the Yangtze and Mekong, and empties in the latter. The region between the Yangtze and Mekong is also very well forested south of Jyekundo, although Jyekundo itself is situated on a grassy and cultivated steppe. Forest grows also along the Ngom Chu, which together with the Bar Chu is an affluent of the Mekong. On the Bar Chu, Kozlov reported good forests some 200 kilometres above Chamdo which seem to consist chiefly of conifers.

Dense forest apparently grows farther north in the basin of the Mekong than in the basins of the Salween and Yangtze, as Teichman states that on the upper Mekong "trees run up to 14,500 feet [4420 m.] at least; but the big forests, of which there are many, are usually confined to the mountain slopes facing north; the same peculiarity being noticeable over a vast stretch of North-Eastern Asia from Shensi and Kansu [west] across the Kokonor border into Tibet". The forests of northeastern Tibet and their exposure to the north were described above in the discussion of the Outer Plateau.

The tree line drops below the 4500 metres mentioned by Schäfer and Teichman, or trees may be lacking and replaced by bushes, steppe, or grasslands below this altitude as the result of unfavourable exposure or other factors. For instance, the itinerary of Schäfer published by Dolan (1939) indicates wide variations in ecology at localities on or near the Yangtze which are not far apart. At Marong, which is located at latitude $32^{\circ} 13'$ a few kilometres east of the Yangtze, but within its valley, the itinerary mentions "coniferous and heavy juniperous forest", but at the locality visited on the following day which was Göze Gompa, the forest was replaced by "open grassland and brush". Göze Gompa is at roughly the same altitude as Marong (about 3500 metres) and is only 12 kilometres northeast of Marong, but it is situated in a narrow side valley farther away from the Yangtze in the lee of high mountains which rise to permanent snow line and probably cut off most of the rain.

Jyekundo, which was mentioned above, is at 3658 metres in a wide side valley 30 kilometres west of the Yangtze. It is probable that Jyekundo receives less rain than the valley of the Yangtze, but it is also highly probable that the

natural vegetation was destroyed because Jyekundo seems to be the largest town by far on the Southeastern Plateau. Its surroundings are very intensively cultivated and heavily grazed, and if any trees ever existed, they were cut down a long time ago.

The climate of the Southeastern Plateau is much more temperate and rainy as a whole than that of the Outer Plateau. This is very evident, but virtually no data exist as there are no weather stations in this region. The only information consists of very widely scattered and unco-ordinated observations of travellers.

No rainfall records of any kind seem to exist, but the normal annual rainfall probably varies from about 500 to 1250 millimetres, the region east of the Tsangpo-Salween Divide being drier, especially toward the north. Most of this rain falls in six months, from May through October, and most of it is brought by the summer monsoon. The winters are dry with little snow, but Ward (1941) believes that "long droughts are probably unknown" in some of the valleys west of the divide. Another indication of the rainfall are pine forests, which Ward says seem "to require a fairly heavy annual rainfall, probably not less than forty inches [1000 millimetres], most of which may fall in the summer, since a degree of winter drought is also common to all the pine forests". The estimate of 1250 millimetres is obtained from Ward who says that the rainfall in the valley of the Yigrong Chu is "probably . . . nowhere less than 40-50 inches [1000-1250 mm.]".

A maximum of 1250 mm. may be normal, but this amount is probably well exceeded in years when the strength of the monsoon is exceptionally great. In 1936, more than 5000 mm. fell at Lhasa, as stated above, and the precipitation must have been at least as great in southeastern Tibet. The rainfall may also have been greater than normal in 1947, because on his way from Kantse to Trashi Gomba via Jyekundo, Migot (1957) says that "torrential downpours of rain, generally heralded by a minor hurricane, were of almost daily occurrence throughout our journey"; this rain may keep up through the night and the period concerned was from the end of May to the middle of July.

It is difficult to describe concisely the climate of the region west of the Tsangpo-Salween Divide. Much information exists, especially in the series of publications by Ward, but it is very fragmentary and widely scattered. The rainfall was discussed above and the temperatures are mentioned below. Very little snow falls in the valleys during the winter, although the snowfall is very heavy on the passes of the Main Range. The virtual absence of snow surprised Ludlow who states (1951) that "the little that did fall disappeared almost immediately." The only records of the relative humidity of the atmosphere which exist for the whole of the Southeastern Plateau were taken by Ward (1941), but they are very fragmentary and are probably not typical for the region as a whole because they were taken at Chayul Dzong, which is one of the most arid

localities in the region and located on the very border between the South-eastern and Outer Plateau. The number of records taken is not mentioned by Ward, but apparently they were not many, and the only ones he cites are a saturation of 61 per cent at 7 a.m., and one of 37 per cent at 5 p.m. on June 20; two days later, the saturation was 43 per cent at 10 a.m., and it was 27 per cent at 2 p.m. on September 25, "the lowest recorded".

Descriptions of the climate east of the Tsangpo-Salween Divide were given by Teichman (1922), and also by Kozlov, for the region of Chamdo which occupies a central position at the 31st parallel in the region east of the divide. Teichman states that "The wettest seasons of the year are the summer and autumn, which are followed by a period of extreme dryness (November, December, and January), when practically no snow falls at all, and hot days with a bright sun shining out of a cloudless blue sky alternate with clear frosty nights."

Kozlov spent the period from November, 1900, to February, 1901, in the valley of the Re Chu, about 45 kilometres northeast of Chamdo, and at an average altitude of probably 3600 metres. He says, in the condensed English version of his trip (Kozloff, 1902), that "The winter in this locality is extremely mild. There is rarely snow, and the atmosphere remains transparent and dry. There is usually no wind at night or in the morning, but it systematically began to blow every day after midday from west-south-west. We had bright weather at the end of November and during all the month of December. January was rather cloudy, but in February the cloudiness began again to diminish. The lowest temperature which we observed was during the night of January 5-6 (18-19), when the thermometer fell to $-26\frac{1}{2}$ Centigrade. In December, at one o'clock, the mercury fell below the freezing point only four times. The same was also [true] in January, the lowest temperature at 1 p.m. being -4.8° C, which temperature we had after the above-mentioned low minimum during the night.

"There was no ice at all on the river [Re Chu], but its tributaries, small streamlets, were quite solidified by the ice, although at midday in the sun's rays ice was thawing even during the coldest part of the year. Snow fell very seldom, and thawed as it fell or disappeared next day. In short, the southern slopes of the mountains were always free from snow, and only thin layers of it appeared on the northern slopes, as well as in the higher parts of the mountains. . . In February the temperature began to rise, the mountain streamlets began to roar, the birds began to mate. . . —in short, winter was over."

The lowest temperature which seems to have been reported for any region of the Southeastern Plateau is the record of -26.5° C of Kozlov, but such a low temperature seems to be exceptional for the Rong (or sheltered valleys) as inferred by Kozlov, and I believe that -8° C is more normal, a temperature



Photo: Sven Hedin

Northern Plateau, Chang Tang at 3417 8451, altitude 5046 m. The vegetation consists of herbaceous perennials with long thick tap-roots, and stems which seldom exceed 8 cms. thick. Trees and shrubs are non-existent. |

Northern Plateau, Chang Tang at 3151 8545, and 4760 m. Herds of antelopes, wild yaks, and kyangs roam the Chang Tang and thrive on the coarse grasses shown in this picture. 2

Photo: Sven Hedin





Photo: P. C.

3 Outer Plateau, Ladak, Khardung Ravine at about 3424 7741, and 3600 m. In the more elevated regions of Ladak, such as Rupshu and the Chang Chenmo, the vegetation is similar to that of the Chang Tang; but at lower altitudes, as shown in this picture, trees (*Salix*) and shrubs (*Myricaria*) occur.

4 Outer Plateau, Western Tibet, Porkha Plain facing south toward the Gurla Mandhata Range, and at about 3052 8118, and 4600 m. Highland steppe with gravel beds and boggy spots; the black spots are grazing yaks with sheep behind them at extreme left, and shepherds' oblong tents made of yak hair at the extreme right.

Photo: Salim Ali





Photo: Salim Ali

Outer Plateau, Western Tibet, Rakas Tal at about 3037, 8115, and 4541 m. 5
Typical habitat of the Asiatic wild ass, or kyang (*Equus hemionus*), some of which can be seen faintly in the middle background. *Caragana* scrub in the foreground.

Outer Plateau, Western Tibet, Porkha Plain facing north and near the 6
foot of Mount Kailas (6714 m.). Small herd of kyangs in foreground.

Photo: Salim Ali

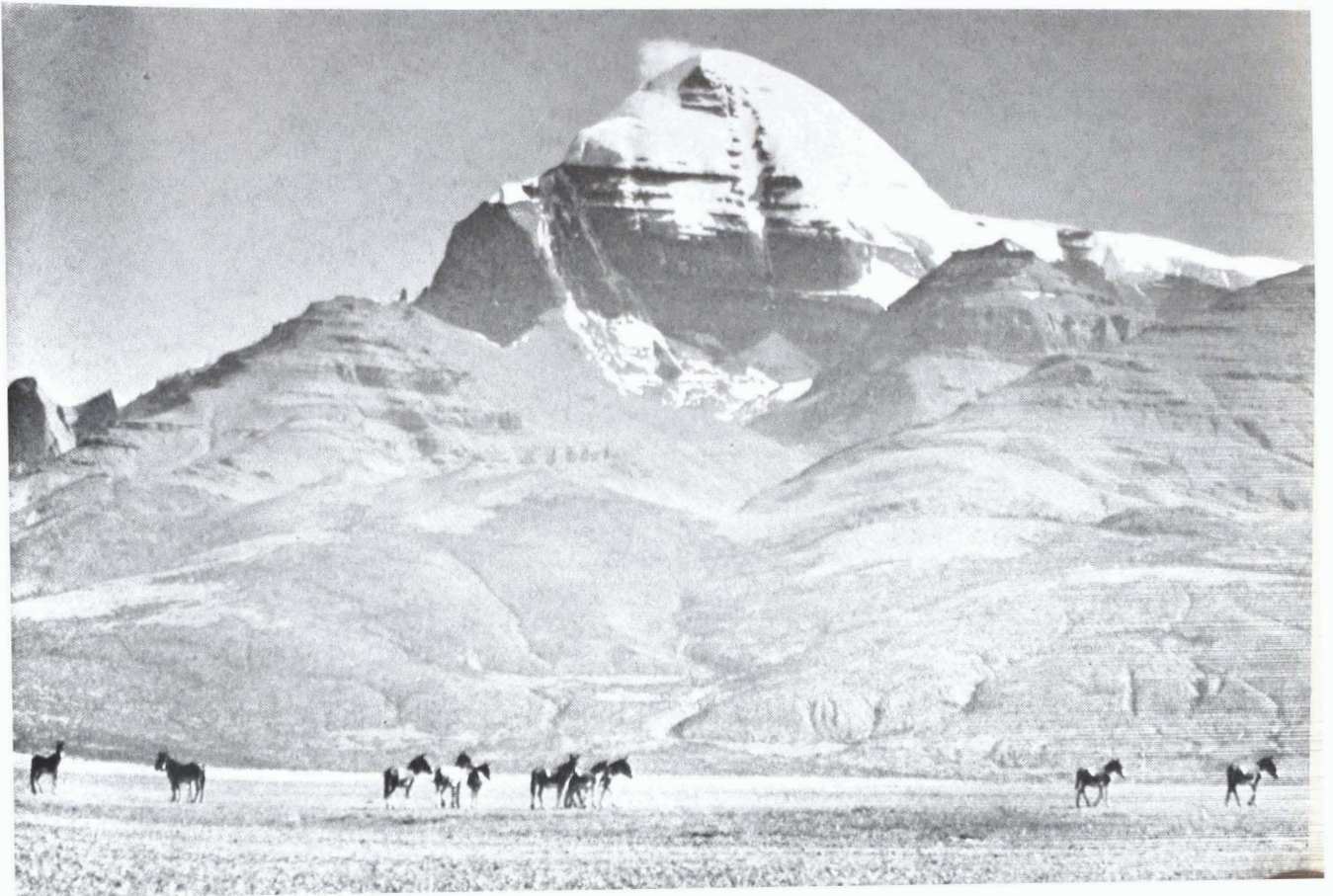




Photo: Frank Ludlow

- 7 Outer Plateau, Southern Tibet, upper Chumbi Valley between Gotsa and Phari Dzong, at about 2742 8905, and 4000 m. Thin *Abies* and *Juniperus* forest on the hill slopes.

- 8 Outer Plateau, Southern Tibet, sand dunes and xerophytic vegetation, consisting of *Tamarisk* and *Sophora* scrub, along the Tsangpo near Samye Gompa, about 2917 9134, and 3300 m.

Photo: Ernst S.



Photo: G. Taylor

- 9 Southeastern Plateau, junipers lining the Tsangpo above Nye with conifer forest on the heights above, at about 2901 9317, and 3250 m.



- 0 Southeastern Plateau, junction of Tsangpo and Giamda Chu near Tsela Dzong, or about 2925 9422, and 2957 m. The view faces south with Namcha Barwa in far distance.

Photo: G. Sherriff





Photo: H.M. the Chogyal of Sikkim

11

Southeastern Plateau, lower reaches of the Giamda Chu near its junction with the Tsangpo. The view faces north, the range in the background rising to 6000 m. and the tree line to about 4200 m.

12

Southeastern Plateau, camp at Tripe, 2937 9456, and 3048 m. The view is directed toward the north face of Namcha Barwa (7745 m.). The valley rises steeply through bamboo, rhododendron, oak, and juniper into the *Picea* and *Abies* zone.

Photo: Frank Ludlow

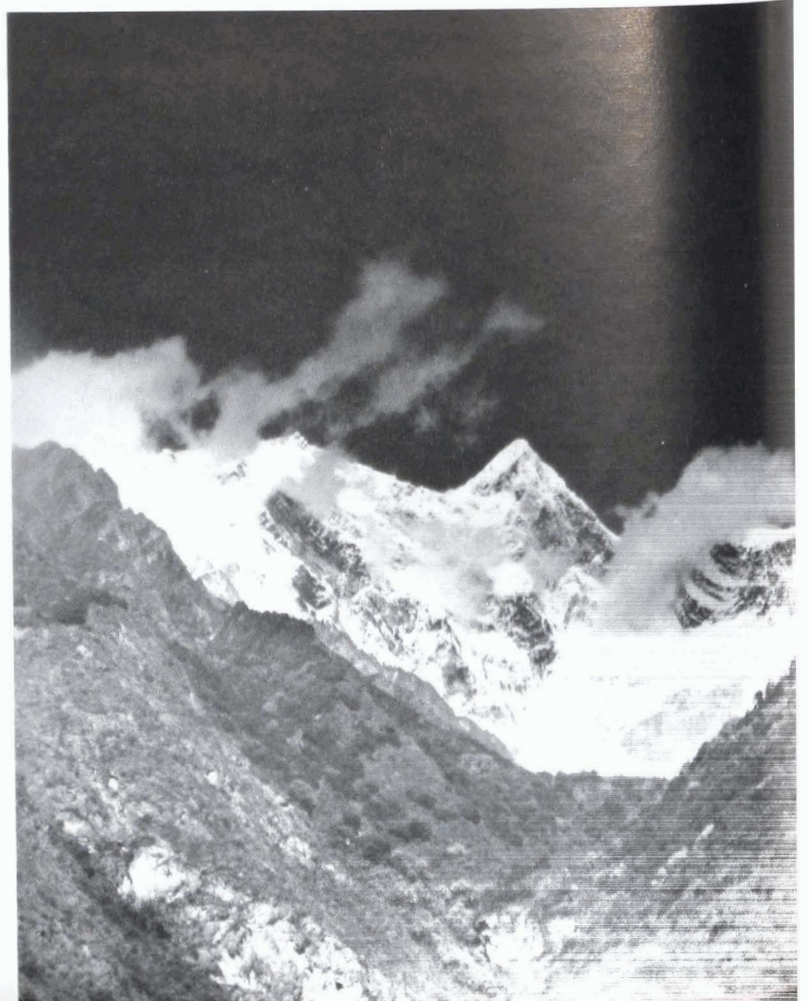




Photo: G. Taylor

- 13 Southeastern Plateau, camp near Gyala, 2942 9455, and 2835 m. The tree line ascends to about 4200 m., and Gyala Peri, in the background, to 7150 m.

- 14 Southeastern Plateau, Po Tsangpo near Showa, or about 2955 9524, and 2591 m. The view looks east toward the Dashing Peaks and forests of pine (*Pinus tabulaeformis*) and spruce (*Picea spinulosa*) clothe both banks of the river.

Photo: Frank Ludlow

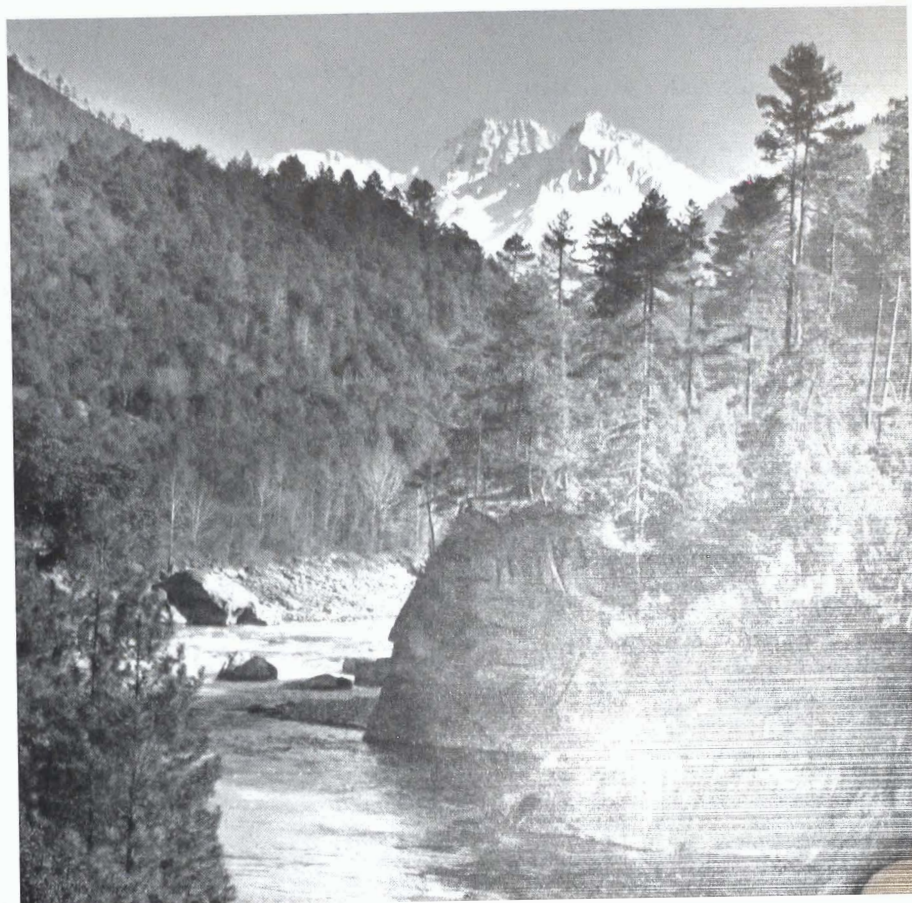




Photo: F. Kingdon Ward

15 Border of the Outer and Southeastern Plateaux, Trasum Kye La on the Tsangpo-Salween Divide, 5258 m., facing north toward the Outer Plateau. Bushy vegetation in the foreground and thin sparse forest on the slopes below the retreating glaciers photographed in 1924.



Photo: Brooke Dolan and Ilia A. Tolstoy

Outer Plateau, Eastern Tibet, marshy grasslands with ponds at about 4600 m. southeast of the Oring Nor. *Grus nigricollis* and *Anser indicus* breed on these ponds. 16

Outer Plateau, Eastern Tibet, wooded canyon of the Chasora (or Ta-ho-pa) River. 17

Photo: Brooke Dolan and Ilia A. Tolstoy





Photo: Joseph F. Rock

Outer Plateau, Amdo, canyon of the Hwang ho looking downstream and south of the mouth of the Tagso Nang Canyon, or about 3502 10025, and about 3200 m. Spruce forest on the left slopes and junipers in foreground.



Photo: Joseph F. Rock

Outer Plateau, Amdo, view up the Tagso Nang Canyon showing densely forested northern slopes and bare slopes facing south; elevation 3323 m. on top of the bluff at the left.

19

Outer Plateau, Amdo, small valley at 3048 m. on the north slope of the Jupar Range. The vegetation shown identified by Rock as spruce (*Picea asperata*), willows, birches, cotton-caster, *Potentilla salesoviana*, *Caragana brevifolia*, and *Lonicera syringantha*.

20

Photo: Joseph F. Rock

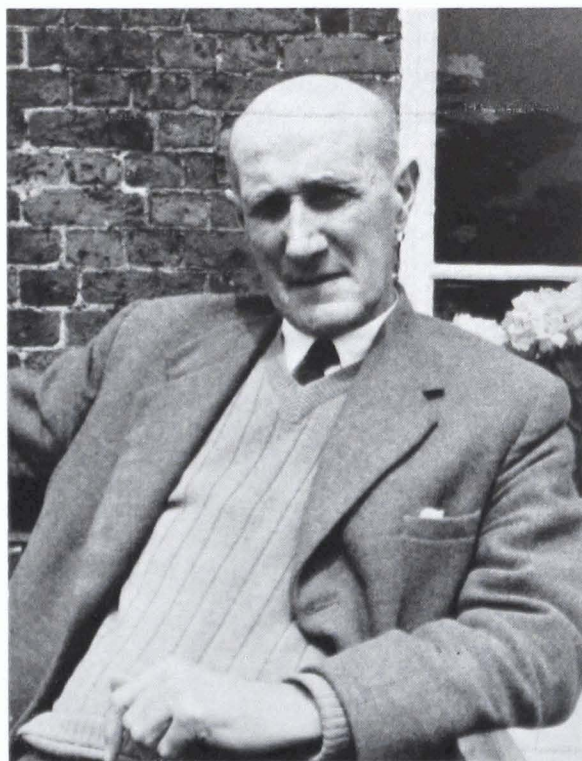




21 Nikolai Mikhailovich Przhevalsky



22 Pyotr Kuzmich Kozlov



23 Frank Ludlow

which is recorded frequently as the minimum by Schäfer (1938). On the high passes and exposed plateau, the lowest temperature on record is -1°F (-18°C), which is mentioned by Teichman for the region east of the divide, and was also recorded west of the divide by Ward at Laru, north of Giamda Dzong, on January 19, the thermometer being "sheltered". The highest temperature recorded was 77°F (25°C) reported by Bonvalot (1892b) on April 28 in the upper Salween Basin, and also by Ward on August 3 in the valley of the Yigrong Chu at four in the afternoon "inside my tent". During the night of August 3, the minimum was 60°F (16°C) "with heavy dew", but, on the night of April 28, the minimum reported by Bonvalot was -3°C . The fact that the temperature varied from slight frost at night to a high of 25°C by day on April 28 suggests that the temperature probably rises higher than 25°C during the summer.

I have found only scattered and very brief comments on the climate during the spring, summer, and autumn, other than the remarks on the rainfall, but the spring comes early, with fast rising temperature, as stated by Kozlov and noted by Bonvalot. The autumn seems to be very temperate as it is said by Pereira (1924) to be "as mild as an English autumn . . . [but with] generally a frost at night".

The transition from the Outer Plateau to the Southeastern Plateau is gradual, but as the latter becomes more eroded and dissected, more open to the monsoon, it acquires a milder and more humid climate and much of it becomes covered with forest. Forest grows at the northeastern end of the Outer Plateau, and a small forest exists also north of Lhasa, but, with these exceptions, the Outer Plateau is dominated by grasslands in the east and its vegetation becomes very poor and scanty in the west, whereas the forest is the truly characteristic feature of the Southeastern Plateau. It has also a great wealth of alpine plants and associated with this rich flora is an equally large and rich avifauna.

Ward has discussed the vegetation of Tibet and its distribution on several occasions. In accounts published in 1936 and 1941 he lists the different climaxes and classifies the forest in a number of types. The information gathered by Ward and other botanists was incorporated by Schweinfurth (1957) in his very important work on the distribution of the vegetation of the Himalayas. This work supplies a large map of the vegetation and the account which follows is based chiefly on this map. Tibetan regions that are north of the Main Range but adjacent to it are included on the map, and also the region east of the bend of the Tsangpo to the Yangtze, north to about the 30th parallel.

Schweinfurth's map shows that the bottom of the valleys of the Southeastern Plateau west of the divide is occupied mainly by "Steppe Forest" and "Alpine Steppe". The steppe forest is characterized by several species of pines and by oaks, the latter replacing the pines in the upper part of the basin of the

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Giamda Chu, a region which is more arid and probably colder than the valleys farther east. The pines and/or oaks are eventually replaced by junipers on the northern and western borders of the Southeastern Plateau as the vegetation gradually assumes the character of an alpine steppe and grades into the vegetation of the Outer Plateau.

The types of vegetation mentioned occupy the bottom of the valley of the Tsangpo above Gyala where the gorge of the river begins, the bottom of the valley of the Giamda Chu and of its upper tributaries, the headwaters of the Yigrong Chu above Ragoonka and the region near its mouth north of Gya (but not the bottom of the valley), the valley of the Po Tsangpo and of its tributaries above Dem (pl. 14), and the bottom of the valley of the Rong Chu a few kilometres above its junction with the Po Tsangpo. This type of dry vegetation is found also east of the Pasum Tso in the region of Lopa, on the upper Tsari Chu and along the Char Chu, and also in the region of Chayul Dzong. Ward mentions also that sand dunes and gravel banks with a xerophytic vegetation are found along the Tsangpo (pl. 8).

The transition from the Outer Plateau to the forest is not abrupt and was described by Ward (1936) who says "In a big valley such as the Tsangpo valley, for example [the transition] is through tall shrub growth and scattered trees, mostly of small size. The first trees are found high upon the flanks of the ranges and in the side valleys. The sheltered slopes are the first to be covered with forest; only gradually does the forest descend to the bottom of the valley, the limiting factor here being wind. In the Tsangpo valley itself the first trees are Junipers [pl. 9], closely followed by *Pinus tabuliformis* which in the side valleys ascends to 10,500 feet. At 9000 feet, *Pinus tabuliformis* is replaced by *P. Armandii*. *Abies Webbiana* is found close to the river above Tsela Dzong, at 10,500 feet, and higher up becomes the dominant tree."

The drier alpine steppe, or steppe forest, is replaced at higher elevations by a zone of alpine scrub and meadows which is very extensive. The transition is direct in the west or in the drier regions, or a narrow zone of thin alpine forest intervenes which is characterized by junipers, birch, and some species of rhododendrons. This poor alpine forest is found on the upper Chayul Chu, along the Char Chu, and in the region of the Putrang La, or to the limit of the Southeastern Plateau that I have outlined. But in the east, and in more humid regions, the transition from the dry steppe and forest is through two zones of other types of forest as a rule. The lower one of these two zones consists of mixed deciduous and coniferous forest, and the upper one of moist coniferous forest with species of rhododendrons different from those of the alpine forest. These rhododendrons grow also above the conifers for a short distance on to the alpine zone of scrub and meadows.

All the types of vegetation that have been mentioned so far are found east of

the Tsangpo-Salween Divide within the geographic limits of Tibet, but an additional type of forest is found west of the divide. This is a narrow tongue of moist tropical evergreen forest which ascends north on to the plateau from the southern slopes of the Himalayas through the very deep and important gap east of Namcha Barwa. This gap was described above and the moist tropical evergreen forest occupies most of the low elevations mentioned in the description. On Schweinfurth's map, this forest ascends the gorge of the Tsangpo to Gyala, where the gorge begins as stated above; the gorge of the Po Tsangpo to the junction of this river with the Yigrong Chu, after sending a short extension along the Rong Chu near Trulung; the gorge of the Po Tsangpo to about Dem above the junction with the Yigrong Chu; and the gorge of the Yigrong Chu, above the Yigrong Tso, to about Talu. The latter is located about 40 kilometres above the junction of the Yigrong Chu and Po Tsangpo, but the forest stops much shorter along the Po Tsangpo, as Dem is located only about 12 kilometres above the junction. This forest apparently does not ascend very high on the slopes above the gorges, and, above Talu, the bottom of the valley of the Yigrong Chu is occupied by mixed deciduous and coniferous forest which extends upstream to about Ragoonka. Moist coniferous forest grows on the slopes above the mixed deciduous and coniferous forest, and also above the moist tropical evergreen forest (frontispiece).

The moist tropical evergreen forest is very dense and rich in species. The characteristic trees and plants that are mentioned by Schweinfurth are magnolias, laurels, and *Rhododendron arboreum*, but this forest consists also of many species of oaks and other trees. Its extension along the Yigrong Chu was described by Ward (1941) who says that it consists there of "veteran trees . . . of great girth, but I could not distinguish what they were except a species of oak, and another beautiful tree with large compound leaves which may have been either *Cedrela* or *Ailanthus*. The canopy was close, and the tangle of big vines, the wealth of moss and epiphytes, and the luxuriant undergrowth made identification and even collecting difficult." He remarks, a few pages later, that "such glorious country, never before seen by a European . . . does not fit in with the popular idea of Tibet." Ward's trip was made in August 1935 and he is still probably the only naturalist who has explored the valley of the Yigrong Chu to its head.

East of the bend of the Tsangpo, the bottom of the valley of the Po Tsangpo is occupied by steppe forest above Dem, as stated above. This forest extends to the valleys of the Potö Chu and of the Ngagong Chu and is replaced on the slopes of these valleys by moist coniferous forest, but at a point a few kilometres above Sum Dzong the moist coniferous forest descends to the bottom of the valley of the Ngagong Chu and extends upstream to Migto. Above Migto, it is replaced by mixed deciduous and coniferous forest for a distance

of about 25 kilometres to the western end of the Ngan Tso. This lake and Shugden Gompa are situated on an alpine steppe with junipers which extends far north to beyond the 30th parallel and south to the Ata Kang La. Farther east, the vegetation on the bottom of the valley of the upper Zayul Chu consists of alpine steppe or of steppe forest to a few kilometres above Sangacho Dzong, with a zone of moist coniferous forest growing on the upper slopes of the valley.

Schweinfurth shows that the gorges of the Salween, Mekong, and Yangtze are arid, the vegetation consisting of alpine steppe or of steppe forest, but moist coniferous forest grows above the gorge on both sides on the slopes of the valley of the Salween, but only on the western slope in the case of the Mekong. The valley of the Dayul Chu, a large affluent of the Salween, is occupied by moist coniferous forest, except at the bottom of the valley on the lower course of the river, where this forest is replaced by the drier forest steppe.

The gorge and valley of the Yangtze are more arid, and the map shows only very small patches of mixed deciduous and coniferous forest, and of moist coniferous forest, in the valley of the He Chu, an affluent of the right bank of the Yangtze, and of smaller tributaries near Gora and Kongtsuka. Forest steppe also grows on the side valleys of these tributaries and along the He Chu to a point a few kilometres above Markham Dzong.

Schäfer (1938) has published an instructive diagram of the vertical distribution of the vegetation in the valley of the Yangtze at Batang. In this diagram, and in his discussion, Schäfer distinguishes quite correctly between the gorge proper which was cut by erosion to a depth of 900 metres, and the glacial valley above the gorge which is broader and 1000 metres deep. The gorge is arid and its vegetation is xerophytic, but the glacial valley is densely forested according to Schäfer. The plants he mentions in the gorge are several members of the rose family, barberry, stipagrass, *Selaginella*, and *Artemisia*. In the glacial valley, pines grow at the bottom, with spruce or holly, interspersed with poplars, birch, and meadows, above the pines. Above this zone, Schäfer distinguishes also between the vegetation on dry or wet slopes. On the former, the vegetation consists of junipers growing above the hollies; on the wetter slopes, the trees are spruce and fir with large rhododendrons above the conifers. These rhododendrons are replaced by dwarf rhododendrons for a short distance on the alpine slopes above the glacial valley.

Another diagram of the vertical distribution of the vegetation has been given by Schäfer for a locality (Dzogchen Gompa) which is situated at about 235 kilometres north of Batang in the region between the Yangtze and the Yalung Rivers. The vegetation is more arid at Dzogchen Gompa and Schäfer divides it in four zones. The lowest consists of bushes, with a zone of mountain forest ("*Montanwaldzone*") above the bushes, and a third zone above this forest consisting of stunted trees ("*Krummholzzone*") at its lowest level and of bushes

above the trees. This third zone is replaced by high alpine vegetation ("*Hochalpenzone*") at about 5000 metres. This fourth and highest zone, and probably also the bushes of the third zone, seem to correspond to the zone of alpine scrub and meadows of Schweinfurth.

The vegetation in the Yangtze Valley was mapped as far north as Batang by Schweinfurth and the entire valley is shown as occupied by an alpine steppe south to about latitude 27° 30' where his map ends. In the text, however, Schweinfurth mentions the information given by Schäfer for Batang and refers to the vegetation on the wet slopes of the glacial valley as subalpine forest, and that on the dry slopes as steppe forest.

The Southeastern Plateau is more extensively inhabited than the Outer Plateau but its population is probably much smaller as most of the settlements seem to be very small. There are no large towns or monasteries comparable to those in the northeastern and southern parts of the Outer Plateau, but some are important. The largest town seems to be Jyekundo which was mentioned above. It is or was the most important trading centre of the Southeastern Plateau at the junction of five major routes which connect Lhasa to north-eastern Tibet and which arrive also from Chamdo in the south and Szechwan in the southeast. Chamdo seems to be smaller than Jyekundo but has always been an important centre on the old China Road from Lhasa to Szechwan via Tatsienlu which is now called Kangting. This road crosses the Yangtze at Batang which is situated on the left bank of the Yangtze, and Batang is or was of major political importance as the gateway to Tibet. The two most eminent monasteries were those of Kantse and Dege Gönchen (formerly Derge), the latter being famous for its printing press which printed sacred works in Tibetan.

The settlements west of the Tsangpo-Salween Divide are less prominent and the most notable are Tsela Dzong and Giamda Dzong; they are or were administrative centres, and Giamda Dzong derived added importance by being an important station on the China Road. With recent political and social changes, the relative importance of the settlements named has no doubt been altered. Jyekundo has probably declined, as a commercial and trading centre at any rate, though probably not as a communication centre, whereas the importance of Chamdo and Giamda Dzong seems to have increased.

CHAPTER TWO

History and ornithological exploration

ORNITHOLOGICAL exploration has been actively promoted everywhere by political expansion, but this has been especially true in the case of Tibet which, for so long, resisted any kind of exploration. Its extreme aloofness, not to say xenophobia, was the product of its history which is too often ignored and distorted. The history of Tibet has had such a direct bearing on its ornithological exploration that it seems desirable to me to relate it here very broadly.

The origin of the very name "Tibet" is uncertain. Stein (1962) says that the Tibetans call their country "Bod", but were confused, perhaps, with Turco-Mongol populations of the northeast which the Chinese called "T'ou-fa", the original form of which may have been something like "Tuppat" or "Tüpüt". At any rate, variants of the latter (such as "Tübbet", or "Tibbat") were spread by the writings of the Moslem authors of the ninth century and adopted by the early European travellers. In the modern Chinese atlases, the political province of Tibet is called "Hsitsang".

The early history of Tibet is mythical and mentions a series of legendary kings culminating in the first historical king whose name was Songtsen Gampo, who reigned in the seventh century and died in 649 or 650. This king, a great Tibetan hero, waged successful war on China and compelled the Chinese Emperor to yield to him a Chinese princess in marriage. The lady, who is famous, was called Wen-tch'eng (Kongjo in Tibetan) and was a Buddhist who apparently greatly influenced the king. Young Tibetan noblemen were sent to the court of the Emperor for training, and Chinese pilgrims and ambassadors were received in exchange. Chinese influence on Tibet dates from this period.

The successors of Songtsen Gampo broke the peace, conquered Turkestan, invaded successfully northern India to set their frontier at the Ganges, and waged war on China with varying fortune, capturing the capital of China on one occasion. Tibetan power was at its zenith, but collapsed when Ropalchan, the last of the great kings, who reigned between 815 and 838, became a monk after having made peace with China. The glory of Tibet ended with him, and

the monarchy with his son when the latter was murdered after a very brief reign.

A very long period followed, characterized by much spiritual and philosophical effervescence, but also by complete political chaos, which ended with the Mongol invasion in the thirteenth century. Tibet lost its independence but remained autonomous under the leadership of the abbots of Sakya Monastery who were appointed regents by Khubilai when he became emperor. But other monasteries became politically active when the Mongol power became divided, and another period of chaos followed. During this period, in 1578 or thereabouts, the abbot of Drepung received the famous title of Dalai Lama from one of the Mongol chieftains, Dalai signifying "ocean" in Mongol.

The most important date which follows is 1720 when a Chinese army took possession of Lhasa, after war had broken out over the succession of the sixth Dalai Lama. A protectorate was established, and from there on China was represented in Lhasa by ministers, called Ambans, supported by a small garrison. But the sovereignty of the Dalai Lama over central Tibet was tacitly recognized by China, subject to some control over his succession.

Tibet had, hitherto, permitted the entry of a few westerners, notably the Italian Catholic missionaries, who had been well received and were permitted to preach and build a church in Lhasa from 1707 to 1745. But Tibet soon became a forbidden land and the few missionaries or explorers who succeeded in entering it did so through surprise or deceit.

China was able to control and protect Tibet until she crumbled in the nineteenth century under the blows of the European nations and Japan. A Gurkha invasion of southern Tibet from Nepal was crushed in 1792, and also one of Ladak and western Tibet from Kashmir in 1841, but Ladak was lost soon after to the Sikhs who were defeated, in turn, by the British a few years later. The result was that Ladak, incorporated into Kashmir, became the first region of Tibet that was visited by ornithologists.

The swift and disastrous deterioration of China left Tibet open to Russian pressure from the northeast and British from the south. The first Russian reconnaissance took place in 1872, led by Przhevalsky. The British started later by establishing their protectorate over Sikkim in 1890, their intervention culminating in the war of 1904 when they occupied Lhasa. The convention which followed gave certain rights to the British, the most important of which was the establishment of a permanent mission at Gyantse, but the peace treaty with China did not question the suzerainty of the latter over Tibet. Any fears that the Russians might have had on that score, and on the British designs in Tibet, were eliminated by a convention between them and the British in 1907 whereby "The two High Contracting Parties engage to respect the territorial

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integrity of Thibet . . . to abstain from all interference in the internal administration . . . [and] in conformity with the admitted principle of the suzerainty of China over Thibet . . . not to enter into negotiations with Thibet except through the intermediary of the Chinese Government." Tibet was thus set up as a huge buffer.

Russia and Great Britain were both guilty of naked intervention, but we must admit that this intervention contributed enormously to the advancement of the ornithology of central Asia.

China reacted to reaffirm her claim on Tibet and sent her troops to Lhasa, but this effort collapsed with the advent of the Chinese revolution in 1911. With the fall of the Emperor, the Dalai Lama, claiming that his allegiance had been to the person of the Emperor only, declared himself sovereign.

The next episode took place at Simla in the spring of 1914 when plenipotentiaries from Great Britain, Tibet, and China met to settle the whole Tibetan question. The preliminary agreement reached gave satisfaction to China, in so far as her claim on Tibet was concerned, but the negotiations broke down when China refused to accept the frontiers that were drawn. The first World War broke out about two weeks later, the negotiations over the frontiers were never resumed, and this question remains to trouble dangerously the relations of India and China.¹

Tibet's claim to independence was not recognized by the European powers, or by America, who had become the allies of China, and, apparently, was not pressed by the Tibetans themselves until it was much too late on the eve of the day when the new government (Communist) of China took over in Tibet. Modern technology is transforming Tibet very fast, but for the present, at least, it is even more "forbidden" to foreign visitors than it was in the darkest days of the past.

This very broad account of the history of Tibet has been based chiefly on the book published recently by Stein (1962) which is objective and supplies a good bibliography of about 220 titles divided about equally between historical Tibetan and Chinese sources and works by modern authors. The well-known work by Bell (1924) is valuable, because Sir Charles Bell was the chief British diplomat in charge of Tibetan affairs from about 1904 to 1920, but it is dated and suffers from too much self-justification and prejudice against the Chinese. Bell supplies the texts of a number of treaties and conventions which concern Tibet directly or indirectly, but gives very few references.

Birds from Tibet seem to have been unknown during the eighteenth cen-

¹ For comments on Anglo-Indian border claims based on "historical and other arguments which contain more than the normal share of myth [which] has become sacrosanct", see Burton's review of Alastair Lamb's book *The McMahon Line*, in *Geographical Journal*, 1967, vol. 133, pp. 372-373.

tury. To be sure, Linnaeus (1707–1778), Latham (1740–1837), and Gmelin (1748–1804) mention one species (*Pavo Tibetanus*) which they all obtained from Brisson (1723–1806), but this species does not occur in Tibet and was described by Brisson (1760, *Ornithologie*, vol. 1, p. 294, pl. 28 A) from a drawing of a bird obtained in southeastern China or northern Vietnam. Brisson, who called this bird “Le Paon du Tibet, *Pavo Tibetanus*”, and said it lived “*dans le Royaume du Tibet*”, remarked “Je n’ai jamais vu cette espèce de Paon. Je l’ai décrite et fait graver d’après un dessin fait sur l’Oiseau vivant par M. Poivre,” but Stresemann (1889–x) has shown (1952) that Poivre saw this bird in Canton where it had been imported from Tonkin or Yunnan.

This species is *Polyplectron bicalcaratum* which Linnaeus (1758) had described two years before Brisson as *Pavo bicalcaratus*, “Habitat in China”. Linnaeus added *tibetanus* subsequently (1766) to the synonymy of his *bicalcaratus*, listing it as a variety “ β *Pavo tibetanus*”, which he credited to Brisson, but *tibetanus* was listed as a separate species by Latham (1783), and Gmelin (1789).

I have not made a very exhaustive search, but it seems fairly certain that *Crossoptilon crossoptilon* (the Tibetan Eared Pheasant) was the first species that was described scientifically from Tibet. This was done by Hodgson (1800–1894) in 1838 on the basis of “one specimen . . . brought recently to *Cathmandu* by the Nipalese envoy to Peking, who has just returned here”. Hodgson states that this species inhabits Tibet, but the locality where this specimen was collected is unknown, although the white colouration of this specimen (which I have examined) suggests that it probably was taken in eastern Tibet, east of the 95th meridian. The description of *C. crossoptilon* thus starts the ornithology of Tibet very auspiciously, because it is the most striking and regal of all the typically Tibetan birds.

The honour of describing the first species goes to Hodgson, but he was not the first to mention birds from Tibet. This distinction did not fall to an ornithologist, but to an explorer, the colourful William Moorcroft (1765–?1825 or 1838), who visited western Tibet in 1812. Moorcroft was an Englishman in the employ of the Indian Civil Service who requested and was granted leave to enter Tibet, ostensibly to buy Cashmere wool and some of the goats from which it is produced, but whose real purpose was to explore and survey Lake Manasarowar. He wanted also to verify the tradition that this lake is the source of the sacred Ganges. This tradition is false, but Moorcroft came to the mistaken conclusion that the lake has no outlet, whereas it is the source of the Sutlej River, a fact which Moorcroft was not able to ascertain because he fell very ill at the lake.

Moorcroft has left a fascinating account of his trip (1816) in which he mentions casually a number of birds that he saw. He entered Tibet via the Niti Pass and returned the same way. North of the pass he saw a bird which he calls “the

red Tuti", and which is most probably *Carpodacus erythrinus*, "larks and linnets", "ravens of a large size", "an immensely large eagle on the wing" which perhaps was actually a Lammergeyer, "and a blue pigeon with lighter plumage than that common in Hindustan" which probably was *Columba rupestris*.

In the Sutlej Valley east of Daba he killed "two grouse, or birds of this class, of a fawn colour, feathered legs, broad feet, covered with a pad of horn, divided into many points, like shagreen, and having two long thin tail feathers", which is a very good, and probably the first, description of *Syrrhaptes tibetanus* which was not described scientifically until 1850 by Gould! In the same valley Moorcroft saw some "Brahmini geese", which were identified by the editor in a footnote as *Anas Casarca* [which equals *Tadorna ferruginea*], and he also saw there some "small shrikes hovering over the river", the identity of which is mysterious to me.

Moorcroft reached Lake Manasarowar on August 6 where he saw "large grey wild goose, which in large flocks of old ones with young broods, hastened into the lake at my approach . . . [which] from the numbers I saw, and the quantity of their dung, appear to frequent this lake in vast bodies". This is *Anser indicus*, which Moorcroft says breeds also in "vast numbers" at Lake Rawanhrad, which appears to be another name for the Rakas Tal, the western twin of Manasarowar. At the latter, Moorcroft also saw "many aquatic eagles [*Haliaeetus leucoryphus*] perched upon the crags of rock; and several kinds of gulls skimmed along the skirts of the water." One of those gulls was undoubtedly *Larus brunnicephalus*, but I suspect that the "gull" that was doing most of the skimming was probably the tern, *Sterna hirundo*.

On the return from Lake Manasarowar, Moorcroft shot some "Chakors" [*Alectoris chukar*] between "Dumpu" (which is probably another name for Dongpo Gompa) and Daba, but failed to shoot "a partridge very like that of England in plumage and size, but which had a strange grunting call . . . [and] ran [so] astonishingly swift, [that] I could not make it take wing". I believe that this was certainly *Perdix hodgsoniae*. He also reported a "black partridge" [*Francolinus*] near Bampa, but this locality is south of the Niti Pass, no longer in Tibet.

Moorcroft thus reported 15 species from Tibet. Some cannot be identified, and others were already known to ornithological science, although not the well-marked Tibetan subspecies of the Raven, and of the Common Tern, which I believe was probably one of the "gulls" that he saw. But four species were "new", and were not to be described until well after 1816. These, with the dates at which they were named, are: *Syrrhaptes tibetanus*, 1850; *Larus brunnicephalus*, 1840; *Alectoris chukar*, 1830; and *Perdix hodgsoniae*, 1857.

Moorcroft was captured by the Gurkhas on his return and underwent hair-

raising experiences, but undismayed by his treatment, he undertook another expedition in 1824 to explore Turkestan. This time he posed as a horse-trader and was accompanied by another European who wrote back that Moorcroft had died at or near Ankhui in Afghanistan in 1825. No proof was given and Moorcroft's death remains mysterious, because Huc (1813–1860) claims (1850) that Moorcroft appeared in Lhasa in 1826, posing as a Persian and accompanied by a servant who believed his master was a Kashmiri. Huc states that he questioned this servant and was told by him, and by other persons in Lhasa, that Moorcroft lived there for twelve years, moving about, under the pretext of attending to herds of goats and yaks that he had bought, but really engaged in surveying and mapping. Moorcroft then set out to return to Ladak, from where he was believed to have come, but was murdered on the way in 1838.

This report of Moorcroft's death and activities in Lhasa has been questioned by some authors on the ground that Huc is unreliable or worse, but it has been accepted by others, and the worst allegations that have been made against Huc's veracity have been refuted by modern scholars and explorers. Huc may have embroidered a good story, but his account is so positive and circumstantial that it sounds convincing. It is difficult also to see what Huc would have gained by inventing it, and, moreover, it fits well what is known about Moorcroft's methods and psychology.

I have discussed Moorcroft and his contribution at some length, because he is interesting and was the first to report any bird from Tibet. This fact seems to have been overlooked, and is the more surprising when one considers that his report was published in a well-known journal and mentions some species which remained unknown to science for as many as 41 years later, although these birds are all quite common and abundant.

Ladak passed under British control in 1846 after the final defeat of the Sikhs and thus became the first region of Tibet that could be explored legitimately. English army officers, or officials of the Indian Civil Service, soon took advantage of this opportunity. The first one who seems to have left a record is the famous Allan O. Hume (1829–1912) who said (1868) that he observed some migrant *Grus leucogeranus* at Leh in October [1851], and shot one bird which still constitutes the only record of this species for Tibet. This bird was apparently not prepared as a specimen as Hume wrote that "at the time I was unfortunately too much of a mere sportsman and too little of a naturalist to take much note of a bird which had nothing gamelike in its plumage, and which proved unfit for the table."

Dr A. L. Adams (1826–1882), a surgeon in the British Army, collected and observed birds in Kashmir and Ladak in 1852, and the account he published (1859) is the first report on the birds of these regions. He reports 189 species, but

only 53 of these are recorded for Ladak, and three of the latter are identified to the genus only. One species (*Riparia riparia*) is listed twice because of a taxonomic error, and seven others are birds that were certainly, or probably, misidentified, leaving a net of 42 species for Ladak. The most remarkable was a new species of snow finch which Adams collected in July, very probably near Lamayuru. This bird was described as *Montifringilla adamsi* by Adams in 1858, who, unwittingly, named it for himself by quoting from an unpublished manuscript by F. Moore (1830–1907).

Adams says he made “a large collection”, but he does not state its size, and also fails to mention individual specimens. The latter is unfortunate, because one can rarely know whether a species was collected, or merely seen. With the lack of specimens it is impossible to determine the true identity of the seven species which I believe were misidentified and have never been recorded subsequently from Ladak, or from other regions of Tibet with two exceptions. Some of these species (such as *Apus affinis*) may reach Ladak, but others (such as *Calandrella raytal*) are most highly improbable in any part of Tibet.¹ I do not know what happened to Adams’s collection, but I did find four of his specimens which represent four species, three of which are in the Rothschild Collection of the American Museum of Natural History. The fourth, which is the type of *Montifringilla adamsi*, is in the collection of the British Museum. A good coloured plate of this bird was published by Adams (1859).

Adams has also published (1858) an annotated list of the birds of India. The species mentioned are chiefly from the plains, but include a few from Ladak that were not reported in his 1859 paper. One of these is *Larus ridibundus* which, Adams says, “breeds on the fresh- and salt-water lakes of Ladakh”, but I believe that the gull he saw was probably *L. brunnicephalus*, not *L. ridibundus*, which is only a very rare migrant.

It is not practical to trace back every species as it became known from Tibet, but a reference should be made, perhaps, to Jerdon’s (1811–1872) *Birds of India* (1862–1864) which is a landmark in Indian ornithology. Some 50 species were known then from Tibet, almost all of them from Ladak, but Jerdon mentions only about two dozen in this work. The latter is not a good guide, however, as it applies chiefly to India south of the Himalayas.

The history of ornithological exploration beyond the pioneering stage is best related and made clear by giving a separate account for each region. The

¹ Most sight records can never be verified. One is inclined to ignore sight records entirely, but this is self-defeating when the record is the only one in existence and involves a species that is easily identified and was seen by an experienced and reliable observer. A small number of species reported from Tibet are known only from sight records, some of which I have accepted for the Systematic List with proper comment. The other sight records are relegated to the Hypothetical List or have been ignored entirely, including the complete list that was published in two or three instances.

main natural divisions of Tibet consist only of three, but I have selected seven regions to give an account of the history which are:

- Ladak
- Western Tibet
- Southern Tibet
- Southeastern Tibet
- Northeastern Tibet
- Zaidam
- Chang Tang

Ladak¹

Ladak was the first region of Tibet opened to collectors and is the one that has been most often visited, with the result that its avifauna is relatively well known.

The Czech geologist, Ferdinand Stoliczka (1838–1874), joined the Geological Survey of India as a paleontologist in 1862 and made three trips in the northwestern Himalayas between 1864 and 1866 during which he also observed and collected birds in addition to his normal duties. In 1864, he visited Spiti and eastern Rupshu; in 1865 he crossed Ladak from Rupshu west to about the junction of the Indus and Dras River, returning to India by way of Kashmir after ascending the valley of the Dras to the Zoji La. He did not penetrate into Ladak or Spiti in 1866, but worked in northern Punjab along the valley of the Sutlej River from about Baragaon to almost the Tibetan border.

His report (1868) on the birds observed or collected during these three expeditions is concerned chiefly with those of the Sutlej Valley, but he also mentions species from “West Tibet”, Ladak, and Spiti. Beavan (1867) states that Stoliczka made a “collection of some 300 specimens . . . in Spiti, Ladak, and the neighbouring hill states”, but relatively few species seem to have been taken in Spiti or Ladak. Stoliczka mentioned specimens of only six species from Spiti or Ladak, but the reports of von Pelzeln (1825–1891) suggest that Stoliczka collected about 30 species in Spiti and Ladak, but chiefly in the latter. The number of species that were observed in these two regions (including those that were collected) may run to about 70, but this is not certain because it is not always clear whether Stoliczka is recording his observations or reporting his belief that the species occurs in the region concerned.

Stoliczka returned to Vienna for a visit in 1867 and took with him his collection, or most of it, for study. It was examined also by von Pelzeln, who, with Stoliczka’s consent, published a report (1868a) “on the birds collected . . . [with the exception of] a few new or doubtful species which Dr. Stoliczka himself

¹ Including Baltistan and Spiti.

proposes to describe, in his forth-coming work on Thibet", i.e. the report published by Stoliczka in 1868. The report of von Pelzeln was translated from the German into English (1868b). A list of localities was compiled, with the explicit collaboration of Stoliczka, but it is not always accurate, as some localities which are said to be situated in Tibet are not in Spiti, Rupshu, or Ladak, but south of the main Himalayan Range. For instance, "Gaora, West Tibet", which is mentioned very often, is actually at a moderate elevation in northern Punjab east of Rampur, according to Stoliczka himself (1868).

I believe that at least one of the records, cited by both Stoliczka and von Pelzeln, is invalid. It concerns *Calandrella raytal* which Stoliczka says occurs in Ladak during the summer, adding that it probably migrates still farther north, and returns to winter in Kulu and northern India in good numbers where it is often caged. But this species is unknown north of the Himalayas and Whistler (1926) remarks that he is "not sure what species is indicated". I believe it may be *Calandrella acutirostris* which breeds in Ladak and is a common winter visitor to northern India. The record of *C. raytal* has not been accepted, but the record of *Nemoricola indica* [= *Dendronanthus indicus*] from Suru has not been challenged although it is quite extraordinary. The occurrence of this species north of the Himalayas is also most improbable. The bird that was collected may have been a stray, but this specimen, and also the one of *C. raytal* reported by von Pelzeln from "Lama Guru", should be re-examined if they are still in existence and can be traced.

Stoliczka presented a selection from his collection to the Vienna Museum, according to von Pelzeln, but I have found no information on the disposal of the remainder. I doubt, however, that the specimens of the two species questioned above were given to the Vienna Museum by Stoliczka as they were single examples.

The ornithological exploration of Ladak on an important scale started in 1870-1874 when it was visited by three major expeditions. These were not expeditions in the normal sense, but political missions to Yarkand and Kashgaria from India during which birds were observed and collected in Ladak as well as in Chinese Turkestan, and in two instances in Kashmir also. A professional naturalist was attached to one of these expeditions, but not to the other two on which the Medical Officer collected and observed birds for his own satisfaction.

The first expedition took place in 1870 with G. Henderson (1837-1929) as its Medical Officer who later together with Hume published (1873) a well-known report on this trip. Hume studied the birds that were collected and is solely responsible for the discussion of the ornithological results. His contributions are signed by his initials (A.O.H.), and those of Henderson, who wrote the narrative and also contributed the field notes, by his initials (G.H.). This ex-

pedition, which was led by T. D. Forsyth (1827-1886), is usually referred to as the "First Yarkand Mission".

Ladak was entered at the Zoji La on June 20, 1870, and the mission proceeded down the valley of the Dras River to its junction with the Suru River below Kargil, and then east by way of the Fotu La and Lamayuru, and along the north bank of the Indus east of Lamayuru, to Leh, the capital of Ladak. From Leh, the route followed went east to the western end of Lake Pangong, and then north through eastern Ladak, to the Kara Kash River which was descended to Shakhidulla; at this point (the northern limit that I have adopted for Tibet), Henderson entered into Turkestan. Shakhidulla was reached on August 6, and the mission re-entered Tibet at the same locality on September 20 on its return from Yarkand. The return journey was made farther west by way of the Suget Pass, Lake Qara Tagh, Qiziljilga, and Sumdo, to Gokra where the route followed on the way north was rejoined. The other two expeditions followed essentially the same route, with the exception that Scully cut directly north from Leh through the Khardung La, rather than via Lake Pangong.

A total of 62 species are reported from Ladak, and a fair proportion of these were apparently collected. But it is impossible to know now how many specimens were taken as the total is not mentioned by Henderson and Hume, no enumeration of individual specimens is given, and it is also not always clear whether the species concerned was taken in Ladak or elsewhere.

The disposal of the collection is a puzzle also. Hume very evidently retained some specimens, and perhaps the entire collection, although a part may have been given to the British Museum from the start. If the latter is true, the remainder should have been acquired in principle by the British Museum when Hume made a present of his enormous collection to this museum. However, a very large part of Hume's collection was destroyed in India before it was shipped to London (see below), and some of Henderson's specimens may have been included in the loss. At any rate, I have found only 40 of his specimens in the British Museum.

The Second Yarkand Mission was active in 1873 and 1874 and was more elaborate than the first. It was also led by Forsyth, who had been given the rank of Ambassador for this purpose, and was assisted by five officers and Stoliczka who was added at the last minute.

The mission crossed the Zoji La on August 14 or 15, 1873, and followed the same route as the first mission to Shakhidulla which was reached on October 18. It re-entered Tibet at the same locality early in June, 1874, but on the way south it travelled farther west than Henderson, via the Karakoram Pass which was crossed on June 16. Stoliczka became ill when ascending the pass, complaining of pains in the back of the head, and, growing rapidly worse, died two days later, apparently of acute spinal meningitis, on the 18th at Murghi (now

Murgo). He was buried at Leh. On this expedition, Stoliczka had devoted most of his time to collecting birds. From Murgo, the map of the expedition shows that some members reached Leh by way of the Nubra Valley, while others did so via the Shyok Valley; the return to Kashmir followed the usual route.

The ornithological report was assigned to Hume but was prepared by Sharpe (1847–1909) who published it only in 1891. Sharpe explains the delay in publication by “unwonted pressure of official work”, and by the tragic loss of Hume’s manuscript, saying: “The work would have been done by my friend Mr. Allan Hume, and indeed *was* [italics in original] done by him, but during the rebuilding of a portion of his museum at Simla the whole of the MSS., together with other valuable MSS. work of Mr. Hume’s, was stolen by a dishonest servant and sold as waste-paper in the bazaar.”

Sharpe enumerated the specimens that were collected and, of these, 346, representing 113 species, were collected by Stoliczka in Ladak, with the exception of seven taken by other members of the mission. He also mentions the records of Henderson made in 1870, and those of Scully (see below) made in 1874. Colonel J. Biddulph (1840–1921), then a Captain, was one of the five officers on Forsyth’s staff, but he collected independently from Stoliczka on this mission. However, Biddulph did make his records available to Hume “and these, having luckily escaped the fate which overwhelmed the rest of the MSS.” were incorporated by Sharpe in his report. Unfortunately, the specimens collected by Biddulph are not enumerated, but I get the impression from Sharpe’s report that they ran to well over 100 skins from Ladak, and Sharpe mentions several species that were taken by Biddulph that were not collected by Stoliczka.

The specimens of Biddulph are now better represented in the collection of the British Museum than the specimens taken by Stoliczka, as I found only 45 specimens taken by the latter, as against 70 for Biddulph; six additional specimens of Biddulph from Ladak are in the Rothschild Collection of the American Museum of Natural History. I cannot explain what happened to the remainder of Stoliczka’s specimens. All of his collection was presumably studied by Sharpe in London when he prepared his report, but I found only the 45 specimens mentioned.

Dr J. Scully (1846–1912), a surgeon in the Bengal Army, received “orders to start off [for Kashmir] at very short notice” in May 1874. He does not state when he arrived in Ladak, but he left Leh on September 1, 1874, and travelling directly north through the Khardung La, Nubra Valley, and the Karakoram and Suget Passes, reached Shakhidulla on September 20. He was stationed in Chinese Turkestan until the end of July, 1875, and re-entered Tibet at Shakhidulla on August 25, and proceeded from there eastward in the Kara Kash

Valley to Portash, from where he doubled back to rejoin, south of the Suget Pass, the route he had followed on his way north.

Scully was encouraged by Hume to write a report on the birds he had observed and collected, which he published in 1876 in *Stray Feathers*, the famous journal owned and largely written by Hume. Scully was helped a great deal by Hume, who identified his material, but Hume's contribution to the text consists only of short occasional footnotes signed by him.

This report concerns chiefly the ornithology of Chinese Turkestan but includes also birds observed and collected in Tibet north of the Karakoram. Scully reports 21 species from this very remote region between the Karakoram and the Kara Kash River, and 23 specimens of 15 of these were collected. They include a specimen of *Falco pelegrinoides*, collected on August 27, 1875, at Gulgun Shah on the Kara Kash, which is the only record of this species for Tibet.

I do not know for certain, but I believe the specimens collected by Scully were acquired by the Indian Museum in Calcutta with the probable exception of a few which went to Hume. The British Museum has one of Scully's specimens from Ladak which probably came to it with the collection of Hume.

Allan O. Hume has been mentioned often in this account. He was an extremely competent ornithologist, many years ahead of his generation in the study of Indian ornithology, but he made enemies of many of his colleagues by the "impress of his vigorous personality"—the expression employed by the anonymous author of Hume's obituary in the *Ibis* (1912). Hume was impatient with pretensions, and may have expressed his contempt for inferior work too often and too readily in print, but he was also very generous to the colleagues he respected who asked for help, and he encouraged students, such as Scully, who later became well known. He fought the Ornithological Establishment of his times with growing bitterness and frustration until he broke with ornithology altogether, a decision which was probably finally determined by the loss of his manuscripts. The report on the Second Yarkand Mission was destroyed, as mentioned above, but the most crushing loss must have been his nearly completed study of the whole of the Indian avifauna.

Too "disgusted" to go on (as the anonymous author of the obituary says), Hume decided to offer his entire collection to the British Museum, but this author tells that it was not accepted in good grace. "It might have been supposed that such an offer would be rapturously accepted, and that immediate arrangements would have been made for the transfer of the collection to London. But the authorities of the Museum did not see the matter in that light, and we believe that it took nearly two years of negotiations before Dr. Bowdler Sharpe, then head of the Bird-department, was deputed to go out to India to fetch home the present, and the *magnificent* [italics in original] sum of £300 was put down in the estimates for that purpose."

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This cost was trivial, because Sharpe (1885) tells us that he brought home the really *magnificent* gift of “63,000 birds, 500 nests, 18,500 eggs, besides 400 skins of Mammalia”. But the delay was very costly because Sharpe says that Hume had to destroy “at least 20,000” bird skins “before my arrival” because they had been damaged by *Dermestes*. Some material acquired by Hume from Tibet was probably included in the lot that was destroyed.

Another very costly casualty to ornithology was the suspension of *Stray Feathers*. Hume started this journal in 1872 (an enterprise for which he says he “was not a little abused”) and published it privately until 1888, or after, as he says, he had “given up ornithology”. Eleven volumes were published which average a little over 500 pages each, and most of their content, and sometimes the entire volume, was written by Hume. However, Hume solicited also contributions from colleagues with whom he was in sympathy, and published at his own expense the papers of men who later became leading or well-known ornithologists, notably A. Anderson, J. Biddulph, W. T. Blanford, W. E. Brookes, E. A. Butler, J. H. Gurney, J. Inglis, W. V. Legge, E. W. Oates, J. Scully, H. Seebohm, and R. B. Sharpe. The last became the leading ornithologist of the world at the turn of the century. Oates wrote the volumes on birds in the first edition of the *Fauna of British India*, Seebohm very important works on the thrushes and on Siberia, and Legge the basic work on Ceylon.

Hume may have been difficult at times, but his contribution to ornithology was certainly great in one form or another, especially when we consider that he was, as he says, “single-handed, and with almost my whole time devoted to the performance of public duties”. After Hume apparently “lost all his interest in Ornithology [the author of his obituary says that] he turned to Botany, and made a very large collection of British Plants, which he left to the South London Botanical Institute, founded and endowed by himself”.

The next collection that was made in Ladak seems to be one that was made by the American explorer, Dr W. L. Abbott (1860–1936), who visited Kashmir, Baltistan, and Ladak between 1891 and 1894. A report on this collection was published by C. W. Richmond (1868–1932) in 1896 who states that 746 specimens were taken, but only 69 of this number, representing 33 common species, were collected by Abbott in Ladak, chiefly in June and July 1893. Dr Abbott’s material is in the collection of the United States National Museum in Washington, and the skins from Ladak and a selection from Baltistan were kindly lent to me by Dr G. E. Watson.

A. E. Ward¹ has published a list of the birds of ‘Kashmir and Jammu and

¹ The dates of the persons mentioned in this historical account of the ornithology of Tibet are given when they are known to me, but I have found no information for Ward and some other persons. The biographical list of Colonel O. E. Wynne (1887–x), published in 1969, has been most useful as a source of information.

adjacent districts' (1906–1907), with a supplement (1908). He includes Ladak, and occasionally mentions specimens, or nests and eggs, taken in this region, but often fails to state who collected this material and when. I believe that Ward probably visited Ladak, perhaps in 1905, but I am not certain. At any rate, Ward did employ a professional collector by the name of C. H. Crump to collect specimens in Ladak in 1905 and 1906. The size of the collection made by Crump is unknown to me, but I have found 42 of his specimens, 31 of which are in the collection of the American Museum of Natural History, 10 in that of the British Museum, and one which is in the Naturhistoriska Riksmuseum of Stockholm. It is possible, however, that some of the specimens taken in 1905 were collected by Ward rather than Crump because the labels are sometimes ambiguous.

The Austrian zoologist and explorer, Erich Zugmayer (1879–1938), visited Ladak in the autumn of 1906 from Sinkiang after crossing the region of the northwestern Chang Tang which adjoins Ladak. Zugmayer entered Tibet on or about June 20 by a pass across the Astin Tagh situated south of Polur and which he calls the Su-Baschi Pass. From the latter he travelled almost directly south to the Yeshil Tso, about 25 kilometres east of Lake Lighten, and from the Yeshil Tso went on southwest to Noh at the eastern end of Lake Pangong, after making a side excursion on the way to the Horpa Tso. He then turned directly west, and, travelling north of Lake Pangong, reached Leh on October 3 and left Ladak for Kashmir on October 21 by way of the Zoji La. He described the region traversed from Sinkiang to Lake Pangong in a short paper (1909).

Zugmayer made a small collection of 87 specimens of 42 species, taken on the Chang Tang and in Ladak between June 20 and October 21. Included among them is a specimen of *Crex crex*, taken on September 18 near Lake Pangong, which is the only record of this species for Tibet. A report on the collection, which was sent to the Munich Museum, was published in 1909 by C. Parrot (1867–1911).

The French traveller, Guy Babault (1888–194?), collected birds in 1914 in central India and the northwestern Himalayas including Ladak. He has published a report on the birds collected (1920), and a descriptive account of his trip (1921). He crossed the Bara Lacha La on July 11 and travelled through Rupshu to Leh which he reached on August 8, and then was forced by the outbreak of the first World War to return to India via Kashmir, following the trade route to the Zoji La which he crossed on August 23. No collecting was done after his arrival at Leh.

Babault's report (1920) is somewhat confused, but, as far as I can determine, he collected about 80 specimens of some 28 species in Ladak, chiefly in the regions of Puga and the Tso Morari in Rupshu. He mentions specimens from several localities in "Spiti" (such as Pulga) which are in Kulu south of the main

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Himalayan Range; he did not cross the range into Spiti. The material collected is in the Muséum National d'Histoire Naturelle in Paris.

Frank Ludlow (pl. 23), who was born in 1885, started his great contribution to Tibetan ornithology by working in Ladak in 1919, and visited the latter again from 1928 to 1931. From 1933 on, Ludlow's name is indissolubly associated with the eastern Himalayas and southeastern Tibet, together with that of G. Sherriff (1898-1967), his companion on many trips.

No report was published on the activities of 1928-1931, but during these years Ludlow collected 121 specimens which he sent to the British Museum, with the exception of one that found its way to the Stockholm Museum. In 1928, Ludlow collected in Baltistan from Haramosh to Skardu, and along the Shyok and Nubra Rivers to the Karakoram Pass; from the Zoji La to Leh and the Karakoram in 1929, and throughout Ladak in 1931. The material collected is included in my Systematic List.

The results of the trip made in 1919 were published by Ludlow (1920). He visited Ladak during the spring and summer as far as Rupshu, a region which hitherto seems to have been visited only by Stoliczka and Babault. Ludlow's chief purpose on this trip was to observe the birds during the breeding season and to collect their nests and eggs. Not many specimens were taken, but nevertheless the parent was collected off the nest in most instances to verify identification, and prepared as a skin if further doubt persisted as to identity. The skins and eggs were sent by Ludlow to N. B. Kinnear (1882-1957), then Curator of the Bombay Natural History Society, who, in turn, sent them for identification to E. C. Stuart Baker (1864-1944) in England. I have not seen these skins, which may have been retained by the Society or Baker; they did not find their way to the British Museum to which Ludlow normally sent his specimens. Ludlow mentions 43 species from Ladak in his report, the nest or eggs of which were collected in the great majority of cases.

A Mrs M. L. Wathen visited Ladak during the summer of 1922, and has published (1923) an account of the birds she saw, "a small number" of which she said were collected. She identified 43 species, all of them common, but apparently collected only five specimens which are in the British Museum.

B. B. Osmaston (1868-1961) made three visits to Ladak between 1923 and 1928. He was an egg collector and made these trips during the breeding season to secure material for his collection, but he also brought back a small number of skins and reported on the birds he saw. Osmaston was alone on his first two trips, but he was accompanied on the third by H. Whistler (1889-1943) who made a collection of birds. Admiral H. Lynes (1874-1942) was a member of the third expedition also, but he was forced to abandon it early in Kashmir, before entering Ladak.

The first trip made by Osmaston was the longest and lasted for nearly four

months from April to August, 1923. Osmaston followed the usual route from the Zoji La to Leh, and then went southeast to Rupshu via Upshi on the Indus, Gya, and Debring, to the Tso Kar and the Tso Morari, and then north from this lake to Puga, Nyoma, and the Tsaka La, to Chushul and Lake Pangong, and then cut back west to the junction of the Nubra and Shyok Rivers, via Tangtse and Khardung, and then back to Leh by crossing the Khardung La. He has published a report on this trip (1925) in which he gives an account of 92 species. About half of these were breeding, or about to breed, or had fledged young. The nests and eggs, which are described by Osmaston, were secured for 38 species.

Osmaston mentions in this report that two sets of eggs of a snow cock were brought to him at Leh, and identified these incorrectly as *Tetraogallus tetraogallus*, whereas they were eggs of *T. himalayensis*, an error which Osmaston corrected later (1927) in a general paper on the birds of Kashmir which incorporates the results of his first two trips.

The second trip, which was made in 1925, covered much less territory than the first and took about two months instead of four. It was restricted to the valleys of the Dras and Suru Rivers in western Ladak which Osmaston entered at the Zoji La, as usual, on June 30, but returned to Kashmir on July 25 by way of the Bhotkol Pass, an unusual route which leads into the valley of the upper Wardwan River.

The account of this second expedition was published by Osmaston (1926), but in the form of a chronological narrative only which employs vernacular names far more often than scientific names. This is very confusing, but he seems to have collected the eggs of only 22 species, although he mentions many more.

Osmaston collected some birds on both expeditions, as well as eggs, no doubt primarily for the identification of the eggs, and these birds were prepared as skins which he sent later to the British Museum. These skins are not enumerated anywhere by Osmaston, but I have found about 85 of these specimens in the collection of the British Museum, about two-thirds of which were taken on the first trip, in 1923.

Among the skins taken in 1925 are a pair of *Sylvia althaea* which require comment. These two birds, the owners of a nest with four eggs which Osmaston found on July 8 at Sanko, were misidentified by him as *S. curruca*, an error to which Whistler (1928) has called attention also—as I found much later. The only lesser whitethroat which breeds in Ladak is *S. althaea*. Osmaston (1927) mentions that *S. curruca* breeds in Ladak in his list of the birds of Kashmir, but he apparently confuses the two species, as *curruca* seems to be only a very rare migrant in Ladak.

On the third expedition, Osmaston and Whistler entered Ladak at the Zoji

La on May 23, 1928, and proceeded down the valley of the Dras River to Kargil, and from there east to Lamayuru and Khalatse, and, after returning to Lamayuru, went south to the head of the Suru Valley by a difficult route. They travelled via Honupatta, Photaksar, and the Singi La, and then, turning west through Zaskar, via Linshet, Debring, and the Pigdong La to Ringdom. After exploring the Ringdom Swamp, which is skirted by the Suru River, they followed the latter downstream back to Kargil. From Kargil they went to the junction of the Dras and Shigo-Shigar Rivers and left Ladak, crossing into Baltistan on July 17. In Baltistan they ascended the Shigar River to the Deosai Plain, and re-entered Kashmir on July 26 by way of the Panzil La to Minimarg.

Some of the regions visited by Osmaston and Whistler are interesting and little known, and were described by Osmaston (1930), but his account is an informal narrative similar to the one he published on the second expedition (1926), not a report on the material collected or on scientific results. The eggs that were taken by Osmaston are mentioned in many instances, but only a few casual remarks are made on birds collected for specimens. Whistler was active, however, and made a relatively small, but good, collection in Ladak of some 225 skins. This material, together with the rest of Whistler's large and valuable collection from India, was given to the British Museum by him in his will. Two of the specimens from Ladak, sent by Whistler in exchange, are in the Lenin-grad Museum. No report on the material from Ladak has been published to my knowledge.

Another collection from Ladak, consisting of about 100 skins, on which no report seems to have been published, was made by H. W. Waite (1887-1967) in Ladak and Rupshu in 1929 from early July to the middle of October. It was given by him to the British Museum in 1949 together with the rest of his collection of about 5000 skins, made in the Punjab, with the exceptions of a small lot from Baluchistan and of the specimens from Ladak.

Colonel R. Meinertzhagen (1878-1967) made a collection of some 400 skins, or perhaps more, in Ladak during the spring and summer of 1925, from April 13 to August 7. His party entered Ladak by the Zoji La and followed the usual trade route to Leh from which it went east to the western end of Lake Pangong by way of the Chang La, and then north, by way of the Marsimik La, to the Chang Chenmo Valley which was reached on May 30. From the valley, the route was retraced back to Lake Pangong, and the southern shore of the lake was followed to a point north of Chushul, at which point the party struck south to Puga in Rupshu, and then west from Puga to the Tso Kar, returning to Leh via the Taga Laung La, Gya, Upshi, and Himis. From Leh, a trip was made north, by way of the Khardung La, to the Nubra Valley and the Saser Pass, the return to Leh retracing the same route. From Leh, the expedition headed for Baltistan along the Ladak trade route to Kargil, and, following the

Indus, arrived in Skardu on August 13 where Meinertzhagen caught cholera. The return to Kashmir was made over the Deosai Plateau and the Burzil Pass.

Meinertzhagen has published (1927a) a scientific report of the results, and has also described the regions visited in the *Geographical Journal* (1927b). He does not mention that he was accompanied and assisted by V. S. La Personne, an Assistant Curator on the staff of the Bombay Natural History Society, who has published an independent descriptive account of this expedition (1928). The existence of La Personne was, however, acknowledged indirectly by Meinertzhagen by his description of a new subspecies (*Erythrina rubicilloides laersonnei*), based on the material collected.

The scientific report published by Meinertzhagen (1927a) is quite confusing because he incorporated in it the birds collected or observed in Kashmir and Baltistan on the same expedition, and also on another expedition to Darjeeling and Sikkim in the eastern Himalayas that he made in the winter of 1925-1926 after collecting in the northwest in Ladak. Records from about 6000 feet in Naini Tal in the central Himalayas are also included in this report. After disentangling this unhappy mixture, I find that Meinertzhagen states that he collected 83 species in Ladak. He mentions 22 more. Among the latter, he states clearly that some were seen only, but his remarks about other species are often ambiguous. However, I found specimens of four of these 22 species in the Meinertzhagen Collection which I have examined, making a total of 87 species collected in Ladak.

Meinertzhagen occasionally enumerates specimens, but does not state, anywhere, the size of the collection that he made. The total of about 400 from Ladak that I have given above represents the 375 specimens that are in his collection, and 25 that he sent in exchange to other museums where I have found them. Of these, two are in the Field Museum in Chicago, 14 are in the Lenin-grad Museum, one in the National Museum of Paris, five in the State Museum of Stockholm, and three in the Zoological Museum of Berlin.

The individual specimens enumerated from Ladak by Meinertzhagen suggest that he collected more than 400, but quite a few of those that are listed were not found by me in his collection or among those that I have traced elsewhere.

Theodore and Kermit Roosevelt, the sons of the American president, made a trip to Chinese Turkestan in 1925, accompanied by the veteran collector G. K. Cherrie (1865-1948). The expedition crossed Ladak by way of the trade route from the Zoji La to Leh, Nubra Valley, and Suget Pass; the Zoji La was crossed on May 25 and the Suget Pass on June 27. The return was through Russian Turkestan, by way of Irkeshtam, at least as far as Cherrie was concerned.

The birds collected in Ladak consist of 101 specimens of 28 common species,

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which is not a very good result, but Cherrie was hurried and travelled only along the well-used trade route. He did his best under the circumstances and made a much better collection in Chinese Turkestan when he separated from the rest of the party. The material collected is in the collection of the Field Museum of Natural History in Chicago. A report on it was published by Hellmayr (1878-1944) in 1929.

In July and August, 1926, Major K. Mason of the Survey of India explored the Shaksgam Valley and the Aghil Range, a very remote region north of the Karakoram. One of the members of his party was F. O. Cave (1897-x) who collected a few birds in a very high but favoured valley called the I Valley, or Lungmo-Chhe. The birds were breeding, and the valley, the floor of which varies in altitude from about 4900 to 5500 metres (about 16,000 to 18,000 feet), is described by Mason (1927) as "fertile with grass and burtsa . . . crossed by game tracks in all directions, and butterflies were common. The Tibetan snow-cock and many smaller birds were now in the valley with their broods." The specimens taken by Cave were presented to the British Museum (Natural History).

The Netherland Karakoram Expedition of 1929-1930, under the leadership of Dr and Mrs P. C. Visser, was in the field from May 2, 1929, to August 12, 1930. It was accompanied by J. A. Sillem who had been appointed to make zoological collections and who has published (1934) on the birds that were collected. Sillem reports that close to 500 specimens were taken in Kashmir, Ladak, and Chinese Turkestan, but only about 165, representing 50 species, were collected in Ladak. This is a meagre result when we consider that the expedition spent virtually seven months in Ladak. However, the specimen of *Sylvia nisoria* shot by Sillem at Kataklik in the Shyok Valley on July 2, 1930, is quite outstanding as it is the only record of this species from Ladak or any other part of Tibet. Sillem collected another specimen in Chinese Turkestan, where the species is common, and calls attention to one that was collected in Gilgit by Biddulph on September 6, 1879, which seems to be the only record from India.

The expedition entered Ladak on May 5, 1929, at the Zoji La and followed the trade route to Leh and along the Nubra Valley to the Saser Pass, and then proceeded east to the Depsang Plains after visiting the upper valley of the Shyok River, and north to the valley of the Kara Kash River by crossing the Qara-tagh La and the Kawak Pass. It crossed into Chinese Turkestan on or about September 17, and returned to Ladak on May 11, 1930, via Shakhidulla. After exploring the valley of the upper Yarkand River, the return to Leh was made via the Karakoram Pass, Saser Pass, and Khardung La, and to Kashmir on August 7 by the Zoji La. The birds that were collected were acquired by Mr J. G. van Marle (1901-x) of Amsterdam and form part of his private collection. I have examined them through his courtesy, and I am much indebted to him,

and also to Professor K. H. Voous (1920-x) for very cordial reception and hospitality.

The American naturalist, Dr Walter Koelz (1895-x), collected in Ladak, Baltistan, and Spiti in 1931, 1933, and 1936, and was assisted by the Thakur Rup Chand (1902-x), a native of Kulu, who accompanied Koelz on all his expeditions. Dr Koelz and his party were engaged in collecting plants, but Koelz was interested also in birds, and they collected them whenever "opportunity offered". The collections that were made equal or surpass in size all the material collected in these three regions by all the other expeditions combined.

Koelz has published two reports (1937, 1940) on the birds collected in 1931 and 1933, but none has been published on those taken in 1936, although some reports have been published on the specimens of some families taken by Koelz during these three years and on his other expeditions up to 1949. These reports were published by myself and other workers, and a good example which illustrates the scope of Koelz's collections is my paper on the larks (1951) which lists about 1800 specimens, but is not complete as it does not include all the material taken between 1931 and 1936 because it was then not available to me.

In 1931, Koelz entered Ladak from the southeast on June 23 from Lahul in the Punjab, and explored Rupshu, proceeding north as far as Chushul which he reached on July 24. Then he went west, along the southern shore of Lake Pangong, to Tangtse, and thence, via the Chang La, to the valley of the Indus along which he collected west to Lamayuru. At the latter, he turned south, and reached the valley of the upper Suru River by way of the Kungi La to Ringdom, and, after crossing the Pensi La, he worked his way back to Lahul by following the valleys of the affluents of the upper Zaskar River to the Shingo La which he crossed in the first days of October.

In 1933, Koelz re-entered Rupshu via the Shingo La on July 10, and followed the same route along the affluents of the Zaskar River back to Ringdom and thence followed the Suru River down to Kargil. The middle course of this river, from about Parkutse "to about halfway to Kargil" is called Purig by Koelz in his report (1940). From Kargil, he went to Leh via Lamayuru, and ascended the Indus to Ugu and Miru, returning south to Lahul via Gya, Debring, the Tso Kar, Lachalung La, and Muldem which he reached on August 23. After crossing the Bara Lacha La into Lahul, he followed the Chandra River for a short distance, crossing into Spiti, via the Kanzam La, on September 1. He collected in the valley of the Spiti and one of its side-valleys for the whole month of September, leaving Spiti for Kulu on October 1 by a pass south of Lori.

Koelz collected in Ladak again in 1936, but on this third occasion he entered via Baltistan rather than Rupshu. He ascended the Burzil Pass into Baltistan on August 7, and crossed the Deosai Plateau to Skardu, and from there followed

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the Shyok River upstream to Hundar and Deshkit, turning south to Leh via the Khardung La. From Leh, he went to Lahul along the same route that he had followed in 1933, returning on October 6.

Koelz collected a very large number of specimens, but it is impossible for me to account for all his material exactly, as his collections were dispersed by him to a greater or lesser extent. Moreover, some specimens were traded by Koelz before the material was acquired by various institutions; some were exchanged subsequently by these institutions, and a few were apparently retained by Koelz himself and never went to any institution.

Most of the material collected in 1931, a total of perhaps some 2900 skins, was acquired by the American Museum of Natural History, but a lot of 162 went to the museum of Princeton University, and a few are also in the collections of the Field Museum of Natural History, the Zoological Museum of the University of Michigan in Ann Arbor, and probably elsewhere; one specimen has travelled as far as Israel. The American Museum received 2711 skins taken in 1931, but about 1040 of these have no data other than a collector's number; about 960 are properly labelled with localities in northern Punjab (chiefly in Lahul, Kulu, and region of Rampur), and about 690 with localities in Ladak. It is evident, however, that a good proportion of the unlabelled birds were taken in Ladak, and some indications given by Koelz (1940) permit the identification of a small number to locality and date. I have been informed on very good authority that Dr Koelz has retained his records, so I hope that all this valuable material can be identified with certainty some day. Hitherto, efforts to obtain this information from Koelz have failed.

All the specimens collected in 1933 and 1936 are properly labelled. All those taken in 1933 in Ladak (about 380), and in Spiti (about 385), are in the collection of the University of Michigan, with the exception of a handful from Spiti which went to the Field Museum and the Academy of Natural Sciences of Philadelphia. The Field Museum acquired the great majority of the specimens taken in 1936 which consist of about 560 from Ladak and about 310 from Baltistan, but about 45 skins from Baltistan, and about a dozen from Ladak, went to the University of Michigan; and about 30 from Baltistan and 20 from Ladak went to the American Museum of Natural History. I may add that the labelling of the birds taken in 1936 is often confusing, because some localities which Koelz allocates to Baltistan (for instance the Khardung La, about seven miles north of Leh), are normally considered to be in Ladak.

The approximate numbers mentioned above show that Koelz collected over 2400 specimens which he fully labelled in Baltistan, Spiti, and Ladak, this number probably rising to some 2700 if we include those with a collector's number only. About two-thirds of these 2700 birds are from Ladak. This is a great and unparalleled collection when we consider that it was made over a combined

period of only about eight months by a man whose chief commission was to collect botanical specimens. Dr Koelz is an excellent collector of both plants and birds, but I believe his search for plants in undisturbed areas contributed a great deal to his success with birds. Frank Ludlow, who had an equally great success with the birds of southeastern Tibet, combined both pursuits also. Most of the collectors who preceded Koelz in Ladak were less experienced and adventurous, being content to follow the well-frequented trade routes or tracts, as a rule.

I have seen also 115 specimens from Ladak that I cannot account for. These were collected from 1854 to 1938 and are in the collections of the Academy of Sciences of Leningrad, the American Museum of Natural History, British Museum, Meinertzhagen Collection, and Zoological Museum of Berlin. Some are merely labelled Ladak without further data, and some mention a collection (such as the Gould, Hume, or Gerrard Collection), but not the name of the collector. The two largest lots are 38 specimens in the British Museum taken by Captain R. Strachey (1817-1908), and 26 in the Berlin Museum which were collected by F. A. Peter, who was a German Moravian missionary in Leh; three specimens in Leningrad were taken in 1912 by a person named Mamaiev. A number are single specimens. The oldest of these was taken by a Captain W. J. Smith in 1854, and the most recent by a Reverend Weber in 1923.

Baltistan and Spiti were mentioned above on several occasions. I give a separate account of the birds collected in these two regions because I did not include these regions in my limits of Tibet until I had returned from my visit to the European museums. I had overlooked the fact that Spiti is situated north of the Main Range of the Himalayas, and is, as Whistler says (1923), "Tibetan from every aspect, and is really a portion of Tibet which has been carved off [Tibet by the British for purely political reasons]". I was in doubt about Baltistan, but finally decided that Baltistan, west to the Deosai Plateau, Skardu, and the Shigar River, must be included. The result of my oversight in the case of Spiti and indecision about Baltistan was that I failed to examine the specimens from those two regions which are in the British Museum and the Meinertzhagen Collection. This deficiency has been fully compensated for, however, by Dr Galbraith of the British Museum who gave me information on these two collections, and by the large and excellent series collected in Baltistan and Spiti by Dr Koelz which exceed the specimens taken by all the other collectors combined and which I have examined.

The first important collection from Baltistan (which is known also as "Little Tibet"), seems to have been made by Dr Abbott who also collected in Ladak (see above). Dr Abbott visited Baltistan in 1891 and 1892 and secured 134 specimens of 51 species. This material is in the United States National Museum and is included in Richmond's report (1896). Dr Abbott worked chiefly in the

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region of Skardu and in the valleys of the Shigar and Braldu Rivers, but he collected also at Rondu and Haramosh which are in the valley of the Indus too far west to be included in my survey.

Dr Abbott was not, however, the first to collect in Baltistan because G. T. Vigne, one of the early travellers in the western Himalayas, had collected there about 50 years earlier. In Vigne's letter (1841) read at a meeting of the Zoological Society of London, he mentions five species that he says he collected in "Little Thibet". One of them is the extremely interesting record of *Plegadis falcinellus* which has been reported on only one other occasion in any part of Tibet, an individual seen on the Dras River in nearby Ladak on May 3, 1923, by Osmaston. I have not seen any specimen of *P. falcinellus* from Baltistan, Ladak, or any other part of Tibet, and I suspect Vigne's bird is the only one on record. Its whereabouts are unknown to me and it is possible that it was lost or destroyed long ago.

A. E. Ward, or his collectors, was active in the northwestern Himalayas in 1905 and 1906 and mentioned 19 species from Baltistan in his list of the birds of 'Kashmir and Jammu and adjacent districts' (1906-1907). It is clear, however, that this list is not based entirely on the material in Ward's collection, or on specimens he may have seen in other collections. His sources of information are unknown to me, but I believe the records of *Certhia familiaris*, *Hirundo daurica*, and *Oenanthe isabellina* in Baltistan are doubtful. Ward's record of *Aegithalos leucogenys* was probably based on the specimens taken by Abbott at Haramosh that are reported by Richmond, but, as stated above, I do not include this locality in my limits.

All the other records from Baltistan by Ward have been confirmed, or seem very plausible. He probably had some specimens from Baltistan, but I may add that the few specimens labelled Baltistan by Ward that were acquired by the American Museum of Natural History were not actually taken in Baltistan, but at Astor, or at localities on the Dras River in Ladak.

Colonel R. Meinertzhagen collected in Baltistan in 1925 from August 8 to 27 after he left Ladak; he arrived in Skardu on the 13th and left it on the 19th, only to fall ill with cholera on the same day. His trip was hurried but he reported (1927a) that he saw or collected 47 species during this relatively short period. He did not enumerate all the specimens taken by himself or his party, but Dr Galbraith has informed me that Meinertzhagen's catalogue indicates that 67 specimens of 31 species were collected in Baltistan.

The most interesting record is a specimen of *Caprimulgus europaeus* which was taken at Skardu on August 18; it is the only record of this species for any part of Tibet. This specimen and the one of the young cuckoo which was taken on August 22 on the Deosai Plateau were lent to me by Dr Galbraith. The cuckoo was identified by Meinertzhagen as *Cuculus optatus* [= *C. saturatus*]

“with some hesitation”, but I found that it was a young of *C. canorus*, as I had expected. The latter breeds commonly in Baltistan, whereas *C. saturatus* is highly improbable north of the Main Range of the Himalayas. Meinertzhagen granted that he could be mistaken in his identification, and that the bird might be *C. canorus*.

Osmaston and Whistler visited Baltistan in 1928 after they left Ladak on July 17, proceeding to the Deosai Plateau by ascending the valleys of the Shigo-Shigar and Shigar Rivers, and returning to Kashmir on July 26 via Chota Deosai and the Panzil La. Dr Galbraith informs me that 38 specimens of 15 species were collected by Whistler. No report has been published on these birds, but the trip was described by Osmaston (1930) who mentions some of the species that were encountered.

The large collection of over 300 specimens made in Baltistan by Koelz in 1936 and his itinerary have been mentioned above. No report has been published on the birds collected by Koelz in 1936 in Baltistan and Ladak.

A person by the name of W. H. Matthews made a trip to Baltistan to hunt Ibex, probably in 1940 though he does not mention the year. He was in Baltistan from July 15 to August 20 and has published a report (1941) on the birds he saw, of which he collected a few. He did not enumerate the specimens and did not say whether he kept them or presented them to an institution. He reported 57 species.

Spiti has been visited by very few Europeans and by only three men who collected birds, Stoliczka in 1864, Whistler in 1922, and Koelz in 1933. The birds reported by Stoliczka are incorporated in his publication on the Sutlej Valley (1868) and some are mentioned also by von Pelzeln (1868b), but the reports of Whistler (1923) and Koelz (1937) are restricted to Spiti.

The three men entered Spiti from the west, the normal access being usually by way of the Kanzam La. Stoliczka does not say when he arrived or how long he remained in the valley, but his visit was probably short. Stoliczka and von Pelzeln mention 14 species from Spiti, six of which were not found by Whistler or Koelz: *Tetraogallus tibetanus*, *Lerwa lerwa*, *Phoenicurus caeruleocephalus*, *Rhyacornis fuliginosus*, *Carduelis spinoides*, and *Carpodacus rhodochrous*.

Koelz criticizes Stoliczka for reporting the species that he or Whistler did not find, accusing Stoliczka of possible “carelessness in the recording of [his] observations”, but he grants that destructive changes (such as the cutting down of the trees) since the days of Stoliczka, may have eliminated some of these six species, such as *Phoenicurus caeruleocephalus*. Stoliczka was an able and reliable naturalist, but no one is infallible, and it is good to keep in mind that Koelz did not find three of Whistler’s species although he worked in Spiti much longer than Whistler.

Whistler visited Spiti for 11 days, from July 13 to 24, 1922, and observed or

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collected 34 species, making a collection of 55 specimens of 15 species. He also found and described many nests. The three species reported by Whistler that were not seen or collected by Koelz are *Gyps fulvus*, *Charadrius mongolus*, and *Carpodacus puniceus*.

Koelz worked in Spiti for the entire month of September, 1933, returning to India by a pass below Lori, whereas Stoliczka and Whistler retraced their steps to the Kanzam La. Koelz also explored the valley of the Pin River, an affluent of the Spiti, for a short distance. He made an excellent collection of about 385 skins that I have mentioned above, and reported a total of 88 species, calling attention to four others which probably occur in Spiti.

Whistler received a poor impression of the flora and avifauna of Spiti but he evidently did not visit the more favoured parts for birds or plants. The good collection made by Koelz raised the list of the birds of Spiti to about 100, a very respectable number for a very small valley situated at an altitude of 4000 metres or more.

Western Tibet

Western Tibet, or Nari, extends from Ladak east to the Mayum La. This region has been visited for centuries by traders and pilgrims, but the first European who did so was probably Moorcroft in 1812. The few birds that he mentioned in the account of his trip (1816) were the first to be reported from any part of Tibet, some of which were then unknown to ornithology and remained undescribed scientifically for many years after him. But Moorcroft was not an ornithologist and the first ornithologist to explore western Tibet was Frank Ludlow in 1932, who, however, never published a report on his trip. Zugmayer had collected some birds in extreme western Tibet before this during the trip he made in 1906, but they were taken on the Chang Tang and in Ladak, not in western Tibet proper, and were mentioned above in connection with Ladak.

Ludlow entered Tibet at the Lipu Lekh Pass on September 2 and proceeded to the Rakas Tal, the twin of Lake Manasarowar, and to Tarchen where the prescribed and hallowed circumambulation of Mount Kailas starts. The circuit of the holy mountain, a distance of about 28 miles, was made in four days by Ludlow in the orthodox manner which is from left to right. After returning to Tarchen, Ludlow went northwest along the trade route to Gartok which he reached on the 20th. From Gartok he went west to Dunkar by way of the Sazi La, and then south back to India via Tolingmath, Chabrang, Poling, and the Polo La to Nilang which he reached on October 9 and where he crossed into India.

This account of Ludlow's trip was prepared by me from the notes kept by

Ludlow which he kindly lent me. He observed 74 species and collected about 100 specimens of 42 species which he presented to the British Museum and of which I found 91.

Ludlow was followed by Salim Ali (1896-x) who made a pilgrimage to Lake Manasarowar and Mount Kailas in 1945, during which he observed birds carefully but collected no specimens. Ali's trip was less extensive than that of Ludlow and was centred chiefly on Lake Manasarowar and Mount Kailas. He entered Tibet on June 8 and left it on July 6 by way of the Lipu Lekh Pass, reaching the lakes by crossing the Gurla La on his way north, but returning by a different route on the way south, via Gyanyima and the valley of the upper Karnali.

Ali published a report on the birds he saw (1946) which is the only important paper which exists on the birds of western Tibet.¹ He observed about 58 species which include 15 that were not seen or collected by Ludlow, raising the total reported by both men to 89. This number does not include a few species which were listed by Ali with reservations about their identification. Ali mentions in this report a few of the species collected by Ludlow who had also lent his notes to Ali.

I have seen also four other specimens from western Tibet consisting of one of *Perdix hodgsoniae* collected by Mr and Mrs Littledale at Rudok in October, 1895, and three of *Charadrius mongolus* taken by T. G. Longstaff ten miles north-west of the Rakas Tal on August 2, 1905. The latter was an alpinist who accompanied C. A. Sherring on his expedition to western Tibet. Mr St George R. Littledale published an account of his daring expedition through northern, central, and western Tibet in 1896, and Sherring published a report on his expedition (1906) which is still the most authoritative book on this region.

The accounts of the ornithological exploration of Ladak and western Tibet given above could hardly show a greater contrast. Ladak has been visited and written about very often and not far from 6000 specimens have been collected, but this amount drops to only about 100 in the case of western Tibet and to a single paper of importance. The reason is not the lack of accessibility because many traders and pilgrims visit or visited western Tibet, but the fact that it was virtually impossible to kill birds because of its sacred associations. The avifauna of western Tibet is therefore very poorly known but the information which is available shows that it is essentially similar to that of Ladak, not distinctive.

¹ Another, but not very reliable, list of birds seen was published by K. S. Lavkumar (1955) who made a trip in western Tibet in 1954 which was more or less similar to the trip of Ali.

Southern Tibet

The birds of southern Tibet which occur along the trade route from the Chumbi Valley to Lhasa, with its side branch to Shigatse, are well known, but observations and collecting have been concentrated chiefly in this region. Birds are known also from other localities not far from Lhasa, north of Bhutan, and along the Nepalese border west to Nyalam Dzong but, generally speaking, the avifauna of southern Tibet is not as well known as that of Ladak which has been explored far better.

The first specimens that came out of southern Tibet were undoubtedly brought to Hodgson in Katmandu where he was the British Resident to Nepal for many years until 1843, or at Darjeeling where he took up residence from 1845 to 1858 after he left Nepal. Unfortunately it is not possible to be certain of their identity because Hodgson's specimens were not labelled as a rule, or not labelled satisfactorily. He did a small amount of collecting himself, but there is no evidence that Hodgson ever visited Tibet, and virtually all of his material was obtained for him by native hunters whom he is known to have sent into Tibet on one or two occasions but chiefly to collect mammals. Some specimens from Tibet were also given to Hodgson by Nepalese officials upon their return from Tibet, notably the type of *Crossoptilon crossoptilon* which Hodgson described in 1838—the first species to be described scientifically from any part of Tibet—but this bird was apparently killed in southeastern Tibet, not in the region under discussion.

Kinnear, who was well acquainted with Hodgson's collections, says (1952) that "either no label was attached to the skin, or merely the [vernacular] name of the animal on [a strip] of native paper," but apparently there were a few exceptions. I have found seven specimens of four species in Hodgson's collection that are labelled Tibet, two of *Chrysolophus amherstiae*, three of *Tetraogallus tibetanus*, and one each of *Athene noctua* and *Corvus corax*. The two specimens of *Chrysolophus* may have been taken in southeastern Tibet, but the other three species are common in southern Tibet, and, if anything, more abundant there than in southeastern Tibet. The specimen of *Corvus corax* is dated 1853, the only one of the seven specimens with a date, and is alleged to be the type of *Corvus tibetanus* Hodgson, which must be incorrect as *tibetanus* was described by Hodgson four years earlier in 1849.

No birds seem to have been collected in southern Tibet after Hodgson until the 1870's when L. Mandelli (x-1881) was active. I have found very little information on Mandelli, but he seems to have been the owner of a tea plantation near Darjeeling who collected a large number of birds in Sikkim and, allegedly, in neighbouring Tibet, or these birds were collected for him by native hunters as in the case of Hodgson. The latter is probable because Mandelli's specimens

resemble those of Hodgson by being poorly prepared and not properly labelled.

The specimens that are labelled Tibet were taken between 1873 and 1879; no locality is mentioned, but a date, restricted to the year, is usually given. All those that I have seen are in the collection of the British Museum with the exception of a few in the American Museum of Natural History acquired through direct or indirect exchange.

Mandelli published a short note or two in the early volumes of *Stray Feathers*, but seems to have been interested chiefly in obtaining specimens for sale, judging by the fact that the British Museum acquired them with the collections of Hume, Blandford, Gifford, and others. The descriptions of some forms were based on this material, the most interesting of which is *Montifringilla blandfordi* by Hume in 1876, but Mandelli's specimens are very discouraging and virtually useless taken as a whole. I took down a record of over 300 of these specimens but made no effort to account for them all, being content merely to note the name of the species collected in some instances.

It is also very possible that none of Mandelli's specimens were actually taken in Tibet, at least within its present political borders. The only specimens of Mandelli which concern me are those with an indication of Tibet, such as "borders of Thibet", or "north of native Sikkim", but the borders of Sikkim were not defined in the days of Mandelli and all of his material may have been taken within present-day Sikkim. Until the late 1880's, the Tibetans claimed some regions of Sikkim as an integral part of their territory, and occupied some parts of it until 1888 when they were defeated and expelled by the British. The present frontier was settled by force majeure at the treaty of 1890, Sikkim becoming a British Protectorate.

The Tibetans' violations of this treaty were a convenient pretext for the British invasion of Tibet when the power of China had reached its lowest ebb after its defeat by Japan. The "Mission", as it was euphemistically called, was under the able leadership of Colonel F. Younghusband (1863-1942), who has published his own interesting account of the expedition (1910). Younghusband first occupied Khamba Dzong in July, 1903, but withdrew after some months, and proceeded to invade Tibet by way of the Chumbi Valley in January, 1904, reaching Lhasa on August 3.

Younghusband later expressed some reservations (1910) about the conduct and results of this military expedition, but it was a great success from our point of view as it opened southern Tibet for ornithology. He was accompanied by some officers who took full advantage of this opportunity to observe and collect birds, the most important of whom were H. J. Walton (1869-1938), then a captain, L. A. Waddell (1854-1938), then a lieutenant-colonel, and F. M. Bailey (1882-1967), then a lieutenant. Walton and Waddell were medical

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officers, and Bailey remained active in Tibet for many years in various official capacities.

Walton was encouraged actively to collect birds by Younghusband, who also gave him some specimens that he had shot, and Walton made a very fine collection. His report (1906) on this collection was the first and is still one of the most important reports on the birds of southern Tibet. Walton collected at Khamba Dzong from the end of September to the middle of December, 1903, and in the Chumbi Valley and at Phari Dzong, Tuna, Gyangtse, Nagartse Dzong, Chaksam, and Lhasa from January to the end of September, 1904. His list of localities is small but he says that "on the march to Lhasa . . . no shooting was permitted, except on rare occasions, and no one was allowed to wander away from the line of march." Most of his time was taken up by his military and medical duties, but he was very successful nevertheless. He also did some collecting in Sikkim but the specimens taken there do not concern me.

His list reports 99 species from Tibet of which he collected 87; the specimens of one were lost, and the skins enumerated, which total 433, were presented to the British Museum. The most interesting bird that was collected by Walton is probably the brown-throated colour phase of *Cinclus cinclus*, unknown before and believed to be a new species by Walton which he described, naming it *younghusbandi*. His list is important, so I may add that the owl that he collected at Khamba Dzong on October 20, 1903, and identified as *Asio accipitrinus* Pallas [of doubtful identity, but regarded as a synonym of *Asio flammeus*], is not a specimen of *Asio flammeus* but one of *Asio otus*. Walton's *Pyrhocorax graculus* is not this species, but *Pyrhocorax pyrrhocorax*, and I did not find in the British Museum the single specimen of *Falco subbuteo* which Walton says he collected at Gyangtse on May 4, 1904, but it is possible that I may have overlooked it.

Colonel Waddell also made a collection of birds which was unfortunately lost on his return from India with the rest of his baggage, but before he had left Tibet he sent a few specimens to Dresser (1838-1915) for identification. These, which went to Rothschild, were eventually acquired by the American Museum of Natural History with the exception of two which were exchanged by Rothschild with the Leningrad Museum. These specimens were all taken at or near Chaksam in the Tsangpo Valley in September, 1904, and consisted of at least 14 specimens of seven species which, I find, are *Eremophila alpestris*, *Alauda gulgula*, *Lanius tephronotus*, *Pica pica*, *Babax waddelli*, *Garrulax henrici*, and *Parus major*. Dresser was apparently interested only in the *Lanius*, *Babax*, and *Garrulax* which he believed were new species and described, but only the *Babax* which he named for Waddell was really new. Waddell was deeply interested in Buddhism and wrote an extremely interesting and valuable account of his studies and experiences (1905) in which he also mentions in an appendix the many birds he saw in Tibet.

A third medical officer, who was either also attached to the expedition or who followed it one year later, was Captain R. Steen who seems to have been interested chiefly in egg collecting. He sent the eggs he had found around Gyantse from May 10 to July 17, 1905, to Dresser who published a report on this material (1906). They were the eggs of 24 species, which were accompanied by the skins of the parents, according to Dresser, who also says that the eggs and skins went to the Rothschild Museum at Tring and thence to the American Museum of Natural History. Dresser did not list the skins individually, but I get the impression that they numbered between 45 and 50, of which I found only 17. I did not look for the eggs.

A number of British officials or visitors have collected over the years a few specimens in southern Tibet that are difficult to account for, except on an individual basis which is impractical. Specimens were also collected desultorily by John Macdonald at scattered localities from 1918 to 1923, and by Bailey from 1908 to 1925, who has also published three notes on the nests of a few species in 1909 and 1910 in the *Journal of the Bombay Natural History Society*. The specimens collected during these years by or for Bailey that I have seen consist of about 25 in the collections of the American Museum of Natural History, British Museum, and the Natural History Museum of Stockholm. An account of the trip made by Bailey in 1922 was published by him in 1924. The specimens of Macdonald that I had found number 63 and are in the British Museum.

Colonel Bailey had very friendly relations with the Tibetan officials, including the Dalai Lama, and they occasionally presented him with a spectacular bird or two. Some specimens were also collected for Bailey by men in his employ that he had trained to collect birds and butterflies, and a small but important lot of about 55 specimens of 27 species was secured for him by those collectors in 1937 in the valley of the Phu Chu from Kodari in Nepal north to Nyalam Dzong in Tibet. Kodari is virtually on the border and the Phu Chu becomes known as the Sun Kosi River in Nepal. Nyalam Dzong had been visited before by Wollaston from July 15-18, 1921, but not farther south; this locality is referred to as "Nyenyam" by Kinnear (1922).

The valley of the Phu Chu is the westernmost region in which birds have been collected in southern Tibet and its avifauna is interesting because it includes species that are not expected in southern Tibet, but which breed in more humid southeastern Tibet, such as *Ficedula superciliaris*, *Niltava sundara*, and *Carduelis spinoides*. The latter was collected at about 3800 metres by Wollaston, and also for Bailey at an unspecified altitude; the first two species were taken only by Bailey's men. It is unfortunate that Bailey's collectors were turned back and prevented from more collecting by the Tibetans. This material is in the British Museum.

The British made an attempt to climb Mount Everest in 1922 and again in 1924. The attempts failed but birds were observed and collected on both occasions. Specimens were not taken during the actual progress of the first expedition, because it had "been forbidden to take firearms of any description", but were collected with discretion on the reconnaissance of 1921 which preceded the expedition. The collector was A. F. R. Wollaston (1875-1930), the medical officer of the expedition, who made a collection of 258 specimens of 62 species which were presented to the British Museum.

A report on this collection was published by Kinnear (1922) who states that 59 species were taken although the actual number is 62. Wollaston contributed some notes which mention additional species seen but not collected. The latter include a spectacular record of *Rostratula benghalensis* which was seen at close range by Wollaston who was well acquainted with this species. He shot at it but missed. The bird was seen at 5181 metres in the upper valley of the Kharta River, northeast of Everest, and the highest point at which this species had been recorded before was only 1524 metres.

Wollaston's collection is of much interest because the region west of Khamba Dzong had not been visited before by an ornithologist, and also because of the great altitudes at which many species were taken or seen, some of which are certainly records. He started to collect on June 14, 1921, at Khamba Dzong, and birds were taken at some localities on the way west to Tingri Dzong (such as Tingkye Dzong, Gyangkar, Chushar, and Kyishong), but the large majority of the specimens were collected in the upper reaches of the valleys, along the passes, and on the slopes east and north of Everest up to 5640 metres, although Wollaston says that he collected also "at 22,400 ft. [6827 metres] in the immediate vicinity of Mt Everest", but apparently prepared no specimens. He also collected about 100 kilometres west of Everest, at Nyalam Dzong on July 15-18, as stated above, and at "Lapchikang" [Lapche Gompa] on July 25 and 26, a locality about 25 kilometres east of Nyalam Dzong, which is also referred to as "Lepitu Kang" by Kinnear. The route of the reconnaissance, which shows most of the localities where birds were taken, is illustrated by a map by Major Morshead in number 2, volume 59 (1922) of the *Geographical Journal*.

The ornithological results of the second expedition were much less important. The second expedition followed a route which appears to have been essentially similar to that of the first, and notes on the birds were published by Hingston (1927). He says that no specimens were collected in Tibet "owing to the religious scruples of the people", but fails to mention that a collection was made in the Chumbi Valley for the expedition by "native collectors", where, apparently, the religious scruples are less strong or non-existent. This collection consists of about 150 specimens none of which are properly labelled. No localities are given and all the birds are said to have been shot at "10,000 feet", with

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three or four exceptions, a uniformity which seems too great to be convincing. Most of this material is in the British Museum with the exception of a small number in the American Museum of Natural History. About 15 species were seen by Hingston in Tibet that were not seen or collected by Wollaston, not including the species he reports from the Chumbi Valley, or those that were taken by the native collectors in this valley.

Wollaston and Hingston recorded some species from very high altitudes which are probably records for these birds. The list from 6000 metres or above in Tibet is:

<i>Anthus novaeseelandiae</i>	6096 metres	<i>Upupa epops</i>	6400 metres
<i>Phoenicurus ochruros</i>	" "	<i>Prunella collaris</i>	" "
<i>Columba rupestris</i>	" "	<i>Gypaëtus barbatus</i> "high over"	7315 "
<i>Corvus macrorhynchos</i>	6400 "	<i>Pyrhocorax graculus</i>	8229 "
<i>Corvus corax</i>	" "		

Geese have been reported as flying over Mount Everest (8847 metres) on migration, but the record for the choughs seems more remarkable as Hingston says they were extremely confident individuals which had attached themselves to the expedition for scraps and followed the climbers to the great height mentioned; altitudes from about 5000 to 7200 metres were apparently normal for the chough.

A systematic collection was made by Frank Ludlow at Gyantse from October, 1923, to October 1926. He mentions about 110 species in his report (1927-1928), of which he collected about 230 specimens of 87 species which he presented to the British Museum. These specimens are all well labelled with many notes on ecology, relative abundance, dates of arrival and breeding, and other subjects, a type of very desirable information that I have found on the labels of very few other specimens from any part of Tibet. The value of Ludlow's report, which is the most comprehensive on the birds of southern Tibet, is enhanced by many field notes, a discussion of migration, description of nests and eggs, and the records of all the species that have been reported from the region by any other observer or collector. A few additional notes on the birds of the region of Gyantse were published by Ludlow (1928). These mention birds seen on a hunting trip made in December, 1924.

Ludlow was sent to Lhasa in 1942 to assume charge of the British Mission and took this opportunity to observe birds. Most of his time was occupied by his official duties and one does not offend the principles of the ecclesiastics of the Tibetan Rome or of the local population by killing birds openly. Ludlow made no attempt to collect but nevertheless secured a few specimens of which I have found 33 of 13 species, 29 of which are in the British Museum and four in the Academy of Natural Sciences of Philadelphia. Ludlow wrote a report

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on his observations (1950) which includes the records of other observers, and is a good summary of the birds known from Lhasa and its region.

A few specimens were also collected here and there in southern Tibet by Ludlow, or by Ludlow and Sherriff, in 1933 and 1947 in connection with expeditions to Bhutan and southeastern Tibet. Major G. Sherriff accompanied Ludlow on most of his expeditions in search of birds and plants and did his share of the collecting. The report on the expedition to Bhutan was published by Ludlow (1937) with taxonomic notes by Kinnear. Ludlow's report on southeastern Tibet will be considered below in the account of this region.

Lists of birds seen by themselves in southern Tibet were published by Battye (1935), Maclaren (1947), and Richardson (1950 and 1951). Maclaren's report was republished with slight modifications in the *Ibis* for 1948, which was hardly necessary. The identifications to subspecies in these lists give a false sense of authority which is completely out of place with sight records.

The German naturalist Ernst Schäfer (1910-x) visited Lhasa and southern Tibet in 1939 for a period of about six months from January to the end of June. The primary purpose of this visit was not to collect birds, but he and his party nevertheless made a collection of some 650 specimens of about 40 species in Tibet; specimens were collected also in Sikkim in the winter of 1938 before entering Tibet. This material is in the Zoological Museum of Berlin with the exception of a few specimens that were sent in exchange to Colonel Meinertzhagen and the Leningrad Museum.

No report has been published on this collection, but Professor E. Stresemann (1889-x) has described one subspecies from Tibet, and another from Sikkim, from the specimens taken by Schäfer. The collection survived the vicissitudes of the war, but, at the time of my visit to Berlin in 1966, a very large part of the specimens from Tibet had not been catalogued and incorporated in the collection of the museum. This made it a little difficult to examine them and it is possible that those from Tibet are somewhat more numerous than I have indicated. I did not examine the specimens from Sikkim. Schäfer described his trip (1943) in a book illustrated by many strikingly beautiful photographs, but was not able to publish his ornithological observations as all of his notes were unfortunately confiscated later under war conditions and are unavailable if not lost. For a copy of Schäfer's book, which is very rare, I am indebted to the generosity of Professor Stresemann.

Southeastern Tibet

Southeastern Tibet extends eastward from the region of Chayul Dzong or somewhat west of the 93rd meridian, to the valley of the Yangtze, and north to the limit of the forest which is irregular, but reaches about the parallel of

33° 25' in the region of Sogon Gompa—the farthest north. Southeastern Tibet corresponds to the Southeastern Plateau, one of the three main natural divisions of Tibet, and its boundaries are shown in figure 5 and on the map. But to give an account of its ornithological exploration it is more convenient to go beyond its limits north to the foot of the Burchan Buddha Range. It is also more convenient to discuss the exploration of the south separately, before turning to the north.

The flora and avifauna of southeastern Tibet are incomparably richer than those of any other region of Tibet and about 261 species have been recorded so far which breed or seem to breed in this region.

The first person to collect birds in the south was Bailey in 1911 and 1913. In 1911 he tried to solve the old "problem of the Tsangpo" by deciding whether it forms the headwaters of the Brahmaputra or of the Irrawaddy. He approached the then unexplored region at the bend of the Tsangpo from the east, from Peking to Batang via Tatsienlu, and after crossing successively the Yangtze, Mekong, and Salween, he reached the valley of the upper Irrawaddy via the Tsema La; from there he went northwest into the basin of the Brahmaputra via the Zhasha La, and then ascended the Zayul Chu to Sangacho Dzong, reaching Shugden Gompa on June 27 via the Dzo La, but only to be turned back a few days short of his goal by the flare up of hostilities between the Chinese and the tribe which inhabits the region he had come from so very far to explore. He was forced to retrace his way to Drowa Gompa from where he followed the Zayul Chu downstream to Rima and India. It was ascertained later that the Tsangpo forms the Brahmaputra.

Bailey has published a report on the birds he collected (1913), and also a very interesting descriptive account of his trip (1945), well illustrated by a map, and in which he mentions the birds he observed. This report lists 41 species, but only 17 were collected west of the Yangtze within the limits of my work. The collection was presented to the British Museum and is small, as I found only 17 specimens of 16 species. The species which is missing is *Prunella atrogularis* which Bailey says he collected at Pugo near Shugden Gompa on June 27, together with its nest which contained three eggs. The most interesting species collected by Bailey was certainly *Babax koslowi* which is rare in collections and of which I have seen all the material in existence, a total of only 15 specimens, 14 of which were taken by Kozlov on the Mekong from September, 1900, to January, 1901, but much farther north than Shugden Gompa where Bailey shot his specimen on June 29, 1911.

In 1913, Bailey, accompanied by Captain Morshead of the Survey of India, explored Pome and some regions of southeastern and southern Tibet west to Tsetang and the Nyamjang Chu which he and Morshead discovered. The route followed was very long and complex. The two men started in eastern

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Assam and entered Pome at the Su La on June 24, 1913, proceeding to Showa and down the Po Tsangpo to its junction with the Rong Chu at Trulung, after making a side excursion to the Yigrong Tso en route. Broken rope-bridges prevented them from descending the Po Tsangpo to its junction with the Tsangpo at Gompo Ne and they were forced to ascend the Rong Chu from Tongkyuk to Pe in the Tsangpo Valley via the Nyima La. From Pe, Bailey and Morshead descended the Tsangpo to Pemakochung in the gorge, and Bailey was able to reach a stream, called the Churung Chu, about 10 kilometres below Pemakochung, but at this point he was forced to turn back, and, rejoining Morshead, the two men then ascended the Tsangpo as far as Tsetang from where they struck southeast along the Yarang Chu and Char Chu to explore the districts of Charme and Tsari as far as Migyitün. After retracing their way back to Sanga Choling, they went west to Chayul Dzong and then south to the districts of Mago and Mönyul which are south of the Main Range and do not concern me. The Nyamjang Chu was discovered from Mönyul, and the two men followed their "new" river upstream to Tsona Dzong, turning east at the latter to explore the Loro Karpo Chu, and then north to Lhuntse Dzong. From the latter they went to the headwaters of the Nyamjang Chu which they descended back to India where they arrived in early November. An account of the expedition was published by Bailey (1914) which contains a very good map.

Bailey collected some birds on this great expedition on which he has published a report (1915), but the ornithological results were comparatively meagre in contrast to the geographical results. He said he had "no one able to skin" to help him, but his chief handicap was the theft of many of his possessions, including "all our shot-gun cartridges [with the result that] for two months we travelled through country where no collector had ever been, without being able to secure a single specimen". Specimens of 40 species were collected nevertheless, 32 of which were taken on or north of the Main Range of the Himalayas.

The specimens were given to Stuart Baker for identification and they were not enumerated. Only a few seem to have reached the British Museum where I found only six of five species. I believe that some were given to the Bombay Natural History Society and it is possible that some were retained by Baker. One of the six specimens in the British Museum was misidentified by Baker as *Proparus* [= *Alcippe*] *vinipectus*, and is listed as such in Bailey's report, but I found it is a specimen of *Alcippe striaticollis*; this bird was taken at Tripe on the Tsangpo on July 15, 1913.

Collecting on a large and comprehensive scale was started by Ludlow and Sherriff in 1936. The two men had collected birds and plants in Sikkim, Bhutan, and Tibet in 1933 and 1934 and had brought back to the British Museum a

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large collection of some 1700 skins upon which an important report was published by Ludlow (1937) with taxonomic notes by Kinnear. They had reached approximately the 92nd parallel by the end of 1934 and their new expedition (fig. 2) was designed to explore the region farther east, but chiefly north of the Main Range. Collecting was started in Bhutan in the middle of February and Tibet was entered on April 11 via the Pö La which is just south of Tsona Dzong.

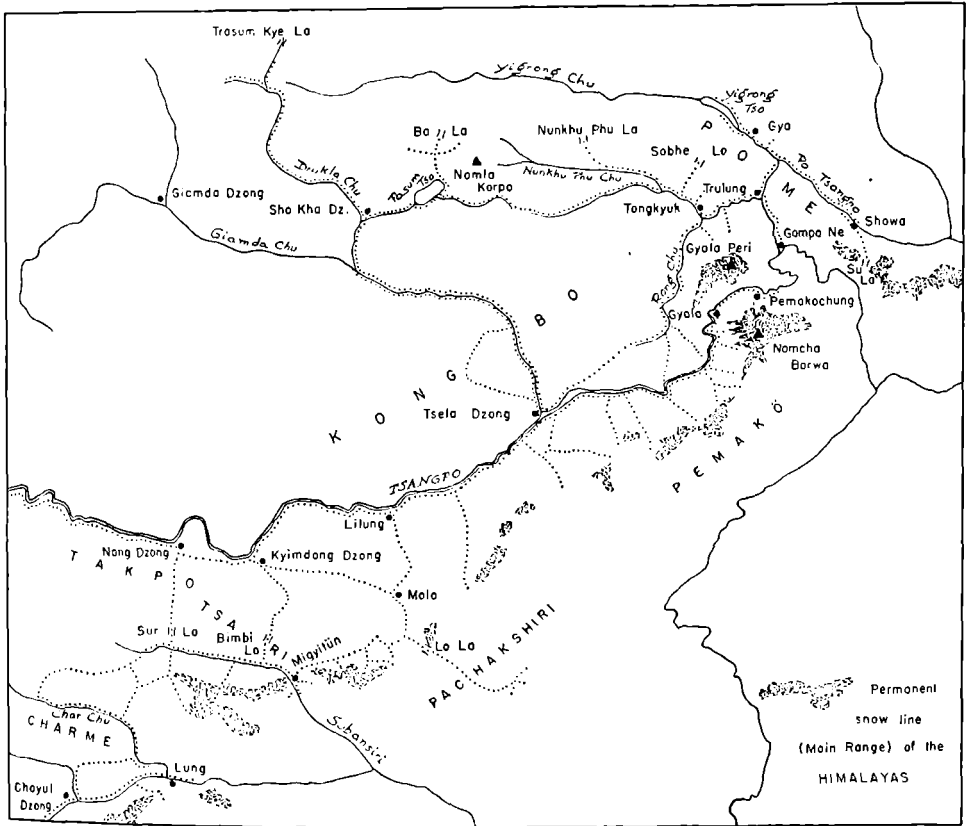


FIG. 2. ITINERARIES OF LUDLOW AND SHERRIFF

From Tsona, Ludlow and Sherriff descended the valley of the Loro Karpo Chu to explore the districts of Chayul, Charme, and Tsari as far as Migyitün, but no collecting was done in Tsari because as Ludlow says the latter "is holy ground, and no life may be taken within its precincts; even the soil may not be tilled for fear of taking life", a restriction which, however, does not apply to the village of Migyitün and the neighbouring pass called the Bimbi La.

After crossing the Bimbi La, Ludlow, unaccompanied by Sherriff who remained in Tsari to collect plants, went on to Kyimdong Dzong in Takpo, and from Kyimdong to the district of Pachakshiri which is situated south of the Main Range of the Himalayas. From Pachakshiri he retraced his steps to

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Kyimdong Dzong, and then went west to the vicinity of Nang Dzong in the Tsangpo Valley, whence he turned south to re-enter Tsari via the Sur La. After a side excursion along the Char Chu, the return was made along the same route taken on the way east back to Tsona Dzong which was reached on October 15. Bailey and Morshead had explored much of the same area in 1913 but had collected very few birds.

Ludlow and Sherriff went back to Takpo and Tsari in 1938, but in a very roundabout way which took them north to Gyangtse and then down the Tsangpo Valley. Kyimdong Dzong in Takpo was reached on April 6, and from there the two men went on to Pachakshiri again which they left on May 17 for Kongbo, crossing and recrossing the Main Range by way of the Lo La. Kongbo was explored thoroughly from May 18 to October 7, with the exception of five days at the end of August and beginning of September when they penetrated a little way eastward into Pome. From Kongbo they returned to Bhutan via Tsona by way of the same route followed in 1936, reaching Bhutan on November 5.

The bird specimens that were taken on these two expeditions of 1936 and 1938 were given to the British Museum. A report on the combined material was published by Ludlow (1944) which enumerates the skins, a substantial number of which were taken south of the Main Range. I have examined only the birds taken in Tibet and found about 900 specimens of 154 species.

Ludlow and Sherriff had reached the entrance to the gorge of the Tsangpo and the fringes of Pome in 1938, and their next project was to push on still farther east by exploring the gorge of the Tsangpo below Gyala, and the large but little-known district of Pome. This third trip lasted for about fourteen months from the middle of October, 1946, to the beginning of December, 1947. The two men and their party entered Tibet via Sikkim and proceeded along the same route they had followed in 1938 to Gyangtse and down the Tsangpo, back to their old base at Tse near Tsela Dzong. From there they went northeast to Tongkyuk to establish a new base, and from the latter the party made for the Yigrong Tso via Trulung. A month was spent near the lake at the village of "Gyadzong" [Gya] and, during this period, Ludlow made a short reconnaissance up the Po Tsangpo to Showa. He and Sherriff then returned to Trulung and the latter descended the Po Tsangpo to its junction with the Tsangpo at Gompo Ne. After Sherriff returned, the party went back to Tongkyuk where Sherriff fell ill and was forced to return to India. Ludlow carried on with the original plan of exploring the gorge of the Tsangpo as far as Pema-kochung, and, when this was done, returned to Tongkyuk for the last time, from which he struck west to visit the southern versants of the Southern Po Yigrong Range as far as the Ba La. The turning point was reached at Sho Kha Dzong on July 22. Ludlow then descended the Giamda Chu back to Tsela

Dzong and left Kongbo on October 12, returning to Sikkim by the same route followed the preceding autumn on the way east.

Ludlow has published a report (1951) on the birds that were collected, all of which were taken north of the Main Range. He mentions about 730 specimens of 176 species which were all presented to the British Museum, but I failed to find specimens of seven of these species. On the other hand, I found specimens of *Tringa hypoleucos* and *Pseudopodoces humilis* which were taken on this expedition, but were not included in his list by Ludlow. To be sure, *P. humilis*, and also *Melanocorypha maxima* that was included by Ludlow, were collected on the Yamdrok Tso in southern Tibet, not in southeastern Tibet. A few additional species were observed by Ludlow but not collected.

The record of *Niltava grandis* in the list given by Ludlow is erroneous, as I found that the specimen concerned is a *Cyornis vivida* taken at Nyuksang on May 6, 1947. However, Ludlow's field book, which he has kindly made available to me, shows that he did shoot a *Niltava grandis* at Pemakochung, which is only seven kilometres below Nyuksang, but this bird was not prepared as a specimen because it was "too mutilated to preserve". The specimen of *Cyornis vivida* was thus confused for the *Niltava grandis*, which was not kept, and was listed as the latter in error.

The three expeditions of Ludlow and Sherriff to southeastern Tibet were fruitful beyond all expectations. A large number of species were found in Tibet that had not been suspected to occur north of the Main Range of the Himalayas, some of them representing families and genera that were new for Tibet. Among them were *Chloropsis hardwickii* (Irenidae), and *Pericrocotus ethologus* (Campephagidae), which were new families; three or four flycatchers; more than 20 timaliids, including representatives of nine new genera; and several nonpasserines, chiefly woodpeckers. Nevertheless, I believe that Ludlow would agree that he did not exhaust all the possibilities because he had to concentrate almost entirely on plant collecting for some periods during which he had little or no time for birds. It is very unfortunate that the exploration of the Southern Po Yigrong Range was made during one of these periods.

The valley of the Po Yigrong (or Yigrong Chu) above the Yigrong Tso has never been visited by a bird collector. Many other remote mountain ranges and river valleys of southeastern Tibet, such as the valleys of the Potö Chu and Chö Dzong Chu, are all still virginal as far as naturalists are concerned and hold great promise, including perhaps the discovery of one or two species of birds still unknown to science.

Kingdon Ward, the most experienced of the botanists who have explored southeastern Tibet and the eastern Himalayas, describes the valley of the Po Yigrong (frontis.) in enthusiastic terms (1941). He calls the Po Yigrong the "Mystery River" and is the only European who has explored the valley to its

head. He says it is "glorious country" with a very rich vegetation characterized by great trees, luxuriant undergrowth, and alive with many flowers and birds. He was not an ornithologist, but he was so impressed by the birds that he says "nothing in the Yigrong gorge surprised me more than the abundant and varied bird life." Ward occasionally collected a bird or two of which I have found specimens of six species in the British Museum, including one of *Leiothrix lutea* which he took in the gorge of the Po Yigrong on August 4, 1935; this species was collected also during the winter in the gorge of the Tsangpo by Ludlow.

The first explorer to collect birds south of the Burchan Buddha was Przhevalsky but he did not reach southeastern Tibet, and the first men who collected birds systematically in the northern part of southeastern Tibet were the French explorers Bonvalot and the Prince d'Orléans in 1890. However, a bird from this region had become known to science long before this which was *Crossoptilon crossoptilon* named by Hodgson in 1838, a species which has also the distinction of being the first to be described scientifically from any part of Tibet. The locality where Hodgson's specimen was taken is unknown, but it is logical to assume that it was secured along the China Road in the general region of Chamdo, probably in 1837, as this bird was brought back to Hodgson by the Nepalese Ambassador who was returning from Peking.

Gabriel Bonvalot (1853-1933) and Henri, Prince d'Orléans (1867-1901), entered Tibet in the far north from Sinkiang by crossing the Astin Tagh on November 23, 1889, and then crossed the bleakest part of the Chang Tang from north to south in the heart of winter, heading straight for the Nam Tso (or Tengri Nor) and probably Lhasa, although this was not avowed. They were stopped at Dam near the Lhachen La on February 15, 1890, by the Tibetan authorities before they could cross the pass over the Tanglha Range which would have led them to Lhasa. The explorers were very courteously greeted, but not permitted to go farther south, and were sent on instead east to Batang on the Yangtze where they arrived on June 7, 1890. It is certain that Bonvalot and the Prince would have liked to visit Lhasa very much, but they put a good face on their disappointment, claiming that Batang had been their goal all along.

They were very well treated after they had been stopped, showered with gifts, supplied with guides and all facilities, and were led leisurely northeastward from the Tengri Nor to the basin of the upper Salween. They proceeded through Sok Gompa and Denchin toward Chamdo, but by-passed the latter after reaching Lamda, going down the China Road to Batang. They had plenty of time for collecting and 152 bird specimens of 73 species were taken in the basins of the Salween and Mekong between March 28 and June 5. The specimens collected on the Chang Tang will be considered below in connec-

tion with the Northern Plateau, and the specimens taken east of the Yangtze do not concern me. The specimens were collected for the Muséum National d'Histoire Naturelle of Paris and a monumental report on the entire collection was published by Oustalet (1844-1905) in 1893-1894. Bonvalot wrote a report of the trip (1892a) and a somewhat condensed account of it appeared also in English (1892b); Prince Henri has also published a short account (1891) illustrated by a map of the route.

The collection was not large but many interesting species were collected, including a new one, *Garrulax henrici*, named for the Prince by Oustalet. This collection is no longer intact as 67 specimens out of a total of close to 200 were given away by the museum between 1892 and 1897 as duplicates, including a few that were exchanged in 1921 and 1929. The catalogues of the Paris Museum show that the specimens were scattered among 20 institutions and private individuals, and most of them must be counted as lost or destroyed because nearly all the beneficiaries were small provincial museums, or even mere schools which no longer exist. Other specimens were destroyed officially by the museum because of poor condition, some have lost their labels, and quite a few were mounted for exhibition and are now difficult to trace in the vast collection of mounted birds of the Paris Museum. I could find only about half of the specimens, and I dwell a little on the unfortunate fate of this collection because many collections made during the nineteenth century in Tibet and elsewhere have suffered the same fate to a certain extent in all countries.

Two years after Bonvalot and the Prince d'Orléans had crossed Tibet, it was crossed again by Captain H. Bower of the Indian Army and Dr W. G. Thorold of the Indian Medical Service. This time, the crossing was made directly from west to east, between about the 31st and 34th parallels, and Bower and Thorold covered the same route as Bonvalot and the Prince d'Orléans during the eastern half of their journey. They left Ladak in July, 1891, and reached Batang in January, 1892. The motives for this daring trip, which was carried out with great secrecy, are not altogether clear, but it contributed substantially to geographical knowledge, and slightly to Tibetan ornithology as a few birds were collected.

These birds seem to consist only of eight specimens of three species, the most interesting of which is a specimen of *Tetraophasis széchenyii* collected between Sok Gompa and Chamdo. Seebohm (1832-1895) has said that "seven species" were collected, without mentioning the number of specimens, but I believe that only the specimens that I have mentioned were brought back to the British Museum where I examined them. Seebohm's statement was made during the public discussion which followed the presentation of Bower's paper (1893) at the meeting of the Royal Geographical Society in which he gave an account of his journey.

Collecting on a really major scale was first carried out in 1900 and 1901 by P. K. Kozlov (1863–1935), then a lieutenant in the Tsar's army. Kozlov (pl. 22) started his great trip on June 28, 1899,¹ in the Russian Altai and proceeded to Khobdo in Outer Mongolia which he reached on August 31. The Mongolian and Gobian Altai were explored east to about the 103rd meridian where Kozlov turned directly south to Liangchow (now Wuwei) in Kansu where he arrived on January 31, 1900. From February 3 to May 28 he explored (fig. 3) the southern Nan Shan, the region of the Koko Nor, and the southeastern part of the Zaidam as far as Barun-Tszasaka (Baruun). On the next day (May 29) he climbed and crossed the Burchan Buddha to collect in southeastern Tibet, working in the basin of the upper Hwang ho until July 20; the basin of the Yangtze until September 6, south to the Gur La, a little to the south of Jyekundo; and in the basin of the Mekong until December 3, south to a point about 25 kilometres north of Chamdo, the southernmost point reached on the expedition.

After reaching the region of Chamdo, Kozlov turned northeast back to the Yangtze Valley which he reached at Chunkor Gompa (now Chinkar My) on March 23, 1901, via the Senke La, after having rested until the beginning of March in the region of Chamdo. Then he turned southeast, and travelling east of the Yangtze through the Latzekare Pass and Dzogchen Gompa, he reached Banajun on April 11, which is situated on the Dza Chu (one of the names of the upper Yalung River). At Banajun, Kozlov's itinerary (1902) and his maps become contradictory. The maps show him descending the Yalung for about 65 kilometres to Kantse, but the itinerary turns abruptly to the north at Banajun. I cannot explain this discrepancy, but, according to the itinerary, Kozlov proceeded north to Entok Gompa and to Na-tun by way of the Nalisun Pass and Nagsun Pass. At Na-tun he struck due north to the Oring Nor by a route which appears to be little travelled, via Yugindo, the Lamlung Pass, and the Ch'atsan-mu Shan-k'ou. After crossing this last pass he entered the basin of the Hwang ho, and, following the eastern shore of the Oring Nor, made for the Jirogha Pass, which leads into the valley of the Alak Norin Gol across the Amnen Kor Range, turning west in the valley to recross the Burchan Buddha on June 24, 1901.

After crossing the Burchan Buddha, Kozlov retraced his way to the Koko Nor, but this time skirted the lake on the south rather than on the north, and, after crossing the region of Hsi-ning, he reached on September 19 the Tatung River and Chertenton, the limit of Tibet. From there he crossed Inner and

¹ All the dates given by the Russian explorers of Tibet are in the old Julian Calendar which had fallen well behind the Gregorian Calendar and was not abandoned until 1918 when it was abolished by decree on January 26. Twelve days should be added for dates in the 19th century and 13 for those in the 20th, to conform with the Gregorian Calendar. I have done this throughout this work.

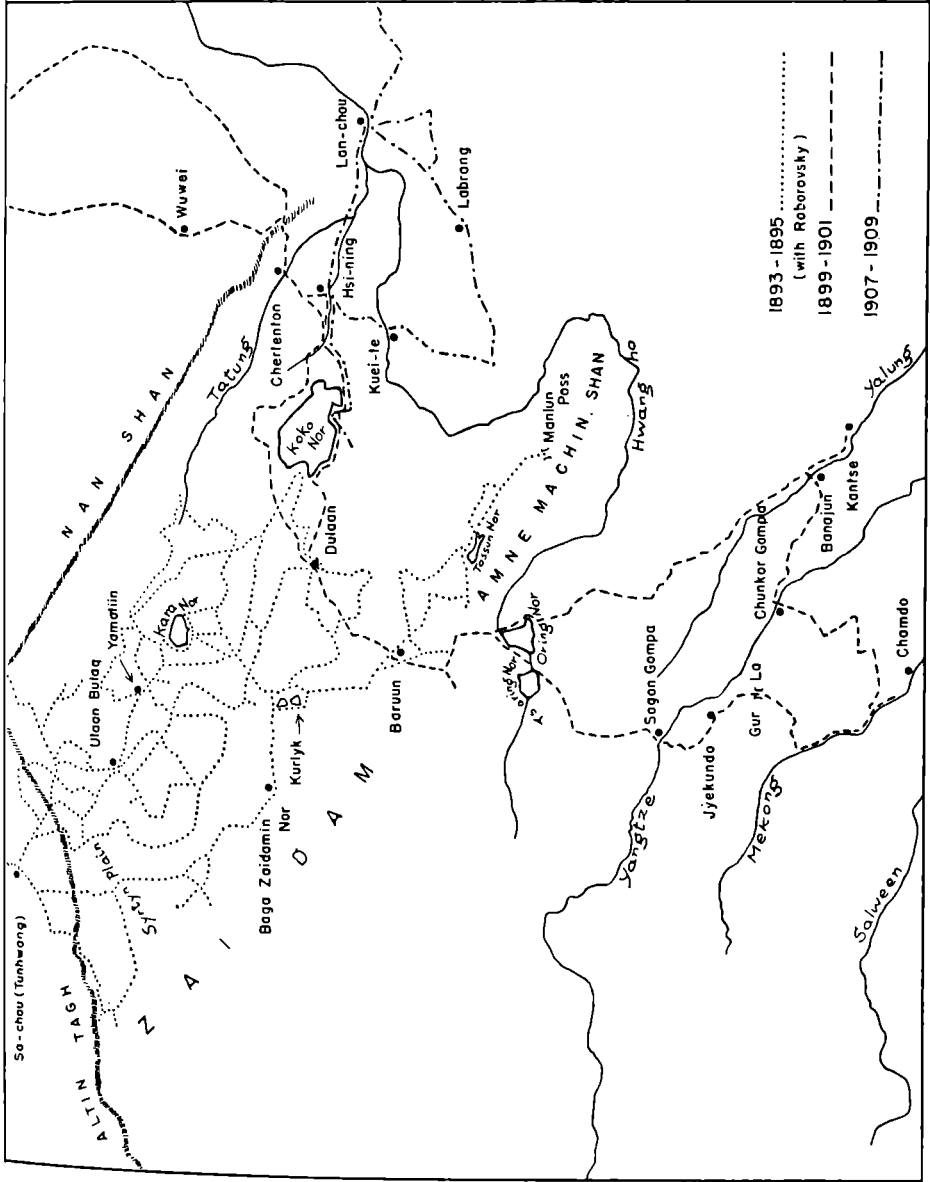


FIG. 3. ITINERARIES OF KOZLOV AND ROBOROVSKY

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Outer Mongolia north to Urga (Ulan Bator), and Kyakhta on the border of Siberia where the expedition ended on December 5, 1901.

Kozlov covered an enormous amount of territory and his itinerary is very complex and is complicated also by the fact that he was accompanied by two other Russian officers, A. N. Kaznakov, and B. F. Ladygin, who sometimes followed independent routes. However, these two men do not appear to have collected birds as all the specimens are attributed to Kozlov. A detailed narrative of his trip was published by Kozlov (1905–1906) under the title of *Mongoliya i Kam* which is well illustrated and supplies also a number of fine maps of large scale which show all his localities; his itinerary, which was published separately (1902), is invaluable as it supplies all the dates and distances covered from day to day. Kozlov has also published in English a summary of this expedition (Kozloff, 1902); and Lindsay (1908) has translated into English the text of *Mongoliya i Kam* which is the most important as far as southeastern Tibet is concerned; that is from the time that the expedition left the Zaidam and arrived at Jyekundo.

The expedition brought back 1500 bird skins to the Zoological Institute of the Academy of Sciences of Leningrad (then St Petersburg) on which a report was published by Bianki (1857–1920) in 1907. A little over 800 specimens of 122 species were taken south of the Burchan Buddha, and among them were two remarkable new species which Bianki named for Kozlov, *Babax koslowi* and *Emberiza koslowi*. This collection is excellent, one of the very best ever made in any part of Tibet.

In 1914, a German expedition to China, organized and financed by W. Stötzner of Dresden, started to collect birds in northeastern China and Szechwan. The collector, who was H. Weigold (1886–x), penetrated also a little way the limits that I have adopted for Tibet as far as Horbo and Dege Gonchen. I was not aware of this until it was too late for me to examine with consistency the specimens collected by Weigold in this region. The collection went to the Dresden Museum, but a substantial number of specimens (not necessarily Tibetan) were exchanged with or sold to the American Museum of Natural History, the Zoological Museum of Berlin, and perhaps other institutions. Weigold wrote the introductory report on the collection (1922), and other German ornithologists contributed to the publication which was issued in parts. This collection is only of marginal interest as far as Tibet is concerned, as relatively few specimens seem to have been taken in Tibet.

In 1930, Brooke Dolan (1909–1942) of Philadelphia organized and financed an expedition to western China with the “especial object of securing birds and mammals” for the Academy of Natural Sciences of Philadelphia. The expedition was in the field from March, 1931, to January, 1932, and was led by Dolan who had engaged H. Weigold and E. Schäfer as collectors. The collec-

tion was made chiefly in Szechwan, not in Tibet, and the report on the birds was published by W. Stone (1866–1939) in 1933.

A second expedition was organized by Dolan in 1934 and was active from September, 1934, to October, 1935, during which Schäfer, who had been engaged again, made a large collection of birds in southeastern Tibet. The expedition left Tatsienlu and went westward along the China Road to Batang where it arrived on October 24. Schäfer left Batang on January 19, 1935, for Beyü, travelling north on the left bank of the Yangtze, and reached Beyü on February 4 where he entered the limits of Tibet adopted for my work. From Beyü he continued north to Tengko and Ju Gompa, and crossed the Yalung to collect on the steppes beyond it, returning west via Seshu Gompa to the Yangtze and Jyekundo where he arrived on May 3. He visited the region south of Jyekundo from May 9 to 19, south to about the 32nd parallel, and, after returning to Jyekundo, went north, keeping east of the Yangtze, to the steppes south of the Burchan Buddha. Schäfer then turned west, going as far as about the 94th meridian in the region between the lower Chumar River and the Dre Chu (one of the names of the upper Yangtze), and left this region in the middle of July to return again to Jyekundo on August 3. He left Jyekundo to go back east to Seshu Gompa where he turned to the southeast in the direction of Dzogchen Gompa and Kantse where he crossed the Yalung and left Tibet on or about September 13.

Schäfer made a collection of about 1200 specimens of 129 species in southeastern Tibet. These are in the collection of the Academy of Sciences of Philadelphia, with the exception of 169 which went to the American Museum of Natural History in exchange, and 56 which were retained in the zoological museum of Berlin where Schäfer prepared his share of the report on the ornithological results of the expedition. This report was published by Schäfer and R. M. de Schauensee (1901–x) in 1939, but each man is responsible only for the species he studied which are identified with his initials. An account of this second expedition, which includes the itinerary and a map, was written by Dolan (1939). A major contribution made by the two Dolan Expeditions was the publication by Schäfer (1938) of his field notes and observations which are excellent and supply much information on ecology and behaviour.

Northeastern Tibet

The birds of northeastern Tibet are better known than those of any other region of Tibet, a knowledge for which we are indebted chiefly to the Russian explorers and to observations made by Walter Beick.

General Nikolai Mikhailovich Przhevalsky (pl. 21), who was born in 1839 and died in 1888, is the most famous of all the explorers of central Asia and

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Tibet and very deservedly so. He led four memorable expeditions (fig. 4) between 1871 and 1885, on three of which he penetrated into Tibet and collected birds. He had organized a fifth expedition to Tibet but caught typhus at Karakol on the shores of the Issyk Kul in the Tian Shan as he was about to start, and died there on November 1, 1888. The leadership of this fifth expedition, which had been organized chiefly to explore northern Tibet, passed on to M. V. Pevtsov (1843-1902), assisted by V. I. Roborovsky (1856-1914) and P. K. Kozlov, and the contributions made by these three men will be taken up below. The death of the indomitable Przhevalsky was a great loss and his name was perpetuated by the Tsar by changing the name of the town where he died from Karakol to Przhevalsk. It is perpetuated also by the names of many plants, birds, and other animals discovered by Przhevalsky, including a horse called Przhevalsky's horse (*Equus przewalskii*).

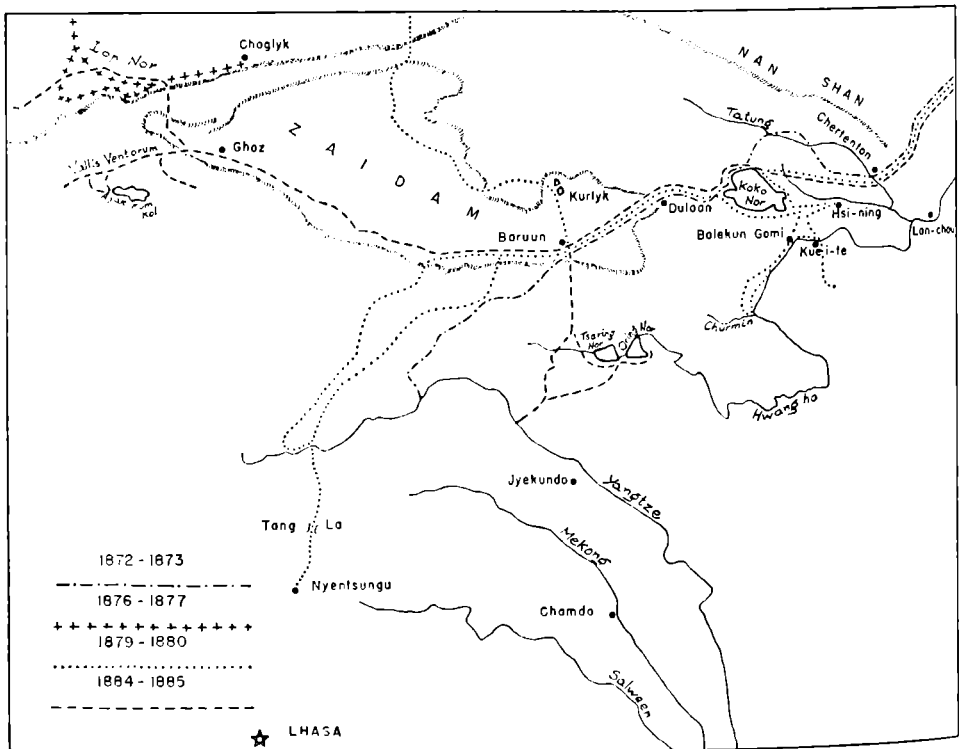


FIG. 4. ITINERARIES OF PRZHEVALSKY

On the first expedition, Przhevalsky, then a Captain, started from St Petersburg in the autumn of 1870 and reached Kyakhta in early November which he left on the 29th to go to Urga, and south through eastern Outer Mongolia to Kalgan (Changkiakow) and Peking where he remained until spring, with the exception of an excursion north to the Dalai Nor (Tari Nor) made during this

period. On May 15, 1871, Przhevalsky left Kalgan, travelling west through Inner Mongolia to explore the Yin Shan and the Muni Ula. These mountains are north of the bend of the Hwang ho and Przhevalsky went from them to Bautu (Paotow) where he crossed the Hwang ho to enter Ordos, the name of the region which lies within the bend of the Hwang ho. Then he followed the south bank of the Hwang ho to Ding-hu (Tingkow) where he crossed the river into the Ala Shan (or Trans Ordos), going south to Din-yuan-ing (Bayenhot) which he reached on September 26. He went back to Peking from Din-yuan-ing on October 27, and on the return travelled north of the Hwang ho along the northern slopes of the Hara Narin Ula, reaching Kalgan and Peking in January, 1872.

Tibet was reached only on the second part of this expedition which started from Kalgan again on March 17, 1872. Przhevalsky retraced the same route north of the Hwang ho taken the preceding October, but this time followed the southern rather than the northern slopes of the Hara Narin Ula back to the Ala Shan, arriving back at Din-yuan-ing on June 7. There his small band joined forces with a caravan bound for Cheibsen (Kuo-mang Ssu) in Tibet and reached the monastery of Chertenton and the Tatung River at the end of June where he entered Tibet. From Chertenton Przhevalsky ascended the gorge of the Rangta Gol, one of the tributaries of the Tatung, to cross the South Tatung Range below which lies Hsi-ning, heading for the monastery of Cheibsen which he used as a base for all his subsequent excursions in the South Tatung Range. He remained there until October.

Przhevalsky wanted to go to the Koko Nor but was prevented from taking the normal route south from Cheibsen by the insurrection of the Moslems. To avoid the latter, he went by a roundabout route north to the valley of the Tatung south of Yung-an-ch'eng, ascended the left bank of the river, and then cut abruptly south to the Koko Nor which he reached on October 25, 20 days after he had left Cheibsen. He went westward along the western shore of the great lake, crossed the South Koko Nor Range by way of Dulaan Hiid, and the southeastern Zaidam southwest to Baruun and the Burchan Buddha which he crossed by way of the Nomokon Gol and Nomokon Pass; then continuing southwestward he crossed successively the ranges of the Shurghan Ula and Bayan Kara Ula to reach the Yangtze on January 23, 1873, which Przhevalsky says is known there by the name of the Murui Ussu. He had to stop there for lack of funds and supplies, about 27 days short of Lhasa, and retraced his way by the same route back to the Koko Nor, Cheibsen, Chertenton, and Din-yuan-ing which he reached in early July. He left the latter on July 27, striking due north for Urga and Kyakhta where the expedition ended on October 2, 1873.

This first expedition of Przhevalsky covered nearly 12,000 kilometres and is

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the most famous. It would be difficult to overestimate its importance because it made so many discoveries in the fields of geography, botany, and zoology. About half of the route had never been surveyed before and a very large number of specimens were collected, a great many by Przhevalsky himself who was then accompanied by only one assistant and two cossacks. He published a celebrated report on his expedition, entitled *Mongoliya i strana Tangutov* in two volumes (1875, 1876). The first, which is a general account, was translated into English by Morgan (1876) with notes by H. Yule. A condensed account in German appeared in 1876 in volume 22 of *Petermann's Mittheilungen*. Przhevalsky shows himself to be a great and humane explorer and an excellent naturalist, especially interested in birds. He never fails to mention the species characteristic of the different regions visited; the emphasis is on the birds, but the mammals and plants are not neglected, and he took great care to make a good collection of the latter as Yule says he brought back 5000 gatherings of plants, ten per cent of which were new.

Volume 2 of the *Mongoliya i strana Tangutov* is a scientific report in several parts. The parts which deal with climatology and birds were written by Przhevalsky, the parts on reptiles, amphibians, and fishes by other men, but no report on the mammals is included although the plates illustrating the mammals are included. Przhevalsky brought back about 1000 bird specimens of 289 forms. Each form was discussed by him but without enumerating individual specimens, which makes it impossible to know how many were taken in Tibet although they seem to be a large majority. The report on the birds was translated into English by C. Craemers (1877-1878).

Przhevalsky discovered 20 new birds on this expedition, all but one of them from Tibet. He described them scientifically and all are well differentiated, but 11 are now considered to be subspecies of species which had been described before Przhevalsky. The nine full species are characteristic of Tibet and most of them are very outstanding; they are: *Tetrastes sewerzowi* found in the South Tatung Range, *Alectoris magna* from the South Koko Nor Range, *Grus nigricollis* from the Koko Nor, *Phoenicurus alaschanicus* which was first encountered in the Ala Shan but is typically Tibetan and virtually endemic, *Turdus kessleri* from the South Tatung Range, *Parus superciliosus* from the South Tatung Range, *Montifringilla taczanovskii* from the valley of the upper Tatung River, *Carpodacus rubicilloides* from the South Tatung Range, and *Urocynchramus pylzowi* from the valley of the upper Tatung River. The latter was a most interesting discovery for which Przhevalsky created the new genus *Urocynchramus*. It must also have been a great thrill to discover such a spectacular new crane as *Grus nigricollis*.

The second expedition of Przhevalsky is mentioned here briefly, but concerns Tibet only indirectly because Przhevalsky reached only the lower slopes

of the Altin Tagh south of Lop Nor and did not enter into Tibet (fig. 4). He left Kuldja in Dzungaria in August, 1876, and, after crossing the Tian Shan southeastward to Korla, reached the region of Lop Nor by following the Tarim River. Then he explored the slopes of the Altin Tagh east to the spring of Chaglyk which is located a little east of the 91st meridian, and also the region between the mountains and Lop Nor until the beginning of February 1877, after which he returned to Kuldja by the same route, arriving in July. This expedition convinced him that it was impossible to reach Lhasa by this route, and, after sending a report and his collection to St Petersburg, he decided to take another route farther east by way of Guchen (Kitai), Hami, the Zaidam, and the upper Yangtze. He left Kuldja at the end of August for the northeast and started on the new route from a point south of Zaysan, but fell ill at Guchen and had to abandon the expedition and return to Zaysan in November.

Przhevalsky was apparently too ill to prepare a full and complete account of this expedition after his return to Russia, but he had prepared a shorter report which he had sent from Kuldja, according to Morgan (1878), who says it was read at a meeting of the Russian Geographical Society on October 5, 1877. This report, or a similar one, was translated into English by Morgan (1879), and Morgan's translation includes critical remarks made by von Richthofen about Przhevalsky's report and the reply of the latter to von Richthofen. A German account (anonymous, 1878) seems also to be a translation of the report from Kuldja, an abstract of which was also published in French (Prjevalski, 1879). Morgan also said in 1878 that Przhevalsky was announcing the shipment of his collection from Kuldja, in which were included "500 birds, representing 180 different kinds".

The third and fourth expeditions penetrated deeply into Tibet and again made important contributions to the knowledge of its geography and ornithology.

The third expedition was better equipped than the first and had a much larger staff with Lieutenant V. I. Roborovsky as second in command. Przhevalsky decided to carry out the plan he had made after returning from Lop Nor and started from Zaysan on April 3, 1879, heading for Hami, but along a route farther to the east than on the second lap of the second expedition. From Hami he turned directly south to the Zaidam by way of Sa-chou (Tunhwang), entering the Zaidam and Tibet near the western end of the Humboldt Range of the Nan Shan. He then followed the eastern tracts of the Zaidam south through the lakes (Ihe Zaidamin Nor, Baga Zaidamin Nor, and Kurlyk Nor) to Baruun where he reached and crossed the Burchan Buddha; then he headed southwestward, crossing successively the ranges of the Shurgan Ula, Marco Polo, Kokoshili, Dungbura, and the Tanglha, the last big range before Lhasa. He crossed the latter at the Tang Pass on November 20, raising the alarm in

Lhasa, and was stopped a few days later near Nyentsungu (fig. 4) by Tibetan officials, escorted by soldiers, sent to bar his way. Nyentsungu is a little south of the 32nd parallel, about 260 kilometres from Lhasa, the southernmost point and the nearest to Lhasa ever reached by Przhevalsky. He was forced to turn back about the middle of December, 1879, after sending a fruitless appeal to Lhasa.

Przhevalsky retraced his route to the Yangtze where he took another route somewhat farther west than on the way south, re-entering the Zaidam by way of the Kokodom Pass and Honog Pass, and then turning east to Baruun, Koko Nor, and Shara Hoto along the southern shore of the Koko Nor. At Shara Hoto he went south to Balekun Gomi (Kung-ho-ku-chih) on the Hwang ho which he ascended to the Churmin River, collecting in the mountains near to and west of the Hwang ho, then turned back to the Ara Gol south of Shara Hoto, and from there southeast to Kuei-te, crossing the Hwang ho to explore the Jahar Mountains in Amdo. After returning to Shara Hoto and making a side trip to Hsi-ning, Przhevalsky followed the eastern shore of the Koko Nor north to the Hargi Gol from where he swung east to the South Tatung Range to his old base at Cheibsen, to leave it for Chertenton, and eventually Urga and Kyakhta, by the same route followed in the fall of 1873. He arrived at Kyakhta on November 10, 1880, where the expedition ended after covering about 7700 kilometres.

Przhevalsky has published a detailed account of this third expedition (1883), but no report on its scientific results. However, Deditius (1886) has published a valuable list of the birds met by Przhevalsky in the different regions visited.

On the fourth and last expedition, held in 1883-1885, Przhevalsky started from Kyakhta on November 2, 1883, with the largest company he ever had, consisting of 20 men, including Lieutenants V. I. Roborovsky and P. K. Kozlov. He followed his usual route through Urga and the Ala Shan, arriving on the Tatung River, Tibet, and Chertenton on February 25, 1884. He left the Tatung Mountains toward the end of March for the north shore of the Koko Nor and Baruun in the Zaidam where he left some of his party with the bulk of his equipment. The Burchan Buddha was crossed on May 22 and Przhevalsky went on to explore the headwaters of the Hwang ho on the marshes of the Odontala Plain and the southern shores of the Tsaring Nor and Oring Nor, and finally arrived at the Yangtze (called Dy Chu in this region) at about the 96th meridian at the end of June (fig. 4). The river could not be crossed and Przhevalsky returned to the Zaidam to proceed north along its western tracts to the Ghaz Kul. At the latter he turned westward to northern Tibet, entering a wide valley, which he called Vallis Ventorum, north of the Akato Tagh and south of a range which he called Chamen Tagh.¹ After exploring the ranges

¹ This range is not the same as the Chiman Tagh of the map, which is also in the same general region of northern Tibet, but its name is probably more correctly Chimen Tagh.

south of the Valley of the Winds on two trips, Przhevalsky went north to cross the Astin Tagh south of Lop Nor by way of the Khurgan Pass.

Przhevalsky spent the spring of 1885 at Lop Nor and had more time to make observations than on the second expedition, and he also hunted and collected waterfowl which he says visit the marshes in huge numbers. He left Lop Nor in May for the west and Khotan, following the Charchan Darya to Charchan, and the foothills of the Astin Tagh, with side excursions to the oases of Niya and Keriya. At Khotan he struck north through the western Takla Makan along the Khotan Darya to the Tarim River and Aksu, and then crossed the Tian Shan to Karakol (Przhevalsk) where he arrived on November 10, 1885, after a journey of some 7800 kilometres. He died there almost exactly three years later as he was starting on his fifth expedition, as stated above, but fortunately he had published a detailed account of the fourth expedition (1888), though not a report on its scientific results.

Przhevalsky's health had been undermined by the many hardships suffered over the years in his vain attempts to reach Lhasa. His reputation as one of the greatest explorers of all times has overshadowed the fact that he was also an excellent zoologist with a special interest in ornithology, and this suggests that he would certainly have written a full report on the birds of the second, third, and fourth expeditions had he lived, as he did for those taken on the first. As it is, he merely published the descriptions of a few new birds taken on the third and fourth expeditions (1887); a translation appeared also in English with his name spelled Prjevalsky (1887). Among the new birds were three outstanding species, two of them taken in Tibet: *Prunella koslowi* from Inner Mongolia, *Leptopoeile elegans* from the "Revenny Range", and *Kozlowia roborowskii* from the Burchan Buddha. The "Revenny Range" (or Rhubarb Range) was a great mystery to me until I found it is the Uguta Ula west of the Hwang ho.

An attempt to publish a full-scale report on all the birds collected by Przhevalsky was made by Pleske (1858-1932) in 1889-1894, and by Bianki in 1905, but the publication was suspended after four numbers had been published and is very incomplete. In the first three numbers, which are by Pleske, this author takes up the following groups in more or less this sequence: Turdinae, Cinclidae, Sylviinae, Timaliinae, Prunellidae, Parinae, Aegithalidae, Sittinae, Certhiidae, Troglodytidae, and Motacillidae, and only the specimens collected by Przhevalsky are considered. The fourth number is by Bianki with the exception of the first two pages which are by Pleske and which complete the Motacillidae. It is restricted to the Alaudidae and Bianki considers also all the specimens of this family which were then in the collection of the St Petersburg museum, in addition to those taken by Przhevalsky.

Przhevalsky (1877) says that he collected "about 5000 specimens of birds . . . [of] 430 species . . . on all four journeys". It is difficult to know how many are

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Tibetan specimens but I believe it must have been over 3000, an estimate obtained by eliminating the 500 from the second expedition, and judging by the time spent in Tibet by Przhevalsky on the other three expeditions. All the specimens went to the Zoological Museum of the Academy of Sciences of St Petersburg (now Leningrad), but the collection is now very far from intact. I found only 1065 specimens from Tibet in Leningrad, but this number should be increased by perhaps another 150–200, because I made no record of the specimens that were merely labelled “Gansu”. I was not sure at the time that they had been collected in Tibet, but I believe now that these were probably taken in Tibet, chiefly in the South Tatung Range, not in Kansu proper,¹ as far as I can judge by Przhevalsky’s reports.

I have seen a total of only about 1400 specimens collected by Przhevalsky in Tibet, because his collections have been so widely scattered, chiefly by exchange. I found about 200 of these specimens in the collection of the British Museum, about 75 or 80 in the zoological museum of the University of Moscow, 40 in the American Museum of Natural History, and smaller numbers in other institutions. Some specimens went also to private collections as some are in the collections of N. Zarudny and Colonel Meinertzhagen, and many probably went also to schools or small provincial museums in the Soviet Union or elsewhere. The specimens from “Gansu” mentioned above that were probably taken in Tibet increase this amount to some 1600.

All the other collections made in Tibet by the Russian expeditions which went to the museum in Leningrad were apparently used for exchange to some degree, but were less depleted than those of Przhevalsky as a rule. For instance, 130 Tibetan skins from all these expeditions were included in the very large amount of material received from Leningrad by the Museum of Comparative Zoology of Harvard University. Przhevalsky’s original labels were removed from skins sent abroad during a certain period and replaced by new ones in Roman script, stamped “Dublet” in Russian characters, which omit some of the original data.

One very important collection made partly in Tibet by the Russians went to the museum of Irkutsk in eastern Siberia, rather than Leningrad, and for this reason has probably remained nearly intact. It was made during the expedition of G. N. Potanin (1835–1920) who was a well-known explorer and botanist. Potanin explored western China in 1884–1886 as far as northeastern Tsinghai and was accompanied by M. M. Berezovsky (?–1911), a zoologist who collected birds. The very large majority of the birds were taken in southern Kansu

¹ Northeastern Tsinghai was attached to Kansu before 1928, the border running west to about 101° 20′ to the eastern outskirts of Dangkar and Kuei-te. This had been done for political expediency only, chiefly to control the important centres of Hsi-ning and Labrang, but the natural boundary between Tsinghai (or northeastern Tibet) and Kansu, which follows the watershed of the Nan Shan, was restored in 1928.

but a fair number were collected also in Tsinghai in the general surroundings of Hsi-ning.

The itinerary is not outlined here in much detail because it concerns Kansu much more than Tibet and is complicated by the fact that Potanin and Berezovsky operated independently for much of the time. The expedition left Peking on June 6, 1884, for Lanchow in Kansu which was reached in the middle of November after following a route across eastern Ordos. Potanin and Berezovsky separated at Lanchow, the latter going on south to establish a base for the winter at "Khoi-syan", which I cannot identify, but which is located in southern Kansu south of Lanchow on the road to Lung-hsi. Potanin spent the winter at a base in the valley of the Hwang ho not far from Hsun-hua, and rejoined Berezovsky at Hsi-ku in the first days of July, 1885, Berezovsky having gone on south to Hsi-ku after leaving Khoi-syan in the middle of May; prior to this, Potanin had collected for about one month in the general region of Hsi-ning. The two men then went on still farther south to Sungpan in northern Szechwan which seems to be the southernmost locality where birds were collected. From Sungpan, the two men returned north to Lanchow by different routes, Berezovsky by way of Hsi-ku, and Potanin by a route farther to the east.

From Lanchow, Berezovsky went back to Hsi-ku where he remained until the end of February, 1886, whereas Potanin went to spend the winter at the monastery of Kum Bum near Hsi-ning, where Berezovsky rejoined him in April. Potanin then left to return home, going first to Hargi east of the Koko Nor where he turned north to the Tatung River which he crossed on May 14, leaving Tibet. He returned to the Russian border at Kyakhta on November 2, 1886, after travelling north in Kansu toward Su-chou and crossing Outer Mongolia.

Berezovsky remained at Kum Bum and collected in the general region of Hsi-ning for about one month, then went back again southeast to Hsi-ku, where he arrived in the middle of September after collecting for about three months in the valley of the Tao River south of Taochow (Lintan). From September, 1886, to about April 11, 1887, Berezovsky collected in southern Kansu with an excursion to the east in southwestern Shensi. Then he returned to Hsi-ning for the last time, arriving on May 2 and leaving on the 12th for Lanchow. From the latter he took a long route north to Ningsia, east to Kalgan, and north through Outer Mongolia to reach Kyakhta nearly one year later than Potanin.

A detailed account of his share in the expedition was published by Potanin (1893), and Berezovsky has written a briefer account of the report of the ornithological results of the expedition which he published jointly with Bianki (1891). The report states that 1400 specimens of 267 forms were collected, which included six new and very interesting birds that are still very rare in col-

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lections; five were discovered in southern Kansu and one in Shensi. They were described as full species by Berezovsky and Bianki whose judgement may be correct. These are *Garrulax sukatschewi*, *Paradoxornis przewalskii*, *Parus davidi*, *Parus hypermelas*, *Sitta przewalskii*, and *Luscinia obscura*. Deditius (1897) has translated the descriptions in German and given a brief account of the expedition.

I have seen a few specimens which were acquired by the Leningrad museum, but not the collection which is too inaccessible in Irkutsk. It is impossible to know, short of examining the collection, how many species and specimens were taken in Tibet because not enough information is given by Berezovsky and Bianki. I judge, however, that about 45 species, or perhaps 50, were collected in Tibet.

The two Russian brothers, G. E. Grum-Grzhimailo (1860–1936), and M. E. Grum-Grzhimailo (1862–?), made a very successful expedition in 1889–1890 to the Tian Shan, northern and central Kansu, and northeastern Tibet south to the Jahar Mountains which had been visited by Przhevalsky on his third expedition. The two explorers left Dzharkent on June 7, 1889, for Kuldja and then followed the northern slopes and foothills of the Tian Shan east to Guchen (Kitai) from where a successful incursion was made north into the Dzungarian Desert to the spring of Gashun in search of Przhevalsky's Horse; they were fortunate to meet with a small band and collected two specimens. Good fortune continued to favour them with the startling discovery that the oasis of Turfan, which they had reached by crossing the Bogdo Ola Range of the Tian Shan, lies in a large depression which is well below sea level (154 metres below). They kept on south from Turfan to the Kuruk Tagh north of Lop Nor, but they did not cross it and returned north to the southern foothills of the Tian Shan which they followed east to Hami.

From Hami, the expedition proceeded southeast to Ansi, Su-chou (Kiu-chuan), and Kanchow (Changyeh) in Kansu, and then crossed the Nan Shan above Yung-an-cheng to arrive in the valley of the Tatung River and Tibet on May 7, 1890. The river was crossed at Tatung (Wei-yuän) and then the South Tatung Range at the Chadaban Pass (Dzai Dabaa), and the two brothers went on south to Cheibsen, Dangkar, Shara Hoto, and "Gui Dui" (Kuei-te) where they crossed the Hwang ho into Amdo, ascending the Mujik ho to the Jahar Mountains. They left the latter at the end of July for the return, which was made via Shara Hoto and along the southern and western shores of the Koko Nor to Shala and the Khargin (Hargi) Gol, where they turned north back to the valley of the Tatung which was reached on August 20.

The explorers then left northeastern Tibet, crossing the North Tatung Range into the valley of the Hei ho by way of the Bilüü Hada Dabaa, and followed the valleys below the Richthofen Range west to a point below Su-chou

from which they recrossed the Nan Shan. They left Su-chou in the middle of September, and, travelling back rapidly over the route followed on the way east, arrived back at the Russian border on or about November 26, 1890, after a journey of some 8600 kilometres.

This expedition was very fruitful and reports on it were published in three volumes between 1896 and 1907. The first concerns the first part of the expedition only, which ended at Hami, and was published jointly by G. E. and M. E. Grum-Grzhimailo (1896). It includes a tabular list, compiled by Pleske, of the birds collected in different regions during the entire expedition. Morgan (1891) translated one section of this report into English, adding notes of his own. The second volume (1899), and the third (1907), are by G. E. Grum-Grzhimailo alone. The second concerns the rest of the trip. I have not seen the third which I know only from a reference, but I understand it is in the nature of a supplement which does not concern birds in any way.

Pleske had published a formal report on the birds (1892) before the list mentioned above. He states that 1048 specimens were collected on the entire expedition which were received by the zoological museum of the Academy of Sciences of St Petersburg, but the large majority were apparently not taken in Tibet. It is not possible to account exactly for the number of species and specimens taken in Tibet because Pleske did not list the specimens individually, but 75 species seem to have been collected in Tibet, judged by Pleske's account, of which I found 177 specimens of 65 species in Leningrad. The total number of specimens from Tibet may have been perhaps between 225 and 250, but a certain amount was dispersed as usual by the Leningrad museum.

The great expeditions of Przhevalsky were not abandoned by the Russian Geographical Society at his death in November 1888. The leadership of the fifth expedition to Tibet which had been organized by Przhevalsky was given by the Society to Pevtsov, who set off in 1889, but the expedition was a disappointment as far as a deep penetration of Tibet was concerned, and will be accounted for below in connection with northern Tibet. The exploration of northeastern Tibet was continued on a great scale, however, by Roborovsky and Kozlov who had both assisted Przhevalsky on his fourth expedition.

The expedition, led by Roborovsky who had been promoted to Captain, left Karakol (Przhevalsk) at the end of July, 1893, and returned to the Russian border at Zaysan on December 2, 1895, after covering more than 17,000 kilometres. It is difficult to give a brief account of its itinerary which was extremely complex, but the work in northeastern Tibet was concentrated on the exploration of the highlands between the Nan Shan and Zaidam, with excursions to the Koko Nor and to the mountains west of the Hwang ho east to the Amne Machin Shan (fig. 3). Roborovsky and Kozlov explored independently as a rule, setting forth on many "excursions" of some 600-800 kilometres each,

which were really minor expeditions of their own, and crossed some regions back and forth in complicated patterns.

Roborovsky and Kozlov travelled eastward together through the Tian Shan as far as the Yulduz Plateau where they parted company for the first time, Kozlov swinging to the south, while Roborovsky kept on to the east to the Baghrash Kōl where Kozlov rejoined him. Excursions were made north and south of the Tian Shan after reaching the Turfan Depression, and the most notable was a very long one by Kozlov to the south across the Kuruk Tagh to Lop Nor where he turned east for Sa-chou in north western Kansu, where Roborovsky rejoined him after travelling through Hami.

From Sa-chou, Roborovsky went west to explore the eastern Altin Tagh, while Kozlov went east into northern Kansu to explore the northern Nan Shan. Sa-chou was left at the end of May and the expedition then entered Tibet as a body via Blagodatny, and, from there on, the "excursions" became too complicated to relate, covering thoroughly the region from the Su-lo ho in the north, south to the eastern tracts of the Zaidam as far as the Sürhey Nor in the southeast. The southwestern corner of the Koko Nor was reached by Roborovsky during this period, and this phase of the expedition ended on October 13 at Kurlyk on the Kurlyk Nor, where a base was established for the winter.

After resting for two months, Roborovsky and Kozlov left together with a small party for the southeast, heading for the Tossun Nor and the Hwang ho. They crossed the Burchan Buddha at its eastern end by ascending the gorge of the Egrai Gol, which arises in the Tossun Nor and cuts north across the Burchan Buddha after receiving the Alak Norin Gol from the west. After reaching the Tossun Nor the two men kept on southeastward along the northern foot of the Amne Machin Shan to a point below the Manlun Pass (nearly 99° 30') where Roborovsky was felled by a stroke on January 21, 1895, as the expedition was about to climb the pass across the Amne Machin Shan. As he lay helpless, the camp was attacked by wild "Tangut" tribesmen,¹ who fortunately inflicted no casualties, but this attack and the illness of Roborovsky forced the explorers to turn back to the base at Kurlyk which was reached by crossing the Burchan Buddha by way of Baruun.

Kozlov left Kurlyk at the end of April for the southeast to explore the mountains south of the Sürhey Nor, and then turned north on this "excursion" to Dulaan Hiid and the South Koko Nor Range. Roborovsky left Kurlyk in the middle of June after he had partly recovered, going northwest to the Makhai Plain and then north to the Syrtyn Plain, from which he eventually went on to Sa-chou where he arrived in the early part of August. The expedition returned to Russian territory from Sa-chou, Roborovsky reaching Zaysan by

¹ The Golog nomads of sinister reputation.

following the Tian Shan from Hami west to Manass, and then by cutting north through Dzungaria, whereas Kozlov crossed Dzungaria farther east by way of Guchen, arriving in Zaysan a little earlier than Roborovsky.

Reports on this remarkable expedition were published by Roborovsky, Kozlov, and other authors in 1899 and 1900. Kozlov has also published an itinerary (1897) which disentangles the more important "excursions" and mentions the localities visited during the main stages of the expedition, but it is difficult to follow it chronologically as virtually no dates are mentioned. A general summary was also published anonymously in English in the *Geographical Journal* (1896), and a much longer one in German by D. Kraemer (1894-1896). Roborovsky's account (1900) is of general interest, but Kozlov's contribution (1899), other than his itinerary, is much slanted to zoology.

Kozlov discusses the vegetation and the mammals and birds that were met, and also lists the mammals and birds that were collected in different regions in tabular form, with a symbol denoting, in the case of the birds, whether the form concerned is sedentary, nesting, or transient. A total of 248 bird forms are listed for the entire expedition. He, unfortunately, does not enumerate specimens or say how many were collected, but Bianki (1899), who has also published a list of the birds taken by this expedition, says 1035 skins were brought back to the Academy of Sciences of St Petersburg. It is not possible to know for certain from the two lists how many species and specimens were taken in Tibet, but I believe that at least half of the specimens and about 115 species were collected in Tibet. I found somewhat less than 500 specimens of 105 species from Tibet when I examined the collection in Leningrad, but some material had been disposed of. Kozlov's list (1899) gives the impression that about 140 species were collected in Tibet, but one of his three categories for Tibet is "Nan Shan", which is misleading, because under this category Kozlov lists species collected "between Sa-chou and the Koko Nor", but the limits that I have adopted for Tibet do not include the eastern ranges of the Nan Shan, and much less Sa-chou.

The last Russian expedition to visit Tibet was led by Kozlov in 1907-1909 who was then a Captain. He was accompanied by three assistants and ten men and left Kyakhta in the middle of December, 1907, and returned to it at the beginning of September, 1909, after a journey of some 10,700 kilometres.

The route followed was across Outer Mongolia to the Sogo Nor in the delta of the Edsin Gol, and then eastward across the Ala Shan to Din-yuan-ing which had been visited by Przhevsky on several occasions, and from there to the Tatung River which was reached on August 6, 1908. From the Tatung River Kozlov (fig. 3) proceeded south to Lobachen (Lao-ya-ch'eng) on the Hsi-ning ho east of Nien-po, where he turned sharply west to Hsi-ning and Dangkar, turning south at the latter for Shara Hoto, and then west to the south

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coast of the Koko Nor as far as Urto. From Urto some members of the party visited the island of Kuisu (Tsho-nyi), situated almost in the centre of the Koko Nor, while Kozlov made a short excursion to the South Koko Nor Range. After returning to Hsi-ning, Kozlov went on to Kuei-te in the middle of October with the intention of establishing a base there for the winter, but he decided to leave Kuei-te on January 19, 1909, to explore Amdo south to Rircha Gomba (Ragya) on the Hwang ho, but he was not able to reach Ragya Gomba and had to turn east for Labrang at about the level of the 35th parallel, south of the Ba River. He arrived in Labrang on February 10 and left it on March 1 for Hsi-ning, dispatching the expedition on to Lanchow in southern Kansu. Kozlov soon rejoined his men at Lanchow and from there the expedition returned to Kyakhta, Kozlov retracing, more or less, the same route he had taken on the way south, while the main part of the caravan went on due north to Urga. The itinerary of this expedition is complicated by accessory excursions into the Ala Shan, Ordos, central and southern Kansu which do not concern northeastern Tibet, but some of Kozlov's assistants, such as P. Napalkov, collected a few birds independently on these excursions.

A report on his expedition was published by Kozlov (1923) who has also published in English an account of the more interesting sites that he visited (1909-1910). The collection went to the Academy of Sciences of St Petersburg and a report on the birds was published by Bianki (1916); this report gives also the full itinerary of the expedition which I suspect was prepared by Kozlov rather than Bianki. The specimens that were collected are enumerated and consist of 858 of 248 forms for the entire expedition, of which a little over 300 of some 120 species were taken in Tibet. The great bulk of this collection seems to be intact but I did not find in it all the species and specimens mentioned by Bianki.

In the fall of 1918, Dr Emile Licent, a Jesuit missionary to China, visited the Koko Nor and made a small collection of birds in northeastern Tibet. He crossed the Tatung River on August 20, 1918, at about latitude $37^{\circ} 25'$ on his way from Kansu, and went south to Hsi-ning, and then made an excursion to the east in the region of Nien-po, returning to Hsi-ning. He left the latter in the first week of September and made the circuit of the Koko Nor, starting from Dangkar and going west to Sume Gomba and the north shore of the lake, to arrive at Shara Hoto on September 27. From there he went back to Hsi-ning and left it for the southeast, going to Labrang which he left on October 22 for southeastern Kansu. He returned to Hsi-ning and Kum Bum for a short visit a few months later (February 11-23, 1919), but apparently collected only one specimen during the second visit to northeastern Tibet.

Père Licent made many trips in China and collected many specimens for the Hoang ho Pai ho Museum of Tientsin of which he was the director. The cata-

logue of the bird collection of this museum was published by Seys and Licent (1933), and shows that Licent collected 103 specimens of 43 species in north-eastern Tibet during the periods mentioned above, 102 of them in 1918. A report on his travels was written by Licent (1924) in which he describes the regions visited and mentions the birds he observed and sometimes collected.

The region of Hsi-ning, the southeastern corner of the Koko Nor, and Labrang were visited from August 4-30, 1922, by F. R. Wulsin (1891-x), an American, on his way from Inner Mongolia and Kansu. He made a small collection of birds which was presented to the United States National Museum in Washington, and on which a report was published by Riley (1930). Riley's report shows that Wulsin collected about 40 specimens of 23 common species between the dates mentioned above; only 34 specimens of 21 species are enumerated by Riley, but it is probable that Wulsin did not take more than half a dozen or so of the other two species.

The American botanist and sinologist, Dr Joseph F. Rock (1884-1962), made several expeditions to western China during which large collections of birds were made. He intended to explore the Amne Machin Shan in 1925, but he had to postpone this trip until 1926 because of an outbreak of war in Amdo between the Chinese Moslems and Tibetan tribes, and went instead to the Richthofen Range in Kansu.

I have not been able to find much information on the itinerary of 1925 despite much effort, and virtually none is furnished by the specimens because they were not adequately labelled by the Chinese collectors employed by Rock. However, Rock entered Tibet from Kansu in September and birds were collected in the valley of the Hsi-ning ho and around the Koko Nor during this month. At the end of it, or in the first days of October, Rock went on to the Richthofen Range and was back in the Hsi-ning Valley in December on his way back to Choni in southern Kansu where he had established his headquarters.

The itinerary of 1926 is precise, because the specimens were then properly labelled, and especially because Rock has published an account of this second phase of his expedition (1956). He says that he left Choni on April 26, 1926, on his way to Labrang which he reached on May 6 by ascending the Tao River. From Labrang he went southwest to the bend of the Hwang ho to Ragya Gumpa where he arrived on May 16. Birds were collected in the region of Ragya until June 20 when Rock went north to visit the valley of the Ba Chu, which had been visited by Kozlov in 1909, and the Jupar Shan, north of the Ba Chu. He then returned to Ragya and on July 14 he crossed to the left bank of the Hwang ho, but the hostility of the Gologs who had attacked Roborovsky in 1895 made it too hazardous for him to attempt to reach the Amne Machin Shan and Rock had to be content with some distant views of this

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great and famous range which has never been explored or climbed by Europeans; he went about as far west as 100° East and was forced to turn back on the 20th. No attempt to collect birds was made on this excursion, but a few were taken on July 28 on the return between Ragya and Labrang from which Rock went back to Choni.

A collection of exactly 1000 skins was sent to the Museum of Comparative Zoology on which a taxonomic report was published by Bangs and Peters (1928). The great majority of the specimens were collected in Kansu as only 231 were taken in Tibet. The latter represent 73 species, and 174 were taken in 1926 and 57 in 1925, but it could be that a few more were taken in 1925 as it is impossible to be certain about the itinerary and dates for 1925.

The last important collection from northeastern Tibet was made by Walter Beick (1888-1933) between October 13, 1926, and July 30, 1930. The collection is very large but not well balanced and Beick's most important contribution to Tibetan ornithology are the many and careful notes he made on the birds he collected and observed during his long sojourn in northeastern Tsinghai; this information is unmatched for any part of Tibet.

A detailed account of the work done by Beick has been published by Stresemann, Meise, and Schönwetter (1937-1938), but their shares in this publication are independent. Stresemann wrote the bulk of the text, including the abstract of the field observations which fill several large diaries which Beick bequeathed to the zoological museum of Berlin. Meise is responsible for the list of specimens, taxonomic discussions, and related subjects, whereas Schönwetter reported on the eggs and nests collected by Beick.

Beick was born in Estonia of Swedish ancestry and was educated in Russia and Germany. He served in the Russian Army during the first World War until 1916 when he was invalided to Turkestan, which he was forced to leave in 1920 during the aftermath of the revolution, going eventually to western China. His diaries, which I have had the privilege to examine, and the itinerary published by Stresemann, show that Beick started his collecting in the region of Hsi-ning on October 13, 1926, where he worked until January 9, 1927. He then made his first trip to the South Tatung Range, going down to "Tschau-tou" on the Tatung River.¹

Beick returned to Hsi-ning on March 31, and collected in this region until May 6 when he left for a second trip to the South Tatung Range, returning to

¹ Very few of Beick's localities can be identified on the maps that I have seen, but many appear to be the same as those visited by the other Russian explorers mentioned above. For instance, the "Ranghta Schlucht" of Beick, and his "Tschau-tou" at its mouth, is the Rangta Gol which was ascended by Przhevalsky on his first expedition on the day that he crossed the Tatung River at or very near Chertenton, and the latter is most probably "Tschau-tou". The approximate position of Beick's localities is shown on the small sketch maps in the report of Stresemann, Meise, and Schönwetter, but the co-ordinates of these maps are very incorrect.

Hsi-ning on October 4. It is not necessary to follow all his steps, but Beick found that the South Tatung Range was the most productive and he visited it on six different trips, not counting the last in July, 1930, when he was passing through on his way to Kansu. He also made three trips in Tsinghai along the upper Hsi-ning ho as far as the steppes beyond "Mu-lu-ku-tse" (which seems to be Hai-yen) or to a point about 85 kilometres above Hsi-ning. He visited the southeastern coast of the Koko Nor very briefly on one of these three trips. Before leaving for Kansu, he also made a trip of about one week in July, 1930, to the "Ama Surgu" Mountains (La-Chi Shan), situated 25 kilometres south of Hsi-ning.

Beick crossed the Tatung River on July 30, 1930, for Kansu,¹ never to return to Tibet. He went on to collect to the north in Kansu on the eastern slopes of the Nan Shan west of Liangchow (Wu-wei), and in 1932 farther north to Kan-chow (Changyeh), and Su-chou (Suchow, or Kiuchuan). From this last locality he went on down the Edsin Gol into Inner Mongolia, where he committed suicide in the delta of this river on March 25, 1933, the victim of a complete physical and mental breakdown induced by many privations.

Most of Beick's collection went to the zoological museum of Berlin. Stresemann says that Beick recorded that he had prepared a total of 2841 bird skins. Of these, 859 were bought from Beick by the Berlin museum between 1927 and 1932, and 1200 more were bequeathed to the museum by Beick together with his diaries and papers, making a total of 2059 received by Berlin. The remainder, which Stresemann says are "*durchweg entbehrliche Doubletten*" (all superfluous duplicates), were left in the "Catholic Mission of Kansu", and may have been destroyed or lost since then, when the missions were suppressed by the new Chinese Government. The very great majority of the specimens (1732 of the 2059 received by Berlin) were taken in Tibet, not Kansu, and represent 177 species. It is probable also that most of the duplicates which remained in China were Tibetan skins.

Beick collected also a few specimens for anatomical study, and I found about 16 specimens or so of seven species in the alcoholic collection of the Stockholm museum. These specimens apparently escaped the attention of Stresemann.

The Berlin Museum has used a substantial number of Beick's birds for exchange as 219 were acquired by the American Museum of Natural History, and I saw smaller numbers in the collections of the Academy of Natural Sciences of Philadelphia, British Museum, Meinertzhagen's collection, and the Paris and Stockholm museums. It is evident that some went elsewhere also,

¹ The report of Stresemann, Meise, and Schönwetter gives the unfortunate impression that all of Beick's work was done in Kansu, with the exception of the last three months of his life when he went to Inner Mongolia. But the greater part of Beick's work, by very far, was done in northeastern Tsinghai, which is Tibetan, not in Kansu. It is essential from all points of view to distinguish between Tsinghai and Kansu.

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as the total number of Beick's skins that I have seen falls somewhat short of the amount listed by Meise.

Small collections were also made in northeastern Tibet by the following persons.

A professional collector by the name of Rückbeil collected the eggs of a few birds, together with one or two of their parents, for the dealer Tancre of Vienna who sold them to Rothschild. Hartert (1859–1933) reported on the eggs (1894) and says the collection was made east of the Koko Nor in the mountains just south of Hsi-ning. These are called La-Chi Shan (or "Ama Surgu"), but the labels mention only the Koko Nor and no dates are given. Hartert says that 15 species were collected, but some specimens have been mislaid or lost, as there are now only 16 specimens of 14 species in the American Museum of Natural History.

The German explorer Dr Holderer made an exploration in 1898–1899 from Sinkiang to eastern China and visited the region of Hsi-ning, the south coast of the Koko Nor, and Amdo from the middle of July to the middle of September, 1898, on his way to southern Kansu. The expedition brought back a modest collection of birds which was divided between the museums of Berlin and Karlsruhe and on which Schalow has published a report (1901); 31 specimens of 21 species are listed from Tibet by Schalow, nearly all taken along the Koko Nor. A specimen of *Charadrius placidus* was collected on the south shore of the Koko Nor on August 17, according to Schalow, but Meise (1937, in Stressemann, Meise, and Schönwetter) has rejected this record on the ground that he did not find the specimen in the Berlin Museum, adding, moreover, that this bird was probably misidentified. However, this species, though apparently uncommon in Tibet, does occur there on migration where it has been collected in the southeast in February and September, and possibly breeds also in Tibet as it has been collected and reported there throughout June and July.

A small collection was made by the Swedish Professor J. G. Andersson at the eastern end of the Koko Nor between July 22 and August 12, 1923, and sent to the Naturhistoriska Riksmuseet of Stockholm. Lönnberg (1865–1942) has published an account of the birds taken or observed by Andersson in a popular magazine (1925). I did not find all the species mentioned by Lönnberg in the museum of Stockholm, but I found 29 specimens of 14 species, one of which (*Phoenicurus ochruros*) was not mentioned by Lönnberg.

Zaidam

The Zaidam forms part of the Northern Plateau but is usually considered apart as it is a vast depression which is much lower than the rest of the plateau. Virtually all of our knowledge of the birds of the Zaidam has been supplied by

the Russian explorers (figs. 3 and 4) who have explored some of the mountains which form the walls of the basin and have followed the travelled tracks along their base. The floor of most of the central and northern Zaidam is shown as totally unexplored on even the most modern maps and is presumably flat and barren.

The first explorer who brought back birds from the Zaidam was Przhevalsky on his first, third, and fourth expeditions. On the first, he merely crossed the extreme southeastern corner in 1872 by the well-travelled caravan route which goes from Dulaan Hiid to Baruun, and forms part of the "road" connecting Lhasa to Hsi-ning and Kum Bum. On the third expedition he followed the eastern track in 1879 from Sa-chou in northern Kansu south to Baruun, the route from the latter to Dulaan Hiid, and part of the southern track; on the fourth expedition he again travelled between Dulaan Hiid and Baruun, west from Baruun, and north along the western track to Ghaz in 1884. Roborovsky and Kozlov were very active in the Zaidam on their great expedition of 1893-1895, exploring the eastern and southeastern mountains and establishing a base at Kurlyk in the south. On the expedition to southeastern Tibet of 1900-1901, Kozlov spent about one month in the southeastern Zaidam between Dulaan Hiid and Baruun from the end of April to the end of May, 1900, and crossed the same region again in September, 1901. All these expeditions were discussed above in connection with southeastern and northeastern Tibet and the birds collected were brought back to the zoological museum of the Academy of Sciences in Leningrad. A handful of specimens were also collected in the Zaidam by Swedish explorers associated with the expeditions of Sven Hedin and are in the collection of the Stockholm museum.

The number of species recorded from the Zaidam is surprisingly large as about 180 are known so far with 135 of them breeding. I estimate that about 1100 specimens have been collected of which I have seen 850.

Chang Tang

The Chang Tang is the most inhospitable region of Tibet and fewer species have been recorded than in the Zaidam, the number being about 130 of which 67 are breeding.

Many explorers have crossed the Chang Tang but few of them collected birds as they were primarily interested in geographical discovery. A small number was collected by Captain H. H. P. Deasy, who, accompanied by A. Pike, visited Sinkiang and Tibet in 1896-1899, and also by Bonvalot and the Prince d'Orléans who crossed the Chang Tang from north to south during the winter of 1889-1890. The expedition of Bonvalot and the Prince d'Orléans has been discussed above in connection with southeastern Tibet where they

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took most of their specimens, but on their way across the Chang Tang the two men collected about 22 specimens of 15 species which went to the Paris Museum where, however, only 15 specimens of 10 species remain. Deasy and Pike collected only a few specimens which went to the British Museum of which I found 12, representing 7 species, taken by Pike at or near the Horpa Tso in July 1896, and one taken by Deasy at the Ulog Köl on September 22, 1898.

In addition to these explorers, Zugmayer made a small collection in 1906 near the border of Ladak, and birds were collected also in the extreme north-west in the region between the Karakoram and Kara Kash Valley by the expeditions which visited the Karakoram, or which were following the trade route from Sinkiang to Ladak. These expeditions and the one of Zugmayer were mentioned above in the discussion of the exploration of Ladak.

The expedition which contributed the most to the knowledge of the avifauna of the Chang Tang was headed by M. V. Pevtsov, then a Colonel, who had been appointed by the Russian War Ministry and the Imperial Geographical Society to lead the fifth expedition to Tibet which had been organized by Przhevalsky and on which Przhevalsky was about to start when he died. Pevtsov's scientific staff consisted of Roborovsky and Kozlov, who had both accompanied Przhevalsky on his fourth expedition, and also of a geologist by the name of K. I. Bogdanovich. Pevtsov started from Przhevask toward the end of May, 1889, and the expedition returned to Russian territory at Zaysan at the end of January, 1891, after covering about 10,200 kilometres. Roborovsky and Kozlov collected in northern Tibet from May to October, 1890, in the region between the Astin Tagh and Arka Tagh, but most of the work of the expedition was done in Sinkiang.

Northern Tibet was penetrated at two points from Sinkiang, one from Niya in May, and the other from Charchan in August. From Niya, the Astin Tagh was crossed by way of Kara Sai, and the valleys of the Sari Tuz River and of the Ak Su River were explored, the latter as far as the Dashi Köl. From Charchan, the Astin Tagh was penetrated by ascending the Charchan Darya to the region of Mandalik, and its upper tributaries were also ascended as far as the Yeshil Köl, the northern foothills of the Arka Tagh, and the Achchik Köl. On this second penetration of Tibet, the expedition proceeded as far east as the Uzun Shor Köl, or to about the 90th meridian, returning from there north to Sinkiang by way of Lop Nor.

Reports on this expedition, which is important for northern Tibet, were published by Pevtsov (1895), Bogdanovich (1892), and Roborovsky and Kozlov (1896); extensive notes on the expedition were also published in English by Morgan (1893).

The zoological results were published by Kozlov (1899b) in abbreviated

form which consists of tables listing the mammals and birds collected in the different regions visited. The list of birds from northern Tibet consists of 108 species, with a symbol denoting that the bird concerned is sedentary, nesting, or a transient. Kozlov gives also other lists of spring migrants from southern Sinkiang, and of fall migrants from southern Sinkiang and northern Tibet, but he unfortunately does not say how many specimens were collected on the entire expedition or in any one region. I presume the collection was fairly large, as Kozlov lists 234 forms for the entire expedition, nearly all of which are full species, but I have found only 43 specimens of 14 species taken in northern Tibet, a few of which had wandered to the collection of the American Museum of Natural History.

Several hundred specimens have probably been taken on the Chang Tang but to my regret I was able to examine only about 155 skins, representing about 50 species.

Specimens from Tibet

When I prepared this study I made a rough count of the specimens that seemed to have been collected in Tibet from the start. This count was based on the literature and also on the material in the collection of the American Museum of Natural History and other museums on which I knew that no report had been published. My estimate was about 20,000 specimens, but the actual number which seems to have been collected is closer to 21,000.

I planned to examine as many of these specimens as I could but knew some material would be inaccessible to me, such as the collections held in China and in eastern Siberia at Irkutsk. I did not believe the inaccessible material would exceed about 1500 skins, but the total number runs to nearly 5000 and I fear that most of this material has been lost or destroyed, a very high rate of erosion. My estimate is probably inflated by several hundred in the case of northeastern Tibet and the Zaidam combined because the reports of the older Russian expeditions failed to list all specimens individually, with the result that these may have been counted twice. A certain proportion of the specimens that were disposed of through exchange, gifts, sale, or in other ways, probably survive, but they have been scattered so widely and so indiscriminately that it seems hopeless to trace them at this date. The collections which have suffered the most in this manner are some of the early Russian collections, especially those of Przhevalsky and Pevtsov, and also the collection brought back to the Paris Museum by Bonvalot and the Prince d'Orléans.

A certain number were definitely destroyed, and among these we probably must count a large proportion of whatever Tibetan specimens Hume had acquired, as Sharpe tells us that "at least 20,000 skins", or about one-third of

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Hume's collection, were destroyed by insects in India before he could ship the rest to the British Museum. Some material in the Indian Museum of Calcutta was destroyed also by improper storage during the last war. The fate of much of the material held in China is also very doubtful, at least the material kept by religious missions before they were expelled. This involves the material that was in Tientsin and the 800 or more skins that Walter Beick donated to a local mission in "Kansu".

The number of specimens that I have examined is given below by regions together with estimates of the number collected.

	Examined	Estimates
Ladak	4350	5700
Western Tibet	95	100
Southern Tibet	2300	2500
Southeastern Tibet	3750	3900
Northeastern Tibet	4700	7300
Zaidam	850	1100
Chang Tang	155	400
	<hr/>	<hr/>
Total	16,200	21,000

CHAPTER THREE

Distribution and Zoogeography

A TOTAL of 504 species has been recorded so far from Tibet but the list is certain to be increased because vast regions of Tibet are still unexplored and others have been visited only superficially. It is probable also that a few will be added from the hypothetical list of 15 species.

The 504 species (505 if we include one that was taken on the very border of Tibet) represent 17 orders, 66 families or subfamilies, and 211 genera. Non-passerine birds account for 198 species, 35 families or subfamilies, and 101 genera, and the passerine birds for 307 species, 31 families or subfamilies, and 110 genera.

The list which follows of families and subfamilies gives a general concept of the composition of the avifauna and was provided because the systematic list is very lengthy and difficult to keep in mind.

PODICIPEDIDAE: 1 genus with 3 species, *Podiceps ruficollis*, *P. nigricollis*, and *P. cristatus*.

PHALACROCORACIDAE: 1 species, *Phalacrocorax carbo*.

ARDEIDAE: 5 genera with 1 species each, *Botaurus stellaris*, *Ardeola bacchus*, *Bubulcus ibis*, *Egretta alba*, and *Ardea cinerea*. Of these, *A. bacchus* is probably accidental and is known only from the remnants of one individual found on the shores of the Koko Nor after it had been killed and partly eaten by a bird of prey.

THRESKIORNITHIDAE: 2 genera with 1 species each, *Plegadis falcinellus* which is accidental, and *Nipponia nippon* the status of which was unknown, but it has now disappeared from Tibet where it was last collected in the northeast in 1909. This species is now on the verge of extinction as only a few pairs are said to survive in Japan.

CICONIIDAE: 2 genera with 3 species, *Ciconia ciconia* and *C. nigra*; and *Ibis leucocephalus* which is accidental.

ANATIDAE: This family is well represented by 8 genera and 27 species, but 11 species seem to be migrant only. *Anser indicus* is typical and widespread.

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PANDIONIDAE: *Pandion haliaetus*, which is nearly cosmopolitan, penetrates Tibet by the valleys of the large rivers.

ACCIPITRIDAE and FALCONIDAE: Diurnal birds of prey are very well represented by 7 falcons and 24 species of Accipitridae of 13 genera. The most characteristic species of Tibet are *Falco cherrug*, *Haliaeetus leucoryphus*, *Buteo hemilasius*, *Gypaëtus barbatus*, and *Gyps himalayensis*.

TETRAONINAE: 1 species, *Tetrastes sewerzowi*, characteristic of Tibet.

PHASIANINAE: 14 genera with 22 species. These include 10 pheasants best represented in the south and southeast; the most characteristic is the regal *Crossoptilon crossoptilon* which is always closely associated with Tibet but not endemic. Other species which are characteristic are the monotypic *Lerwa*, the two species of *Tetraophasis*, *Tetraogallus tibetanus*, *Alectoris magna*, and *Perdix hodgsoniae*.

GRUIDAE: 2 genera with 4 species, the monotypic *Anthropoides* and 3 species of *Grus*; 2 of these and *Anthropoides* are migrant, but *Grus nigricollis* is endemic.

RALLIDAE: 5 genera with 6 species; *Rallus aquaticus*, *Porzana porzana*, and *Crex crex* are migrants, but *P. pusilla*, *Gallinula chloropus*, and *Fulica atra*, which are all very widely distributed species, breed in Tibet.

TURNICIDAE: 1 species, *Turnix tanki*, which has been collected on migration but may be accidental only.

ROSTRATULIDAE: 1 species, *Rostratula benghalensis*, which has been recorded on one occasion and is accidental.

HAEMATOPODIDAE: 1 species, *Haematopus ostralegus*, seen on one occasion and accidental.

CHARADRIINAE: 3 genera with 9 species, 4 of which are migrant; the most characteristic species for Tibet is *Charadrius mongolus*.

SCOLOPACINAE: This subfamily is well represented by 9 genera with 28 species, but 20 of these are migrant only.

RECURVIROSTRINAE: 3 genera and species, *Himantopus himantopus*, *Recurvirostra avosetta*, and *Ibidorhyncha struthersii*.

PHALAROPODINAE: 1 species taken on migration, *Phalaropus lobatus*.

GLAREOLIDAE: 1 species, *Glareola maldivarum* on migration.

LARINAE: 4 species of the genus *Larus*, 2 of which are migrant; *Larus brunnicephalus* is characteristic.

STERNINAE: 2 genera with 3 species; *Chlidonias* with 2 species, one of which is a migrant, and *Sterna hirundo* which is very widespread in Tibet and common.

PTEROCLIDAE: Both members of the genus *Syrnhaptus*, *S. paradoxus*, and *S. tibetanus*.

COLUMBIDAE: 2 genera, *Columba* and *Streptopelia* with 5 species each.

PSITTACIDAE: 1 species, *Psittacula derbiana*.

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CUCULINAE: 2 genera with 3 species, *Cuculus canorus* and *C. poliocephalus*, and *Clamator jacobinus*.

STRIGINAE: 6 genera with 7 species, *Bubo bubo*, *Asio* with 2 species, *Otus brucei*, *Aegolius funereus*, *Athene noctua*, and *Strix aluco*.

CAPRIMULGIDAE: 1 genus with 2 species, *Caprimulgus indicus* and *C. europaeus*.

APODINAE: 2 species, *Apus apus* and *A. pacificus*.

CORACIINAE: 1 species, *Coracias garrulus*, on migration.

ALCEDINIDAE: 1 species, *Alcedo atthis*, which is occasional.

UPUPINAE: 1 species, *Upupa epops*.

JYNGINAE: *Jynx torquilla*.

PICINAE: 4 genera, *Picus*, *Dryocopus*, *Dendrocopos*, and *Picoïdes* with a total of 9 species, chiefly restricted to the forests of southeastern Tibet.

HIRUNDINIDAE: 3 genera with 5 species, *Riparia*, *Hirundo* (3 species), and *Delichon urbica*.

ALAUDIDAE: 5 genera with 9 species, *Calandrella* with 3, *Melanocorypha* with 2, *Eremophila alpestris*, *Galerida cristata*, and *Alauda* with *A. gulgula* and *A. arvensis*, the latter being a migrant only. *Melanocorypha maxima* is virtually endemic.

MOTACILLIDAE: 2 genera, *Anthus* with 6 species, and *Motacilla* with 4.

LANIINAE: 6 species of the genus *Lanius*, one of which (*excubitor*) occurs on migration only.

ORIOOLIDAE: 1 species, *Oriolus oriolus*, which occurs in western Tibet only.

STURNIDAE: 1 genus with 3 species, *Sturnus roseus*, *S. cineraceus*, and *S. vulgaris* which is a migrant only.

CORVIDAE: 9 genera with 16 species. The genus *Corvus* is represented by 5, and the most typical is *Pseudopodoces humilis* which is nearly endemic.

BOMBYCILLINAE: 1 species, *Bombycilla garrulus*, a migrant or accidental in the northeast.

IRENIDAE: 1 species, *Chloropsis hardwickii*, found in the southeast only.

CAMPEPHAGIDAE: 1 species, *Pericrocotus ethologus*, in the south and southeast.

PYCNONOTIDAE: 1 species, *Microscelis madagascariensis*, in the south and southeast.

CINCLIDAE: The 2 Eurasian species, *Cinclus cinclus* and *C. pallasi*.

TROGLODYTIDAE: *Troglodytes troglodytes*.

PRUNELLIDAE: 8 species (one a migrant only) from a total of 12 in this small monogeneric family.

SYLVIINAE: This very large subfamily is strongly represented in Tibet with 14 genera and 45 species of which 16 are in the genus *Phylloscopus*. Among the more characteristic species are *Leptopoeile sophiae*, *L. elegans*, and *Bradypterus major* which is virtually endemic in western Tibet.

RHIPIDURINAE: 1 species, *Rhipidura hypoxantha*, in the south and southeast.

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MUSCICAPINAE: 4 genera with 12 species, *Ficedula* represented by 6, *Muscicapa* by 3, *Niltava* by 2 and *Cyornis vivida*.

TURDINAE: This subfamily which is comparable in size to the Sylviinae (about 300 species) is represented by 14 genera with 50 species, the largest number for any subfamily or family. The genera with the most species are *Turdus* with 10 (4 of them migrant), *Phoenicurus* with 9, *Oenanthe* and *Luscinia* with 5 each, and *Tarsiger* with 4. *Phoenicurus* is the best represented by 9 of its total number of 11 species, of which *Phoenicurus alaschanicus* is nearly endemic. The species of *Turdus* which is the most typical for Tibet is *T. kessleri*.

TIMALIINAE: This large subfamily is also very heavily represented in Tibet by 42 species of 17 genera, most numerous in the south and southeast. *Garrulax* heads the list with 12 species, and its close relative, *Babax*, is almost purely Tibetan because all of its 3 species breed in Tibet, of which two (*waddelli* and *koslowi*) are endemic. Other genera with 3 or more species in Tibet are *Alcippe* with 5, and *Yuhina* and *Paradoxornis* with 3 each.

MUSCICAPIDAE: Four of the five subfamilies of the Muscicapidae listed above account for a combined total of 149 species, or very nearly half of the 307 song birds on the Tibetan list.

AEGITHALIDAE: 1 genus with 3 species, *Aegithalos caudatus*, *A. iouschistos*, and *A. concinnus*.

PARINAE: 2 genera with 10 species, *Sylviparus modestus*, and *Parus* with 9 species.

SITTINAE: 3 species, *Sitta europaea*, *S. villosa*, and *S. leucopsis*, the latter being the most typical for Tibet.

TICHODROMADINAE: *Tichodroma muraria*, which is widely distributed.

CERTHIIDAE: 3 species, *Certhia familiaris*, *C. himalayana*, and *C. nipalensis*.

REMIZIDAE: 2 genera with 1 species each, *Remiz pendulinus*, and *Cephalopyrus flammiceps* the status of which is not clear and which may be a migrant only or accidental.

DICAEIDAE: 1 species, *Dicaeum ignipectus*.

NECTARINIIDAE: 1 genus with 3 species, *Aethopyga nipalensis*, *A. gouldiae*, and *A. ignicauda*.

PLOCEIDAE: 3 genera with 10 species, *Petronia petronia*, *Passer* with 3 species, and *Montifringilla* with 6 of the 7 species which form this genus. The *Montifringilla* are among the groups which are best adapted to Tibet and four of the species of Tibet are endemic or virtually so; these are *adamsi*, *taczanowskii*, *ruficollis*, and *blanfordi*.

FRINGILLINAE: 1 species, *Fringilla montifringilla*.

CARDUELINAE: This subfamily with 40 species in 14 genera is also very well represented in Tibet. The polytypic genera best represented are *Carpodacus* with 14 of the 17 species of this genus which inhabit the Old World, *Carduelis*

with 5 species, *Rhodopechys* with 3 of the 4 species which form this genus, and *Pyrrhula* and *Mycerobas* with 3 species each. The two most curious species are *Urocynchramus pylzovi* and *Kozłowia roborowskii* which is strictly endemic; these two genera are monotypic.

EMBERIZIDAE: 2 genera with 15 species, *Calcarius lapponicus* which seems to be a rare migrant or is perhaps accidental only, and 14 species of *Emberiza*, or about half of the total species of this genus. Nine of the *Emberiza* breed in Tibet, including the rare and little known *E. kosłowi*, which is strictly endemic. The most widespread species is *E. cia*, which is very abundant.

Breeding species and migrants

The correct status of many of the species which occur in Tibet is uncertain because a large number are known from very few records, and sometimes only from a single bird collected or observed. Nevertheless, I believe that one-fifth of the birds on the list, or about 101 to 104 species, do not breed in Tibet. The large majority of these are undoubtedly migrants which may be more or less regular, but some others are probably occasional or accidental only, and a few that are recorded can only have been stragglers and strays, such as *Ibis leucocephalus*, *Haliastur indus*, *Rostratula benghalensis*, or *Haematopus ostralegus*. The birds which do not breed in Tibet will be discussed in a separate chapter devoted to migration.

The remainder (401 to 403 species) probably all breed in Tibet, but I have had to make assumptions, especially in the regional lists, because I have found concrete evidence of breeding for only 207 species. The poor knowledge of the status of the birds which occur in Tibet is due to the fact that collections or observations were made during the progress of expeditions which usually covered a large territory, and by men who could not devote all their time to birds as a rule. The chief concern of many of these men was not birds, but very often plant collecting or geographical exploration.

The status can only be established with accuracy by collections and observations which cover a complete yearly cycle in one region, but this was very rarely the case in Tibet and the only men who collected or observed birds over a long consecutive period were Beick and Ludlow. The former worked very intensively for nearly four consecutive years in the general region of Hsi-ning in northeastern Tibet and devoted virtually all of his time to ornithological pursuits. The information obtained by his efforts is certainly the most complete and thorough which exists for any region of Tibet. Ludlow was active for three consecutive years at Gyantse in southern Tibet, and for one year at Lhasa, but as he was a government official with duties to perform, he was less free than Beick.

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The concrete evidence of breeding that I have found consists of the reports of nests and eggs found, birds observed building nests or accompanied by recently fledged young, females with a large developed egg in the oviduct found on dissection, birds with a brood spot, or chicks or half-grown birds that I have examined or that were observed but not collected. When this type of evidence is not available, my belief that a species probably breeds in the region concerned is based on statements in the literature that are probably correct but for which no data are given. I have also had to rely on dates to some extent, or on the fact that some species, or groups such as the Timaliinae, are not known to be migratory. I am aware, of course, that a margin of error exists.

The area covered by the three main natural divisions of Tibet is shown by the map in figure 5, and the number which breed in each is shown diagram-

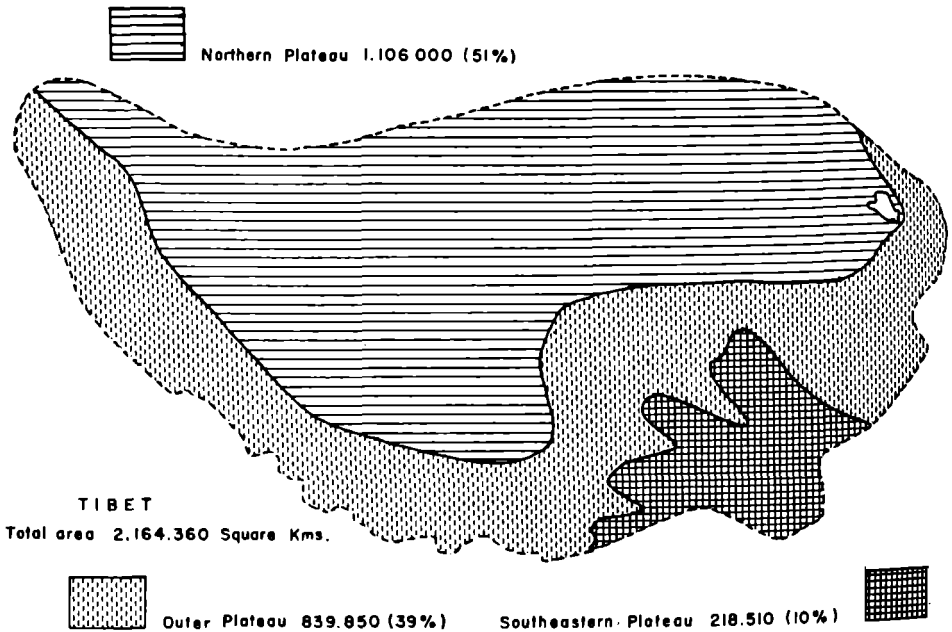


FIG. 5. COMPARATIVE LAND AREA

matically in figure 6. But as the Northern and Outer Plateaux are both far from uniform, the gross number for each is misleading and it was necessary to subdivide these regions in their natural units which consist of three for each region.

The subdivision of the Northern Plateau corresponds to its three distinct geographical regions, the typical plateau called Chang Tang which is very high and bleak, the much lower Zaidam Depression with some forested canyons and oases and a less severe climate, and the smaller but distinct basin of the

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Koko Nor. In the case of the Outer Plateau it is essential to distinguish between the two extremes of this region which forms a great arc of some 3500 kilometres around the southern rim of the Northern Plateau. The very important differences in the geography, vegetation, and climate of these two regions are mentioned in the description of the Outer Plateau and can be very briefly summarized here by stating that northeastern Tibet differs from western Tibet by having a much wetter and more equable climate and a very much richer vegetation which forms dense forests in some regions, whereas western Tibet is extremely arid and its vegetation is very scanty, without forests. Southern Tibet is strongly influenced by its proximity to the Himalayas and the Southeastern Plateau, and requires separate consideration because its avifauna is distinct from that of both northeastern and western Tibet. The Southeastern Plateau was

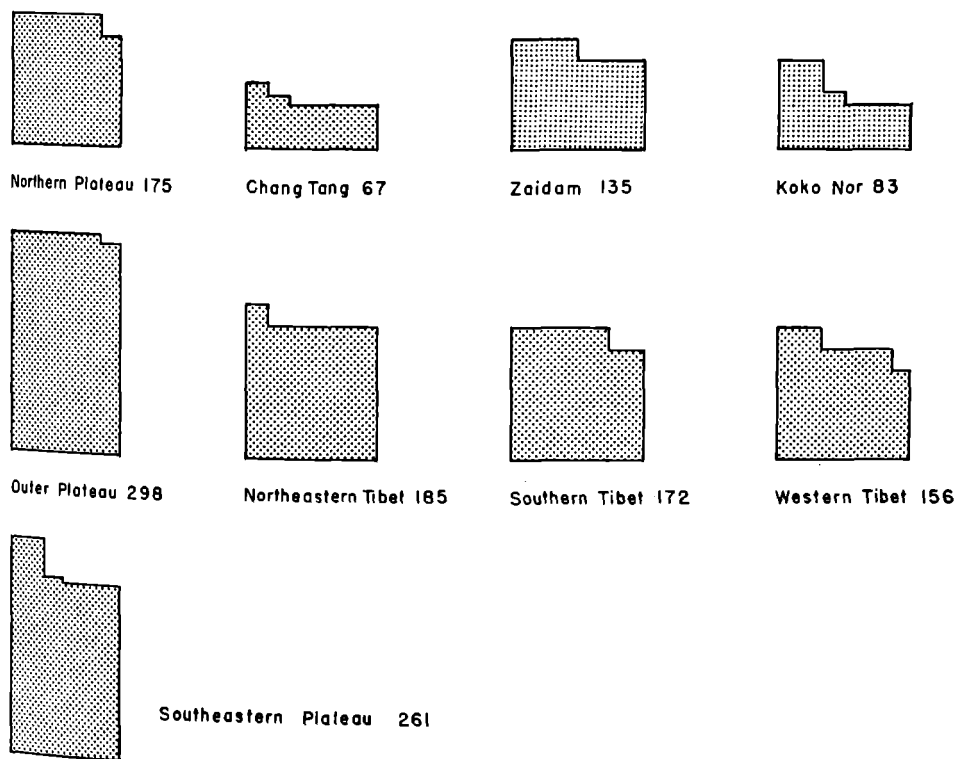


FIG. 6. COMPARATIVE NUMBER OF BIRD SPECIES

not subdivided because it forms a single unit where variation is one of degree only.

The number of species which breed in the different regions is stated below (see also fig. 6), and also the number of species which have been reported from that region and nowhere else in Tibet.

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	Breeding Species	In Region only
Northern Plateau		
Chang Tang	67	2
Zaidam	135	12
Koko Nor	83	4
Outer Plateau		
Northeastern Tibet	185	15
Southern Tibet	172	6
Western Tibet	156	26
Southeastern Plateau	261	73 or 74

The birds which breed on the Northern Plateau are listed in table 1, and those breeding on the Outer Plateau in table 2. A few species not found in the subdivisions of these two regions are mentioned in the titles of the tables. A dash after the name of a species in the two tables, or in the list of the birds of the Southeastern Plateau, indicates that this species is not allocated to any faunal type, the reason being usually that it is too widely distributed.

Northern Plateau

TABLE I

List of the birds breeding on the Northern Plateau. An asterisk (*) before the name of the species denotes that this bird breeds on the Northern Plateau only, or appears to breed there only, according to existing records. Four additional species: *Accipiter nisus*, *Lanius cristatus*, *Phylloscopus fuscatus*, and *Phylloscopus trochiloides* breed in marginal regions of the northeast that I have not included in the Zaidam or Koko Nor Basin. Of these, *Lanius cristatus* breeds only on the Northern Plateau, in the region of Blagodatny.

		Chang Tang	Zaidam	Koko Nor
<i>Podiceps cristatus</i>	— ¹	...	x	x
<i>Phalacrocorax carbo</i>	—	...	...	x
* <i>Botaurus stellaris</i>	Palaearctic and Ethiopian	...	x	...
<i>Egretta alba</i>	—	...	x	...
<i>Anser anser</i>	Palaearctic	...	x	x
<i>Anser indicus</i>	High Central Asia	x	x	x
* <i>Anser cygnoides</i>	Eastern Palaearctic	...	x	...
* <i>Cygnus olor</i>	Palaearctic	...	x	...
* <i>Cygnus cygnus</i>	Palaearctic	...	x	...
<i>Tadorna ferruginea</i>	Eremian	x	x	x

¹ Not allocated to a faunal type.

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		Chang Tang	Zaidam	Koko Nor
<i>Tadorna tadorna</i>	Eremian	...	x	x
<i>Anas platyrhynchos</i>	Holarctic	x	x	x
<i>Anas crecca</i>	Holarctic	...	...	x
<i>Anas acuta</i>	Holarctic	x	...	...
<i>Aythya ferina</i>	Palaearctic	...	x	...
<i>Aythya fuligula</i>	Palaearctic	...	x	...
<i>Mergus merganser</i>	Holarctic	...	x	x
<i>Milvus migrans</i>	—	x	x	x
<i>Haliaeetus leucoryphus</i>	Palaearctic	...	x	x
<i>Buteo hemilasius</i>	High Central Asia	...	x	?
* <i>Buteo rufinus</i>	Eremian	...	x	...
<i>Hieraaëtus pennatus</i>	Eremian	x	...	...
<i>Aquila rapax</i>	Eremian	...	...	x
<i>Aquila chrysaëtos</i>	Holarctic	x	...	...
<i>Gypaëtus barbatulus</i>	Eremian	x	x	x
<i>Aegypius monachus</i>	Eremian	x	x	x
<i>Gyps himalayensis</i>	High Central Asia	x	x	x
* <i>Falco altaicus</i>	High Central Asia	...	...	x
<i>Falco cherrug</i>	Palaearctic	x	x	x
* <i>Falco pelegrinoides</i>	Eremian	x	...	...
<i>Falco tinnunculus</i>	—	x	x	x
<i>Tetraogallus himalayensis</i>	Sino-Himalayan	x	x	x
<i>Tetraogallus tibetanus</i>	Sino-Himalayan	x	x	x
<i>Alectoris chukar</i>	Eremian	x	x	...
<i>Alectoris magna</i>	Eremian	...	x	x
<i>Perdix dauuricae</i>	Palaearctic	...	x	x
<i>Perdix hodgsoniae</i>	Sino-Himalayan	...	x	x
* <i>Coturnix japonica</i>	Eastern Palaearctic	...	...	x
<i>Crossoptilon auritum</i>	Sino-Himalayan	...	x	...
<i>Phasianus colchicus</i>	probably Sino-Himalayan	...	x	...
<i>Grus nigricollis</i>	Tibetan	x	x	x
<i>Porzana pusilla</i>	—	...	x	...
<i>Gallinula chloropus</i>	—	...	x	...
<i>Fulica atra</i>	—	...	x	...
<i>Charadrius dubius</i>	—	...	x	...
<i>Charadrius placidus</i>	Eastern Palaearctic	...	...	x
<i>Charadrius alexandrinus</i>	—	...	x	x
<i>Charadrius mongolus</i>	High Central Asia	x	x	x
<i>Vanellus vanellus</i>	Palaearctic	...	...	x
<i>Calidris temminckii</i>	Northern Palaearctic	x	x	...
<i>Tringa totanus</i>	Palaearctic	x	x	x
<i>Tringa nebularia</i>	Palaearctic	x

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		Chang Tang	Zaidam	Koko Nor
<i>Tringa hypoleucos</i>	Palaearctic	x?	x	...
<i>Xenus cinereus</i>	Palaearctic	...	x	...
<i>Himantopus himantopus</i>	—	...	x	...
<i>Recurvirostra avosetta</i>	Eremian	...	x	...
<i>Ibidorhyncha struthersii</i>	Sino-Himalayan	...	x	x
* <i>Larus ichthyaetus</i>	Eremian	...	...	x
<i>Larus brunnicapillus</i>	Sino-Himalayan	...	...	x
* <i>Chlidonias niger</i>	Holarctic	...	x	...
<i>Sterna hirundo</i>	Holarctic	x	x	x
* <i>Syrhaptes paradoxus</i>	Eremian	x	x	x
<i>Syrhaptes tibetanus</i>	Eremian	x	...	x
<i>Columba leuconota</i>	Sino-Himalayan	...	x	...
<i>Columba rupestris</i>	Sino-Himalayan	x	x	x
<i>Streptopelia tranquebarica</i>	Sino-Himalayan	...	x	x
<i>Streptopelia orientalis</i>	Eastern Palaearctic and Oriental	...	x	...
<i>Cuculus canorus</i>	—	...	x	...
<i>Bubo bubo</i>	Palaearctic and Oriental	x	x	x
<i>Asio flammeus</i>	Holarctic	...	...	x
<i>Athene noctua</i>	Eremian	...	x	x
<i>Apus apus</i>	Palaearctic	...	x	...
<i>Upupa epops</i>	Eremian	...	x	...
<i>Riparia riparia</i>	Holarctic	...	x	x
<i>Hirundo rupestris</i>	Eremian	x	x	...
<i>Delichon urbica</i>	Palaearctic	x	...	...
<i>Calandrella cinerea</i>	Eremian	x	x	x
<i>Calandrella acutirostris</i>	Eremian	x	x	x
<i>Calandrella cheleensis</i>	Eremian	...	x	x
<i>Melanocorypha mongolica</i>	probably Eremian	...	...	x
<i>Melanocorypha maxima</i>	Tibetan	x	x	x
<i>Eremophila alpestris</i>	—	x	x	x
<i>Galerida cristata</i>	Eremian	x	...	...
<i>Alauda gulgula</i>	Southern and Eastern Palaearctic	...	x	x
<i>Anthus novaeseelandiae</i>	—	...	x	x
<i>Anthus trivialis</i>	Palaearctic	x	...	...
<i>Anthus roseatus</i>	Sino-Himalayan	x	x	x
<i>Anthus spinoletta</i>	Holarctic	...	x	...
<i>Motacilla flava</i>	Palaearctic	...	x	...
<i>Motacilla citreola</i>	Eastern Palaearctic	x	x	x
<i>Motacilla alba</i>	—	x	x	x
* <i>Lanius collurio</i>	Palaearctic	...	x	...
<i>Lanius sphenocercus</i>	Eastern Palaearctic	...	x	x
<i>Sturnus roseus</i>	Eremian	x

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		Chang Tang	Zaidam	Koko Nor
<i>Cyanopica cyanus</i>	Palaearctic	X
<i>Pica pica</i>	Holarctic	...	X	X
* <i>Podoces hendersoni</i>	High Central Asia	X	X	...
<i>Pseudopodoces humilis</i>	Tibetan	X	X	X
<i>Pyrrhonorax pyrrhonorax</i>	Palaearctic	X	X	X
<i>Pyrrhonorax graculus</i>	Western Palaearctic	X	X	...
<i>Corvus corone</i>	Palaearctic	...	...	X
<i>Corvus corax</i>	Holarctic	X	X	X
<i>Cinclus cinclus</i>	Palaearctic	X	X	...
<i>Troglodytes troglodytes</i>	Holarctic	...	X	...
<i>Prunella collaris</i>	Palaearctic	...	X	...
<i>Prunella rubeculoides</i>	Sino-Himalayan	...	X	X
<i>Prunella strophciata</i>	Sino-Himalayan	...	X	X
<i>Prunella fulvescens</i>	High Central Asia	X	X	...
<i>Prunella atrogularis</i>	Central Palaearctic	X	...	...
<i>Locustella certhiola</i>	Eastern Palaearctic	...	X	...
* <i>Locustella naevia</i>	Western Palaearctic	...	X	...
* <i>Acrocephalus agricola</i>	Palaearctic	...	X	...
* <i>Acrocephalus scirpaceus</i>	Western Palaearctic	...	X	...
<i>Acrocephalus arundinaceus</i>	Palaearctic	...	X	...
<i>Sylvia curruca</i>	Palaearctic	...	X	...
<i>Sylvia minula</i>	Eremian	X	X	...
<i>Phylloscopus collybita</i>	Palaearctic	X	...	...
<i>Phylloscopus affinis</i>	Sino-Himalayan	...	X	...
<i>Phylloscopus griseolus</i>	High Central Asia	X	...	...
<i>Leptopoeile sophiae</i>	Sino-Himalayan	X	X	X
<i>Leptopoeile elegans</i>	Sino-Himalayan	...	X	...
<i>Rhopophilus pekinensis</i>	Sino-Himalayan	...	X	...
<i>Saxicola torquata</i>	Palaearctic and Ethiopian	X	X	...
<i>Oenanthe deserti</i>	Eremian	X	X	X
<i>Oenanthe isabellina</i>	Eremian	...	X	...
<i>Monticola saxatilis</i>	Eremian	...	X	X
<i>Phoenicurus alaschanicus</i>	Tibetan	...	X	...
<i>Phoenicurus ochruros</i>	Western Palaearctic	...	X	X
<i>Phoenicurus hodgsoni</i>	Sino-Himalayan	...	X	...
<i>Phoenicurus frontalis</i>	Sino-Himalayan	...	X	...
<i>Phoenicurus schisticeps</i>	Sino-Himalayan	...	X	...
<i>Phoenicurus erythrogaster</i>	probably Sino-Himalayan	X	X	X
<i>Chaimarrornis leucocephalus</i>	Sino-Himalayan	...	...	X
<i>Luscinia pectoralis</i>	Sino-Himalayan	...	X	...
<i>Luscinia svecica</i>	Palaearctic	...	X	X
<i>Turdus rubrocanus</i>	Sino-Himalayan	X

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		Chang Tang	Zaidam	Koko Nor
<i>Turdus kessleri</i>	Sino-Himalayan	...	x	...
<i>Garrulax davidi</i>	Sino-Himalayan	...	x	x
* <i>Panurus biarmicus</i>	Palaearctic	...	x	...
<i>Parus superciliosus</i>	Sino-Himalayan	...	x	...
<i>Parus rubidiventris</i>	Sino-Himalayan	...	x	...
<i>Tichodroma muraria</i>	Eremian	...	x	...
<i>Passer montanus</i>	Palaearctic and Oriental	...	x	...
<i>Petronia petronia</i>	Eremian	...	x	x
<i>Montifringilla nivalis</i>	Southern Palaearctic	x	x	...
<i>Montifringilla adamsi</i>	Tibetan	x	x	x
<i>Montifringilla taczanowskii</i>	Tibetan	...	...	x
* <i>Montifringilla davidiana</i>	High Central Asia	...	...	x
<i>Montifringilla ruficollis</i>	Tibetan	x	x	x
<i>Montifringilla blanfordi</i>	Tibetan	x	x	x
* <i>Fringilla montifringilla</i>	Northern Palaearctic	x	...	...
<i>Acanthis flavirostris</i>	High Central Asia	x	x	x
<i>Leucosticte nemoricola</i>	High Central Asia	x	x	...
<i>Leucosticte brandti</i>	High Central Asia	x	x	...
<i>Rhodopechys mongolica</i>	Eremian	x	...	x
<i>Rhodopechys obsoleta</i>	Eremian	x	...	...
<i>Carpodacus erythrinus</i>	Palaearctic	x	...	...
<i>Carpodacus pulcherrimus</i>	probably Sino-Himalayan	...	x	x
<i>Carpodacus synoicus</i>	Eremian	x	...	...
<i>Carpodacus thura</i>	Sino-Himalayan	...	x	x?
<i>Carpodacus rubicilloides</i>	Sino-Himalayan	...	...	x
<i>Carpodacus rubicilla</i>	probably Sino-Himalayan	x	x	...
<i>Carpodacus puniceus</i>	Sino-Himalayan	...	x	...
<i>Kozlowia roborowskii</i>	Tibetan	...	x	...
<i>Urocynchramus pylzowi</i>	Sino-Himalayan	...	x	x
<i>Mycerobas carnipes</i>	Sino-Himalayan	...	x	...
<i>Emberiza leucocephala</i>	Palaearctic	...	x	...
<i>Emberiza cia</i>	Eremian	...	x	...
* <i>Emberiza hortulana</i>	Western Palaearctic	...	x	...
<i>Emberiza pallasi</i>	Eastern Palaearctic	...	x	...
<i>Emberiza schoeniclus</i>	Palaearctic	...	x	...
Totals		67	135	83

The avifauna of the Northern Plateau is chiefly of Palaearctic origin but includes also 35 Sino-Himalayan species which consist of 18 in the basin of the Koko Nor, 31 in the Zaidam, but only of 7 on the Chang Tang. They are outnumbered by Palaearctic species by about 3 to 1 in the first two regions and overwhelmed by 7.5 to 1 on the Chang Tang.

The Sino-Himalayan species were probably nearly all derived from north-eastern Tibet on the Outer Plateau as all but four of the 35 breed also in this region, and of these 31, about one-third do not occur in other regions of the Outer Plateau. The four species that are not found in northeastern Tibet are *Tetraogallus tibetanus*, *Carpodacus rubicilla*, *Streptopelia tranquebarica*, and *Larus brunnicephalus*. The latter followed the lakes to the north, and the existence of the Koko Nor explains the presence of this gull in the basin of this great lake which is the only region of the Northern Plateau where it breeds. The general distribution of the first two is strongly western in type and it is probable that these two birds penetrated the Northern Plateau from the west. The evidence is less clear in the case of *Streptopelia tranquebarica* because this species is widely distributed in eastern Asia, but as its range extends also to northwestern India and Afghanistan, it is possible that it also arrived from the west.

The seven species of the Chang Tang are the two snowcocks (*Tetraogallus himalayensis* and *T. tibetanus*), *Columba rupestris*, *Anthus roseatus*, *Leptopoeile sophiae*, *Phoenicurus erythrogaster*, and *Carpodacus rubicilla* which are all especially hardy birds which frequent barren and rocky steppes and plateaux, dwarf scrub or other stunted vegetation in the case of *L. sophiae*, or low scrub on or near moist spots in the case of *A. roseatus*.

The Palearctic element (including Holarctic species) is very strongly dominant as shown above, but, generally speaking, it does not supply a characteristic component to the Northern Plateau. An unusually large proportion is made up of Eremian species, birds of prey, waterfowl, and waders which are all birds that tend to be very widely distributed, and this is true also of nearly all of the other species which do not fall in these categories. Most of them are very common birds with a great range, some of which are Holarctic, such as *Riparia riparia*, *Anthus spinoletta*, or *Corvus corax*, and, moreover, a considerable number are species at one extreme of their range, such as *Coturnix japonica*, *Lanius cristatus*, *Emberiza hortulana*, or *Fringilla montifringilla* that are known from very few records. The list of common and widely distributed species is very long: about half a dozen are *Tringa totanus*, *Delichon urbica*, *Motacilla flava*, *Corvus corone*, *Prunella collaris*, *Luscinia svecica*, and *Emberiza schoeniclus*. The 21 species (including *Lanius cristatus* mentioned in the title, but not in the body, of table 1) that have been recorded only on the Northern Plateau are all Palearctic and in the same categories mentioned with one or two exceptions.

The avifauna of the Northern Plateau is impoverished, but one of its genera, *Montifringilla*, is of unusual interest in the Tibetan avifauna. This genus consists of seven species, six of which breed in Tibet and on the Northern Plateau where it is the best represented of all the polytypic genera with an appreciable number of species. These seven species, not listed in systematic order, are *adamsi*, *taczanowskii*, *ruficollis*, *blanfordi*, *dauidiana*, *nivalis*, and *theresae*. The last

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is restricted to a small range in the mountains of northern Afghanistan and neighbouring Transcaspia, and the first four are endemic or virtually endemic in Tibet. This unusual representation is interpreted by Kozlova (1952) as evidence that *Montifringilla* originated on the Tibetan plateau, but this seems doubtful because *theresae* has no connection with Tibet, and *davidiana* and *nivalis* are both very widely distributed beyond Tibet. *Davidiana* ranges from the Russian Altai to southeastern Transbaikalia and is actually at one of the limits of its range on the Northern Plateau which it reaches only very marginally in the basin of the Koko Nor, whereas *nivalis* is far flung from Mongolia to southern Europe where it extends to the Pyrenees. The existence of *theresae*, *davidiana*, and *nivalis* suggests to me that the origin of *Montifringilla* probably dates back to the rise of the alpine system, but underwent its greatest radiation on the Tibetan plateau.

When we turn to the number of species which breed in the three regions of the Northern Plateau, a list of 135 (from a total of about 180) for the Zaidam may seem surprising because virtually all of the Zaidam is a desert. But, as is true of some deserts formed by the progressive desiccation of a very large lacustrine depression, the Zaidam still furnishes relatively varied ecological conditions with its oases, shrinking lakes, swamps and morasses, rather extensive and varied bushy tracts, a few screens of trees, and even some forested canyons and small groves of conifers on the mountains which surround the Zaidam and probably account for the two species of *Parus* and of *Mycerobas carnipes*.

The basin of the Koko Nor is considerably smaller and less varied than the Zaidam and has a list of 83 species, 18 of which are not recorded in the Zaidam or Chang Tang. Some of these are species at one extremity of their range, such as *Montifringilla davidiana* or *Coturnix japonica* mentioned above, but the majority are water or shore birds attracted by the Koko Nor, such as *Phalacrocorax carbo*, *Anas crecca*, *Charadrius placidus*, *Vanellus vanellus*, or the two gulls which breed in Tibet, *Larus ichthyaetus* and *L. brunnicephalus*.

The avifauna of the immense but very bleak and largely barren Chang Tang is reduced to only 67 species. It is very impoverished, but, unfortunately, the Chang Tang still dominates the usual but erroneous concept of Tibet, even among zoologists who fail to take the whole of geographical Tibet into consideration. The reason for this is chiefly historical, as I have mentioned in the discussion of the geography of Tibet.

Outer Plateau

The number of species which breed on the Outer Plateau is much larger than on the Northern Plateau, 298 as against 175, but the number in any one of the three subdivisions of the Outer Plateau is very much less than 298 and varies

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from 156 in western Tibet to 185 in northeastern Tibet. The regions included in the three subdivisions consist in the case of western Tibet of eastern Baltistan, Ladak, Zaskar, Rupshu, Spiti, and western Tibet proper; and, in the case of northeastern Tibet, of Amdo, and the region on the left bank of the Hwang ho opposite Amdo, north to the northeastern limit of Tibet on the Tatung River. The region included in southern Tibet extends from the 86th meridian, east to the limits of the Southeastern Plateau, and north to the upper Salween Basin.

TABLE II

List of the birds breeding on the Outer Plateau. An asterisk (*) before the name of the species denotes that this bird breeds on the Outer Plateau only, or appears to breed there only, according to existing records. One additional species, *Kozlowia roborowskii*, breeds in the basins of the upper Hwang ho and upper Yangtze west of the 97th meridian, a region not included in the subdivisions of the table; for a limit of the three subdivisions, see text.

		Western Tibet	Southern Tibet	North- eastern Tibet
* <i>Podiceps ruficollis</i>	— ¹	...	x	...
* <i>Podiceps nigricollis</i>	—	...	...	x
<i>Podiceps cristatus</i>	—	x	x	...
<i>Phalacrocorax carbo</i>	—	x	x	x
* <i>Bubulcus ibis</i>	—	...	x	...
<i>Egretta alba</i>	—	...	x	x
* <i>Ardea cinerea</i>	—	x	x	x
* <i>Ciconia ciconia</i>	Western Palearctic	...	x	...
<i>Ciconia nigra</i>	Palearctic	...	...	x
<i>Anser anser</i>	Palearctic	...	...	x
<i>Anser indicus</i>	High Central Asia	x	x	x
<i>Tadorna ferruginea</i>	Eremian	x	x	x
<i>Tadorna tadorna</i>	Eremian	x	x	...
<i>Anas platyrhynchos</i>	Holarctic	x	x	x
<i>Anas crecca</i>	Holarctic	x	...	x
<i>Anas strepera</i>	Holarctic	x	x	x
<i>Anas penelope</i>	Northern Palearctic	x	x	...
<i>Anas acuta</i>	Holarctic	x	x	...
<i>Anas clypeata</i>	Holarctic	x	x	...
<i>Aythya ferina</i>	Palearctic	...	x	x
<i>Mergus merganser</i>	Holarctic	x	x	x
<i>Pandion haliaetus</i>	—	x	?	...
<i>Milvus migrans</i>	—	x	x	x

¹ Not allocated to a faunal type.

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		Western Tibet	Southern Tibet	North- eastern Tibet
<i>Haliaeetus leucoryphus</i>	Palaearctic	x	x	x
<i>Accipiter gentilis</i>	Holarctic	...	...	x
<i>Accipiter nisus</i>	Palaearctic and Sino-Himalayan	x	x	x
<i>Buteo hemilasius</i>	High Central Asia	...	x	x
<i>Buteo buteo</i>	Palaearctic	...	...	x
<i>Hieraaëtus pennatus</i>	Eremian	x	...	...
<i>Aquila rapax</i>	Eremian	x	...	x
<i>Aquila chrysaëtos</i>	Holarctic	x	...	x
<i>Gypaëtus barbatus</i>	Eremian	x	x	x
<i>Aegypius monachus</i>	Eremian	...	...	x
<i>Gyps himalayensis</i>	High Central Asia	x	x	x
<i>Circus aeruginosus</i>	—	x	x	...
<i>Falco cherrug</i>	Palaearctic	x	?	x
* <i>Falco subbuteo</i>	Palaearctic	x	?	x
<i>Falco tinnunculus</i>	—	x	x	x
<i>Tetrastes sewerzowi</i>	Sino-Himalayan	...	...	x
<i>Lerwa lerwa</i>	Sino-Himalayan	x	x	...
* <i>Tetraophasis obscurus</i>	Sino-Himalayan	...	...	x
<i>Tetraogallus himalayensis</i>	Sino-Himalayan	x	...	...
<i>Tetraogallus tibetanus</i>	Sino-Himalayan	x	x	x
<i>Alectoris chukar</i>	Eremian	x	...	...
<i>Alectoris magna</i>	Eremian	...	...	x
<i>Perdix dauuricae</i>	Palaearctic	...	...	x
<i>Perdix hodgsoniae</i>	Sino-Himalayan	x	x	x
<i>Ithaginis cruentus</i>	Sino-Himalayan	...	x	x
<i>Tragopan satyra</i>	Sino-Himalayan	...	x	...
<i>Lophophorus impejanus</i>	Sino-Himalayan	...	x	...
<i>Crossoptilon crossoptilon</i>	Sino-Himalayan	...	x	...
<i>Crossoptilon auritum</i>	Sino-Himalayan	...	...	x
<i>Phasianus colchicus</i>	probably Sino-Himalayan	...	...	x
<i>Grus nigricollis</i>	Tibetan	x	x	...
<i>Porzana pusilla</i>	—	x	...	x
<i>Gallinula chloropus</i>	—	x	x	x
<i>Fulica atra</i>	—	x	x	x
<i>Charadrius dubius</i>	—	x	...	x
<i>Charadrius alexandrinus</i>	—	x	...	...
<i>Charadrius mongolus</i>	High Central Asia	x	x	x
<i>Tringa totanus</i>	Palaearctic	x	x	x
<i>Tringa nebularia</i>	Palaearctic	...	x?	...
<i>Tringa hypoleucos</i>	Palaearctic	x	...	x
<i>Xenus cinereus</i>	Palaearctic	x?	x?	...

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		Western Tibet	Southern Tibet	North- eastern Tibet
<i>Gallinago solitaria</i>	High Central Asia	x	x	x
<i>Ibidorhyncha struthersii</i>	Sino-Himalayan	x	x	x
<i>Larus brunnicephalus</i>	Sino-Himalayan	x	x	...
<i>Sterna hirundo</i>	Holarctic	x	x	x
<i>Syrhaptus tibetanus</i>	Eremian	x	x	...
<i>Columba leuconota</i>	Sino-Himalayan	x	x	x
* <i>Columba livia</i>	probably Eremian	x	...	...
<i>Columba rupestris</i>	Sino-Himalayan	x	x	x
<i>Columba hodgsonii</i>	Sino-Himalayan	...	x	...
* <i>Streptopelia decaocto</i>	Eremian	x	...	x
<i>Streptopelia tranquebarica</i>	Sino-Himalayan	x	...	...
<i>Streptopelia orientalis</i>	E. Palearctic and Oriental	x	x	x
<i>Cuculus canorus</i>	—	x	x	x
* <i>Cuculus poliocephalus</i>	—	...	...	x
* <i>Clamator jacobinus</i>	probably Eremian	x	...	...
<i>Bubo bubo</i>	Palearctic and Oriental	x	x	x
* <i>Asio otus</i>	Holarctic	...	x	x
<i>Asio flammeus</i>	Holarctic	x	x?	...
* <i>Aegolius funereus</i>	Holarctic	...	...	x
<i>Athene noctua</i>	Eremian	x	x	x
* <i>Caprimulgus europaeus</i>	Palearctic	x	...	...
<i>Apus apus</i>	Palearctic	x	...	x
<i>Apus pacificus</i>	Eastern Palearctic	...	x	x
<i>Upupa epops</i>	Eremian	x	x	x
<i>Jynx torquilla</i>	Palearctic	x	x	x
* <i>Picus squamatus</i>	probably southern Palearctic	x	...	...
<i>Picus canus</i>	Eastern Palearctic	...	...	x
<i>Dryocopus martius</i>	Palearctic	...	...	x
<i>Dendrocopos major</i>	Palearctic	...	...	x
<i>Riparia riparia</i>	Holarctic	...	x	x
<i>Hirundo rupestris</i>	Eremian	x	x	x
<i>Hirundo rustica</i>	Holarctic	...	x	x
<i>Hirundo daurica</i>	—	...	x	x
<i>Delichon urbica</i>	Palearctic	x	x	x
<i>Calandrella cinerea</i>	Eremian	x	...	x
<i>Calandrella acutirostris</i>	Eremian	x	x	?
<i>Calandrella cheleensis</i>	Eremian	...	...	x
<i>Melanocorypha mongolica</i>	probably Eremian	...	...	x
<i>Melanocorypha maxima</i>	Tibetan	x	x	x
<i>Eremophila alpestris</i>	—	x	x	x
<i>Galerida cristata</i>	Eremian	...	...	x

TIBET AND ITS BIRDS

		Western Tibet	Southern Tibet	North- eastern Tibet
<i>Alauda gulgula</i>	Southern and Eastern Palearctic	x	x	x
<i>Anthus novaeseelandiae</i>	—	...	...	x
<i>Anthus godlewskii</i>	Eastern Palearctic	x	x	...
<i>Anthus trivialis</i>	Palearctic	x	...	...
<i>Anthus hodgsoni</i>	Palearctic	...	x	x
<i>Anthus roseatus</i>	Sino-Himalayan	x	x	x
<i>Anthus spinoletta</i>	Holarctic	...	...	x
<i>Motacilla flava</i>	Palearctic	x	...	...
<i>Motacilla citreola</i>	Eastern Palearctic	x	x	x
<i>Motacilla cinerea</i>	Palearctic	x	...	x
<i>Motacilla alba</i>	—	x	x	x
<i>Lanius tephronotus</i>	Sino-Himalayan	x	x	x
* <i>Lanius schach</i>	Sino-Himalayan	x	...	...
<i>Lanius sphenocercus</i>	Eastern Palearctic	...	...	x
* <i>Oriolus oriolus</i>	Palearctic and Oriental	x	...	...
* <i>Sturnus cineraceus</i>	Eastern Palearctic	...	...	x
<i>Garrulus glandarius</i>	Palearctic and Oriental	...	...	x
<i>Cyanopica cyanus</i>	Palearctic	...	...	x
<i>Pica pica</i>	Holarctic	x	x	x
<i>Urocissa flavirostris</i>	Sino-Himalayan	...	x	...
<i>Pseudopodoces humilis</i>	Tibetan	x	x	x
<i>Nucifraga caryocatactes</i>	Palearctic	...	x	x
<i>Pyrrhocorax pyrrhocorax</i>	Palearctic	x	x	x
<i>Pyrrhocorax graculus</i>	Western Palearctic	x	x	x
<i>Corvus dauuricus</i>	Eastern Palearctic, perhaps Sino-Himalayan	...	...	x
* <i>Corvus frugilegus</i>	Palearctic	...	...	x
<i>Corvus macrorhynchos</i>	Eastern Palearctic	x	x	x
<i>Corvus corone</i>	Palearctic	x	...	x
<i>Corvus corax</i>	Holarctic	x	x	x
<i>Pericrocotus ethologus</i>	Sino-Himalayan	...	x	...
<i>Microscelis madagascariensis</i>	Oriental and Ethiopian	...	x	...
<i>Cinclus cinclus</i>	Palearctic	x	x	x
<i>Cinclus pallasii</i>	E. Palearctic and Oriental	x	x	...
<i>Troglodytes troglodytes</i>	Holarctic	x	x	x
<i>Prunella collaris</i>	Palearctic	x	x	x
<i>Prunella himalayana</i>	probably Sino-Himalayan	x?	x?	...
<i>Prunella rubeculoides</i>	Sino-Himalayan	x	x	x
<i>Prunella strophiatea</i>	Sino-Himalayan	x	x	x
<i>Prunella fulvescens</i>	High Central Asia	x	x	x

DISTRIBUTION AND ZOOGEOGRAPHY

		Western Tibet	Southern Tibet	North- eastern Tibet
* <i>Cettia flavolivaceus</i>	Sino-Himalayan	...	x	...
<i>Cettia brunnifrons</i>	Sino-Himalayan	...	x	...
<i>Bradypterus thoracicus</i>	probably Sino-Himalayan	...	x	x
* <i>Bradypterus major</i>	Tibetan	x	...	...
<i>Bradypterus tacsanowskius</i>	Eastern Palearctic	...	...	x
<i>Locustella certhiola</i>	Eastern Palearctic	...	...	x
* <i>Acrocephalus dumetorum</i>	Palearctic	x	...	...
<i>Acrocephalus arundinaceus</i>	Palearctic	...	...	x
* <i>Sylvia communis</i>	Western Palearctic	x	...	...
<i>Sylvia minula</i>	Eremian	...	...	x
* <i>Sylvia althaea</i>	probably Eremian	x	...	...
<i>Phylloscopus collybita</i>	Palearctic	x	...	...
* <i>Phylloscopus neglectus</i>	Palearctic	x	...	...
* <i>Phylloscopus tytleri</i>	probably Sino-Himalayan	x	...	...
<i>Phylloscopus affinis</i>	Sino-Himalayan	x	x	x
<i>Phylloscopus griseolus</i>	High Central Asia	x	...	...
<i>Phylloscopus fuscatus</i>	Eastern Palearctic, probably Sino-Himalayan	...	x	x
<i>Phylloscopus armandii</i>	Sino-Himalayan	...	...	x
<i>Phylloscopus pulcher</i>	Sino-Himalayan	x	x	x
<i>Phylloscopus inornatus</i>	Palearctic	x	...	x
<i>Phylloscopus proregulus</i>	Eastern Palearctic	...	x	x
<i>Phylloscopus magnirostris</i>	Sino-Himalayan	...	x	x
<i>Phylloscopus trochiloides</i>	Palearctic	x	x	x
* <i>Phylloscopus occipitalis</i>	probably Eastern Palearctic	x	...	...
<i>Phylloscopus reguloides</i>	Sino-Himalayan	...	x	...
<i>Seicercus burkii</i>	Sino-Himalayan	...	x	...
<i>Regulus regulus</i>	Palearctic	x	x	x
<i>Leptopoecile sophiae</i>	Sino-Himalayan	x	x	x
<i>Leptopoecile elegans</i>	Sino-Himalayan	...	...	x
<i>Rhopophilus pekinensis</i>	Sino-Himalayan	...	...	x
<i>Rhipidura hypoxantha</i>	Sino-Himalayan	...	x	...
<i>Ficedula parva</i>	Palearctic	x	?	...
<i>Ficedula stophiata</i>	Sino-Himalayan	...	x	...
<i>Ficedula hodgsonii</i>	Sino-Himalayan	...	...	x
<i>Ficedula superciliaris</i>	Sino-Himalayan	...	x	...
<i>Ficedula tricolor</i>	Sino-Himalayan	...	x	...
<i>Niltava sundara</i>	Sino-Himalayan	...	x	...
<i>Muscicapa sibirica</i>	Eastern Palearctic	x	...	...
<i>Saxicola torquata</i>	Palearctic and Ethiopian	x	x	x
<i>Saxicola ferrea</i>	Sino-Himalayan	...	x	...

TIBET AND ITS BIRDS

		Western Tibet	Southern Tibet	North- eastern Tibet
<i>Oenanthe pleschanka</i>	Palaearctic	x	...	x
* <i>Oenanthe picata</i>	probably Eremian	x	...	...
<i>Oenanthe deserti</i>	Eremian	x	x	x
<i>Oenanthe isabellina</i>	Eremian	...	...	x
* <i>Oenanthe alboniger</i>	Eremian	x	...	...
<i>Monticola saxatilis</i>	Eremian	x	...	x
* <i>Monticola solitarius</i>	Eremian	x	x	...
<i>Monticola rufiventris</i>	Sino-Himalayan	...	x	...
<i>Phoenicurus alaschanicus</i>	Tibetan	...	...	x
* <i>Phoenicurus caeruleocephalus</i>	Palaearctic	x	...	...
<i>Phoenicurus ochruros</i>	Western Palaearctic	x	x	x
<i>Phoenicurus hodgsoni</i>	Sino-Himalayan	...	x	x
<i>Phoenicurus frontalis</i>	Sino-Himalayan	x	x	x
<i>Phoenicurus schisticeps</i>	Sino-Himalayan	...	x	x
<i>Phoenicurus aureus</i>	Eastern Palaearctic, perhaps Sino-Himalayan	...	...	x
<i>Phoenicurus erythrogaster</i>	probably Sino-Himalayan	x	x	x
<i>Chaimarrornis leucocephalus</i>	Sino-Himalayan	x	x	x
<i>Rhyacornis fuliginosus</i>	Sino-Himalayan	...	x	x
<i>Hodgsonius phoenicuroides</i>	Sino-Himalayan	...	...	x
* <i>Luscinia calliope</i>	Eastern Palaearctic	...	...	x
<i>Luscinia pectoralis</i>	Sino-Himalayan	x	x	x
<i>Luscinia svecica</i>	Palaearctic	x	...	...
<i>Luscinia pectardens</i>	Sino-Himalayan	...	x	...
<i>Luscinia brunnea</i>	Sino-Himalayan	...	x	...
<i>Tarsiger cyanurus</i>	Palaearctic and Sino- Himalayan	x	x	x
<i>Tarsiger chrysaeus</i>	Sino-Himalayan	...	x	...
* <i>Turdus unicolor</i>	probably Sino-Himalayan	x	...	...
<i>Turdus albocinctus</i>	Sino-Himalayan	...	x	...
<i>Turdus merula</i>	Palaearctic and Oriental	x	x	...
<i>Turdus rubrocanus</i>	Sino-Himalayan	...	...	x
<i>Turdus kessleri</i>	Sino-Himalayan	...	...	x
* <i>Turdus mupinensis</i>	Sino-Himalayan	...	...	x
<i>Zoothera mollissima</i>	Sino-Himalayan	...	x	...
<i>Myophonus caeruleus</i>	Sino-Himalayan	x	x	...
<i>Grandala cœlicolor</i>	Sino-Himalayan	...	x	x
<i>Babax waddelli</i>	Tibetan	...	x	...
<i>Garrulax albogularis</i>	Sino-Himalayan	...	x	...
* <i>Garrulax variegatus</i>	Sino-Himalayan	x	...	...
<i>Garrulax davidi</i>	Sino-Himalayan	...	...	x

DISTRIBUTION AND ZOOGEOGRAPHY

		Western Tibet	Southern Tibet	North- eastern Tibet
<i>Garrulax maximus</i>	Sino-Himalayan	...	...	X
<i>Garrulax ocellatus</i>	Sino-Himalayan	...	X	...
* <i>Garrulax lineatus</i>	Sino-Himalayan	X	X	...
<i>Garrulax elliotii</i>	Sino-Himalayan	...	...	X
<i>Garrulax affinis</i>	Sino-Himalayan	...	X	...
<i>Garrulax henrici</i>	Sino-Himalayan	...	X	...
<i>Myzornis pyrrhoura</i>	Sino-Himalayan	...	X	...
<i>Yuhina gularis</i>	Sino-Himalayan	...	X	...
<i>Yuhina occipitalis</i>	Sino-Himalayan	...	X	...
* <i>Alcippe vinipectus</i>	Sino-Himalayan	...	X	...
<i>Pnoepyga albiventer</i>	Sino-Himalayan	...	X	...
<i>Spelaeoris troglodytoides</i>	Sino-Himalayan	...	?	...
<i>Paradoxornis unicolor</i>	Sino-Himalayan	...	X	...
* <i>Paradoxornis conspicillata</i>	Sino-Himalayan	...	...	X
* <i>Aegithalos caudatus</i>	Palaearctic	...	...	X
<i>Aegithalos iouschistos</i>	Sino-Himalayan	...	X	...
<i>Parus montanus</i>	Palaearctic	...	...	X
<i>Parus superciliosus</i>	Sino-Himalayan	...	...	X
<i>Parus dichrous</i>	Sino-Himalayan	...	...	X
<i>Parus ater</i>	Palaearctic	...	X	...
<i>Parus rubidiventris</i>	Sino-Himalayan	X	X	X
* <i>Parus cyanus</i>	Eastern Palaearctic	...	...	X
<i>Parus major</i>	Palaearctic and Oriental	X	X	X
<i>Parus monticolus</i>	Sino-Himalayan	...	X	...
<i>Sylviparus modestus</i>	Sino-Himalayan	X	...	...
* <i>Sitta villosa</i>	—	...	...	X
<i>Sitta leucopsis</i>	Sino-Himalayan	...	...	X
<i>Tichodroma muraria</i>	Eremian	X	X	X
<i>Certhia familiaris</i>	Holarctic	...	X	X
* <i>Certhia himalayana</i>	Sino-Himalayan	X	...	...
* <i>Remiz pendulinus</i>	Eremian	X	...	...
<i>Aethopyga gouldiae</i>	Sino-Himalayan	...	X	...
<i>Aethopyga ignicauda</i>	probably Sino-Himalayan	...	X	...
* <i>Passer domesticus</i>	probably Eremian	X	...	...
<i>Passer montanus</i>	Palaearctic and Oriental	...	X	X
<i>Passer rutilans</i>	Eastern Palaearctic	...	X	...
<i>Petronia petronia</i>	Eremian	...	...	X
<i>Montifringilla nivalis</i>	Southern Palaearctic	...	X	...
<i>Montifringilla adamsi</i>	Tibetan	X	X	X
<i>Montifringilla taczanowskii</i>	Tibetan	X	X	X
<i>Montifringilla ruficollis</i>	Tibetan	...	X	X

TIBET AND ITS BIRDS

		Western Tibet	Southern Tibet	North- eastern Tibet
<i>Montifringilla blanfordi</i>	Tibetan	x	x	...
* <i>Serinus pusillus</i>	Southern Palearctic	x	...	...
* <i>Carduelis sinica</i>	Eastern Palearctic	...	...	x
<i>Carduelis spinoïdes</i>	probably Sino-Himalayan	...	x	...
* <i>Carduelis carduelis</i>	Palearctic	x	...	...
<i>Acanthis flavirostris</i>	High Central Asia	x	x	x
<i>Leucosticte nemoricola</i>	High Central Asia	x	x	x
<i>Leucosticte brandti</i>	High Central Asia	x	x	x
<i>Rhodopechys mongolica</i>	Eremian	x	...	x
<i>Rhodopechys obsoleta</i>	Eremian	...	...	x
<i>Carpodacus nipalensis</i>	Sino-Himalayan	...	x	...
<i>Carpodacus erythrinus</i>	Palearctic	x	x	x
<i>Carpodacus pulcherrimus</i>	probably Sino-Himalayan	...	x	x
<i>Carpodacus eos</i>	Sino-Himalayan	...	...	x
* <i>Carpodacus rhodochrous</i>	probably Sino-Himalayan	x	...	...
<i>Carpodacus synoicus</i>	Eremian	...	...	x
<i>Carpodacus thura</i>	Sino-Himalayan	...	x	x
* <i>Carpodacus rhodochlamys</i>	probably Sino-Himalayan	x	...	...
<i>Carpodacus rubicilloides</i>	Sino-Himalayan	x	x	x
<i>Carpodacus rubicilla</i>	probably Sino-Himalayan	x	x	...
<i>Carpodacus puniceus</i>	Sino-Himalayan	x	x	x
<i>Loxia curvirostra</i>	Holarctic	...	...	x
<i>Urocynchramus pylzowi</i>	Sino-Himalayan	...	...	x
* <i>Pyrrhula erythrocephala</i>	Sino-Himalayan	...	x	...
<i>Pyrrhula erythaca</i>	Sino-Himalayan	...	...	x
<i>Mycerobas melanozanthos</i>	Sino-Himalayan	...	x	...
<i>Mycerobas carnipes</i>	Sino-Himalayan	x	x	x
<i>Emberiza leucocephala</i>	Palearctic	...	...	x
<i>Emberiza cia</i>	Eremian	x	x	x
* <i>Emberiza cioides</i>	Eastern Palearctic	...	...	x
* <i>Emberiza stewarti</i>	Eremian	x	...	...
* <i>Emberiza spodocephala</i>	Eastern Palearctic	...	...	x
<i>Emberiza schoeniclus</i>	Palearctic	...	...	x
Totals		156	172	185

Northeastern Tibet has a list of 185 breeding species and the analysis of this list shows that Palearctic species outnumber also the Sino-Himalayan as in the case of the Northern Plateau. They are strongly dominant, but by a reduced proportion of about 2 to 1, as against 3 to 1 or 7.5 to 1 on the Northern Plateau.

The Palearctic element of all categories (including the Holarctic) is also poorly characterized as in the case of the Northern Plateau and for the same

reasons, although the proportion of Eremian species, birds of prey, waterfowl, and waders is reduced in northeastern Tibet. Nevertheless, well over 80 per cent of the birds are common and very widely distributed species. These include, however, birds that are not found on the Northern Plateau for ecological reasons, the most important of which is that some regions of northeastern Tibet are well forested, the forest or open woodlands bringing into northeastern Tibet such species as *Picus canus*, *Dendrocopos major*, *Garrulus glandarius*, *Regulus regulus*, *Parus major*, *Certhia familiaris*, or *Loxia curvirostra*; *Motacilla cinerea* is another common species not found on the Northern Plateau.

The Sino-Himalayan element is much better characterized than the Palearctic as it includes quite a few remarkable species, such as *Tetraophasis obscurus*, *Leptopoeile elegans*, *Turdus kessleri* and *T. mupinensis*, *Garrulax davidi*, *G. maximus* and *G. elliotii*, *Paradoxornis conspicillata*, or *Urocynchramus pylzowi*, but with three exceptions noted below, the species mentioned are not peculiar to northeastern Tibet, as *G. davidi* breeds also on the Northern Plateau, and the other species on the Southeastern Plateau.

The Sino-Himalayan species can be divided roughly into two categories, those which are at the northern or northwestern limit of their range and which include the nine mentioned above, and species widely distributed within Tibet (such as *Phylloscopus affinis*) or well beyond Tibet. The species which range beyond Tibet may reach the northern Nan Shan, Tian Shan, or Pamirs and include such birds as *Tetraogallus tibetanus*, *Columba leuconota*, *Anthus roseatus*, *Leptopoeile sophiae* (three of these breeding on the Chang Tang as stated above), *Chaimarrornis leucocephalus*, *Luscinia pectoralis*, *Carpodacus puniceus*, and *Mycerobas carnipes*. A few species may range even beyond the mountain ranges mentioned and the more noteworthy are *Columba rupestris* and *Phoenicurus erythrogaster*. The former has an exceptionally great range which extends to Amurland in the northeast and the Russian Altai in the northwest, whereas *Phoenicurus erythrogaster* reaches as far west as the central Caucasus. It is not certain, however, that *P. erythrogaster* is of Sino-Himalayan origin, though I believe it probably is.

A total of 15 species on the list of northeastern Tibet has been recorded only in this region within Tibet. They consist of *Podiceps nigricollis*, *Cuculus poliocephalus*, and *Sitta villosa* which I have not allocated to a faunal type because of uncertainty about their origin, but it is possible that *S. villosa* is a member of a superspecies which once was very widespread and has a member in North America (*S. canadensis*). Nine are Palearctic and widely distributed beyond Tibet, such as *Corvus frugilegus* and *Aegithalos caudatus*, or *Aegolius funereus* which inhabits the northern forests of both Eurasia and North America. Three are Sino-Himalayan and were mentioned above: they are *Tetraophasis obscurus*, *Turdus mupinensis*, and *Paradoxornis conspicillata*.

TIBET AND ITS BIRDS

The number of species in southern Tibet is somewhat smaller than in northeastern Tibet, 172 as against 185, but there is a very important change in the composition of the avifauna as the number of Sino-Himalayan species increases greatly and they exceed the Palearctic slightly by 78 to 71. The proportion, as a percentage of the total breeding in the region, is 45 per cent as against 41 Palearctic, whereas this proportion was only 30 as against 60 per cent Palearctic in northeastern Tibet, the remaining percentage in both regions consisting of Tibetan endemics or of species not allocated to a faunal type.

The large increase of Sino-Himalayan species in southern Tibet is caused by the proximity of this region to the Himalayas and the Southeastern Plateau to which it is contiguous, the avifauna of southern Tibet merging into that of the Southeastern Plateau in the east.

About 45 Sino-Himalayan species which breed in southern Tibet apparently do not reach northeastern Tibet. They include three pheasants, five flycatchers, eight thrushes, and eleven timaliids. One of the pheasants is *Crossoptilon crossoptilon* which is replaced in northeastern Tibet by *Crossoptilon auritum*. The flycatchers are *Rhipidura hypoxantha*, three species of *Ficedula*, and *Niltava sundara*. Some of the thrushes are *Saxicola ferrea*, *Monticola rufiventris*, two species of *Luscinia*, and *Tarsiger chrysaeus*, and, among the timaliids, *Garrulax* is represented by five species, and *Yuhina* by two. Other Sino-Himalayan species are *Lerwa lerwa*, *Urocissa flavirostris*, *Phylloscopus reguloides*, *Aegithalos iouschistos*, *Parus monticolus*, *Carpodacus nipalensis*, and *Mycerobas melanozanthos*.

The Sino-Himalayan element contributes also three families that are not represented in the other regions of the Outer Plateau, the Campephagidae, Pycnonotidae, and the Nectariniidae. The first two are represented by one species each, respectively *Pericrocotus ethologus* and *Microscelis madagascariensis*, and the Nectariniidae by two, *Aethopyga gouldiae* and *A. ignicauda*.

The normal assumption concerning the derivation of the Sino-Himalayan element is that it was acquired from the east by way of the Southeastern Plateau, but not directly from the Himalayas to the south because the Main Range is usually assumed to form a perfect barrier to the avifauna west of the 93rd meridian. However, four of the Sino-Himalayan species of southern Tibet (*Cettia flavolivaceus*, *Garrulax lineatus*, *Alcippe vinipectus*, and *Pyrrhula erythrocephala*) have not been recorded so far on the Southeastern Plateau, and clearly penetrated Tibet directly from the south by way of the headwaters of the relatively small rivers which cut back on to the plateau across the Main Range.

The specimens of these four species that I have seen were taken on the upper Nyamjang Chu, a little to the west of the 92nd meridian; also on the Kharta Chu and Kama Chu, which drain the northern and northeastern slopes of Mount Everest to become affluents of the Arun River at about the border of Nepal, some 20 kilometres east of Everest, which is situated on the 87th meri-

dian; and also on the upper Sun Kosi River, a short distance above the border of Nepal on the 86th meridian. Two of these were collected also at the northern end of the Chumbi Valley.

It is possible, of course, that these four species occur also on the Southeastern Plateau, because east of the 93rd meridian (which forms the border between southern Tibet and the Southeastern Plateau) the Main Range sinks to a comparatively low level and forests penetrate on to the plateau, as described in the discussion of the geography of southeastern Tibet. Birds follow the forest, and access to southern Tibet is then a matter of simple expansion to the west, if ecological requirements do not prevent it.

The composition of the Palearctic element of southern Tibet is similar to that of northeastern Tibet, with the exception that Eremian and Holarctic species have been cut down to about half, and that two species are new, *Parus ater* and *Passer rutilans*.

Only six species which breed in southern Tibet have not been recorded in other regions of Tibet. They consist of three of the four Sino-Himalayan species which penetrate Tibet directly from the south (*Cettia flavolivaceus*, *Alicippe vinipectus*, and *Pyrrhula erythrocephala*), and of *Podiceps ruficollis*, *Bubulcus ibis*, and *Ciconia ciconia*.

Western Tibet with 156 species has a smaller list than northeastern and southern Tibet but the composition of its avifauna differs to an important degree. Its Palearctic element is strongly dominant, more so than in northeastern Tibet, and a large proportion of it seems to have been derived from the western part of the Palearctic region. The Palearctic species dominate the Sino-Himalayan by about 3 to 1 in number, or to the same degree as in the Zaidam and Koko Nor Basin on the Northern Plateau, whereas this proportion is only 2 to 1 in northeastern Tibet, and the Sino-Himalayan species slightly outnumber the Palearctic in southern Tibet.

The fact that the avifauna of western Tibet is strongly influenced by the western Palearctic is well shown by 17 of the 18 Palearctic species which have been recorded only in western Tibet, as all of these birds seem to have been derived from the west. A partial list consists of *Columba livia*, *Caprimulgus europaeus*, *Oriolus oriolus*, *Acrocephalus dumetorum*, *Sylvia communis*, *Phylloscopus neglectus*, *Passer domesticus*, *Serinus pusillus*, and *Carduelis carduelis*. Among the species that are found in other regions, one can cite a number which also seem to have been derived from the west, and some of these are *Aquila rapax*, *Apus apus*, *Anthus trivialis*, *Pyrrhocorax graculus*, *Cinclus cinclus*, *Phylloscopus collybita*, *Saxicola torquata*, *Monticola saxatilis*, *Phoenicurus ochruros*, and *Turdus merula*. Not all of these birds are allocated to the western Palearctic in table 2, but their distribution is western in type and several range beyond southern Europe to northwestern Africa.

TIBET AND ITS BIRDS

The Sino-Himalayan element of western Tibet consists of about 34 species which are a very mixed assemblage, with the exception of *Carpodacus* which is represented by five species. Two of these are *Carpodacus rhodochlamys* and *C. rhodochrous* which have not been reported in other regions of Tibet, together with five other species which are *Lanius schach*, *Phylloscopus tytleri*, *Turdus unicolor*, *Garrulax variegatus*, and *Certhia himalayana*. *Carpodacus rhodochlamys* is known from a sufficient number of records in Baltistan, Ladak, Zaskar, and Spiti, but not *C. rhodochrous* which has not been collected and is known only from a small flock seen on one occasion in western Tibet proper and a single record from Spiti. It is possible that this species, and also the five mentioned, do not occur regularly in western Tibet as these five birds are known from very few records of one to three specimens.

SUMMARY FOR THE THREE SUBDIVISIONS OF THE OUTER PLATEAU. The number of breeding species is roughly comparable with 156 in western Tibet, 172 in southern Tibet, and 185 in northeastern Tibet, but the composition of the avifauna is not uniform and differs distinctly in each region. The two regions which show the greatest contrast are western and southern Tibet, the Sino-Himalayan element being slightly dominant over the Palearctic in southern Tibet, whereas the Palearctic is very strongly dominant over the Sino-Himalayan in western Tibet. It is dominant in northeastern Tibet also, but by a reduced margin of 2 to 1, as against 3 to 1 in western Tibet. The avifauna of the latter seems to have been acquired largely from the western part of the Palearctic region, and the large number of Sino-Himalayan species in southern Tibet is undoubtedly due to the proximity of this region to the Himalayas and the Southeastern Plateau. The Palearctic element of northeastern Tibet is not well characterized to faunal type as the very great majority of these species are common birds with a very wide distribution; the Sino-Himalayan species of this region are about equally divided between those that are at the limit of their range and widely distributed species which range well beyond Tibet.

Southeastern Plateau

The Southeastern Plateau varies greatly in its relief and its relatively low passes and deep valleys are directly exposed to the monsoon at its maximum strength. Much rain penetrates on to the plateau and the high humidity creates dense forests and a very varied vegetation which is incomparably richer than in the rest of Tibet. These factors promise a rich bird life, and 260 (or 261) species which breed in this region have been recorded so far, but it is certain that this number will be increased, probably to a considerable extent, because large regions of the Southeastern Plateau are still unknown to naturalists. One species which has been taken at a pass on the border of the Southeastern Plateau

has been added to the list, raising it to 261, a much greater number of species than from any other region of Tibet.

The avifauna is well characterized by the strong dominance of the Sino-Himalayan element over the Palearctic, the inordinate radiation of the Timaliinae, and the large preponderance of song birds which is probably favoured by the great variation of the vegetation. The gallinaceous birds are also numerous and consist of 15 species, 9 of which are pheasants.

The Sino-Himalayan species overbalance the Palearctic by 156 to 91, or not far from 2 to 1, whereas the Palearctic element is strongly dominant in all the other regions of Tibet with the exception of southern Tibet where the Sino-Himalayan species exceed slightly the Palearctic by 78 to 71.

The song birds account for 76 per cent of the avifauna, whereas their representation is more normal in the other regions (with the exception of southern Tibet) and varies from 49 to 60 per cent, with an average of 57. In southern Tibet, however, the percentage rises to 67 per cent because the avifauna of southern Tibet is strongly influenced by its proximity to the Southeastern Plateau, as stated above. The subfamilies of song birds which are best represented are the Sylviinae by 23 species, with 10 in the genus *Phylloscopus*; Muscicapinae by 10; Turdinae by 31; Timaliinae by 35 or probably 36 species which include 9 in the genus *Garrulax*; Parinae by 9; and the Carduelinae by 26 with 11 in the genus *Carpodacus*. The number of species is about twice as great in these subfamilies as in southern Tibet, with the exception of the Timaliinae where the number is 3 to 1, and the Turdinae where it is reduced to 3 to 2.

The avifauna of the Southeastern Plateau includes also 73 or 74 species that have not been recorded in the other regions of Tibet, and these include species of three families not recorded elsewhere in Tibet. These three families are represented by a single species each and consist of the Psittacidae with *Psittacula derbiana* which is endemic in the Sino-Himalayan region as it is distributed only from western Szechwan and northwestern Yunnan, west to southeastern Tibet as far as the Tsangpo Valley and the Pasum Tso; Irenidae with *Chloropsis hardwickii*; and Dicaeidae with *Dicaeum ignipectus*.

The 73 or 74 species that are not found in the other regions of Tibet are overwhelmingly Sino-Himalayan, as expected, and many are timaliids. The list is too long to single out species, but it is of interest to note that it includes *Babax koslowi* and *Emberiza koslowi*, both of which are endemic to Tibet and very rare in collections.

The list of the birds which breed on the Southeastern Plateau follows.

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LIST OF THE SPECIES WHICH BREED ON THE SOUTHEASTERN PLATEAU

An asterisk (*) before the name of the species denotes that this bird breeds on the Southeastern Plateau only, or appears to breed there only, according to existing records. A dash after the name of the species indicates that it is not allocated to a faunal type.

<i>Anser indicus</i>	High Central Asia
<i>Tadorna ferruginea</i>	Eremian
<i>Anas platyrhynchos</i>	Holarctic
<i>Anas acuta</i>	Holarctic
<i>Mergus merganser</i>	Holarctic
<i>Milvus migrans</i>	—
<i>Haliaeetus leucoryphus</i>	Palaearctic
<i>Accipiter gentilis</i>	Holarctic
<i>Accipiter nisus</i>	Palaearctic and Sino-Himalayan
<i>Buteo hemilasius</i>	High Central Asia
<i>Buteo buteo</i>	Palaearctic
<i>Aquila rapax</i>	Eremian
<i>Aquila chrysaetos</i>	Holarctic
<i>Gypaetus barbatus</i>	Eremian
<i>Aegypius monachus</i>	Eremian
<i>Falco cherrug</i>	Palaearctic
<i>Falco tinnunculus</i>	—
<i>Tetrastes sewerzowi</i>	Sino-Himalayan
<i>Lerwa lerwa</i>	Sino-Himalayan
* <i>Tetraophasis széchenyii</i>	Sino-Himalayan
<i>Tetraogallus tibetanus</i>	Sino-Himalayan
<i>Perdix hodgsoniae</i>	Sino-Himalayan
* <i>Arborophila torqueola</i>	Sino-Himalayan
<i>Ithaginis cruentus</i>	Sino-Himalayan
<i>Tragopan satyra</i>	Sino-Himalayan
* <i>Tragopan temminckii</i>	Sino-Himalayan
<i>Lophophorus impejanus</i>	Sino-Himalayan
* <i>Lophophorus sclateri</i>	Sino-Himalayan
* <i>Lophura leucomelana</i>	Sino-Himalayan
<i>Crossoptilon crossoptilon</i>	Sino-Himalayan
<i>Phasianus colchicus</i>	probably Sino-Himalayan
* <i>Chrysolophus amherstiae</i>	Sino-Himalayan
<i>Grus nigricollis</i>	Tibetan
<i>Charadrius placidus</i>	Eastern Palaearctic
<i>Tringa totanus</i>	Palaearctic

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<i>Tringa hypoleucos</i>	Palaearctic
* <i>Scolopax rusticola</i>	Palaearctic
<i>Gallinago solitaria</i>	High Central Asia
* <i>Gallinago nemoricola</i>	Sino-Himalayan
<i>Ibidorhyncha struthersii</i>	Sino-Himalayan
<i>Larus brunnicephalus</i>	Sino-Himalayan
<i>Sterna hirundo</i>	Holarctic
<i>Syrrhaptes tibetanus</i>	Eremian
<i>Columba leuconota</i>	Sino-Himalayan
<i>Columba rupestris</i>	Sino-Himalayan
<i>Columba hodgsonii</i>	Sino-Himalayan
<i>Streptopelia orientalis</i>	Eastern Palaearctic and Oriental
* <i>Psittacula derbiana</i>	Sino-Himalayan
<i>Cuculus canorus</i>	—
<i>Bubo bubo</i>	Palaearctic and Oriental
<i>Athene noctua</i>	Eremian
* <i>Strix aluco</i>	Palaearctic
* <i>Caprimulgus indicus</i>	Palaearctic and Oriental
<i>Apus pacificus</i>	Eastern Palaearctic
<i>Upupa epops</i>	Eremian
<i>Jynx torquilla</i>	Palaearctic
<i>Picus canus</i>	Eastern Palaearctic
* <i>Picus flavinucha</i>	Sino-Himalayan
<i>Dryocopus martius</i>	Palaearctic
<i>Dendrocopos major</i>	Palaearctic
* <i>Dendrocopos darjellensis</i>	Sino-Himalayan
* <i>Dendrocopos cathpharius</i>	Sino-Himalayan
* <i>Dendrocopos hyperythrus</i>	Sino-Himalayan
* <i>Picoïdes tridactylus</i>	Holarctic
<i>Riparia riparia</i>	Holarctic
<i>Hirundo rupestris</i>	Eremian
<i>Hirundo rustica</i>	Holarctic
<i>Hirundo daurica</i>	—
<i>Delichon urbica</i>	Palaearctic
<i>Calandrella cinerea</i>	Eremian
<i>Calandrella acutirostris</i>	Eremian
<i>Melanocorypha maxima</i>	Tibetan
<i>Eremophila alpestris</i>	—
<i>Alauda gulgula</i>	Southern and Eastern Palaearctic
<i>Anthus godlewskii</i>	Eastern Palaearctic
<i>Anthus hodgsoni</i>	Palaearctic

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<i>Anthus roseatus</i>	Sino-Himalayan
<i>Anthus spinoletta</i>	Holarctic
<i>Motacilla flava</i>	Palaearctic
<i>Motacilla citreola</i>	Eastern Palaearctic
<i>Motacilla cinerea</i>	Palaearctic
<i>Motacilla alba</i>	—
<i>Lanius tephronotus</i>	Sino-Himalayan
<i>Lanius sphenocercus</i>	Eastern Palaearctic
<i>Garrulus glandarius</i>	Palaearctic and Oriental
<i>Cyanopica cyanus</i>	Palaearctic
<i>Pica pica</i>	Holarctic
<i>Urocissa flavirostris</i>	Sino-Himalayan
<i>Pseudopodoces humilis</i>	Tibetan
<i>Nucifraga caryocatactes</i>	Palaearctic
<i>Pyrhcorax pyrrhcorax</i>	Palaearctic
<i>Pyrhcorax graculus</i>	Western Palaearctic
<i>Corvus dauuricus</i>	E. Palaearctic, perhaps Sino-Himalayan
<i>Corvus macrorhynchos</i>	Eastern Palaearctic
<i>Corvus corax</i>	Holarctic
<i>Pericrocotus ethologus</i>	Sino-Himalayan
* <i>Chloropsis hardwickii</i>	Sino-Himalayan
<i>Microscelis madagascariensis</i>	Oriental and Ethiopian
<i>Cinclus cinclus</i>	Palaearctic
<i>Cinclus pallasii</i>	Eastern Palaearctic and Oriental
<i>Troglodytes troglodytes</i>	Holarctic
<i>Prunella collaris</i>	Palaearctic
<i>Prunella rubeculoides</i>	Sino-Himalayan
<i>Prunella strophiiata</i>	Sino-Himalayan
<i>Prunella fulvescens</i>	High Central Asia
* <i>Prunella immaculata</i>	Sino-Himalayan
* <i>Oligura castaneo-coronata</i>	Sino-Himalayan
* <i>Cettia montanus</i>	Sino-Himalayan
* <i>Cettia major</i>	Sino-Himalayan
* <i>Cettia acanthizoides</i>	Sino-Himalayan
<i>Cettia brunnifrons</i>	Sino-Himalayan
<i>Bradypterus thoracicus</i>	probably Sino-Himalayan
<i>Bradypterus tacsanowskii</i>	Eastern Palaearctic
<i>Phylloscopus affinis</i>	Sino-Himalayan
<i>Phylloscopus fuscatus</i>	Eastern Palaearctic, probably Sino-Himalayan
<i>Phylloscopus armandii</i>	Sino-Himalayan

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<i>Phylloscopus pulcher</i>	Sino-Himalayan
<i>Phylloscopus inornatus</i>	Palaearctic
<i>Phylloscopus proregulus</i>	Eastern Palaearctic
* <i>Phylloscopus maculipennis</i>	Sino-Himalayan
<i>Phylloscopus magnirostris</i>	Sino-Himalayan
<i>Phylloscopus trochiloides</i>	Palaearctic
<i>Phylloscopus reguloides</i>	Sino-Himalayan
<i>Seicercus burkii</i>	Sino-Himalayan
* <i>Abroscopus schisticeps</i>	Sino-Himalayan
<i>Regulus regulus</i>	Palaearctic
<i>Leptopoeile sophiae</i>	Sino-Himalayan
<i>Leptopoeile elegans</i>	Sino-Himalayan
* <i>Prinia atrogularis</i>	Sino-Himalayan
<i>Rhipidura hypoxantha</i>	Sino-Himalayan
<i>Ficedula strophiiata</i>	Sino-Himalayan
* <i>Ficedula hyperythra</i>	Sino-Himalayan
<i>Ficedula hodgsonii</i>	Sino-Himalayan
<i>Ficedula superciliaris</i>	Sino-Himalayan
<i>Ficedula tricolor</i>	Sino-Himalayan
* <i>Cyornis vivida</i>	Sino-Himalayan
* <i>Niltava grandis</i>	Sino-Himalayan
<i>Niltava sundara</i>	Sino-Himalayan
<i>Muscicapa sibirica</i>	Eastern Palaearctic
<i>Saxicola torquata</i>	Palaearctic and Ethiopian
* <i>Saxicola insignis</i>	High Central Asia
<i>Saxicola ferrea</i>	Sino-Himalayan
<i>Monticola rufiventris</i>	Sino-Himalayan
<i>Phoenicurus ochruros</i>	Western Palaearctic
<i>Phoenicurus hodgsoni</i>	Sino-Himalayan
<i>Phoenicurus frontalis</i>	Sino-Himalayan
<i>Phoenicurus schisticeps</i>	Sino-Himalayan
<i>Phoenicurus aureus</i>	E. Palaearctic, perhaps Sino-Himalayan
<i>Phoenicurus erythrogaster</i>	probably Sino-Himalayan
<i>Chaimarrornis leucocephalus</i>	Sino-Himalayan
<i>Rhyacornis fuliginosus</i>	Sino-Himalayan
<i>Hodgsonius phoenicuroides</i>	Sino-Himalayan
* <i>Brachypteryx montana</i>	Sino-Himalayan
* <i>Brachypteryx stellatus</i>	Sino-Himalayan
<i>Luscinia pectoralis</i>	Sino-Himalayan
<i>Luscinia svecica?</i>	Palaearctic
<i>Luscinia pectardens</i>	Sino-Himalayan

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<i>Luscinia brunnea</i>	Sino-Himalayan
<i>Tarsiger cyanurus</i>	Paelearctic and Sino-Himalayan
* <i>Tarsiger hyperythrus</i>	Sino-Himalayan
* <i>Tarsiger indicus</i>	Sino-Himalayan
<i>Tarsiger chrysaeus</i>	Sino-Himalayan
<i>Turdus albocinctus</i>	Sino-Himalayan
<i>Turdus merula</i>	Paelearctic and Oriental
<i>Turdus kessleri</i>	Sino-Himalayan
<i>Zoothera mollissima</i>	Sino-Himalayan
* <i>Zoothera dixoni</i>	Sino-Himalayan
<i>Myophonus caeruleus</i>	Sino-Himalayan
<i>Grandala cœlicolor</i>	Sino-Himalayan
* <i>Enicurus maculatus</i>	Sino-Himalayan
* <i>Babax lanceolatus</i>	Sino-Himalayan
<i>Babax waddelli</i>	Tibetan
* <i>Babax koslowi</i>	Tibetan
<i>Garrulax albogularis</i>	Sino-Himalayan
* <i>Garrulax striatus</i>	Sino-Himalayan
<i>Garrulax maximus</i>	Sino-Himalayan
<i>Garrulax ocellatus</i>	Sino-Himalayan
<i>Garrulax elliotii</i>	Sino-Himalayan
* <i>Garrulax erythrocephalus</i>	Sino-Himalayan
<i>Garrulax affinis</i>	Sino-Himalayan
<i>Garrulax henrici</i>	Sino-Himalayan
* <i>Garrulax subunicolor</i>	Sino-Himalayan
* <i>Pomatorhinus ruficollis</i>	Sino-Himalayan
* <i>Pomatorhinus erythrocnemis</i>	Sino-Himalayan
* <i>Leiothrix lutea</i>	Sino-Himalayan
<i>Myzornis pyrrhoura</i>	Sino-Himalayan
* <i>Cutia nipalensis</i>	Sino-Himalayan
* <i>Pteruthius erythropterus</i>	Sino-Himalayan
* <i>Pteruthius xanthochloris</i>	Sino-Himalayan
* <i>Actinodura nipalensis</i>	Sino-Himalayan
* <i>Minla ignotincta</i>	Sino-Himalayan
* <i>Minla strigula</i>	Sino-Himalayan
* <i>Yuhina flavicollis</i>	Sino-Himalayan
<i>Yuhina gularis</i>	Sino-Himalayan
<i>Yuhina occipitalis</i>	Sino-Himalayan
* <i>Alcippe cinerea</i>	Sino-Himalayan
* <i>Alcippe castaneiceps</i>	Sino-Himalayan
* <i>Alcippe striaticollis</i>	Sino-Himalayan

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* <i>Alcippe cinereiceps</i>	Sino-Himalayan
* <i>Heterophasia pulchella</i>	Sino-Himalayan
* <i>Stachyris ruficeps</i>	Sino-Himalayan
<i>Pnoepyga albiventer</i>	Sino-Himalayan
* <i>Pnoepyga pusilla</i>	Sino-Himalayan
* <i>Spelaeornis troglodytoides?</i>	Sino-Himalayan
<i>Paradoxornis unicolor</i>	Sino-Himalayan
* <i>Paradoxornis fulvifrons</i>	Sino-Himalayan
<i>Aegithalos iouschistos</i>	Sino-Himalayan
* <i>Aegithalos concinnus</i>	Sino-Himalayan
* <i>Parus palustris</i>	Palaearctic
<i>Parus montanus</i>	Palaearctic
<i>Parus superciliosus</i>	Sino-Himalayan
<i>Parus dichrous</i>	Sino-Himalayan
<i>Parus ater</i>	Palaearctic
<i>Parus rubidiventris</i>	Sino-Himalayan
<i>Parus major</i>	Palaearctic and Oriental
<i>Parus monticolus</i>	Sino-Himalayan
<i>Sylviparus modestus</i>	Sino-Himalayan
* <i>Sitta europaea</i>	Palaearctic and Oriental
<i>Sitta leucopsis</i>	Sino-Himalayan
<i>Tichodroma muraria</i>	Eremian
<i>Certhia familiaris</i>	Holarctic
* <i>Certhia nipalensis</i>	Sino-Himalayan
* <i>Dicaeum ignipectus</i>	Sino-Himalayan
* <i>Aethopyga nipalensis</i>	Sino-Himalayan
<i>Aethopyga gouldiae</i>	Sino-Himalayan
<i>Aethopyga ignicauda</i>	probably Sino-Himalayan
<i>Passer montanus</i>	Palaearctic and Oriental
<i>Passer rutilans</i>	Eastern Palaearctic
<i>Petronia petronia</i>	Eremian
<i>Montifringilla nivalis</i>	Southern Palaearctic
<i>Montifringilla adamsi</i>	Tibetan
<i>Montifringilla taczanowskii</i>	Tibetan
<i>Montifringilla ruficollis</i>	Tibetan
* <i>Carduelis ambigua</i>	Sino-Himalayan
<i>Carduelis spinoides</i>	probably Sino-Himalayan
* <i>Carduelis thibetana</i>	Sino-Himalayan
<i>Acanthis flavirostris</i>	High Central Asia
<i>Leucosticte nemoricola</i>	High Central Asia
<i>Leucosticte brandti</i>	High Central Asia

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* <i>Carpodacus rubescens</i>	Sino-Himalayan
<i>Carpodacus nipalensis</i>	Sino-Himalayan
<i>Carpodacus erythrinus</i>	Palaearctic
<i>Carpodacus pulcherrimus</i>	probably Sino-Himalayan
<i>Carpodacus eos</i>	Sino-Himalayan
* <i>Carpodacus edwardsii</i>	Sino-Himalayan
* <i>Carpodacus trifasciatus</i>	Sino-Himalayan
<i>Carpodacus thura</i>	Sino-Himalayan
<i>Carpodacus rubicilloides</i>	Sino-Himalayan
<i>Carpodacus rubicilla</i>	probably Sino-Himalayan
<i>Carpodacus puniceus</i>	Sino-Himalayan
<i>Loxia curvirostra</i>	Holarctic
<i>Urocynchramus pylzowi</i>	Sino-Himalayan
* <i>Propyrrhula subhimalacha</i>	Sino-Himalayan
* <i>Pyrrhoptectes epauletta</i>	Sino-Himalayan
* <i>Pyrrhula nipalensis</i>	Sino-Himalayan
<i>Pyrrhula erythaca</i>	Sino-Himalayan
* <i>Mycerobas affinis</i>	Sino-Himalayan
<i>Mycerobas melanozanthos</i>	Sino-Himalayan
<i>Mycerobas carnipes</i>	Sino-Himalayan
<i>Emberiza cia</i>	Eremian
* <i>Emberiza koslowi</i>	Tibetan

Total: 261

Tibetan Species

All the commentators on the avifauna of Tibet state that it is distinguished by a "large number" of distinctive species. This is correct, but a complete list of those that are endemic or virtually endemic to Tibet has never been published. The correct number is much smaller than has been assumed and consists of only 13 species which I have mentioned during the course of my discussion and which are called Tibetan in the lists of distribution for the various regions. These are brought together here with an asterisk (*) denoting the six which are strictly endemic.

* <i>Grus nigricollis</i>	<i>Montifringilla adamsi</i>
<i>Melanocorypha maxima</i>	* <i>Montifringilla taczanowskii</i>
<i>Pseudopodoces humilis</i>	<i>Montifringilla ruficollis</i>
<i>Bradypterus major</i>	<i>Montifringilla blanfordi</i>
<i>Phoenicurus alashanicus</i>	* <i>Kozlowia roborowskii</i>
* <i>Babax waddelli</i>	* <i>Emberiza koslowi</i>
* <i>Babax koslowi</i>	

The list is small but it can be swelled to 50 by adding species which are distinctive of Tibet but not endemic or virtually endemic. The additional species are more or less widely distributed beyond Tibet, but my main test for placing them on the list has been that they are abundant and better distributed in Tibet than in the other regions where they occur. This list is somewhat subjective because it is not always possible to draw a sharp line between what to include and omit, and the list no doubt could be modified. To make the list complete I have included the 13 species named above and designated them by an asterisk (*) to emphasize their endemic status.

Other species that are characteristic of the avifauna and abundant could be added, such as *Haliaeetus leucoryphus*, *Gypaëtus barbatus*, *Ibidorhynchia struthersii*, *Tichodroma muraria*, and perhaps *Gallinago solitaria*, but it seems best to exclude them on the ground that they are too widely distributed outside of Tibet. I believe also that one should not include other characteristic species of the type listed by Kozlova (1952), such as *Sterna hirundo*, *Bubo bubo*, *Corvus corax*, *Pyrhacorax pyrrhocorax*, and *Eremophila alpestris* which are even more widely distributed, and some of which breed also in North America.

Kozlova's paper on Tibet was concerned almost solely with the avifauna of the Chang Tang, and the only other authors who have come to my attention who have discussed the composition of the avifauna of Tibet are Meinertzhagen (1928), Stegmann (1938), and Weigold (1949).

Stegmann's account forms part of a major study on the Palearctic region as a whole. In the case of Tibet he gives two lists of characteristic birds. A general one of 57 species includes 30 on my list; the other, which is abstracted from the first, is composed of 31 species which Stegmann says are endemic to Tibet and are also found in the Himalayas and mountains of western China, but this second list is inaccurate because it does not include five of the 13 endemic species (including *Babax waddelli*, *B. koslowi*, and *Emberiza koslowi*, which are three of the only six that are strictly endemic), but includes three species not recorded at all in Tibet.

The regions covered by Meinertzhagen and Weigold are not equivalent to geographical Tibet, as Meinertzhagen omits all of the southeast and other large regions, and Weigold extends his account far to the east of Tibet to include virtually all of western China. These two authors also mention subspecies, in contrast to Kozlova and Stegmann who do not consider them, but a large number of these subspecies are invalid. It is legitimate, of course, to consider endemic subspecies provided they are quite distinct, but only to a point beyond which it becomes misleading to accord to them the same weight as species. Meinertzhagen's paper is also controversial in other ways, but Weigold's contribution is quite valuable as it is concerned primarily with ecological distribution in

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eastern Tibet and western China, a subject which he has also discussed in two other papers (1939, 1950).

The list of the 50 distinctive species follows; the notations after the name of the species signify: HCA, High Central Asia; SH, Sino-Himalayan; E, Eremian; and T, Tibetan.

<i>Anser indicus</i>	HCA	<i>Phoenicurus hodgsoni</i>	SH
<i>Gyps himalayensis</i>	HCA	<i>Phoenicurus frontalis</i>	SH
<i>Tetrastes sewerzowi</i>	SH	<i>Chaimarrornis leucocephalus</i>	SH
<i>Lerwa lerwa</i>	SH	<i>Turdus kessleri</i>	SH
<i>Tetraophasis széchenyii</i>	SH	<i>Grandala cœlicolor</i>	SH
<i>Tetraogallus himalayensis</i>	SH	* <i>Babax waddelli</i>	T
<i>Tetraogallus tibetanus</i>	SH	* <i>Babax koslowi</i>	T
<i>Alectoris magna</i>	E	<i>Garrulax elliotii</i>	SH
<i>Perdix hodgsoniae</i>	SH	<i>Garrulax henrici</i>	SH
<i>Ithaginis cruentus</i>	SH	<i>Parus superciliosus</i>	SH
<i>Crossoptilon crossoptilon</i>	SH	<i>Sitta leucopsis</i>	SH
* <i>Grus nigricollis</i>	T	* <i>Montifringilla adamsi</i>	T
<i>Charadrius mongolus</i>	HCA	* <i>Montifringilla taczanowskii</i>	T
<i>Larus brunnicephalus</i>	SH	* <i>Montifringilla ruficollis</i>	T
<i>Syrnhaptes tibetanus</i>	E	* <i>Montifringilla blandfordi</i>	T
<i>Columba leuconota</i>	SH	<i>Leucosticte nemoricola</i>	HCA
<i>Psittacula derbiana</i>	SH	<i>Leucosticte brandti</i>	HCA
<i>Calandrella acutirostris</i>	E	<i>Carpodacus pulcherrimus</i>	SH
* <i>Melanocorypha maxima</i>	T	<i>Carpodacus thura</i>	SH
<i>Anthus roseatus</i>	SH	<i>Carpodacus rubicilloides</i>	SH
* <i>Pseudopodoces humilis</i>	T	<i>Carpodacus rubicilla</i>	SH
<i>Prunella rubeculoides</i>	SH	<i>Carpodacus puniceus</i>	SH
* <i>Bradypterus major</i>	T	* <i>Kozłowia roborowskii</i>	T
<i>Phylloscopus affinis</i>	SH	<i>Urocynchramus pylzowi</i>	SH
* <i>Phoenicurus alaschanicus</i>	T	* <i>Emberiza koslowi</i>	T

The faunal affinities of the 50 species are largely Sino-Himalayan as expected, and the remainder consist of Tibetan endemics, Eremian, or species of High Central Asia. The origin of all of them, however, was probably High Central Asia (the three Eremian species excepted) because High Central Asia can legitimately be considered to include Tibet and Sino-Himalaya.

All the avifauna of the high mountains of the Palearctic region is believed to have originated in central Asia with the rise of the alpine system which sends spurs to Europe, to western Siberia with the Russian Altai, and to the edge of the tundra in northeastern Siberia. This is stressed by Stegmann who calls attention to a paper by Stresemann (1920) who seems to have been the first to suspect that the birds of the high mountains of Europe had been derived from the vast highlands of central Asia. Stegmann says this was later confirmed in

1928 by Sushkin for all the high mountains of the Palearctic region and is supported by his own study. The paper published by Sushkin in 1928 is not available to me, but this subject was discussed again by Sushkin in 1938.

Nevertheless, it is very evident that high western China became later an evolutionary centre of very great importance for plants, birds, and other animals which spread westward into Tibet and the Himalayas, and to other regions as well. The region which extends from the mountains of western China west to southeastern Tibet and the Himalayas now forms a major zoogeographic and botanical unit for which the botanist Kingdon Ward has proposed (1919) the term Sino-Himalaya which I adopted in my study.

The three Eremian species on the list of 50 seem to represent encroachment by the desert.

Sino-Himalaya—Origin of the Tibetan avifauna— Zoogeographic position of Tibet

My concept of the origin of the contemporary avifauna of Tibet and its zoogeographic position is discussed briefly below after defining the terms Eremian and Sino-Himalayan and discussing the Sino-Himalayan region.

Eremian is from the Greek "eremos" or "eremia" which signifies solitude or desert and is the term which designates the arid zone of the Palearctic region. I do not know who first proposed Eremian for this region, but it was not recently. I define Eremian again to emphasize that it is not a descriptive term which can be applied to any arid region of the world as was done incorrectly in a very recent paper on the fauna of North America. Eremian is restricted to the Palearctic region and this is made quite clear in such a standard as *Webster's New International Dictionary*. The Eremian zone is enormous and extends from the eastern Canaries, Sahara, and Mediterranean Basin east all the way to Manchuria, and a schematic map of it is published in the French and augmented edition of the book by Kachkarov and Korovine (1942) on the desert. The map, which was supplied by the new editor, is based on von Wissmann's paper (1939) on the climate and vegetation of Eurasia.

The term Sino-Himalayan was proposed by the botanist Ward in 1919 for the region which he defined in 1935: "The Sino-Himalayan Region comprises the whole of the Tibetan plateau, inner and outer, together with the river gorge country, Chinese Tibet,¹ and the Great Himalaya." The Sino-

¹ Chinese Tibet (which includes a part of the "Hsifan Province" of Weigold, 1935) is a vague term, but it is usually understood to apply to the region beyond the Yangtze which extends east to Tatsienlu (now Kangting) and the high mountains directly east of Tatsienlu which rise above the low-lying Red Basin of Szechwan. This region is equivalent to the western part of the province of Szechwan of current maps, but during the relatively short period which fol-

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Himalayan region, however, is more accurately defined, in my opinion, as the high mountainous region of western China which extends from southern Kansu east to the Tsinling Range in southern Shensi, south through western Szechwan to the Likiang Range and the Yunling Shan in northwestern Yunnan, and from there west to the high Himalayas. It includes the whole of the Southeastern Plateau of Tibet, and also the plateau of Amdo in the northeast, but the distribution of the avifauna shows that it is best not to follow Ward in including the whole of the remainder of Tibet.

The Sino-Himalayan region is extremely mountainous, from 8847 metres at Mount Everest, down to about 1500 south of the great snowy range east of the bend of the Tsangpo, the region which Ward calls the lower river gorge country of Tibet. Farther east on the southern border of Sino-Himalaya, northwestern Yunnan rises to altitudes which vary from about 4300 to 5300 metres, and, farther north, western Szechwan rises to the great height of 7590 metres directly over the low-lying Red Basin of Szechwan, which is outside the Sino-Himalayan region, and where the level falls as low as 410 metres. Still farther north, the valleys of Amdo and southern Kansu are relatively low, as they fall to 2500–3000 metres or lower, but the crests of the mountains vary between about 4600 and 5000, and the maximum height declines to 4107 in the Tsinling Shan of southern Shensi, this range representing the northeastern and somewhat isolated outlier of the Sino-Himalayan region. The average altitude for the region as a whole is very difficult to estimate but is probably in the order of 3500 to 4000 metres, perhaps more.

Much of Sino-Himalaya is also heavily forested wherever conditions permit, and the forest is very varied, from pure coniferous to mixed and temperate or moist tropical evergreen forest. The wealth of shrubs and of alpine plants is also exceptionally great, and Ward, who says that this flora includes many endemic genera, remarks also that the lower river gorge of Tibet "taken as a whole, is one of the botanical treasure houses of the world".

lowed the Chinese Revolution of 1911 and lasted until the advent of the modern People's Republic of China, it formed the eastern half of a newly created province called Sikang (or Hsikang) which incorporated also southeastern Tibet west to about the 93rd meridian. The new reorganization eliminated Sikang altogether and restored the boundary between Tibet and Szechwan which existed before 1911.

Hsifan is a very obscure term, as Weigold admits, which I have found on only one map published in the old *Andrees Atlas* where Weigold undoubtedly found it. It is used on that map to designate only an undefined area in northwestern Szechwan, but Weigold unfortunately adopted it for a very much bigger region which he drew from Szechwan westward, in an arc south of southeastern Tibet, to incorporate northwestern Yunnan and the northeastern Himalayas and neighbouring Assam. This "Hsifan Province" was meant to express somewhat the same concept as the Sino-Himalayan Region of Ward (the existence of which was apparently unknown to Weigold), but it is a very unsatisfactory term, and this "Hsifan Province" is not equivalent to the correct extent of Sino-Himalaya.

DISTRIBUTION AND ZOOGEOGRAPHY

The very rich flora is paralleled by an equally rich avifauna, which I have called Sino-Himalayan after Ward, and which was probably derived originally chiefly from High Central Asia and Indo-Malaya. The region then became a very active centre of evolution and distribution and a very long list of species which appear to be Sino-Himalayan could be compiled, but, to be conservative, I have drawn a list of only 242 characteristic species.¹ These represent 89 genera and at least 30 of these are either endemic or very characteristic, and one can name among them: *Lerwa*, *Tetraophasis*, *Ithaginis*, *Tragopan*, *Lophophorus*, *Crossoptilon*, *Catreus*, *Leptopoeile*, *Chaimarrornis*, *Rhyacornis*, *Hodgsonius*, *Grandala*, *Babax*, *Garrulax*, *Conostoma*, *Paradoxornis*, *Cephalopyrus*, *Urocynchramus*, *Haematospiza*, and *Pyrrhoptectes*. It is also most probable that *Kozlowia*, and six species named below, that are endemic to Tibet (and which I have called Tibetan rather than Sino-Himalayan) were probably derived from Sino-Himalaya; the species are *Bradypterus major*, *Phoenicurus alaschanicus*, *Babax waddelli*, *B. koslowi*, *Kozlowia roborowskii*, and *Emberiza koslowi*.

The 242 species are spread through a number of regions, eight of which are mentioned below. The total number in each region is stated below, together with the number found in *both* the region named and the region of western Szechwan and northwestern Yunnan which seem to be the major centre of distribution. The first three regions named and the high Himalayas are the main regions of Sino-Himalaya, but the Indo Chinese countries and the Malay Peninsula are not part of Sino-Himalaya. The Indo Chinese countries are Burma (though the extreme north of Burma is Sino-Himalayan), Thailand, and the three nations of former French Indochina.

Southern Kansu and southern Shensi	112	103
Western Szechwan and N.W. Yunnan	200	—
Southeastern Plateau of Tibet	150	130
Eastern Himalayas (to Sikkim)	160	134
Nepal	149	123
Western Himalayas	126	103
Indo Chinese countries	111	97
Malay Peninsula	24	19

Western Szechwan and northwestern Yunnan, with 200 of the 242 species, is probably the centre of distribution, as is strongly suggested by the progressive decline in the number of species that are shared by this region and the other regions. This is especially evident in the case of the Himalayas. It is true also in the case of the Indo Chinese countries, where more species are found in Burma than in Thailand, or in Tonkin and northern Laos than in Annam, but it was not practical to indicate the declining trend toward the south, other than

¹ Given in the appendix.

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by noting the number (19) which reach the Malay Peninsula. These species and the other five which make up the 24 arrive via the mountain chain of Burma, and 15 of the 24 reach farther east to the Greater Sundas, but chiefly to Sumatra only, as expected. Six go still farther into the Lesser Sundas, with four reaching Timor and one New Guinea. Twenty-one are also represented in Formosa which have arrived from the mountainous region of southern China, 11 of which are timaliids, and three are in the Philippines.

Sino-Himalayan species penetrate to all the regions of Tibet, but, after the Southeastern Plateau, are more numerous in southern Tibet where the avifauna is strongly influenced by the proximity of southern Tibet to the Southeastern Plateau and Himalayas with which it is contiguous, as stated above. Seventy-five of the species from southern Tibet are on the list of the 242, but nine are not found in western Szechwan and northwestern Yunnan, which suggests that these nine were acquired from the Southeastern Plateau or directly from the Himalayas.

The number of Sino-Himalayan species declines very rapidly north of southern Kansu and southern Shensi and west of the northwestern Himalayas. Eighteen only go northeast through the mountains, but the majority stop before they reach Manchuria, although at least three go farther, especially *Phylloscopus fuscatus* which goes very far into northeastern Siberia to the Verkhoyansk Range and the mountains at the edge of the tundra in the Anadyr Basin. A slightly larger contingent of about 21 species penetrates the Pamirs from the western Himalayas to reach the many ranges of the Tian Shan and other mountains in Russian Turkestan, three species go to Iran, and two reach the Caucasus.

Some of the hardier species go northwest through Kansu, and from the end of the Nan Shan spread around the Tarim Basin of Sinkiang by following the Astin Tagh and Kun Lun in the south, and the Tian Shan in the north, and five also reach the Russian Altai. Four of the six species of the Astin Tagh and Kun Lun (*Tetraogallus himalayensis*, *Leptopoeile sophiae*, *Carpodacus rubicilla*, and *C. puniceus*) are interesting because they are also in the Tian Shan in both Chinese and Russian Turkestan, and one wonders whether they reached Russian Turkestan by the short route from the northwestern Himalayas, or by way of the two very long routes around the Tarim Basin.

Some groups are especially well represented in the Sino-Himalayan region, such as the gallinaceous birds and the Timaliinae. From the list of the 242 species, 23 are gallinaceous birds with 15 pheasants. The Timaliinae account for 69 species on the list, and chief among them is *Garrulax* with 23 species; this is slightly less than half of the 48 or 49 species of this genus, the distribution of which I have discussed formerly (1965b). In that paper, I gave a list of 31 species which inhabit the Indo Chinese countries and Assam south of the Brahma-

putra. Of these, 13 are included in the 23 in the list of the 242 species, and 11 of the 13 are found also in western Szechwan and northwestern Yunnan. Among the other species of *Garrulax*, six are endemic in the Indo Chinese countries and Assam south of the Brahmaputra, two of the only three species of southern India are endemic, the single species of Ceylon is endemic, and four of the six species of the Greater Sundas and Malay Peninsula are endemic. However, virtually all of these endemic species have a very restricted range which suggests that they may be relicts, and I believe that all the species of *Garrulax*, wherever found now, were derived from the Sino-Himalayan region.

To turn to the origin of the avifauna of Tibet, we have to consider three factors of equal importance, the age of the plateau, the ice age of the Pleistocene which exterminated or drove off all the birds, and the post-glacial resettlement of the plateau.

No effort has been made hitherto to obtain a concept of the avifauna before the coming of the ice on the ground that the effort was hardly worth while because Tibet is an extremely young land, geologically speaking, and lost whatever birds it may have had as the result of the glaciation. I believe, however, that the large majority of the species which resettled the plateau after the glaciation were those that had been driven off, and it seems also that eastern Tibet and a large part of the north are actually older land than is widely assumed.

The belief that Tibet is a very new land is expressed by Ward (1935) who says that the Tibetan plateau did not "become dry land till long after the dawn of the Tertiary period", and by Meinertzhagen (1927b) who states that "it is obvious that we need not push our inquiries . . . on the origin of life in the Himalayas and on the Tibetan Plateau . . . farther back . . . than the period when the Himalayas did not exist." There is no argument where the Himalayas are concerned, but statements that the whole of the plateau was under water before the Tethys finally receded are too sweeping and seem incorrect.

The Himalayas rose in several stages (Hayden, 1908, and Wadia, 1957, 1966). The first phase of the rise was post Eocene, and "the last movement did not commence till after the very end of the Tertiary," according to Wadia, but the Tethys had vanished before that, probably by the middle of the Tertiary, after lingering longest in southwestern Tibet. Moreover, a large part of the plateau had been dry land very long before the sea finally disappeared, if we judge by the map of Ekman (1953, fig. 23) which shows that the Tethys did not extend much farther east than about the 94th or 95th meridians in Tibet during the Cretaceous. In other words, a large area of northern Tibet and the whole of eastern Tibet were dry land and were most probably inhabited by birds long before the Tethys vanished permanently from the plateau.

My belief that the avifauna before the glaciation was essentially similar to

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what it is now is based on the probability that the climate of northern and eastern Tibet was not essentially different during the period which preceded the glaciation from what it is contemporarily; also on the fact that we have no reason to assume that the settlement of the plateau by birds had been haphazard.

The Tibetan endemics, such as *Pseudopodoces*, *Grus nigricollis*, and the four species of *Montifringilla* among others, must have been on the plateau at that time. I believe that the other birds were chiefly an assemblage of Palearctic species, many of Eremian or High Central Asiatic origin, the latter contributed by the Nan Shan or Kun Lun. Sino-Himalayan species were present also and had been transmitted to eastern Tibet from the very old mountainous plateau of western China, which was probably then the chief centre of distribution of the Sino-Himalayan fauna as now in post-glacial times. However, it is virtually certain that there were fewer Sino-Himalayan species in southeastern Tibet before the glaciation because this region was much less deeply eroded at that time.

Ostriches also existed in Tibet at one time, because Bohlin (1937) reports that fragments of their egg shells have been found in the Zaidam at Kurlyk Nor and Toson Nor, and at a spring near Toson Nor. This was called to my attention by a reference given by Kozlova (1952) in which she also mentions ostrich eggs from eastern Kansu. The latter were reported by Andersson (1923) who states that fragments of shells were found near the border of Ningsia in extreme eastern Kansu, or virtually within Inner Mongolia. In addition to this locality, they have been found also, according to Andersson, in the following provinces of northern China: Shansi, Hopeh, Shantung, and Honan, but more often in the latter. With the exception of these eggs, no bird fossils have been found in Tibet, to the best of my knowledge.

The extent to which Tibet was glaciated is controversial. Trinkler, who has discussed this question on several occasions (1930, 1931, 1932) and gives references to the pertinent literature, says "that it is highly probable that during the Ice-Age the whole mountainous region, from the Kun-lun mountains in the north to the Himalayas to the south, was buried under ice". Ward says also that the whole of the Southeastern Plateau was under the ice. Other authors grant that the glaciation was very extensive, but doubt that the precipitation was sufficient to cover Tibet completely with a cap of ice, such as Hedin (1917a), who, nevertheless, had discussed earlier (1907)—as Trinkler mentions—the probable glacial origin of several lakes in northern and central Tibet. However, the question of whether or not Tibet was completely glaciated is irrelevant as far as the avifauna is concerned. Tibet may not have been totally buried under the ice, nor "completely sterilized" of life as Ward believes, but the cold was sufficiently intense in any event to eliminate all the birds.

The species that were driven off very probably took refuge farther south in

the regions of Sino-Himalaya that were not reached by the ice and where conditions must have become then very similar to what they were on the plateau when the glaciation started. These regions were convenient of access and there is no evidence that they crossed the Himalayas into peninsular India. The flora evidently did the same, according to Ward (1935) who says that "on the great Himalayan range it had not been driven very far, nor did it cross the plains—there is no sign of it south of the Ganges valley, although Ceylon received one *Rhododendron*."

The avifauna returned north gradually with the retreat of the ice and the Southeastern Plateau became deeply eroded by the great rivers that had been rejuvenated by a probable uplift in the upper part of their basins. The breaches made in the rim of the plateau and the cutting of long deep gorges allowed the penetration of the forest and very probably brought into southeastern Tibet more Sino-Himalayan species than had been there before the glaciation.

I do not say, of course, that all the species which existed on the plateau returned after the glaciation as some probably failed to emigrate and were exterminated by the cold, or became extinct as the result of forced competition in the regions where they took refuge.

The theory that I advance accords with geological history, the ecology of the species which resettled the plateau, and the views of botanists. It is the simplest and most logical explanation which comes to my mind to account for the origin of the avifauna before and after the glaciation. It is not necessary to invoke another far-fetched explanation which, consciously or not, is part of the mystique of Tibet, namely that Tibet is an asylum for forms of life and concepts which have failed elsewhere. This may be true from some cultural aspects, but I do not agree with Meinertzhagen (1927b) when he maintains that Tibet is only a refuge for species "which have failed to stand against competition", a view in which he is followed by Whistler (1929).

The only examples advanced to support the thesis of refuge were offered by Meinertzhagen and consist of two species, *Eremophila alpestris* and *Acanthis flavirostris*. He says the competitor of *A. flavirostris* is probably the closely allied *A. cannabina* with which "it cannot compete" other than in the British isles. But interspecific competition has not been demonstrated between these birds and, of course, they overlap very broadly in other regions, such as the Caucasus, Transcaucasia, Siberia, and Russian Turkestan. Moreover, *A. flavirostris* is a true species of High Central Asia (which Voous, 1960, considers is even of Tibetan origin) which spread westward, probably before the Pleistocene, only to fall back partly to its original home after the glaciation, leaving colonies behind in the regions mentioned and also in Lapland and the mountains of Norway. To say, therefore, that *A. flavirostris* is only a refugee in Tibet is certainly incorrect.

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In the case of *E. alpestris*, Meinertzhagen says that "some other form of lark is probably its competitor in the Old World and has driven it off from pleasanter surroundings," thereby forcing it to take refuge in Tibet. This belief seems to be a serious misconception of ecological adaptation, and it is very difficult for me to consider that *E. alpestris* is somehow "weak" or "inferior", when it seems to be one of the most successful of all birds which has spread to North America where it occupies an immense range south to Mexico, and has even reached South America with colonies in northern Colombia. Furthermore, seven other species of lark breed in Tibet (far more than in the regions of the Old World not occupied by *E. alpestris*) which do not prevent *E. alpestris* from being extremely widespread and very abundant. It is possible that a few species did take refuge in Tibet but this would be difficult to establish.

The concept of refuge is also stressed by Weigold (1935) for the Sino-Himalayan region as a whole, but grossly overdone. He says that this region is a magnificent museum of relicts ("*ein grossartiges Reliktenmuseum*"), but I believe we can all agree that its fauna and flora are very distinctive without resorting to such grandiloquent expressions.

To return to the Sino-Himalayan region as a whole and to its zoogeographic position and that of Tibet, we have to note that the whole of Tibet is universally considered to form part of the Palearctic region by ornithologists, and some include also the high Himalayas. If, however we consider average patterns of distribution (Darlington, 1957), the whole of the Southeastern Plateau is not Palearctic. In the case of the Southeastern Plateau, the Sino-Himalayan species (including nine Tibetan endemics) account for 63 per cent of the avifauna, as against 35 per cent for the Palearctic element of all categories, including the Holarctic, a proportion not far from two to one. The Southeastern Plateau is therefore a part of the Sino-Himalayan region as I have stated above. This conclusion was repeatedly emphasized by Ward as regards the flora, but he also included in the Sino-Himalayan region the whole of the remainder of Tibet, which may be true for plants but not for birds. The avifauna of the entire Northern Plateau, and of western Tibet and northeastern Tibet on the Outer Plateau, is predominantly Palearctic to a different degree. Southern Tibet, where the Sino-Himalayan and Palearctic elements are about equally well represented, but with a slight advantage for the former, is clearly an intermediate zone.

The next question is the zoogeographic status of the Sino-Himalayan region. Ward is very evidently disposed to regard it as a major region of its own. He says: "I have detached the Tibetan plateau from its old allegiance to the Central Asian region," and he quotes in support the opinion of another botanist (Marquand) who said: "The material available now makes it quite clear that one homogeneous flora extends across from Sikkim to western China, and the

whole of the Eastern Himalaya, Southeastern Tibet, and western Szechuan as well as the upper portion of Yunnan should be considered as one botanical area."

The evidence is less conclusive in the case of the Sino-Himalayan avifauna, as it seems to be a composite derived chiefly from Indo-Malaya and High Central Asia, but with the second element predominating, especially as one goes farther north. The Sino-Himalayan region is also relatively small and would appear on the map as a somewhat irregular wedge separating the Palearctic from the Oriental region, with the base of the wedge in the east and ending in a long attenuated tip in the west in the Himalayas. I doubt that it would be accepted by zoologists as a region equal in importance to the Palearctic and Oriental regions, and I propose, therefore, that it be considered a subregion of the Palearctic.

If this is granted, another zoogeographic question arises because it is obvious that the Sino-Himalayan subregion is more important than most of the subregions of the Palearctic that are more or less widely recognized. Wallace (1876) had recognized four subregions, the European, Mediterranean, Siberian, and Manchurian, but others were added later, especially by Russian workers. Stegmann (1938) objected to formal subregions, but for "ecological and historical zoogeographic" reasons, he, nevertheless, recognized seven "faunal types" in the Palearctic, consisting of the Arctic, and six others which are the essential equivalents of subregions under another term: Siberian, European, Mediterranean, Mongolian, Tibetan, and Chinese. The Arctic zones of Eurasia and America share many species and are best considered as a unit rather than as subregions of the two continents. I have discussed the so-called Mongolian faunal type or subregion in another paper (1964) and found that it was much too poorly characterized to be recognized in any term. I also do not believe now that a Chinese subregion can be admitted because the avifauna of China is very predominantly transitional between that of the Palearctic and Oriental regions, when not Sino-Himalayan in the mountains of the west. Tibet must be broken into two regions as stated above. This leaves only the Siberian, European, and Mediterranean subregions to be considered. The last is very distinct beyond question and I hope to study it in the near future. Important differences exist between the Siberian and European subregions from historical and faunistic points of view, but it is undeniable that contemporary differences are overwhelmingly ecological, as recognized by Stegmann, and can be summarized in two words, taiga as against deciduous forest. Stegmann says the two subregions "cannot possibly be united", but I think they can if one does not concentrate only on ecology, and I note this has been done already by Menzbier, according to Stegmann. Menzbier's publication is not available to me, nor is it included in Stegmann's bibliography, but Menzbier evidently recognized

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only three subregions in the Palearctic, the Northern, Mediterranean, and Central Asiatic. The first includes most of Europe and Russia and all of Siberia. High Central Asia has certainly played a very important role in the distribution of the avifauna of the Palearctic, but this was before the Pleistocene, and I am not certain to what extent it can be considered, if at all, as a contemporary zoogeographic subregion.

In short, I propose at present the recognition of only three major subdivisions in the Palearctic:

Northern Eurasian

Eremian

Sino-Himalayan

It is best I believe to add the qualifying "Eurasian" to the name of the first subregion. I reject "Mediterranean" with regret for the second subregion because this term has been used so widely, but it is too restrictive and not at all appropriate for a region which extends all the way from the Mediterranean Basin across Asia to Manchuria. The more exact term Eremian exists for this subregion and I prefer to use it as other biologists have done.

CHAPTER FOUR

Migration

THE migration of birds in Tibet is little known. The first comments on migration and a list of migrants were published by Przhevalsky (1875–1876) in the report of his first and memorable Tibetan expedition during which he visited the Koko Nor and Zaidam in the autumn of 1872 and spring of 1873. The birds observed or collected were listed in tabular form with dates, and the scientific report, which includes the tables, was translated into English by Craemers (1877–1878), and the general account of the expedition by Morgan (1876).

The second explorer to publish his observations was Kozlov, who, in the autumn of 1890, visited the northern Chang Tang in the region between the Arka Tagh and Astin Tagh between August 13 and October 13. He reported (1899b) the birds in tables also, similar to those of Przhevalsky. In the spring of 1895, Kozlov was in the field again, and this time collected birds and observed the migration in the southeastern Zaidam between February 22 and May 22 in the region between Kurlyk and the Bayan Gol to the Türgenii Nor and the southern slopes of the South Koko Nor Range above Dulaan Hiid. The migrants were reported in the text of his own account of the expedition (1899a, pp. 212–214). The two publications of Kozlov were not translated into English and the dates given by him and Przhevalsky should be corrected into the modern Gregorian Calendar by adding 12 days because they were given in the old Julian Calendar.

The information given by Przhevalsky and Kozlov is very valuable, but, as I have mentioned in the preceding chapter, the only comprehensive reports which cover a full period of one year or more are based on the observations of Beick and Ludlow. Beick kept voluminous field notes over a consecutive period of nearly four years from October 13, 1926, to the end of July, 1930, in the general region of Hsi-ning in northeastern Tibet. Beick did not live to publish his observations, but his field notes were abstracted by Stresemann and published in the report on Beick's collection by Stresemann, Meise, and Schönwetter (1937–1938). Ludlow was active in southern Tibet and published

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his own reports in 1927–1928, and again in 1950. The first covers a consecutive period of three years from October, 1923, to October, 1926, at Gyangtse, and the second a period of one year at Lhasa which started in the spring of 1942.

In addition to the publications noted above, some notes on migrating birds appear in the report by Walton on southern Tibet (1906) and in that of Schäfer on eastern Tibet (1938), and a few casual remarks appear here and there in widely scattered publications by other men. No one has ever banded birds in Tibet, or recovered a single banded bird, to the best of my knowledge.

The information supplied by the literature mentioned and the specimens that I have examined suggest that 103 of the 504 or 505 species on the Tibetan list are migrants or visitors which do not breed in Tibet. These 103 birds are all named below with dates of arrival or some comment in the case of species which appear to be more or less regular migrants. The species for which no information is given are either birds of very doubtful status, occasional or accidental visitors, or strays. In the last category we can certainly place *Ibis leucocephalus*, *Haliastur indus*, *Butastur teesa*, *Rostratula benghalensis*, and *Haematopus ostralegus*, but the other species such as *Plegadis falcinellus* and *Corvus monedula* are probably occasional visitors rather than strays. It is not possible to place all the species in firm categories for lack of information, but it is probable that the genuine migrants do not exceed two-thirds of the 103 on the list.

The number of migrants seems low for such a large continental land mass as Tibet situated at relatively low latitudes. They would account for only about one-seventh of the avifauna—if only about 70 are genuine migrants—and one's first thought is that some migrants are still unknown. This rather low proportion may be substantially correct, nevertheless, when we consider that Tibet is probably a great physical obstacle to migration and that the regions which lie to the north do not have a rich avifauna.

Migrants (or other species) which do not breed in Tibet

Ardeola bacchus

Plegadis falcinellus

Nipponia nippon

Ibis leucocephalus

Anser albifrons: Winters in southern and southeastern Tibet, leaving in April.

Anser fabalis: Autumn, Koko Nor (September 11), northeastern Tibet (November 11).

Cygnus bewickii: Arrives in the spring at the Zaidam, and probably also the Koko Nor.

Anas poecilorhyncha: Winters in southern Tibet, arrives in the autumn in north-

eastern Tibet on October 27, in southeastern Tibet on September 23, and in the spring in northeastern Tibet on May 30.

Anas querquedula: Winters in southern Tibet, arrives in the autumn in August and September, and in western Tibet on August 23.

Netta rufina: Spring, Zaidam (March 14); autumn, northern Chang Tang (October 2-13), southern Tibet (October).

Aythya nyroca: Spring, Zaidam (March 4), southeastern Tibet (April 15); autumn, northern Chang Tang (October 2-13), southern Tibet (August 19).

Bucephala clangula: Winters at the Koko Nor and in northeastern and southern Tibet, arrives in the autumn at the Koko Nor and northeastern Tibet on October 13-22, leaves in the spring on March 3 from the Zaidam, on March 21 from northeastern Tibet, and on April 16 from southeastern Tibet.

Mergus albellus: Winters in northeastern Tibet, leaving on April 2.

Mergus serrator: Spring, Zaidam (March 3); autumn, Koko Nor (August), northeastern Tibet (October 13-22).

Mergus squamatus

Pernis apivorus

Haliastur indus

Haliaeetus albicilla: Spring, Koko Nor (end of March), northeastern Tibet (March 10), and Zaidam (May 2). The sight records of Beick for other dates and seasons in northeastern Tibet are doubtful, as they refer probably in part to *Haliaeetus leucoryphus*.

Accipiter virgatus

Butastur teesa

Aquila clanga: Autumn, northern Chang Tang, no date.

Aquila heliaca: Winters at the Koko Nor.

Circus cyaneus: Winters at the Koko Nor, Zaidam, and in northeastern and southern Tibet, leaves the Zaidam in the spring on March 27, and arrives in the autumn on October 2-13 in northern Tibet, and November 15 in the south.

Circus macrourus: Autumn, northern Tibet (September), western Tibet (September 22), southern Tibet (October 17).

Circus pygargus: Autumn, western Tibet (September 19).

Falco columbarius: Winters in northern and northeastern Tibet, leaving northeastern Tibet on March 26, and Amdo in early May; arrives in the autumn on October 5 in southern Tibet.

Falco vespertinus

Coturnix coturnix: Winters in southern Tibet, arriving in the autumn on September 13-22 in northern Chang Tang and western Tibet, and on October 24 in southeastern Tibet.

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- Grus grus*: Spring, Zaidam (March 2), Koko Nor (March 29); autumn, north-eastern Tibet (September 22–October 2).
- Grus leucogeranus*: Autumn, northeastern Tibet and Koko Nor (October 13–22), western Tibet (October).
- Anthropoides virgo*: Autumn, Zaidam (September), northern Tibet (October), recorded also in southern Tibet.
- Rallus aquaticus*: Winters in the Zaidam, northeastern Tibet, and Amdo, arriving in the autumn on August 23–September 1 in northern Chang Tang, October in northeastern Tibet, and November in the Zaidam.
- Porzana porzana*: Autumn, northwestern Chang Tang (September 24).
- Crex crex*: Autumn, western Tibet (September 18).
- Turnix tanki*
- Rostratula benghalensis*
- Haematopus ostralegus*
- Charadrius hiaticula*: Autumn, western Tibet (September 30).
- Charadrius leschenaultii*: Autumn, Koko Nor (September 4), western Tibet (August 5), recorded also on July 11 in western Tibet.
- Pluvialis dominica*: Spring, eastern Tibet (June 18); autumn, Zaidam and western Tibet (August), northern Chang Tang (August 13–September 1), northeastern Tibet (September 1), Koko Nor (September 19), southern Tibet (August 25), southeastern Tibet (September 29).
- Pluvialis squatarola*: Spring, Zaidam (May 22); autumn, northern Chang Tang (October 2–13).
- Arenaria interpres*: Autumn, Zaidam and northern Chang Tang (August), northeastern Tibet (August 22), southern Tibet (September 6).
- Calidris minuta*: Autumn, western Tibet (August 4).
- Calidris ruficollis*: Autumn, northeastern Tibet (September 7).
- Calidris subminuta*: Spring, northeastern Tibet (May 21).
- Calidris acuminata*: Autumn, northern Chang Tang (October 2–13).
- Calidris alpina*: Autumn, Zaidam (November).
- Calidris ferruginea*: Spring, southern Tibet (May); autumn, western Tibet (July 22 and September 10), northern Chang Tang (September 1–13).
- Calidris canutus*: Spring, Zaidam (March 29), Koko Nor (April 3); autumn, Koko Nor (September 14).
- Philomachus pugnax*: Autumn, northern Chang Tang (August 23–September 1), western Tibet (September 11), southern Tibet (September 4).
- Tringa erythropus*: Spring, southern Tibet (June 17).
- Tringa ochropus*: Very common migrant and present virtually throughout the year in most regions of Tibet, but apparently does not breed.
- Tringa glareola*: Spring, western Tibet (May 7), northeastern Tibet (May 10); autumn, northern Chang Tang (August 22–September 13), northwestern

Chang Tang (September 8), northeastern Tibet (September 2); present also in July in some regions, but apparently does not breed.

Tringa incana: Autumn, Koko Nor (September 23).

Limosa limosa: Spring, Koko Nor (April 3), Zaidam (April 8), southern Tibet (May); autumn, northern Chang Tang (August 13–23), Koko Nor (August), western Tibet (September 30).

Numenius arquata: Spring, Zaidam (April 1); autumn, western Tibet (August 21), northern Chang Tang (August 23–September 1), southern Tibet (October).

Numenius madagascariensis

Numenius phaeopus: Autumn, western Tibet (August 21), southern Tibet (September 24).

Gallinago gallinago: Spring, southern Tibet (March), Koko Nor and northeastern Tibet (April 4); autumn, Zaidam (August), Koko Nor (September), northern Chang Tang (September 1–13), northeastern Tibet (September 1), western Tibet (September 21), southern Tibet (September 7).

Gallinago stenura: Autumn, Zaidam (August), northern Chang Tang (September 1–13), western Tibet (August 18), southern Tibet (August 5), southeastern Tibet (August 19).

Gallinago megala

Phalaropus lobatus: Spring, southern Tibet (May 13), southeastern Tibet (May 30); autumn, Koko Nor (September 2).

Glareola maldivarum: Spring, northeastern Tibet (April 21).

Larus minutus: Autumn, western Tibet (September 21).

Larus ridibundus: Spring, Zaidam (March 5); autumn, western Tibet (August 24).

Chlidonias hybrida: Autumn, western Tibet (September 17).

Columba eversmanni

Streptopelia senegalensis

Streptopelia chinensis

Otus brucei

Coracias garrulus: Autumn, western Tibet (August 19).

Alcedo atthis: Winters in southern and southeastern Tibet, also present in summer in western Tibet (July 12).

Alauda arvensis: Autumn, Koko Nor (September), Zaidam (October), western Tibet (November 21).

Lanius excubitor: Spring, Zaidam (April 5); autumn, Zaidam (November), Amdo (November 19).

Sturnus vulgaris: Autumn, Koko Nor (October), Zaidam (September), northern Chang Tang (September 13–22), Karakoram (July 27), southern Tibet (November 5).

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Garrulus lanceolatus

Corvus monedula

Bombycilla garrulus: Spring, northeastern Tibet (March 10, April 15).

Prunella montanella

Hippolais caligata

Sylvia nisoria

Sylvia nana

Phylloscopus borealis

Muscicapa striata

Muscicapa latirostris

Phoenicurus erythronotus

Turdus ruficollis: Winters in Tibet and reported from nearly all regions, leaving in the spring by the end of March, and arriving in the autumn by the middle of September.

Turdus naumanni: Autumn, Zaidam (October 10), northeastern Tibet (October 27).

Turdus pilaris: Winters in the Zaidam, and in autumn in northern Chang Tang (August 13-23).

Turdus iliacus

Zoothera dauma: Autumn, Koko Nor (September 19).

Garrulax variegatus

Cephalopyrus flammiceps: Autumn, western Tibet (September 22).

Acanthis cannabina

Acanthis flammea

Rhodopechys sanguinea

Uragus sibiricus

Emberiza buchanani: Autumn, western Tibet (September 6).

Emberiza rustica: Autumn, Zaidam (September).

Emberiza aureola: Spring, southeastern Tibet (May 1).

Emberiza rutila

Emberiza brunniceps: Autumn, western Tibet (August 20), southeastern Tibet (September 16).

Calcarius lapponicus

Migration of species which breed in Tibet

A very large number of the species which breed in Tibet undertake well-defined migratory movements. It is probable that very few Tibetan species are strictly sedentary, but if we exclude vertical displacement, or other seasonal change of habitat (such as a move from the upland lakes to the plains after the breeding season), dispersal, wanderings, and more or less regular but limited

local movements, the number that are migratory in the more restricted sense seems to be somewhat less than half of the 401 to 403 species which probably breed in Tibet—or about 170 to 175 species.

The records are too few or too incomplete to account for the migration, but in the case of 94 species I can at least indicate the earliest date when they have been recorded in the spring and the latest in the autumn. These species are listed below and the dates given are actual records which may not correspond to those in the systematic list because I have obtained some of these dates from the literature; in two cases the dates are approximate. *Alauda gulgula*, *Passer domesticus*, and *Passer rutilans* which are included in the list are not normally considered to be migratory, but though these species are sedentary in other parts of their range, their Tibetan populations are migratory.

The large majority of these 94 species seem to leave Tibet altogether for the winter, but winter records exist for 28 species. These are designated by an asterisk (*) after the date given for the autumn. This date, and the one for the spring, then become the normal dates when the species seems to leave or return. In about half of the cases, the birds which failed to leave represent only one or two or very few individuals, but the other species are more or less regular or even common in Tibet during the winter. The species which are the most common are: *Anser indicus*, *Anas platyrhynchos*, *Anas crecca*, *Anas acuta*, *Aythya fuligula*, *Haliaeetus leucoryphus*, *Grus nigricollis*, *Gallinago solitaria*, *Streptopelia orientalis*, *Motacilla alba*, *Phoenicurus frontalis*, and *Chaimarrornis leucocephalus*. One of these species (*Anas acuta*) was not included in the list of the 94 species because it is poorly known for Tibet as a whole, but Ludlow (1950) says it is common at Lhasa during the winter.

Nearly all of the 28 species recorded in the winter spend the latter in the south, as expected, because the winter is mild or relatively mild there in some localities, such as Lhasa or some of the deep valleys of the southeast. But eight species have been recorded in northeastern Tibet also, in the general region of Hsi-ning or in the valley of the Hwang ho where the altitude is relatively low and the winter not very severe. These include three species not recorded in the south which are *Buteo hemilasius*, *Anthus spinoletta*, and *Emberiza leucocephala*. We can also distinguish between southern and southeastern Tibet as 9 of the 25 species recorded from the south are from southeastern Tibet only, but some species such as *Anser indicus*, *Grus nigricollis*, and *Gallinago solitaria*, are reported from both southern and southeastern Tibet. The 9 species recorded in the southeast only are: *Tringa hypoleucos*, *Streptopelia orientalis*, *Anthus hodgsoni*, *Motacilla alba*, *Lanius tephronotus*, *Phoenicurus ochruros* and *P. frontalis*, *Chaimarrornis leucocephalus*, and *Tarsiger cyanurus*.

Grus nigricollis is in a class of its own because very few individuals seem ever to leave Tibet at all. Ludlow (1950) says that "huge flocks" spend the winter

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near Lhasa, and, other than Tibet, it seems to be known in the winter only from Yunnan, Tonkin, and the Daffa Hills of Assam. In the latter, a flock which varies from about 20 to 40 individuals spends the winter regularly in one of the small side valleys of the Subansiri River, 60 miles north of North Lakhimpur, according to Betts (1954). *Grus nigricollis* is one of the very few species that are endemic to Tibet, and apparently it scarcely leaves it, even after the breeding season.

Selected list of breeding birds that are migratory

(see text for discussion; an asterisk (*) denotes a species recorded in winter in Tibet)

<i>Phalacrocorax carbo</i>	March 20	October 3
<i>Egretta alba</i>	February 25	November 7 (*)
<i>Ardea cinerea</i>	February 28	October 10
<i>Ciconia nigra</i>	March 8	October 13-22
<i>Anser anser</i>	February 24	November 2
<i>Anser indicus</i>	March 15	October 1 (*)
<i>Tadorna ferruginea</i>	February 22	November 1
<i>Tadorna tadorna</i>	March 26	September 21
<i>Anas platyrhynchos</i>	February 23	November 11 (*)
<i>Anas crecca</i>	February 20	Oct. 23-Nov. 1 (*)
<i>Anas penelope</i>	March 5	September 1-13
<i>Aythya fuligula</i>	March 17	October 23 (*)
<i>Milvus migrans</i>	February 27	October 12
<i>Haliaeetus leucoryphus</i>	April 3	November 1 (*)
<i>Buteo hemilasius</i>	March 12	Sept. 22-Oct. 2 (*)
<i>Circus aeruginosus</i>	March 31	October 2-13
<i>Falco subbuteo</i>	May 4	October 19
<i>Grus nigricollis</i>	March 9	about October 15 (*)
<i>Charadrius alexandrinus</i>	April 3	September 30
<i>Charadrius mongolus</i>	April 14	September 25
<i>Vanellus vanellus</i>	March 1	Oct. 22-Nov. 1 (*)
<i>Calidris temminckii</i>	April 18	October 1
<i>Tringa totanus</i>	March 21	October 15
<i>Tringa nebularia</i>	February 11	October 17
<i>Tringa hypoleucos</i>	May 9	September 10 (*)
<i>Gallinago solitaria</i>	March 6	November 6 (*)
<i>Himantopus himantopus</i>	May 19	September 18
<i>Larus ichthyætus</i>	March 16	Oct. 22-Nov. 1 (*)

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<i>Larus brunnicephalus</i>	March 15	November 27 (*)
<i>Sterna hirundo</i>	April 30	October 10
<i>Streptopelia orientalis</i>	April 9	October 26 (*)
<i>Cuculus canorus</i>	May 10	September 13
<i>Apus apus</i>	May 11	October 2
<i>Apus pacificus</i>	May 6	September 17
<i>Upupa epops</i>	March 15	October 23 (*)
<i>Jynx torquilla</i>	April 23	September 13-22
<i>Riparia riparia</i>	March 22	September 24
<i>Hirundo rupestris</i>	March 21	October 27
<i>Hirundo rustica</i>	March 27	September 28
<i>Hirundo daurica</i>	May 15	October 24 (*)
<i>Delichon urbica</i>	February 26	September 25
<i>Calandrella cinerea</i>	April 9	October 26
<i>Calandrella acutirostris</i>	April 7	October 27
<i>Alauda gulgula</i>	March 13	October 27 (*)
<i>Anthus godlewskii</i>	early May	October 2
<i>Anthus trivialis</i>	May 8	September 30
<i>Anthus hodgsoni</i>	May 3	October 30 (*)
<i>Anthus roseatus</i>	April 7	September 27 (*)
<i>Anthus spinoletta</i>	March 7	October 2 (*)
<i>Motacilla citreola</i>	April 3	October 3
<i>Motacilla cinerea</i>	May 9	October 8
<i>Motacilla alba</i>	March 9	October 25 (*)
<i>Lanius collurio</i>	April 5-9	Sept. 22-Oct. 2
<i>Lanius tephronotus</i>	April 12	October 25 (*)
<i>Oriolus oriolus</i>	late May	September 21
<i>Sturnus cineraceus</i>	March 27	October 6
<i>Sylvia curruca</i>	April 30	September 20
<i>Sylvia althaea</i>	May 22	September 20
<i>Phylloscopus collybita</i>	April 20	October 9
<i>Phylloscopus affinis</i>	April 16	October 31
<i>Phylloscopus griseolus</i>	May 23	September 27
<i>Phylloscopus fuscatus</i>	May 6	October 22
<i>Phylloscopus inornatus</i>	April 29	October 30
<i>Phylloscopus proregulus</i>	April 14	October 5
<i>Phylloscopus trochiloides</i>	May 11	October 10
<i>Phylloscopus reguloides</i>	April 12	September 7
<i>Seicercus burkii</i>	May 4	September 15
<i>Ficedula hodgsonii</i>	May 8	September 12
<i>Ficedula tricolor</i>	May 1	October 11

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<i>Muscicapa sibirica</i>	May 23	September 23
<i>Saxicola torquata</i>	April 15	October 20
<i>Oenanthe pleschanka</i>	March 24	September 29
<i>Oenanthe deserti</i>	April 2	October 7
<i>Oenanthe isabellina</i>	March 29	September 25
<i>Monticola saxatilis</i>	April 25	September 21
<i>Monticola solitarius</i>	May 4	October 7
<i>Phoenicurus ochruros</i>	March 28	November 8 (*)
<i>Phoenicurus hodgsoni</i>	March 31	October 31
<i>Phoenicurus frontalis</i>	March 30	October 17 (*)
<i>Phoenicurus schisticeps</i>	March 10	November 16 (*)
<i>Phoenicurus aureus</i>	March 29	October 9
<i>Chaimarrornis leucocephalus</i>	March 15	October 15 (*)
<i>Hodgsonius phoenicuroides</i>	about May 15	October 9
<i>Luscinia calliope</i>	May 6	August 14
<i>Luscinia pectoralis</i>	April 15	October 5
<i>Luscinia svecica</i>	April 20	October 25
<i>Luscinia pectardens</i>	May 11	September 25
<i>Tarsiger cyanurus</i>	April 1	October 5 (*)
<i>Tarsiger chrysaeus</i>	May 15	October 19
<i>Passer domesticus</i>	April 15	October 11
<i>Passer rutilans</i>	March 19	October 27
<i>Serinus pusillus</i>	April 26	November 12
<i>Carpodacus erythrinus</i>	May 7	October 4
<i>Emberiza leucocephala</i>	March 4	November 24 (*)

Migration routes

The comparatively large number of waterfowl and waders (and of other birds also) which have been recorded during the period of migration from the eastern Zaidam and the Koko Nor suggests that a migration route crosses these regions.

Przhevalsky, who visited these regions at the end of October and in November, 1872, and, on the return, from the end of February to April 13, 1873, received a very poor impression of the migration. He arrived too late in the autumn, but as he observed only 39 species in the spring he concluded that "in all probability" the birds avoid the Koko Nor and Zaidam on their way north and migrate instead farther east along the valley of the Hwang ho. However, Przhevalsky (Morgan's translation, 1876) emphasizes that the weather was very bad, cold and snowy, and with storms which did not break up and disperse the ice on the Koko Nor until April 7. The Koko Nor does not freeze

solidly every year, so it seems that the winter of 1872–1873 and the spring were unusually cold, which may account for Przhevalsky's disappointment, but it is quite possible that part of the migration follows also the valley of the Hwang ho.

Kozlov, at any rate, had better luck in the Zaidam in the spring of 1895 and did not doubt the existence of a major route of migration. He observed about 70 species on their way north between February 22 and May 22, and he was quite impressed with the migration, saying (1899a) that many large bands of geese, ducks, and swans were passing through, with "flocks after flocks" of spectacular cranes.

Another migration route which may be only a minor one seems to cross the narrow end of western Tibet where some small song birds and waders were reported in late summer from the valley of the Kara Kash River which they were probably ascending on their way from Sinkiang. Extraordinary as it may seem, these small birds would then have to cross the Karakoram Range on their way south, perhaps by way of the Karakoram Pass which is 5575 metres high or by other passes which are not much lower. Some die in the attempt and the Shaksgam Expedition found the body of a Starling (*Sturnus vulgaris*) in the snow on July 27 at 18,000 feet [5486 m.] north of the Karakoram. Ludlow collected an immature *Cuculus canorus* on August 4 at 16,400 feet [about 5000 m.] at Qizil Langar on the Karakoram Trade Route south of the Pass. On October 10, 1873, the Second Yarkand Mission collected a specimen of *Otus brucei* at Lake Qara Tagh which is situated north of the Karakoram at an altitude of about 5300 metres, and on October 21 this species was found again at the same locality. These records of *Sturnus vulgaris*, *Cuculus canorus*, and *Otus brucei* are all very remarkable and can be accounted for only by the fact that these species were migrating. This western route seems to be also the one that is taken by *Fringilla montifringilla* as it is known as a visitor in India only from Kashmir and the northwest.

The fact that small song birds and waders are well able to cross very high mountain ranges is attested to by Wollaston (1922b) who says that in September during the First Mount Everest Expedition he collected and observed birds "in the immediate vicinity of Mt. Everest . . . [between 5181 and 6827 m.] . . . and that the Painted Snipe [*Rostratula benghalensis*] and Pin-tailed Snipe [*Gallinago stenura*] were both seen, and other migrating birds were heard passing over at night, the cries of Curlews and Godwits [*Numenius* and *Limosa*] being clearly recognisable". Geese have been reported also as flying over Mount Everest which is 8847 metres high, but I have not been able to trace the person who saw them.

Ludlow (1927) mentioned the report of Wollaston to support his own opinion that birds do cross the Himalayas more or less directly, rather than by pene-

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trating the plateau in a roundabout way from the east along the valley of the Tsangpo as believed by Walton (1906). He also mentions that climatic conditions in the autumn and spring favour a direct crossing.

I believe that Ludlow is quite correct, but this does not necessarily exclude the valley of the Tsangpo which is the most normal approach from the South-eastern Plateau at any rate, if not from the lowlands of India. From the Tsangpo Valley, the valleys of the Po Tsangpo, Yigrong Chu, Giamda Chu, and Kyi Chu would seem to form convenient routes of access to and from the interior of the plateau, which are no doubt utilized, as those of the Salween, Mekong, and Yangtze must be farther in the east.

Part Two



Systematic List

General Remarks

THIS list is based on the specimens that I have examined. The only important exceptions are records in the literature which I mention explicitly and which concern species that have been collected in Tibet, usually a single bird only, that I could not examine for one reason or another; records of a few species which have been seen in Tibet by experienced and reliable observers, but have not been collected so far; and "other records". The latter were selected by me because they supply additional information on the distribution, but I did not include in this category records from the literature which seem redundant because they concern birds taken or seen in the same season or at about the same dates in regions from which I have seen specimens. The material that I have examined is in the collections that are mentioned in the introduction.

The general distribution of each species is stated very briefly, but in the case of species which are Sino-Himalayan or appear to be it is expanded slightly to a broad outline of the range. The records are then listed and are allocated to the three main natural regions of Tibet with the status in each region indicated by the letters N (breeding), M (migrant), E (straggler or irregular migrant), but the status is really unknown in too many cases and these indications must be taken with reservations. Nevertheless, to one interested in distribution and ecology, even an assumption is better than none.

The records for each main region are given under subdivisions that I have drawn chiefly for convenience. The subdivisions of western Tibet into Baltistan, Ladak, Zaskar, and Rupshu are traditional but these regions have apparently no formal boundaries as I have never found their boundaries defined on a map. The localities in these four regions or other subdivisions are also not necessarily listed in precise geographical order and the gazetteer should always be referred to for the position of any locality. This gazetteer accounts also for localities in the literature, the names of which have been modified or changed.

I have been forced by space limitations to give only the minimum of information which seems essential (locality and date, the latter to the day when known). I regret that I could not state the number of specimens that were col-

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lected at each locality and by whom, the date to the year, the sex and age of the birds, and the name of the institution or collection in which the specimens are now found. Some localities were visited by as many as half a dozen collectors over the years at wide intervals, and some collections, especially the larger ones made by such men as Przhevalsky, Beick, and Koelz, have been scattered very widely. To give all the information that I have obtained would have enlarged this list very greatly, but all the information has been filed systematically and is available from me on request.

I have stated in a footnote in the second chapter that the dates of the Russian explorers have been changed by me to conform to the Gregorian Calendar, but I repeat here that this was done by adding 12 days for dates in the nineteenth century and 13 for those in the twentieth. The reform from the Julian to the Gregorian Calendar became official on January 26, 1918, but my corrections apply to all the specimens taken by the Russians as none were collected after 1909. I may add that the labels of the earlier Russian collections are normally dated only to the month, or to some period of the month, but very seldom to the day. A few discrepancies exist between the records in the literature and my list of localities and dates, but the information I give was copied directly from the original labels.

The number of specimens examined is mentioned for each species and normally represents the total that was seen. The exceptions consist usually of very big series where I did not record every specimen, although I believe that I took a record of every locality and also of dates which differed significantly. The measurements are representative and are those of adults or of birds which appeared to be adult. They were all taken by me with the wing pressed down flat on the ruler, except for very large birds in which the wing length was measured with a tape over the top of the wing as stated. The measurements of birds which were clearly migrants are not included and have been given apart in a few cases.

TAXONOMY. The taxonomic departures from my own survey of the Palearctic region (1959, 1965a) consist of four changes at the species or generic level, the use of binomials only, and the fact that I mention a few superspecies with their allospecies.

The four changes were made in the cases of *Falco vespertinus*, *Calandrella cheleënsis*, *Phoenicurus alaschanicus*, and of two genera of flycatchers. The latter are *Cyornis* and *Niltava*, which I had merged in my generic revision of the Muscicapini (1953), but I now consider that this was an error and that both are valid. I had expressed some doubt (1959) about the true taxonomic status of the forms that I had then included in *C. rufescens* and *P. erythronotus*, but Stepanyan has since shown very conclusively (1967) that the eastern forms of the *Calandrella* are a quite distinct species, *C. cheleënsis*. No additional information has ap-

peared about *P. alaschanicus*, but I now agree with most taxonomists that it is probably not conspecific with *P. erythronotus* and is best treated as a separate species. *Falco vespertinus* and *F. amurensis* now seem also better treated as allospecies rather than as conspecific. For bibliographical references to the scientific names, see my Palearctic survey, or Ripley (1961) when the species was not included in my survey.

I did not make use of the subspecies concept because I agree to a large extent with its many critics who have seriously questioned its validity in recent years. I believe it still serves a function in very selected cases, but this is not the place to discuss this question, and all that I can say here is that I could not use trinomial names without undertaking a complete new systematic study of the birds of Tibet, which is beyond the scope of this work. The few taxonomic notes that I have included are meant only to prevent misunderstandings about the geographical variation, or to call attention to situations where more than one species may be involved.

I have mentioned a few species which seem to form part of superspecies, but my use of the superspecies concept has been very timid because it is too easy to make facile assumptions at this stage when closely related allopatric species are involved. The study of superspecies is just starting and no comprehensive studies have yet appeared which include Tibetan birds. With progress, the list of superspecies with an allospecies in Tibet will probably grow, but until then I prefer to be conservative.

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

Podiceps ruficollis

Little Grebe

Palaearctic, Philippines, Indonesia to the Solomons, Ethiopian.

OUTER PLATEAU (N).

No specimens examined: Reported from Lhasa as "rather plentiful" by Walton (1906) and by Ludlow (1950).

Podiceps nigricollis

Black-necked Grebe

Western North America, discontinuously Palaearctic, eastern and southern Africa.

OUTER PLATEAU (N?).

No specimens examined: One specimen was collected on May 14 on the Tatung River below Yung-an-ch'eng, according to Bianki (1913).

Podiceps cristatus

Great Crested Grebe

Discontinuously Palaearctic, eastern and southern Africa, Australian.

NORTHERN PLATEAU (N): Koko Nor (June). Zaidam (April-May). Alak Nor (June 12).

OUTER PLATEAU (N): Rupshu, Tso Kar (June 22). Southern Tibet, Kala Tso (July 8).

Specimens examined: 10, wing length, 5 ♂, 200-210 (203.6); 5 ♀, 190-198 (193.6).

Other records: Breeds in northern Chang Tang according to Kozlov (1899b); and reported from western Tibet by Ali (1946), and from Lhasa by Ludlow (1950).

Order PELECANIFORMES

Family PHALACROCORACIDAE

Phalacrocorax carbo

Cormorant

Nearly cosmopolitan, but restricted to coastal eastern North America in the New World.

NORTHERN PLATEAU (N): Koko Nor (March, September, October).

OUTER PLATEAU (N): Ladak (no data). Southern Tibet, Gyangtse (March 28). Northeastern Tibet, Dobo (April 11).

Specimens examined: 8 of all ages.

Other records: From Satpura Lake, Baltistan, by Matthews (1941), and by Meinertzhagen (1927a); also common on Kyi Chu near Lhasa, according to Ludlow (1950).

Order CICONIIFORMES

Family ARDEIDAE

Botaurus stellaris

Bittern

Palaearctic, also Ethiopian (southeastern Africa).

Superspecies: *B. lentiginosus*, North America; *B. pinnatus*, South America; and *B. poiciloptilus*, Australia, Tasmania, and New Zealand.

NORTHERN PLATEAU (N).

No specimens examined: Reported by Kozlov (1899a) from the marshes of the Türgenii Nor, Zaidam, on May 2, "booming steadily".

Ardeola bacchus

Chinese Pond Heron

Eastern Palaearctic from Manchuria south to Indo Chinese countries, Assam, Andamans.

NORTHERN PLATEAU (status?).

No specimens examined: The remnants of one bird killed by a bird of prey were found on the eastern coast of the Koko Nor by Beick on June 20.

Bubulcus ibis

Cattle Egret

Southern Palearctic, Oriental, and Ethiopian; has expanded recently to the Americas and Australia.

OUTER PLATEAU (N): Southern Tibet, Gyangtse (August 20).

Specimen examined: 1.

Egretta alba

Great Egret

Cosmopolitan.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N): Northeastern Tibet, Dobo (March 9).

Specimen examined: 1.

Other records: Reported from the Zaidam on migration on February 25, by Kozlov (1899a). Ludlow (1928) procured a specimen at Gyangtse on December 23, and says (1950) it occurs at Lhasa in June and in the autumn.

Ardea cinerea

Grey Heron

Palearctic, Oriental, and discontinuously Ethiopian.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N): Ladak, Surmo (August 28). Rupshu, Tso Kar (October 1). Northeastern Tibet, Dobo (March 22); near Hsi-ning (March); and Bayan (March).

Specimens examined: 5.

Other records: Grey Herons, probably this species, have been reported also from several localities in southern Tibet, among them the Kala Tso; they were seen at the latter on July 5 and may have been breeding. This species was also recorded from the Zaidam on migration on February 28 by Kozlov (1899a).

Family THRESKIORNITHIDAE

Plegadis falcinellus

Glossy Ibis

Discontinuously Holarctic, also in Oriental, Ethiopian, and Australian regions.

Superspecies: *P. chihi*, western United States and Mexico.

OUTER PLATEAU (probably E).

No specimens examined: One specimen was collected in Baltistan or Ladak by Vigne (1841), and one individual was seen on May 3 on the Dras River by Osmaston (1923).

Nipponia nippon
Japanese Crested Ibis

Eastern Palearctic from Ussuriland and Japan south to central China.

OUTER PLATEAU (N? but probably now extinct).

No specimens examined: One bird was collected at Vychzha-Chuan on March 7, 1909, in northeastern Tibet, according to Bianki (1916). This species is now known from only a few surviving birds in Japan.

Family CICONIIDAE

Ciconia ciconia
White Stork

Western Palearctic.

Superspecies: *C. boyciana*, far eastern Siberia to north China and Japan.

OUTER PLATEAU (N).

No specimens examined: One pair was seen by Wollaston (1922) on June 15 in southern Tibet between Khamba Dzong and Tingkye Dzong.

Ciconia nigra
Black Stork

Palaearctic, also South Africa.

NORTHERN PLATEAU (M), and OUTER PLATEAU (N).

No specimens examined: Reported as a migrant from northern Chang Tang by Kozlov; from northeastern Tibet near Nien-po on August 25, by Seys and Licent (1933); and as breeding sparsely in region of Hsi-ning by Beick.

Ibis leucocephalus
Painted Stork

Oriental.

OUTER PLATEAU (E).

No specimens examined: One individual appeared and was shot at Lhasa in the summer of 1947, according to Ludlow (1950).

Order ANSERIFORMES

Family ANATIDAE

Anser anser
Greylag Goose

Palaearctic.

NORTHERN PLATEAU (N): Koko Nor (March, August 30, early September, and September 17). Zaidam, Bayan Gol (October); eastern Zaidam (April).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March).

Specimens examined: 8, wing length 5 ♂, 455–480 (465).

Other records: Reported on migration in the northern Chang Tang in the autumn between August 23 and September 1 by Kozlov (1899b), and in the spring on February 24 in the Zaidam by Kozlov (1899a).

Anser albifrons
White-fronted Goose

Circumpolarly Holarctic.

OUTER PLATEAU (M).

SOUTHEASTERN PLATEAU (M).

No specimens examined: Reported from Lhasa in April by Ludlow (1950), and also by Ludlow (1951) "just before Christmas" at Lunang, in the Rong Chu Valley, and in the winter from Kongka Dzong on the Tsangpo.

Anser fabalis
Bean Goose

Northern Palaearctic.

OUTER PLATEAU (M).

No specimens examined: One specimen was collected on November 11 at Süme Gompa on the Hsi-ning ho, according to Seys and Licent (1933); recorded also northeast of the Koko Nor on September 11.

Anser indicus
Bar-headed Goose

Palaearctic (high central Asia).

NORTHERN PLATEAU (N): Northern Chang Tang, Dashi Köl (June 5). Koko Nor (March–April, July 28, September 5). Zaidam, Kurlyk (May); Zaidam, no data (May, September).

OUTER PLATEAU (N): Ladak, Chushul (July 25). Rupshu, Tso Kar (Sep-

tember 29–October 1). Southern Tibet, Lhasa (March 15); Nethang (March 23); Chushul Dzong (March 24); Tsatang (April 6). Eastern Tibet, Camp 102 (June 10); Camp 131 (July 21). Amdo, Ragya Gomba (May 23).

SOUTHEASTERN PLATEAU (N): Waterh (March 15).

Specimens examined: 48 of all ages, wing length, 9 ♂, 445–480 (459); 4 ♀, 420–482 (455.5).

Other records: Ali (1946) states this species breeds on the lakes of western Tibet; it breeds also in southern Tibet.

Anser cygnoides

Swan Goose

Eastern Palearctic.

NORTHERN PLATEAU (N).

No specimens examined: Przhevalsky found this species breeding in the Zaidam, at Zaidamin Nor in June.

Cygnus olor

Mute Swan

Discontinuously Palearctic.

NORTHERN PLATEAU (N): Zaidam, Kurlyk Nor (October 5).

Specimen examined: 1.

Other records: This species has been reported on migration at the Koko Nor, but probably breeds there also.

Cygnus cygnus

Whooper Swan

Palearctic.

Superspecies: *C. buccinator*, northwestern North America.

NORTHERN PLATEAU (N).

No specimens examined: Collected in the Zaidam and at the Koko Nor, according to Bianki (1907).

Cygnus bewickii

Bewick's Swan

Northern Palearctic.

Superspecies: *C. columbianus*, North America.

NORTHERN PLATEAU (probably M).

No specimens examined: Przhevalsky reported this species from Dalay Dabasan Nor, in the Zaidam, in the spring, and "probably" from the Koko Nor.

Tadorna ferruginea
Ruddy Shelduck

Eremian.

NORTHERN PLATEAU (N): Koko Nor (April–May).

OUTER PLATEAU (N): Ladak, Chakar Talao (May 26); Tsultak (May 22); Chushul (July 24). Rupshu, Tso Kar (June 30, August 18, September 29); Gian (June 26); Tso Morari (July 6); Peldo (July 7). Spiti, Kibar (September 8). Southern Tibet, Garteng (April 5); Tuna (March 13); Khamba Dzong (September). Eastern Tibet, Camp 131 (July 21). Northeastern Tibet, Hai-yen (June 24); Kung-ho-ku-chich (May).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 6, June 1); Tserine (May 22).

Specimens examined: 34 of all ages, wing length, 8 ♂, 365–390 (373.6).

Other records: Breeds in northern Chang Tang and in the Zaidam; reported by Henderson and Hume (1873) from the Kara Kash River, and with young from the hot springs above Gogra, Chang Chenmo; breeds in western Tibet according to Ali (1946), and is common at Lhasa, according to Ludlow (1950).

Tadorna tadorna
Common Shelduck

Eremian.

NORTHERN PLATEAU (N): Koko Nor (September 21). Zaidam, Dalay Dabasan Nor (March 30).

OUTER PLATEAU (N): Baltistan, Skardu (August 16).

Specimens examined: 5, including 3 chicks.

Other records: Reported as a migrant from northern Chang Tang by Kozlov (1899b); Gyangtse in March by Ludlow (1928); and from the Kala Tso on May 14 by Maclaren (1947).

Anas platyrhynchos
Mallard

Holarctic, also Hawaiian Islands and Laysan Island in the Pacific.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Ladak, Chushul (June 19). Eastern Tibet, Camp 132 (July 22). Northeastern Tibet, Dobo (February 1, November 9).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 5).

Specimens examined: 11.

Other records: Reported as breeding in northern Chang Tang by Kozlov (1899b), and in the Zaidam by Kozlov (1899a); Braldu Valley in Baltistan by Abbott; Bam Tso on May 10 by Maclaren (1947); breeds at Lhasa in August, and occurs near Gyangtse in June, according to Ludlow (1928).

Anas poecilorhyncha
Spotbill Duck

Eastern Palearctic from Transbaicalia south to India and Ceylon.

OUTER PLATEAU (probably M or E): Northeastern Tibet, Dobo (October 27).

Specimen examined: 1.

Other records: Reported during the winter from Lhasa.

Anas crecca
Green-winged Teal

Holarctic.

NORTHERN PLATEAU (N and M): Koko Nor (September).

OUTER PLATEAU (M and N): Ladak, Deshkit (September 11); She (September 22). Rupshu, Tso Kar (September 30). Southern Tibet, Khamba Dzong (October 6). Northeastern Tibet, Dobo (March 8 and 14); between Hsi-ning and Kum Bum (September).

SOUTHEASTERN PLATEAU (M): Göze Gompa (February 20); near Chinto (April 17).

Specimens examined: 15.

Other records: Reported on migration from the northern Chang Tang in the autumn between September 1 and 13 by Kozlov (1899b), and also from the Zaidam on March 2 by Kozlov (1899a); also from Shakhidulla on October 19 by the Second Yarkand Mission; from Gogra, Chang Chenmo, in September, and near Leh in October by Henderson and Hume; and also from the Shigar Valley in Baltistan by Abbott. Ludlow (1928) says it is a migrant at Gyantse, and (1950) a winter visitor at Lhasa. Breeds on the upper Hsi-ning ho in northeastern Tibet according to Beick.

Anas strepera
Gadwall

Discontinuously Holarctic; formerly (now extinct) Line Islands in the Pacific Ocean.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N): Southern Tibet, Bam Tso (June 20). Northeastern Tibet, Dobo (April 11).

Specimens examined: 2.

Other records: Reported on migration from the northern Chang Tang in the autumn between October 2 and 13 by Kozlov (1899b), and also from the Zaidam on March 5 by Kozlov (1899a); reported also at Ngayeze, western Tibet, on June 13 by Ali (1946); and common at Gyantse in October according to Ludlow (1928).

Anas penelope
Eurasian Wigeon

Northern Palearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N): Ladak, no date or locality.

Specimen examined: 1.

Other records: Reported on migration from the northern Chang Tang in the autumn between October 2 and 13 by Kozlov (1899b), and also from the Zaidam on March 5 by Kozlov (1899a). Occurs on the Bam Tso and Kala Tso in May, according to Maclaren (1947); and during the spring and summer at Gyangtse, according to Ludlow (1928), who says also (1950) that it has been observed at Lhasa.

Anas acuta
Pintail

Holarctic, and islands in southern Indian Ocean.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Ladak, She (September 22). Rupshu, Tso Kar (September 30). Southern Tibet, Bam Tso (June 30); Lhasa (February 7, March 15).

SOUTHEASTERN PLATEAU (N): Waterh (April 16).

Specimens examined: 6.

Other records: This species breeds on the northern Chang Tang according to Kozlov (1899b), and is reported also at the Koko Nor and in the Zaidam. On the Outer Plateau it is reported from Ringdom Gompa, Zaskar, in September by Koelz (1940), Spiti by Koelz (1937), and also from the region of Gyangtse in southern Tibet, where it breeds, by Ludlow (1928).

Anas querquedula
Garganey

Palearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Ladak, Leh (September 9); Lungnak Lunga River (August 23); She (September 10); Pituk (August 23-26); Deshkit (September 11). Rupshu, Tso Kar (September 29). Spiti, Rangring (September 10-15); Traktse (September 1). Southern Tibet, Khamba Dzong (October 6); Lhasa (September 8).

Specimens examined: 21.

Other records: Reported on migration from the northern Chang Tang in the autumn by Kozlov (1899b).

Anas clypeata
Shoveler

Holarctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N): Ladak, Pituk (August 26); also Ladak, no data.

Specimens examined: 2.

Other records: Collected at Gyangtse by Ludlow (1928); occurs in winter at Lhasa according to Ludlow (1950); recorded also from Bam Tso; and on the Northern Plateau from the Koko Nor at the end of March.

Netta rufina
Red-crested Pochard

Eremian.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Southern Tibet, Gyangtse (November 12).

Specimen examined: 1.

Other records: Seen at Lhasa by Ludlow (1950); and reported on migration from the Zaidam on March 14 by Kozlov (1899a).

Aythya ferina
Common Pochard

Palaearctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N OR M): Northeastern Tibet, Dobo (March 21).

Specimen examined: 1.

Other records: This species breeds in the Zaidam where a downy young was collected during the first week of August, according to Bianki (1907), and where it arrives on March 14, according to Kozlov (1899a). It probably breeds also in southern Tibet at the Kala Tso, where it was reported in July according to Ludlow (1928).

Aythya nyroca
White-eyed Pochard

Discontinuously Palaearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Southern Tibet, Khamba Dzong (November 20); Lhasa (August 19).

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SOUTHEASTERN PLATEAU (M OR ?N): Lamdo (April 15).

Specimens examined: 4.

Other records: Reported on migration from the northern Chang Tang in the autumn between October 2 and 13 by Kozlov (1899b), and also from the Zaidam on March 4 by Kozlov (1899a); and it has been collected in Baltistan or in Ladak, according to Vigne (1841).

Aythya fuligula

Tufted Duck

Palaearctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (M): Baltistan, Shigar (August 19).

SOUTHEASTERN PLATEAU (M): Waterh (April 16).

Specimens examined: 2.

Other records: Breeds in the Zaidam according to Kozlov (1899a); observed by Beick on Hsi-ning ho at Dobo on March 21 and October 23; reported by Ludlow from southern Tibet in spring and autumn; and common at Lhasa in winter, Ludlow (1950).

Bucephala clangula

Common Goldeneye

Holarctic.

NORTHERN PLATEAU (M): Koko Nor (February).

OUTER PLATEAU (M): Southern Tibet, Gyangtse (January 23). Northeastern Tibet, Dobo (March 21).

SOUTHEASTERN PLATEAU (M): Waterh (April 16).

Specimens examined: 4.

Other records: A migrant in Zaidam (March 3), according to Kozlov (1899a); reported also from Lhasa in March and April by Ludlow (1950).

Mergus albellus

Smew

Northern Palaearctic.

OUTER PLATEAU (M): Northeastern Tibet, Dobo (January 26, April 2).

Specimens examined: 2.

Other records: Osmaston (1927) says that "Colonel Ward found them breeding on the Shyok River in Ladakh," but I believe this is doubtful and I find that other records of Ward are clearly not valid.

Mergus serrator
Red-breasted Merganser

Holarctic.

NORTHERN PLATEAU (M).

No specimens examined: Reported on migration from the Zaidam on March 3 by Kozlov (1899a), and also in August on the Hargi Gol in the basin of the Koko Nor.

Mergus squamatus
Chinese Merganser

Eastern Palearctic (northern Manchuria and Ussuriland).

OUTER PLATEAU (E).

No specimens examined: One individual was seen by Beick at Dobo ("Heitsuite") on the Hsi-ning ho on January 27, 1929, according to Stresemann, Meise, and Schönwetter (1938).

Mergus merganser
Goosander

Holarctic.

NORTHERN PLATEAU (N): Koko Nor (April); Koko Nor Basin, Hargi Gol (August 17). Zaidam, Gurab Angir Gol (August).

OUTER PLATEAU (N): Ladak, Tangtse (May 24); Durgu (May 23); Indus River, "100 miles above Leh" (June 18). Southern Tibet, Lhasa (March 15); Gotsa (January 16); Gyangtse (no date). Northeastern Tibet, Dobo (January 27, February 8 and 9, March 9, May 25, and July 2); Hung-ho-siae (June 17); Hai-yen (June 25); between Hsin-ch'eng and Hsi-ning (December). Amdo, Ba River Valley (June 23).

SOUTHEASTERN PLATEAU (N): Waterh (March 17); Dege Gönchen (February 11); Gartoh Gompa (February 17).

Specimens examined: 30 of all ages, wing length, 13 ♂, 280-310 (294); 7 ♀, 250-275 (263).

Other records: A specimen was collected in October on the upper Kara Kash River by the Second Yarkand Mission; breeds on the lakes of Rupshu and on the Indus, according to Ludlow (1920), also at Lhasa, Ludlow (1950); reported from western Tibet by Ali (1946); also at Tuna on June 15, by Battye (1935).

Order FALCONIFORMES

Family PANDIONIDAE

Pandion haliaetus

Osprey

Virtually cosmopolitan.

NORTHERN PLATEAU (probably E only).

OUTER PLATEAU (N).

No specimens examined: An occasional summer visitor in southern Tibet according to Ludlow (1928), also occasional at Lhasa; a pair, which was probably nesting, was seen on the Indus near Leh on May 17, by Meinertzhagen (1927). It has been observed in northeastern Tibet also, on the Ranga Gol in May or June; and on the Northern Plateau at the Koko Nor in September.

Family ACCIPITRIDAE

Pernis apivorus

Honey Buzzard

Western Palearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M OR E): Northeastern Tibet, Lassa (October 4).

Specimen examined: 1.

Other records: Recorded as a migrant in Northern Chang Tang by Kozlov (1899b); a young was collected at Shakhidulla on October 20, 1873, by the Second Yarkand Mission.

Milvus migrans

Black Kite

Palearctic, Oriental, Ethiopian, and Australian.

NORTHERN PLATEAU (N): Koko Nor (no date). Zaidam (August); South Koko Nor Range (August).

OUTER PLATEAU (N): Ladak, Leh (May 12); Indus River, "14 miles above Leh" (May 17). Spiti, Lidang (September 17). Southern Tibet, Khamba Dzong (September 13); Gyantse (May 7, 23, and 27). Northeastern Tibet, Chasora River (April or May); Lao-hu-k'ou (May 17); Chertenton (March 14-18). Amdo, Ba River Valley (June 23).

SOUTHEASTERN PLATEAU (N): Jyekundo (March 29).

Specimens examined: 17, wing length, 7 ♂, 490–540 (507).

Other records: Reported as breeding in northern Chang Tang by Kozlov (1899b); seen at Skardu, Baltistan; very common at Lhasa, according to Ludlow (1950).

Haliastur indus

Brahminy Kite

Oriental and Australian.

OUTER PLATEAU (E).

No specimens examined: Seen at Lhasa by Sherriff, according to Ludlow (1950).

Haliaeetus leucoryphus

Pallas' Fishing-Eagle

Palaearctic (probably central Asiatic in origin), and northern India.

NORTHERN PLATEAU (N): Koko Nor (August 9 and September); Koko Nor, Urto (September 6). Zaidam, no locality (August); Gurab Angir Gol (August); Burchan Buddha Range (August).

OUTER PLATEAU (N): Tsurumun Chu (May); Chasora River (May); sources of Hwang ho (May); Kung-ho-ku-chih (May). Northeastern Tibet, Hsi-ning ho near Hsi-ning (August 13).

SOUTHEASTERN PLATEAU (N): Camp 91 (May 17); Camp 139 (September 1).

Specimens examined: 21, wing length (tape measurements over the wing), 7 ♂, 560–635 (597); 11 ♀, 595–645 (629).

Other records: Recorded as a migrant in northern Chang Tang by Kozlov (1899b); common in Baltistan on the Deosai Plain and Indus; Tso Morari in Rupshu, according to Osmaston (1927); and on lakes of western and southern Tibet, and at Lhasa.

Haliaeetus albicilla

White-tailed Eagle

Palaearctic, also Baffin Island.

NORTHERN PLATEAU (M), and OUTER PLATEAU (M).

No specimens examined: Recorded from the Zaidam as a migrant on May 2 by Kozlov (1899a); and from Vychzha-chuan, northeastern Tibet, on March 10, by Bianki (1916); observed also at the Koko Nor toward the end of March by Przhevalsky.

Accipiter gentilis

Goshawk

Holarctic.

OUTER PLATEAU (N): Northeastern Tibet, Hung-ho-siac (November 12); Arna-Süing (January 27).

SOUTHEASTERN PLATEAU (N): Chomo Dzong (August 12); Marung (February 19).

Specimens examined: 4.

Other records: Ludlow (1950) says it was seen at Lhasa.

Accipiter virgatus

Besra

Sino-Himalayan (western Szechwan to Kashmir, Formosa, Philippines, India to Ceylon, Greater Sundas, Bali, and Flores).

OUTER PLATEAU (N?): Baltistan, Shigar (August 20).

Specimen examined: 1.

Accipiter nisus

Sparrow Hawk

Palaearctic, and Sino-Himalayan.

NORTHERN PLATEAU (N): Northern Tibet, Boron Bulik, Su-lo ho (July). Shakhidulla (October 21).

OUTER PLATEAU (N): Baltistan, Shigar Valley (January 4). Ladak, Nimu (August 3 and 4); Khalatse (March 23, August 5); Saspul Gompa (April 23); Pituk (September 21). Southern Tibet, Gyangtse (April 28); Lepo (April 7); Kongka Dzong (April 11). Northeastern Tibet, Dobo (November 6, December 11); Lao-hu-k'ou (May 9). Amdo, Kuei-te (November 10, December 5 and 28).

SOUTHEASTERN PLATEAU (N): Tsari (August 28); Tse (December 14); Sur La (August 17); Nambu La (August 30); Tsela Dzong (May 31); Rabdang (October 26); Le La (May 10); Yigrong Chu (February 4); Tangme (February 9); Lasor (March 30); Dzung (April 17); Dege Gönchen (February 11); Dza Chu, Mekong Basin (November); Bar Chu (October).

Specimens examined: 42, wing length, 19 ♂, 206-218 (212); 11 ♀ 240-257 (246.5).

Other records: Occurs also in Spiti. Reported also on migration from the northern Chang Tang in the autumn between September 13 and 22 by Kozlov (1899b).

Taxonomy: The Sino-Himalayan form is *melaschistos* which is isolated geographically from *A. nisus*, and well differentiated from it, but is probably con-

specific. The specimens listed are *melaschistos*, the complete breeding range of which extends from the western Nan Shan west through southwestern Kansu and Tibet to the northwestern Himalayas and northern Baluchistan.

Buteo hemilasius

Upland Buzzard

Palaearctic (high central Asia).

NORTHERN PLATEAU (N): Chang Tang, Tengri Nor (end of February). Zaidam, Gurab Angir Gol (September); Ghaz Kul (November). Alak Nor (June 12).

OUTER PLATEAU (N): Southern Tibet, Gyangtse (May 10). Eastern Tibet, Saghun Gol (July 14); Siang-Si-Pei Range (May); Camp 103 (June 12); Camp 132 (July 22). Northeastern Tibet, near Hsi-ning (March); Dobo (January 7, April 8, December 28).

SOUTHEASTERN PLATEAU (N): Hi Chu, Yangtze Basin (July); Nom Chu (March); Chzhan Chu (September 9); Ba Chu, Yangtze Basin (September); Ge Chu (March); Waterh (March 12); Tongchi Gompa (April 18); Camp 139 (August 31).

Specimens examined: 32, wing length (tape measurements over the wing), 8♂, 473-510 (492); 12♀, 485-560 (510).

Buteo rufinus

Long-legged Buzzard

Eremian.

NORTHERN PLATEAU (N): Zaidam, Baruun (May 20).

Specimen examined: 1.

Buteo buteo

Buzzard

Palaearctic.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March). Northeastern Tibet, Lao-hu-k'ou (December 4). Amdo, Labrang (February 21).

SOUTHEASTERN PLATEAU (N): Dza Chu, Mekong Basin (November); Re Chu (November); Yu Chu, near Yuchuka (March 6); Derge (February 11).

Specimens examined: 8.

Butastur teesa

White-eyed Buzzard-Eagle

Oriental.

OUTER PLATEAU (E).

No specimens examined: Ludlow collected one specimen at Gyangtse on

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April 1, 1926. He says: "This bird had evidently gone astray . . . I picked it up in a very exhausted condition on the road . . . [and] it died a few hours after capture."

Hieraaëtus pennatus

Booted Eagle

Palaearctic of probable Eremian origin.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N).

No specimens examined: Recorded as breeding in northern Chang Tang by Kozlov (1899b); and collected by Biddulph in June in the Nubra River Valley, Ladak.

Aquila rapax

Steppe Eagle

Palaearctic of Eremian origin.

NORTHERN PLATEAU (N): Koko Nor (February, October).

OUTER PLATEAU (N): Eastern Tibet, Dungbura Range at Dungbura Pass (October); Chasora River (May). Northeastern Tibet, Dobo (October 21 and 25); Dangkar (March 26); upper Dangkar ho (April 6); Chertenton (March 15).

SOUTHEASTERN PLATEAU (N): Ge Chu (March 11 and 13); Waterh (March 12).

Specimens examined: 17, wing length (tape measurements over the wing), 6♂, 570–620 (600); 5♀, 590–635 (625).

Other records: Occurs in western Tibet, according to Ali (1946).

Aquila clanga

Spotted Eagle

Palaearctic.

NORTHERN PLATEAU (M).

No specimens examined: Recorded as a migrant in northern Chang Tang by Kozlov (1899b).

Aquila heliaca

Imperial Eagle

Western Palaearctic.

NORTHERN PLATEAU (M).

No specimens examined: One specimen was collected at the Koko Nor by Przhevalsky where "we found it to be wintering" (1877, in Rowley's Miscellany).

Aquila chrysaëtos

Golden Eagle

Holarctic.

NORTHERN PLATEAU (N): Zaidam, Egrai Gol not far from Shang (December).

OUTER PLATEAU (N): Ladak, no data. Northeastern Tibet, Dobo (March 12); Kuo-mang Ssu (April 30).

SOUTHEASTERN PLATEAU (N): Nom Chu (April 1-3); Camp 139 (August 31); Jyekundo (March 23, April 12).

Specimens examined: 8, wing length (tape measurements over the wing), 5 ♂, 655-685 (670), 3 specimens are not quite fully adult; 2 ♀, 690, 715.

Other records: Recorded as breeding in northern Chang Tang by Kozlov (1899b); by Babault from Tso Morari, Rupshu; and from Spiti by Koelz.

Gypaëtus barbatus

Bearded Vulture (or Lammergeyer)

Discontinuously Eremian and Ethiopian.

NORTHERN PLATEAU (N): Northern Chang Tang (September, November); Tengri Nor (February). Koko Nor (September). Zaidam, Gurab Angir Gol (September).

OUTER PLATEAU (N): Ladak, Taga Laung La (September 4). Southern Tibet, Khamba Dzong (September 29). Eastern Tibet, Tang La (Przhevalsky, October); Camp 120 (July 4); upper Hwang ho (August 20). Northeastern Tibet, Chertenton (March). Amdo, Serchen Gorge near Ragya (May 16); Waru Valley (June 20); Tsangar Gumpa (May 15).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 1).

Specimens examined: 22, wing length (tape measurements over the wing), 7 ♂, 825-870 (845); 5 ♀, 800-880 (845).

Other records: Common at Lhasa, according to Ludlow (1950); reported by Koelz from Zaskar and Spiti; from western Tibet by Ali; and collected in Baltistan by Abbott; Wollaston (1922) says he saw it flying at over 24,000 feet on Mount Everest.

Aegypius monachus

Black Vulture

Eremian and Mongolo-Tibetan, probably Eremian in origin.

NORTHERN PLATEAU (N): Koko Nor (March). Zaidam, Burchan Buddha Range (August).

SOUTHEASTERN PLATEAU (N): Tongchi Gumpa (April 18).

Specimens examined: 3, wing length (tape measurements over the wing), 2 ♂, 792, 815; 1 ♀, 812.

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Other records: Reported as sedentary in the northern Chang Tang by Kozlov (1899b), and from the region of Hsi-ning by Beick.

Gyps himalayensis

Himalayan Griffon

Palaearctic (high central Asia).

NORTHERN PLATEAU (N): Chang Tang, Tengri Nor (probably February), Northern Tibet, Ulaan Bulaq (end of June); no locality (November). Koko Nor (March). Zaidam, Burchan Buddha Range (August).

OUTER PLATEAU (N): Eastern Tibet, Dy Chu (June); Amnen Kor Range (June). Amdo, no locality (July 16-20).

Specimens examined: 11, wing length (tape measurements over the wing), 2 ♂, 790, 795; 7 ♀, 775-830 (800).

Other records: Common in southern Tibet at Gyantse and Lhasa, according to Ludlow; reported also from Bam Tso; western Tibet in June, by Ali (1946); from Zaskar by Koelz; and collected in Baltistan by Abbott.

Circus cyaneus

Hen Harrier

Holarctic.

NORTHERN PLATEAU (M): Koko Nor (November). Zaidam, Irgitsyk (April); Ghaz Kul (November); South Koko Nor Range (February); eastern Zaidam (December); and no locality (January).

OUTER PLATEAU (M).

Specimens examined: 8.

Other records: One specimen was collected on November 15 at Gyantse by Ludlow (1928); and reported during the winter from the region of Hsi-ning by Beick.

Circus macrourus

Pallid Harrier

Palaearctic.

NORTHERN PLATEAU (M): Northern Tibet, no locality (September).

OUTER PLATEAU (M): Spiti, Mane (September 22 and 23).

Specimens examined: 3.

Other records: One specimen was collected on October 17 at Gyantse by Ludlow (1928).

Circus pygargus
Montagu's Harrier

Western Palearctic.

OUTER PLATEAU (M or E): Spiti, Guling (September 19).

Specimen examined: 1.

Circus aeruginosus
Marsh Harrier

Palearctic, Australian, and some of the islands of the southwest Pacific and of the Indian Ocean.

NORTHERN PLATEAU (M): Zaidam (April, August).

OUTER PLATEAU (N): Ladak, Zaskar, Char (September 23); and Hamiling (September 16). Rupshu, Tso Kar (August 18). Spiti, Mani (September 22); Kibar (September 7); Losar (September 3). Southern Tibet, Gyangtse (May 11).

Specimens examined: 10.

Other records: Reported as a migrant from the northern Chang Tang in the autumn between September 1 and 13 by Kozlov (1899b).

Family FALCONIDAE

Falco altaicus
Altai Falcon

Palearctic (high central Asia).

NORTHERN PLATEAU (N): Koko Nor (March).

Specimen examined: 1 (a juvenal bird).

Falco cherrug
Saker Falcon

Palearctic, but essentially Mongolo-Tibetan in origin.

NORTHERN PLATEAU (N): Chang Tang, Tengri Nor (no date). Northern Tibet, no locality (May, June); upper Shara Gol (August). Koko Nor (February, August 14 and 16, September). Zaidam, Ghaz Kul (November); Gurab Angir Gol (September); South Koko Nor Range (April); Burchan Buddha Range (June).

OUTER PLATEAU (N): Ladak, no locality or date. Southern Tibet, Gyangtse (November 29); Yamdrok Tso (September 11). Northeastern Tibet, Hai-yen

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(March 27). Eastern Tibet, Tang La (Przhevalsky, December); Amnen Kor (June 24); valley of upper Hwang ho near the Tsaring Nor or Oring Nor (June); Serg Chu (May); Camp 102 (June 10). Amdo, Ba Chu (January 27); Kuei-te (December 10).

SOUTHEASTERN PLATEAU (N): Camp 80 (April 22); Waterh (March 8); Rkhombo-mtso (August); Ge Chu (March 13); Enyr Chu (September 10); Miri La (April 6).

Specimens examined: 44, wing length, 13 ♂, 340–372 (358.5); 11 ♀, 386–417 (405.5).

Other records: Reported as breeding in northern Chang Tang by Kozlov (1899b); and from Lhasa by Ludlow (1950).

Falco pelegrinoides

Shaheen (or Red-capped Falcon)

Eremian.

Superspecies: *F. peregrinus*, cosmopolitan.

NORTHERN PLATEAU (N).

No specimens examined: Scully (1876) collected a male on August 27, 1875, at Gulgun Shah in the Kara Kash Valley; sight records of "*F. peregrinus*" from Ladak and southern Tibet may apply to *F. pelegrinoides*.

Falco subbuteo

Hobby

Palaearctic.

OUTER PLATEAU (N): Baltistan, Khapalu (August 12). Ladak, Shushot (September 16); Nimu (July 29, August 2 and 28); below Upshi (June 12); Phe (August 4); Pituk (August 26). Eastern Tibet, Tsurumun Chu (May); Chasora River (May). Northeastern Tibet, Dangkar (August 31); Dobo (June 1, September 1–16); Hsi-ning Valley (September).

Specimens examined: 26, wing length, 8 ♂, 255–273 (262.5); 10 ♀, 268–292 (279).

Other records: Recorded from Lhasa.

Falco columbarius

Merlin

Holarctic.

NORTHERN PLATEAU (M): Northern Tibet, Zaisan Saitu River (December).

OUTER PLATEAU (M): Southern Tibet, Gyangtse (October 5, November 19); Kongka Dzong (April 9). Northeastern Tibet, Dangkar (March 26); Hsi-ning

(November 9); Lao-hu-k'ou (March 3). Amdo, Jahar Mountains (no date, but probably early May).

Specimens examined: 8.

Falco vespertinus

Red-footed Falcon

Western Palearctic (eastern Europe east to the Yenisei).

Superspecies: *F. amurensis*, eastern Palearctic.

SOUTHEASTERN PLATEAU (E).

No specimens examined: Ludlow (1944, p. 373) reports a specimen as follows. "On 14 June, 1936, an old man of Sumbatse, near Kyimdong Dzong, presented me with a carcass of this little Falcon in payment for some medicines I had given him. Decomposition had set in and I was unable to preserve the skin. The old man informed me that he had caught the bird a fortnight previously, whilst it was being mobbed by a number of Magpies. He kept it in a cage for a day and it died, and as he had never seen a bird like it before, he kept the remains." Przhhevsky (in Craemers, 1877-1878) states that he observed a pair that was breeding in "Kansu", but the actual locality, which was not mentioned, may very well have been in northeastern Tibet, rather than Kansu.

Falco tinnunculus

Kestrel

Palearctic, Ethiopian, Oriental.

NORTHERN PLATEAU (N): Koko Nor (April). Zaidam, Ghaz Kul (November), southeast Zaidam (January and October).

OUTER PLATEAU (N): Baltistan, Skardu (August 12-16); Doghani (August 24). Ladak, Kargil (June 25); Leh (May 7, June 1, July 2); Dras (April 18); Pituk (August 7 and 24, September 21); Nimu (August 4); Phe (August 4); She (September 22); Himis (August 11); Khalsar (July 20). Spiti, Lagudarsi (September 5); Ki Gompa (September 10); Kuling (September 21). Southern Tibet, Gyangtse (April 2, May 3, December 27); Kangmar (May 20); Khamba Dzong (September 15); Phari (October 2); Tsetang (November 5); Lhasa (March 15). Eastern Tibet, Camp 101 (June 9). Northeastern Tibet, Lao-hu-k'ou (May 9); between Dobo and Lassa (October 2); Dsiling (December 14); Kuo-mang Ssu (May 17 and 18). Amdo, Kuei-te (July 14); Ja Ja Chu (January 22).

SOUTHEASTERN PLATEAU (N): Laoting (March 7); Dzeng (April 12).

Specimens examined: 44, wing length, 13 ♂, 235-272 (254.5); 15 ♀, 245-278 (259).

Order GALLIFORMES

Family PHASIANIDAE

Subfamily TETRAONINAE

Tetrastes sewerzowi
Severtzov's Hazel Grouse

Sino-Himalayan (western Szechwan and southern Kansu to southeastern Tibet).

OUTER PLATEAU (N): Northeastern Tibet, Chertenton (January 30, February 15, March 6, June 26); Rangta Gol Gorge (January 8, February 6, March 6); Kimar, above Chertenton (February 28); Rangta Gol near Desen-laka (January 20 and 26, February 5); Desen-laka (February 14).

SOUTHEASTERN PLATEAU (N): Dy Chu (Kozlov, March 19-21); Re Chu (January); Bar Chu (beginning of October); Horbo (February 8); Markham Dzong (June 1).

Specimens examined: 36, wing length, 16 ♂, 167-185 (177); 17 ♀, 163-178 (171.5).

Subfamily PHASIANINAE

Lerwa lerwa
Snow Partridge

Sino-Himalayan (western Szechwan and southern Kansu to Ladak, and south to northwestern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Chog La (August 20); Tildan Gompa (October); Tuna (March 28).

SOUTHEASTERN PLATEAU (N): Bimbi La (June 7); Deyang La (August 8).
Specimens examined: 7.

Other records: Recorded from Ladak by Adams (1859).

Tetraophasis obscurus
Verreaux's Monal Partridge

Sino-Himalayan (northern Szechwan to eastern Tibet).

OUTER PLATEAU (N): Rangta Gol Gorge (January 21 and 26); Kimar (March 17 and 27).

Specimens examined: 8, wing length, 6 ♂, 214-227 (218).

Tetraophasis széchenyii
Széchenyi's Monal Partridge

Sino-Himalayan (western Szechwan to southeastern Tibet, and south to northwestern Yunnan).

SOUTHEASTERN PLATEAU (N): Kashong La (October 15); Kongbo-nga La (October 22); Bimbi La (June 11, September 7 and 14); Tripe (September 13 and 14); Pa La (July 20); Na La (May 31, September 2 and 3); between Chamdo and Sok Pass (no date); Gatong Gompa (August 18); Bar Chu (October); Re Chu (December, middle of January, February); Ron Chu (December 1).

Specimens examined: 30, wing length, 14 ♂, 218–236 (226.5); 12 ♀, 204–224 (215).

Tetraogallus himalayensis
Himalayan Snowcock

Western Nan Shan west to northern Afghanistan, Tian Shan, and Tarbagatai, perhaps Sino-Himalayan in origin.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May); Ulaan Bulaq (June). Zaidam, Sarlag Uula (May); South Koko Nor Range (September, October 10, November); Hatu Gol (end of June or beginning of July); north slope of Burchan Buddha Range (July 12).

OUTER PLATEAU (N): Baltistan, Lal Pir (August 10). Ladak, Mulbekh (April 23); Leh (May 7 and 8); Dras (April 16); Taga Laung La (September 25); Sakti (August 2); Khardung La (September 14). Spiti, Lagudarsi (September 5); Lara (September 15).

Specimens examined: 38, wing length, 18 ♂, 285–328 (309); 9 ♀, 275–302 (291).

Other records: Reported as resident in northern Chang Tang by Kozlov (1899b).

Tetraogallus tibetanus
Tibetan Snowcock

Sino-Himalayan (western Nan Shan and northwestern Szechwan to the Pamirs).

NORTHERN PLATEAU (N): Northern Chang Tang, Achik Köl Tagh (December); Chimán Tagh (December); no locality or date. Zaidam, South Koko Nor Range (September, November); Burchan Buddha Range (May); Nomokon Gol (May).

OUTER PLATEAU (N): Ladak, Chang La (September 15); Marsimik La (May 30, June 4); Phobrang (June 6); Taga Laung La (September 25); Polokongka La (July 4); Debring (September 27). Western Tibet, Sazi La (September 27).

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Southern Tibet, Khamba Dzong (September 3 and 29, December 6); Kangmar (December 20); Gyantse (April 24, June 4, November 11); Tuna (March 8); 25 miles south of Lhasa (January 17); 16 miles southeast of Tsona Dzong (July 20); Nyala La (April 18, October 15). Eastern Tibet, Suti (April 18); Tang La (Przhevalsky, December); Oring Nor (June or July); Siang-Si-Pei Range (April). Amdo, Ragya Gompa (May 27); Waru Valley (June 4); Thothug Nyera (July 2). Northeastern Tibet, Chertenton (March 14); Kimar (March 17-28); South Tatung Range (March); Durgu (May 20).

SOUTHEASTERN PLATEAU (N): Ra La (no date); Mo La (September 19); Lan-yipa (April 16); Gur La (September 6 or 7).

Specimens examined: 84, wing lengths as follows:

Western and southern Tibet, 17 ♂, 262-285 (273); 14 ♀, 251-265 (258).

Eastern Tibet, 22 ♂, 267-294 (278.5); 16 ♀, 255-278 (264).

Alectoris chukar

Chukar Partridge

Eremian.

NORTHERN PLATEAU (N): Northern Tibet, Tan-huang ho (June).

OUTER PLATEAU (N): Baltistan, Skardu (August 12-18); Shigar (August 20). Ladak, Khalatse (June 15); Dras (April 15 and 17, May 24); Lamayuru (August 23); Leh (July 1, September 4); Kharchar (June 26); Mulbekh (April 21 and 24); Durgu (May 23); Bod Kharbu (April 28); Kargil (April 19). Kimi (June 13); Hundar (September 10); Sakti (August 1); Gya (September 25); above Tikse (August 20); Khardung and Khardung La (September 12 and 13). Zaskar, Debring (June 25); Tetha (July); Sarle (September 23). Spiti, Dankhar Gompa (September 24); Lara (September 15). Western Tibet, Chabrang (October 1); Sonam (October 7).

Specimens examined: 48, wing length, 19 ♂, 166-182 (172.5); 9 ♀, 157-165 (160).

Other records: Reported as resident in northern Chang Tang by Kozlov (1899b), and in the Zaidam according to Kozlov (1899a).

Alectoris magna

Przhevalsky's Rock Partridge

Eremian.

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (February, April); Tsagaan Nor (May 17); Hatu Gol (beginning of August); Najji Gol (January); eastern Zaidam, no locality (February 22, April, May).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (May). Northeastern Tibet, Dobo (August 23, October 27, November 20); near Kum Bum (Sep-

tember). Amdo, Kuei-te (November 23); Goshub Gorge (May 12); near Ragya Gumpa (May 20 and 26).

Specimens examined: 45, wing length, 20 ♂, 173-191 (181); 17 ♀, 163-179 (170).

Perdix dauuricae

Daurian Partridge

Palaearctic (central Asia).

NORTHERN PLATEAU (N): Koko Nor (October). Zaidam, South Koko Nor Range (February and April); western Zaidam, no locality (February). Tshan Obotu River (January).

OUTER PLATEAU (N): Northeastern Tibet, Dobo (January 23, February 4, October 24, November 9-24, December 16). Amdo, Kuei-te (November 30).

Specimens examined: 33, wing length, 19 ♂, 144-158 (151.5); 13 ♀, 143-158 (149).

Perdix hodgsoniae

Tibetan Partridge

Sino-Himalayan (northern Szechwan and southern Kansu to Ladak).

NORTHERN PLATEAU (N): Koko Nor (April, July 27); near the east coast of the Koko Nor (July). Zaidam, South Koko Nor Range (February, April, October); Gurab Angir Gol (September).

OUTER PLATEAU (N): Ladak, Shagrot (September 25); Chushul (June 13, July 31); Pangong Tso (June 6-8); Tokung (June 17); Hankar (January 24); Taga Laung Valley (August 4); Nubra Valley (summer). Rupshu, between Tso Kyun and Hanle (July 13); near Tso Morari (no date); Da (July 13). Western Tibet, Ningri (September 17); Rudok (October); Sazi La (September 25). Southern Tibet, Gyangtse (January 19, February 1, 8, and 25, April 19, June 18, August 1 and 30, December 6); northern Chumbi Valley (June 2-4); Phari Dzong (May 18); Loroto (April 19); Dongkar (August 19); Khamba Dzong (August 29, October 1-7); Thang (November 7); near Tsona Dzong (August 11); Tre (October 16); Chesang La (August 17). Eastern Tibet, Tioungou (April 17); Dy Chu (Przhevalsky, June, July); south slope of Amne Machin Shan (January). Northeastern Tibet, Lao-hu-k'ou (November 19 and 28, December 4 and 24); between Wei-yuän-p'u and Lao-hu-k'ou (November 19); near Rangta Pass (January 23, September 18); Dsiling (January 20); Kimar (March 24, September 18 and 30); Myn-dan-scha (June 13 and 15); Tsan Chhu (July 24); Pei-ta-t'ung (October); Lassa (October 5); Lha Gorge (September). Amdo, near Ragya Gumpa (May 27).

SOUTHEASTERN PLATEAU (N): 40 miles north of the Tsangpo Valley (September 2); Dzeng (September 25 and 28); Kyikar (April 22); Derge (February

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11); Jyekundo (May 9, March 24); Dzogchen Gompa (September 4); Dokong (June 20); Dza Chu, Mekong Basin (November 17-23); Tsong La (June 19); Dza Chu, Yangtze Basin (beginning of September); Dze Chu (September); Banajun (end of April); Hi Chu, tributary of Dy Chu (August 1); Thounyo (April 30).

Specimens examined: 168, wing lengths as follows:

Western and southern Tibet, 33 ♂, 150-164 (157); 28 ♀, 146-161 (153.5).

Eastern Tibet, 24 ♂, 143-158 (149); 32 ♀, 138-155 (147).

Coturnix coturnix

Common Quail

Palaearctic (east to Lake Baikal and northern Outer Mongolia) and Ethiopian.

? Superspecies: *C. japonica*, eastern Palaearctic.

OUTER PLATEAU (M): Spiti, Kaja (September 13). Southern Tibet, Gyangtse (December 18).

SOUTHEASTERN PLATEAU (M): Tromda (October 24).

Specimens examined: 4.

Other records: Henderson collected a specimen at Qara Tagh Lake on September 24, 1870, Henderson and Hume (1873); recorded from northern Chang Tang by Kozlov (1899b); a sight record at Puga, Rupshu, on July 5, 1931, by Koelz is probably not valid.

Coturnix japonica

Japanese Quail

Eastern Palaearctic (Sakhalin and Japan west to Lake Baikal and northern Outer Mongolia).

? Superspecies: *C. coturnix*, western Palaearctic, *q.v.*

NORTHERN PLATEAU (N):

No specimens examined: Breeds around the Koko Nor, Przhevalsky (1877 in Rowley's Miscellany) states: "This bird is easily distinguished from the European one by its voice. We found it in S.E. Mongolia, Ordos, Kansu, and about Koko Nor, breeding." There is also a difference in plumage between the two species (Vaurie, 1965), and recent studies of sound tapes show a great difference in vocalizations.

Arborophila torqueola

Common Hill Partridge

Sino-Himalayan (western Szechwan to western Himalayas, south to Assam, Burma, northwestern Yunnan, and northwestern Tonkin).

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- 1 BLUE EARED PHEASANT *Crossoptilon auritum* p. 195
- 2 TIBETAN EARED PHEASANT *C. crossoptilon* p. 194
- 3 SATYR TRAGOPAN *Tragopan satyra* p. 193
- 4 BLOOD PHEASANT *Ithaginis cruentus* p. 193



SOUTHEASTERN PLATEAU (N): Tsakchugong (February 23); Gyadzong (January 25).

Specimens examined: 2.

Other records: Bailey (1915, p. 77) collected a young on July 6 at Trulung in Pome.

Ithaginis cruentus

Blood Pheasant

Sino-Himalayan (Nan Shan and southern Shensi to Nepal, south to north-eastern Burma and northwestern Yunnan).

OUTER PLATEAU (N): Southern Tibet, northern Chumbi Valley (May 28, July 25); Lepo (April 8); Me La (August 5). Northeastern Tibet, Chertenton (January, February 4-24).

SOUTHEASTERN PLATEAU (N): Tripe Valley (September 13); Bar Chu (beginning and end of October). Ngom Chu (November 9-12); Dza Chu, Mekong Basin (November 16-23); Dze Chu (November 14-19); Re Chu (January, November); Kumtatchio (May 7); Gartoh Gompa (February 7); Buho (February 23).

Specimens examined: 56, wing lengths as follows:

Southern Tibet, 5 ♂, 200-217 (209).

Southeastern Tibet, 10 ♂, 200-235 (220.5).

Northeastern Tibet, 16 ♂, 203-220 (212).

Tragopan satyra

Satyr Tragopan

Sino-Himalayan (southeast Tibet to Garhwal).

OUTER PLATEAU (N): Northern Chumbi Valley (June 24).

SOUTHEASTERN PLATEAU (N): Lo La (July 12).

Specimens examined: 3, the specimen from the Lo La is a nestling.

Tragopan temminckii

Temminck's Tragopan

Sino-Himalayan (southern Shensi to eastern Himalayas).

SOUTHEASTERN PLATEAU (N): Gyadzong (January 22 and 24); Trulung (February 24); Lo La (May 15); Laoting (March 9); confluence of the Po Tsangpo and Tsangpo (December 12).

Specimens examined: 7, wing length, 6 ♂, 242-268 (251).

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Lophophorus impejanus

Himalayan Monal Pheasant

Sino-Himalayan (southeast Tibet to northeastern Afghanistan).

OUTER PLATEAU (N): Rhododendron scrub at 13,000 feet, northern Chumbi Valley (June 3).

SOUTHEASTERN PLATEAU (N): Yigrong Tso (February 14); Trulung (February 24); Gyadzong (January 26).

Specimens examined: 4.

Lophophorus sclateri

Sclater's Monal Pheasant

Sino-Himalayan (southeast Tibet to eastern Himalayas, south to northern Burma and northwestern Yunnan).

SOUTHEASTERN PLATEAU (N): Lo La (May 14 and 15); Po Tsangpo (December 14); Trulung (February 20).

Specimens examined: 9, wing length, 5 ♂, 302–311 (305.5); 4 ♀, 283–302 (293.5).

Lophura leucomelana

Kalij Pheasant

Sino-Himalayan (southeast Tibet to western Himalayas, south to Burma and western Siam).

SOUTHEASTERN PLATEAU (N).

No specimens examined: Ludlow (1951) collected a specimen on January 10, 1946, at Trulung, and says it is common in Pome in the valley of the Po Tsangpo.

Crossoptilon crossoptilon

Tibetan Eared Pheasant

Sino-Himalayan (western Szechwan to southern Tibet, south to northwestern Yunnan).

OUTER PLATEAU (N): Southern and eastern Tibet, between the Sok Pass and Lhasa (no date); Reting Gumpa (January 4, April 2 and 3); "near" [north of] Lhasa (no date) and probably from Reting Forest; Shinggang (April 6 and 7); Gokar La (March 15); south of Lhasa (February 1); hills 25 miles south of Lhasa (January 17).

SOUTHEASTERN PLATEAU (N): Rocham Dzong (December 23); Mongotong (probably December); Showa (February 3 and 4); Yigrong Tso (February 6); Doja La (May 4); Dza Chu, Mekong Basin (November); Re Chu (January);

Chok Chu (beginning of September); Bar Chu (September); Banajun (April); Dze Chu (September 13); Yan-dze Gompa (March); Jyekundo (May 19); Lamdo (June 8); Camp 90 (May 16), "150 miles east of Lhasa", probably Tsangpo Valley near Nang Dzong or Kyimdong Dzong (no date); Kyimpu (October 7); Le La (May 9 and 10, October 1); Tse (December 16); Dzung (March 30); Gyala (July 8); Tsemachi (June 13); Chikchar Gompa (July 4).

Specimens examined: 58, wing length, white (*crossoptilon*) birds only, 14 ♂, 297-395 (331); 5 ♀, 290-302 (295); slaty blue (*harmani*) birds only, 17 ♂, 272-306 (292); 5 ♀, 265-282 (275).

Other records: Bailey (1915) reports *harmani* on the Putrang La in the Tsangpo Valley.

Taxonomy: Two main forms are included in this complex, a very white form (*crossoptilon*), and a dark slaty blue form (*harmani*), which is also much smaller than the white form. Ludlow (1951), who has had a very long experience in life with these two pheasants, recommends that *harmani* be given "full specific rank", but it is evident that they are not reproductively isolated, as there are many hybrids. I originally (1965) recognized "subspecies" with reservations, but after examining virtually all specimens in existence, and being more familiar with their distribution, I now believe that *harmani* and *crossoptilon* are border-line cases in speciation—a situation which is obscured by treating them as "subspecies".

Crossoptilon auritum

Blue Eared Pheasant

Sino-Himalayan (northwestern Szechwan, north to Ala Shan, west to eastern Tibet).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (January).

OUTER PLATEAU (N): Eastern Tibet, Yungi Chunak Ravine, Amne Machin Shan (January, February); Uguta Ula (April); Chasora River (April); upper Hwang ho (probably Chasora River or Ugutu Ula, April); Tsurumun Chu (May). Northeastern Tibet, Tatung ho (March, beginning of September); Chertenton (January 9, "February", and February 19-24); Desen-laka (January 22-31). Amdo, opposite Ragya Gompa (May 28); Serchen Gorge (May 15); mountains west of Jupar Valley (June 25).

Specimens examined: 48, wing length, 16 ♂, 282-312 (301.7); 19 ♀, 267-300 (283.2).

Phasianus colchicus

Common Pheasant

Amur Valley to Caucasus and delta of the Volga, south to Tonkin, also Formosa; but most probably Sino-Himalayan in origin; the range is continuous in the east, but is discontinuous in the west.

Superspecies: *P. versicolor*, Japan.

NORTHERN PLATEAU (N): Zaidam, Irgitsyk (April 24 and 25, beginning of May, August 17); no locality (January, February, September to November).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (April, May); Tsurumun Chu (May). Northeastern Tibet, Chertenton (January 10, "February", February 19 and 25, March); coniferous forest near Chertenton (January 29, February 25); Yarlin Gol (January); near Lao-hu-k'ou (November 22); between Wei-yuän-p'u and Lao-hu-k'ou (November 19); Dangkar (September 7); Dangkar ho (September 26); Hsi-ning (October 3); near Hsi-ning (March); valley of the Tatung ho (May 12); Kuo-mang Ssu (May 18, 19); San-dzhu-chin (May 16). Amdo, Kuei-te (July 8, October 9-29, November 27-29, December 8-14).

Specimens examined: 88, wing lengths as follows:

Zaidam only, 27 ♂, 228-248 (239); 7 ♀, 210-230 (215).

Eastern Tibet, 33 ♂, 222-252 (238); 10 ♀, 203-222 (212.5).

Other records: This species was reported and collected by Bailey (1913, 1945) west to about 98° 40' west of the Yangtze; it is reported also from the region of Labrang.

Chrysolophus amherstiae

Lady Amherst's Pheasant

Sino-Himalayan (western Szechwan to southeastern Tibet, south to the Shan States and northwestern Yunnan).

SOUTHEASTERN PLATEAU (probably, and probably N).

Specimens examined: 2, "Tibet", no locality or date.

Order GRUIFORMES

Family GRUIDAE

Grus grus

Crane

Palaearctic.

NORTHERN PLATEAU (M).

No specimens examined: Kozlov (1899a) says that this species is very abundant on migration in the Zaidam starting from March 2, and Przhevalsky says it is an abundant migrant in northern Tibet also.

Grus nigricollis

Black-necked Crane

Tibetan (endemic).

NORTHERN PLATEAU (N): Koko Nor (September). Zaidam, Kurlyk Nor (October); south of the Kurlyk Nor (August); Bayan Gol (May); between the Nomokon Gol and the springs of Dzag (September); between Dzag and Ghaz (October); Baruun (May).

OUTER PLATEAU (N): Ladak, Chushul (July 25). Rupshu, Tso Kar (August 18). Southern Tibet, Bam Tso (May 4); Gyangtse (January 16, March 24 and 27, April 13); Dongtse (December 30); Lhasa (March 15, September 3); Kalashar (September 9). Eastern Tibet: Tsatang (April 6); upper Hwang ho (March).

SOUTHEASTERN PLATEAU (N): Hi Chu, Yangtze Basin (beginning of August); Rkhombo-mtso (probably August); Drechu Gompa (April 18).

Specimens examined: 30, wing length (tape measurements over the wing), 12 ♂, 610–690 (645); 13 ♀, 580–645 (615).

Other records: Breeds in northern Chang Tang, and also western Tibet.

Grus leucogeranus

Siberian White Crane

Northern Palaearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (irregular M).

No specimens examined: Przhevalsky (Craemers' translation 1877–1878) says it is a migrant at the Koko Nor; Hume (1868) shot an individual in Ladak at Leh in October 1851.

Anthropoides virgo

Demoiselle Crane

Eremian.

NORTHERN PLATEAU (M): Northern Tibet (October, "abundant migrant"). Zaidam, southern Zaidam (September).

OUTER PLATEAU (M).

Specimens examined: 2.

Other records: Ludlow (1928) says it was collected at Gyangtse in 1906 and 1908.

Family RALLIDAE

Rallus aquaticus

Water Rail

Palaearctic, discontinuous distribution.

NORTHERN PLATEAU (M): Zaidam, Ghaz (November); Najji Gol (January); southern Zaidam (April, October).

OUTER PLATEAU (M): Northeastern Tibet, probably from Kung-ho-ku-chih (October). Amdo, Kuei-te (January 3 and 9).

Specimens examined: 9.

Other records: Recorded as a migrant in northern Chang Tang between August 23 and September 1 by Kozlov (1899b).

Porzana porzana

Spotted Crane

Western Palaearctic (west to Lake Baikal).

NORTHERN PLATEAU (M).

No specimens examined: One specimen was collected by Henderson on September 24, 1870, at Lake Qara Tagh, Henderson and Hume (1873).

Porzana pusilla

Baillon's Crane

Palaearctic, Ethiopian, and Australian.

NORTHERN PLATEAU (N): Chang Tang, near the Ulugh Kul (September 22). Zaidam, Yamatiin (August); Gurab Angir Gol (August).

OUTER PLATEAU (N): Spiti, Lori (September 29); Rangring (September 10).
Northeastern Tibet, Kung-ho-ku-chih (May); Dobo (September 8).

Specimens examined: 7.

Other records: Collected by Henderson near Shakhidulla in 1870.

Crex crex

Corncrake

Western and central Palearctic.

OUTER PLATEAU (M or E): Ladak, Camp 47 (September 18) [at or near the Kisu La].

Specimen examined: 1. I am indebted to Dr G. Diesselhorst of the Munich Museum for the privilege of examining this specimen which was taken by Zugmayer in 1906 and is the only record of this species for Tibet.

Gallinula chloropus

Moorhen

Cosmopolitan with the exception of the Australian region.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Spiti, Rangring (September 10); Shichiling (September 24 and 25). Southern Tibet, Gyangtse (October 10); Shigatse (April 27); Lhasa (August 16 and 31). Northeastern Tibet, Kung-ho-ku-chih (May).

Specimens examined: 10.

Other records: This species breeds also at the Koko Nor according to Przhevalsky.

Fulica atra

Coot

Palearctic, Oriental, and Australian.

NORTHERN PLATEAU (N): Zaidam, Bayan Gol (May); no locality (April).

OUTER PLATEAU (N): Ladak, no data. Northeastern Tibet, Kung-ho-ku-chih (May); Dobo (October 22).

Specimens examined: 5.

Other records: Reported from the Indus in Ladak; Tso Kyun in Rupshu in July; from Kala in southern Tibet; and from the northern Chang Tang.

Family TURNICIDAE

Turnix tanki
Yellow-legged Button Quail

Eastern Palearctic from Manchuria and Ussuriland south to India, Andamans, and Nicobars.

SOUTHEASTERN PLATEAU (M or E): Charme (September 28).

Specimen examined: 1.

Order CHARADRIIFORMES

Family ROSTRATULIDAE

Rostratula benghalensis
Painted Snipe

Eastern Palearctic, Oriental, Ethiopian, and Australian.

OUTER PLATEAU (E).

No specimens examined: Wollaston (1922) observed this species at close range in 1921 in the Kharta Valley, at an elevation of 17,000 feet, north of Mount Everest, southern Tibet.

Family HAEMATOPODIDAE

Haematopus ostralegus
Oystercatcher

Discontinuously Palearctic.

Superspecies, but allospecies uncertain.

OUTER PLATEAU (E).

No specimens examined: Ludlow (unpublished field notes) says that "I saw to my surprise, an Oystercatcher at Rugong on 6 September [1932]," western Tibet; this record is mentioned by Ali (1946).

Family CHARADRIIDAE

Subfamily CHARADRIINAE**Charadrius hiaticula**

Ringed Plover

Northern Palearctic, also eastern Ellesmere and Baffin islands.

OUTER PLATEAU (M OR E): Ladak, Rupshu, Tso Kar (September 30).

Specimen examined: 1.

Charadrius dubius

Little Ringed Plover

Palearctic, Oriental, and Australian.

NORTHERN PLATEAU (N): Northern Tibet, Shara Gol (June); Da Chuan, Shara Gol (May). Zaidam, South Koko Nor Range (April); no locality (May).

OUTER PLATEAU (N): Ladak, Deshkit (September 11). Northeastern Tibet, Kung-ho-ku-chih (May); Dobo (May 23, July 23, September 2); Lao-hu-k'ou (May 10); Hsin-ch'eng (May 9 and 12, June 4).

Specimens examined: 16.

Other records: Reported from the Kara Kash Valley at the end of August in small flocks, probably migrating; recorded from northern Chang Tang by Kozlov (1899b) on migration during September.

Charadrius placidus

Long-billed Ringed Plover

Eastern Palearctic (Amur Valley and Japan south to Szechwan and northern Fukien).

NORTHERN PLATEAU (M OR N).

SOUTHEASTERN PLATEAU (N): Temo Gomba (September 13); Tamnyen (June 24); Yigrong Tso (February 4).

Specimens examined: 4.

Other records: Collected on the south coast of the Koko Nor on August 17, 1898, by Holderer, according to Schalow (1901, p. 407); this record has been questioned but I think it is probably valid.

Charadrius alexandrinus

Kentish Plover

Cosmopolitan.

NORTHERN PLATEAU (N): Northern Tibet, upper Tan-huang ho (April), Koko Nor (March, June 18 and 19, July 28, August, September). Zaidam, Syrtyu Plain (August); Gurab Angir Gol (September); no locality (April, August, September).

OUTER PLATEAU (N): Ladak, Rupshu, Tso Kar (September 30).

Specimens examined: 25, wing length, 13 ♂, 109–117 (114); 8 ♀, 107–115 (111).

Other records: Recorded as a migrant from northern Chang Tang during September by Kozlov (1899b).

Charadrius mongolus

Mongolian Plover

High Central Asia.

NORTHERN PLATEAU (N): Chang Tang, Kum Bulak (June 17); Dashi Köl (June); Horpa Tso (July 24). Northern Tibet, upper Shara Gol (June); Ulaan Bulaq (June). Koko Nor (June 19 and 20). Dabassun Gobi (April). Zaidam, Khara Nor (June 29).

OUTER PLATEAU (N): Ladak, Phobrang (May 27, July 12); upper Puga Valley (September 10); Nyoma Rap (July 29); Gogra (July 19 and 21); Zuido (June 30); Chushul (June 12); Pangong Tso (June 7 and 8). Zaskar, Padam (July 19); Seni Gompa (July 20). Rupshu, Rogchin (August 16); Tso Kar (August 17). Western Tibet, Rakas Tal (August 2); Jerko La (September 18). Southern Tibet, Kala Tso (July 9); Bam Tso (June 1); Tingri Dzong (June 23); Serpo La (June 17). Eastern Tibet, Oring Nor (June); sources of Hwang ho (June 13); Camp 104 (June 13). Northeastern Tibet, Bognu Khoza (May 10); Dobo (May 18–23); near Hai-yen (June 21).

Specimens examined: 116, wing length, 51 ♂, 124–138 (129.5); 26 ♀, 121–135 (129).

Other records: Recorded also from Spiti by Koelz.

Charadrius leschenaultii

Geoffrey's Plover

Eremian.

NORTHERN PLATEAU (M): Koko Nor (September 4).

OUTER PLATEAU (M): Ladak, Pituk (August 5 and 21).

Specimens examined: 3.

Other records: Recorded from Tso Kyun, Rupshu, on July 11, by Koelz.

Pluvialis dominica
Asiatic Golden Plover

Holarctic (Circumpolar).

NORTHERN PLATEAU (M): Koko Nor (September 19). Zaidam, Syrtyn Plain (August); eastern Zaidam (August); southern Zaidam (September, October).

OUTER PLATEAU (M): Ladak, She (August). Rupshu, Tso Kar (September 30–October 1). Western Tibet, Tolingmath (September 30). Southern Tibet, Gyangtse (August 25 and 31, September 7, “arrives in flocks during the last week in August”); Lhasa (September 13); Bam Tso (September 29). Eastern Tibet, Camp 108 (June 18). Northeastern Tibet, Dobo (September 1 and 6).

SOUTHEASTERN PLATEAU (M): Shoka (September 29).

Specimens examined: 31, wing length, 11 ♂, 159–170 (164); 12 ♀, 157–168 (161).

Pluvialis squatarola
Grey Plover

Holarctic (Circumpolar).

NORTHERN PLATEAU (M).

No specimens examined: Recorded as a migrant from northern Chang Tang by Kozlov (1899b) between October 2 and 13, and also from the Zaidam by Kozlov (1899a).

Vanellus vanellus
Lapwing

Palaearctic.

NORTHERN PLATEAU (N): South Zaidam (October), and no locality (September).

OUTER PLATEAU (M): Ladak, no data. Southern Tibet, Gyangtse (November 29). Northeastern Tibet, Dobo (March 13 and 14).

Specimens examined: 6.

Other records: This species breeds at the Koko Nor according to Przhevalsky and Beick, and was seen at Lhasa in the spring by Ludlow (1950).

Arenaria interpres
Turnstone

Holarctic.

NORTHERN PLATEAU (M): Chang Tang, Yeshil Köl (August). Zaidam, Khara Nor (August).

OUTER PLATEAU (M): Southern Tibet, Kalashar (September 6).

Specimens examined: 4.

Other records: Has been collected in the Nubra Valley, Ladak, by the

TIBET AND ITS BIRDS

Second Yarkand Mission; also at Wei-yuän-p'u, northeastern Tibet, on August 22, by Licent.

Subfamily SCOLOPACINAE

Calidris minuta

Little Stint

Northern Palearctic.

OUTER PLATEAU (M): Ladak, Pituk (August 4 and 5). Zaskar, Ringdom Gompa (September 11).

Specimens examined: 3.

Calidris ruficollis

Red-necked Stint

Northeastern Palearctic.

OUTER PLATEAU (M): Northeastern Tibet, Dobo (September 7).

Specimen examined: 1.

Calidris subminuta

Long-toed Stint

Northeastern Palearctic.

OUTER PLATEAU (M): Eastern Tibet, upper Hwang ho (May). Northeastern Tibet, near Dobo (May 21).

Specimens examined: 5.

Calidris temminckii

Temminck's Stint

Northern Palearctic.

NORTHERN PLATEAU (N): Northwestern Chang Tang, Kushku Maidan (September 8 and 9). Koko Nor (September); southeast of the Koko Nor (September 2 and 5). Zaidam, Syrty Plain (August); Gurab Angir Gol (August); Yamatiin (July); no locality (April, August, September).

OUTER PLATEAU (M): Baltistan, Skardu (August 16); Shigar Nulla (August 23); Chalunka (September 2). Ladak, Lungnak Lunga River (August 21 and 22); Gogra (July 18); Leh (May 10, July); Deshkit (September 11); Panamik (August 14); Taga Laung Valley (August 30); Nichungi Valley (September 6); Mulbekh (September 1); Khardung (September 12). Zaskar, Ringdom Gompa (September 11); Bok (September 14); Kurgiakh (September 29). Rupshu, Tso Kar (August 18, October 1). Spiti, Shichiling (September 24); Tabo (September 28); Mani (September 22); Shelgo (September 12); Rangring (September 10). Western Tibet, Taklakot (September 5). Southern

Tibet, Gyangtse (May 12); east of Mount Everest (September 15 and 21).
Northeastern Tibet, Bognu Khoza (May 10); Dobo (April 24, September 2);
near Dobo (May 21); Hsin-ch'eng (May 11).

SOUTHEASTERN PLATEAU (M): Drechu Gompa (April 18); Dza Chu, Yangtze
Basin (May 15).

Specimens examined: 63, wing length, 18 ♂, 94-101 (98); 19 ♀, 94-100 (97).

Calidris acuminata
Sharp-tailed Sandpiper

Northeastern Palearctic.

NORTHERN PLATEAU (M).

No specimens examined: Recorded from northern Chang Tang as a
migrant by Kozlov (1899b) between October 2 and 13.

Calidris alpina
Dunlin

Holarctic.

NORTHERN PLATEAU (M): Zaidam, Ghaz (November).

Specimen examined: 1.

Calidris ferruginea
Curlew Sandpiper

Northeastern Palearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Ladak, Deshkit (September 10 and 11). Rupshu,
Tsakjung Tso (July 22).

Specimens examined: 3.

Other records: Recorded as a migrant from northern Chang Tang; upper
Kara Kash Valley; and Kala Tso, southern Tibet, in May.

Calidris canutus
Knot

Holarctic.

NORTHERN PLATEAU (M).

No specimens examined: One bird in juvenal plumage was collected on the
shores of the Koko Nor by Kozlov on September 14, according to Bianki
(1916); it is also reported on spring migration at the Zaidam on March 29 by
Kozlov (1899a), and at the Koko Nor by Przhevalsky on April 3 and between
October 22 and November 1.

Philomachus pugnax
Ruff

Palaearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Ladak, Pituk (September 21); Deshkit (September 11), Rupshu (September 30). Spiti, Shelgo (September 13). Southern Tibet, Gyangtse (September 4, "just appeared" in small flocks, and September 28); Dochen (September 18); Lhasa (September 20).

Specimens examined: 10.

Other record: Reported on migration in the northern Chang Tang in the autumn between August 23 and September 1 by Kozlov (1899b).

Tringa erythropus
Spotted Redshank

Palaearctic.

OUTER PLATEAU (M): Southern Tibet, Tingri Dzong (June 17).

Specimen examined: 1.

Tringa totanus
Redshank

Palaearctic.

NORTHERN PLATEAU (N): Chang Tang at 34° 20' × 82° 06' (July 30). Koko Nor (March, April, September 14). Eastern Zaidam (April, August 16).

OUTER PLATEAU (N): Ladak, Changtash Lake (August 7); Chushul (June 10); Puga (June 21). Zaskar, Ringdom Gompa (September 11). Rupshu, Tso Kar (September 29 and 30, October 1). Southern Tibet, Gyangtse (April 4, July 6); Khamba Dzong (September 14); Lhasa (August 18 and 21); Kalashar (May 21); Tingri Dzong (June 24). Eastern Tibet, Camp 103 (June 13); Camp 104 (June 13). Northeastern Tibet, Lao-hu-k'ou (May 7); Hsin-ch'eng (June 3). Amdo, Saog Rongwo, Ba Chu (July); Tshe Chu (May 10).

SOUTHEASTERN PLATEAU (N): Jyekundo (June 1); Drechu Gompa (July 27); Camp 137 at Yalung River (August 12); Dza Chu, Yangtze Basin (May).

Specimens examined: 61, wing length, 15 ♂, 154-167 (160.5); 16 ♀, 152-165 (159).

Other records: Reported from Baltistan; and breeds on lakes of western Tibet.

Tringa nebularia
Greenshank

Palaearctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (M and ?N): Baltistan, Surmo (August 28). Ladak, Lungnak

Lunga River (August 23); Deshkit (September 11); Pituk (August 22); Leh (August 31). Spiti, Rangring (September 10); Shelgo (September 12). Southern Tibet, Gyangtse (February 11, August 9, October 17). Northeastern Tibet, Dobo (September 1).

Specimens examined: 12.

Other records: Recorded as breeding in northern Chang Tang by Kozlov (1899b). Ludlow (1928) believes this species breeds perhaps also in southern Tibet.

Tringa ochropus

Green Sandpiper

Palaearctic.

NORTHERN PLATEAU (M): Chang Tang, 33° 09' × 82° 50' (August 28). Zaidam, Burchan Buddha Range (August).

OUTER PLATEAU (M): Baltistan, Skardu (August 15). Ladak, Leh (September 10); Panamik (July 1 and 19); Spanpuk (September 9). Zaskar, Ringdom Gompa (September); Kurgiakh (September). Spiti, Po (September 27); Kibar (September 8); Losar (September 3). Southern Tibet, Gyangtse (February 11, March 19, December 30). Northeastern Tibet, Dobo (January 16 and 17, September 2); Lao-hu-k'ou (April 25); Yung-an-ch'eng (May 11).

SOUTHEASTERN PLATEAU (M): Tripe (July 20); Ba Chu (August); Camp 135 (September 7); Chorden Gompa (September 10).

Specimens examined: 31, wing length, 6 ♂, 137-143 (140.5); 10 ♀, 142-153 (146).

Other records: Observed at Jiu Gompa, western Tibet, by Ludlow (unpublished field notes), who also says (1950) that this species is present all the year at Lhasa.

Tringa glareola

Wood Sandpiper

Palaearctic.

NORTHERN PLATEAU (M): Chang Tang, Yeshil Köl (July). Kushku Maidan (September 8). Zaidam, Yamatiin (July).

OUTER PLATEAU (M): Leh (May 7 and 14); Ankir Shah (August 11); Spanpuk (September 8); Pituk (August 5, September 21); Deshkit (September 11). Rupshu, Tso Kar (September 29). Zaskar, Gulmatungo (July 25). Spiti, Kibar (September 7 and 8); Rangring (September 7); Shelgo (September 13); Mani (September 22). Northeastern Tibet, Dobo (September 2, 6, and 17); Lao-hu-k'ou (May 10).

Specimens examined: 24+, wing length, 10 ♂, 120-130 (124).

Tringa incana
Wandering Tattler

Holarctic.

NORTHERN PLATEAU (M).

No specimens examined: Bianki (1916) reports that Kozlov collected this species on September 23, 1908, on the shores of the Koko Nor.

Tringa hypoleucos
Common Sandpiper

Palaearctic.

Superspecies: *T. macularia*.

NORTHERN PLATEAU (M and ?N): Chang Tang, Yeshil Köl (August). Kushku Maidan (September 8). Koko Nor (September). Zaidam, Hatu Gol (July, August 1).

OUTER PLATEAU (M and N): Baltistan, Skardu (August 15). Rupshu, Tso Kar (August 18). Spiti, Rangring (September 10). Northeastern Tibet, Dobo (May 21, September 8); Lao-hu-k'ou (May 9).

SOUTHEASTERN PLATEAU (M and N): Lusha (July 29); Yigrong Tso (February 4 and 6, August 25); Jyekundo (May 10); Camp 135 (August 7).

Specimens examined: 17, wing length, 7 ♂, 107-112 (109.5); 7 ♀, 107-114 (111).

Other records: Scully (1876) collected a young at Gulgun Shah, in the Kara Kash Valley, on August 30, and saw this species daily along the river where he believes it breeds; Osmaston (1926) found a nest near Matayan, Ladak, on June 30.

Xenus cinereus
Terek Sandpiper

Palaearctic.

NORTHERN PLATEAU (probably N): Zaidam, Khara Nor (August).

OUTER PLATEAU (probably N): Ladak, Pituk (August 24). Southern Tibet, Gyangtse (May 9).

Specimens examined: 3.

Other records: Recorded as a migrant from northern Chang Tang by Kozlov.

Limosa limosa
Black-tailed Godwit

Palaearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Rupshu, Tso Kar (September 30).

Specimen examined: 1.

Other records: Ludlow (1928) says that Colonel Bailey collected this species at Gyangtse in May 1908; and H. R. Richardson says he saw it on the Bam Tso. It is recorded also from northern Chang Tang, and as a migrant from the Zaidam. Reported also by Przhevalsky on April 3 at the Koko Nor.

Numenius arquata

Common Curlew

Palaearctic.

NORTHERN PLATEAU (M), and OUTER PLATEAU (M).

No specimens examined: This species is recorded from northern Chang Tang on migration in the autumn between August 23 and September 1 by Kozlov (1899b), and on spring migration in the Zaidam on April 1 by Kozlov (1899a). It was seen by Koelz (1940) on the Indus on August 21 at Pituk, and by Ludlow (unpublished field notes) near Rugong, western Tibet, on September 6.

Numenius madagascariensis¹

Far Eastern Curlew

Northeastern Palaearctic.

NORTHERN PLATEAU (probably M).

No specimens examined: Przhevalsky (Craemers' translation 1877-1878) says: "We noticed the arrival of the first migrants at Koko-nor on the 15th of March [March 27] and at the end of that month numerous flocks of about fifteen or twenty five were seen there: whether they stopped to breed or not, I am unable to state."

Numenius phaeopus

Whimbrel

Discontinuously Holarctic.

OUTER PLATEAU (M): Southern Tibet, Gyangtse (September 24).

Specimen examined: 1.

Other records: Seen on the Indus in Ladak on August 21.

Scolopax rusticola

Eurasian Woodcock

Palaearctic.

SOUTHEASTERN PLATEAU (N): Tangme (February 9); Kongtsuka (June 5).

Specimens examined: 2.

Other records: Seen at Lhasa on May 22 by Ludlow.

¹ It is possible that this species was misidentified by Przhevalsky and that the record refers to *Numenius arquata* instead.

Gallinago gallinago

Common Snipe

Holarctic.

NORTHERN PLATEAU (M): Koko Nor (September). Zaidam, no locality (August); southern Zaidam (October).

OUTER PLATEAU (M): Ladak, Pituk (September 21). Rupshu, Tso Kar (September 30–October 1). Southern Tibet, Gyantse (September 7, October 16). Northeastern Tibet, Dobo (April 6); Hsi-ning ho near Dobo (April 11 and 21); Hsin-ch'eng (May 11).

Specimens examined: 14.

Other records: Reported as a migrant from the northern Chang Tang in the autumn between September 1 and 13 by Kozlov (1899b); and also from Lhasa during the autumn by Ludlow (1950). Reported on spring migration at the Koko Nor on April 4 by Przhevalsky.

Gallinago stenura

Pintail Snipe

Paleartic.

NORTHERN PLATEAU (M): Zaidam, Yamatiin (August); no locality (August).

OUTER PLATEAU (M): Ladak, Leh (August 31); Tiggur (September 14). Rupshu, Tso Kar (August 18, October 1). Spiti, Rangring (September 10). Southern Tibet, Gyantse (August 5 and 9); Lhasa (September 3).

SOUTHEASTERN PLATEAU (M): Drukla Gompa (August 19); Sur La (August 20).

Specimens examined: 21, wing length, 11 ♂, 128–134 (131); 6 ♀, 128–135 (132.5).

Other records: Reported as a migrant from the northern Chang Tang in the autumn between September 1 and 13 by Kozlov (1899b).

Gallinago megala

Swinhoe's Snipe

Central and eastern Palearctic.

SOUTHEASTERN PLATEAU (M?).

No specimens examined: Bianki (1907) says it is regular in southeastern Tibet.

Gallinago solitaria

Solitary Snipe

Palaearctic (high central Asia).

NORTHERN PLATEAU (M): Koko Nor (March). Zaidam, Naiji Gol (January); no locality (October); Atkan Su, Hoting Zan River (January); Jagharu Gol (March); South Koko Nor Range (April).

OUTER PLATEAU (N): Ladak, Dras (April 17); Mulbekh (April 25). Southern Tibet, Gyangtse (January 20 and 21, February 5, December 23); Lhasa (January 16); Khamba Dzong (November 6 and 28); upper Chumbi Valley (April 4 and 21, June 24). Eastern Tibet, Chasora River (April); upper Hwang ho (no date, but probably April). Northeastern Tibet, Chertenton (March 15); Rangta Gol near Chertenton (March 6); Rangta Gol near Desen-laka (February 28); Dobo (April 7). Amdo, Ranen-Zhyatson (January 19); Kuei-te (December 14); Nimala Chu (January 29).

SOUTHEASTERN PLATEAU (N): Den Chu (April 30); Re Chu (first half of January); Getze Gompa (March 15); Camp 54 (February 18); Sacha Sumdo (May 6); Jyekundo (April 1).

Specimens examined: 46, wing length, 29 ♂, 157-170 (163.5); 9 ♀, 161-169 (165).

Gallinago nemoricola

Wood Snipe

Sino-Himalayan (southeastern Tibet to western Himalayas).

SOUTHEASTERN PLATEAU (N): Namphu La (September 1).

Specimen examined: 1.

Subfamily RECURVIROSTRAE**Himantopus himantopus**

Black-winged Stilt

Cosmopolitan.

NORTHERN PLATEAU (N): Koko Nor (September 10). Zaidam (May 19).

OUTER PLATEAU (M).

Specimens examined: 2.

Other records: Reported on migration in the autumn in northern Chang Tang between September 1 and 13 by Kozlov (1899b); also on September 18 from the marshes at the foot of the Jerko La, western Tibet, and from the Tso Kar in Rupshu in August, and also from the Bam Tso in southern Tibet.

TIBET AND ITS BIRDS

Recurvirostra avosetta

Avocet

Eremian, also local in eastern and south Africa.

NORTHERN PLATEAU (N): Zaidam, Ihe Tsaydam Nor (June); southern Zaidam, no locality (October).

OUTER PLATEAU (M).

Specimens examined: 3.

Other records: Koko Nor, and seen at Bam Tso, southern Tibet.

Ibidorhyncha struthersii

Ibis-bill

Sino-Himalayan (Szechwan, east to southwestern Manchuria, west to the Pamirs and Tian Shan).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April); Dulaan Gol (May); Bayan (March). Near Tosso Nor (end of February or early March).

OUTER PLATEAU (N): Baltistan, Skardu (August 15 and 16). Ladak, Pituk (September 21); She (September 22). Zaskar, Yojjok (July 26). Spiti, Rangring (September 11); Mikin (September 20). Southern Tibet, Gyangtse (June 22, December 30); Gotsa (January 16); upper Chumbi Valley (June 28, July 17). Eastern Tibet, Chasora River (May); upper Hwang ho (end of April). Northeastern Tibet, Ta-t'ung (August 24); Kuo-mang Ssu (May 17); Hsin-ch'eng (May 22); Dobo (March 13); Hsi-ning ho near Dobo (May 23); Desen-laka (March 13); Hua-lung (December). Amdo, Mujik ho (August 24).

SOUTHEASTERN PLATEAU (N): Derge (February 11); Camp 135 (August 8).

Specimens examined: 50, wing length, 15 ♂, 228-245 (237); 11 ♀, 225-250 (237.5).

Other records: Ludlow (1950) says it breeds on the Kyi Chu near Lhasa.

Subfamily PHALAROPODINAE

Phalaropus lobatus

Red-necked Phalarope

Holarctic (Circumpolar).

NORTHERN PLATEAU (M): Koko Nor (September 2 and 8).

OUTER PLATEAU (M).

SOUTHEASTERN PLATEAU (M): Tsela Dzong (May 30).

Specimens examined: 3.

Other records: Seen on the Kala Tso, southern Tibet, on May 13.

Family GLAREOLIDAE

Glareola maldivarum
Eastern Collared Pratincole

Eastern Palearctic, Oriental, and Philippines.

OUTER PLATEAU (M).

No specimens examined: Observed on the Hsi-ning ho on April 21 and 28 by Beick.

Family LARIDAE

Subfamily LARINAE**Larus ichthyaetus**
Great Black-headed Gull

Eremitian (in central Palearctic).

NORTHERN PLATEAU (N): Koko Nor (March, April, August 8, September 3).

OUTER PLATEAU (M): Upper Hwang ho (March).

Specimens examined: 8.

Other records: Occurs in autumn and winter on the Kyi Chu near Lhasa.

Larus minutus
Little Gull

Discontinuously Palearctic (has bred also on Lake Ontario in Canada).

OUTER PLATEAU (M): Ladak, Pituk (September 21).

Specimen examined: 1.

Larus ridibundus
Black-headed Gull

Palearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (M): Ladak, Pituk (August 24).

Specimen examined: 1.

Other records: Recorded as a migrant in the Zaidam on March 5 by Kozlov (1899a).

Larus brunnicephalus
Brown-headed Gull

Sino-Himalayan (eastern Tibet to the Pamirs).

NORTHERN PLATEAU (N): Koko Nor (April, July, September, October). Alak Norin Gol (June 12).

OUTER PLATEAU (N): Ladak, Chushul (June 12); Tangtse (May 24); Indus River, 6 miles above Leh (May 17); Phobrang (May 27); Merak, Lake Pangong (July 27); Chakar Talao (June 29); upper Puga Valley (September 10). Rupshu, Tso Kar (June 29 and 30, July 1, August 17 and 18, September 30, October 1). Southern Tibet, Gyangtse (May 11); Kalashar (May 9, September 9); Bam Tso (November 27). Eastern Tibet, Djauconang (April 8).

SOUTHEASTERN PLATEAU (N): Yangtze-Mekong Divide (May 16).

Specimens examined: 45, wing length, 18 ♂, 325-354 (341.7); 11 ♀, 315-337 (327).

Other records: Breeds on the lakes of western Tibet, according to Ali (1946); occurs on the Kyi Chu near Lhasa in autumn and winter.

Subfamily STERNINAE

Chlidonias niger
Black Tern

Holarctic.

NORTHERN PLATEAU (N).

No specimens examined: Przhhevsky reports that this species breeds in the Zaidam at Zaidamin Nor; it is reported also by Kozlov (1899a) from the Türgenii Nor, eastern Zaidam, on May 22.

Chlidonias hybrida
Whiskered Tern

Palaearctic (discontinuous), Oriental, Ethiopian, and Australian.

OUTER PLATEAU (M): Ladak, She (September 22); Deshkit (September 10). Rupshu, Tso Kar (October 1). Spiti, Lithang (September 17).

Specimens examined: 4.

Sterna hirundo
Common Tern

Holarctic (with isolated colonies off Venezuela and west Africa).

NORTHERN PLATEAU (N): Chang Tang, Horpa Tso (July 4). Koko Nor (June 19, July). Zaidam (April and August); Gurab Angir Gol (August); Syrtyn Plain (August).

OUTER PLATEAU (N): Baltistan, Skardu (August 14–16). Ladak, lower Puga Valley (September 9); Puga (June 21); Chushul (June 12); Deshkit (September 11); Hanle (July 14); She (August 25); Pituk (August 21). Rupshu, Juntum (July 16); Tso Kar (June 29 and 30). Zaskar, Seni Gompa (July 19). Southern Tibet, Gyantse (May 3 and 19); Tingri Dzong (June 24); Khamba Dzong (September 7); Kalashar (May 10, 20, and 21). Eastern Tibet, Camp 103 (June 13). Northeastern Tibet, Kung-ho-ku-chih (May); Dangkar (August 18); Tatung River (May 13); Dobo (September 6); Hsin-ch'eng (June 4). Amdo, Amne Garding (July 28); Tshe Chu (May 10).

SOUTHEASTERN PLATEAU (N): Ju Gompa (August 20); Dza Chu, Yangtze Basin (May 13–16); Tsela Dzong (May 30).

Specimens examined: 74, wing length, 28 ♂, 262–285 (275); 20 ♀, 268–292 (279).

Other records: Reported from Lhasa by Ludlow where it breeds; probably breeds also on the lakes of western Tibet, according to Ali (1946).

Order COLUMBIFORMES

Family PTEROCLIDAE

Syrrhaptes paradoxus

Pallas' Sandgrouse

Eremian (central Asia).

NORTHERN PLATEAU (N): Northern Chang Tang, Zaisan Saitu River (September). Zaidam, no locality (August).

Specimens examined: 6.

Syrrhaptes tibetanus

Tibetan Sandgrouse

Eremian (high central Asia).

NORTHERN PLATEAU (N): Chang Tang, Horpa Tso (July 24); Arka Tagh (August); Kizil Kaktıy (September); Dashi Köi (June). Karakoram (June 16). Tengri Nor (February). Ta-hsüeh Shan (end of June). Koko Nor (February, March, April, October). Zaidam, Khara Nor (March 15). Egrai Gol, near Tosso Nor (March, December).

OUTER PLATEAU (N): Ladak, Dopsang Plains (July 30); Leh (December); Chagra (September 21). Rupshu, Clumo Tso (October 5); Tso Morari (June 17); Tso Kar (August 18, September 28–30, October 1); Tso Kyun (June 11);

TIBET AND ITS BIRDS

Shingdat (June 19). Western Tibet, near Mount Kailas (September 14). Southern Tibet, Gyangtse (January 8); above Gyangtse (May 14); Khamba Dzong (October 1); Chera (November 8).

SOUTHEASTERN PLATEAU (N): Sherug Gompa (March 21); Drechu Gompa (April 18).

Specimens examined: 102, wing length, 61 ♂, 240–276 (256.8); 31 ♀, 240–266 (253).

Family COLUMBIDAE

Columba eversmanni

Eastern Stock Dove

Eremian (central Asia).

OUTER PLATEAU (N?).

No specimens examined: Henderson, in Henderson and Hume (1873, p. 271), states: "A single specimen, a male, and possibly a young bird was shot on the 8th of October [1870] at Chagra above the Pangong Lake, at an elevation of 16,000 feet."

Columba leuconota

Snow Pigeon

Sino-Himalayan (northern Szechwan, to northeastern Afghanistan, and the Tian Shan in Russian Turkestan).

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Baltistan, Braldu Valley (December 23). Ladak, Umlung (July 25). Zaskar, Lakong (July 11, October 1); Kurgiakh (July 11). Spiti, Shidang (September 21). Southern Tibet, Chumbi Valley near Phari Dzong (October 20); Phari Dzong (April 6); Kharta (August 12). Eastern Tibet, Ugutu Ula (April); Mzushu Rg'mchon (January). Northeastern Tibet, La-chi Shan-k'ou (July 2); Kimar (April 4); Chertenton (March 1). Amdo, Jahar Mountains (June).

SOUTHEASTERN PLATEAU (N): Laoting (March 9); Gyala (May 7); Molo (May 22); Gyadzong (January 21); Chamna (October 3); Lepo (April 8); Kyimpu (May 9).

Specimens examined: 39, wing length, 22 ♂, 235–258 (245.8); 14 ♀, 230–253 (241.6).

Other records: Breeds in the Zaidam, according to Kozlov (1899a); breeds at Dras and Suru, Ladak; and reported also from western Tibet on July 8.

Columba livia

Rock Dove

Palaearctic, Oriental, and Ethiopian, but probably Eremian in origin.

OUTER PLATEAU (N): Baltistan, Skardu (August 12–16); Doghani (August 24 and 26). Ladak, Pituk (August 16 and 26); Hundar (September 10); Tarkalung (September 5); Dzongpolas (September 4); Saspul Gompa (August 1); Dras (June 21, March 27, April 18, August 16, November 9); Kargil (July 9); near Leh (summer); Mulbekh (April 25); Panamik (July 11). Zaskar, Tsaliko (July 27). Spiti, Lara (September 15); Kaja (September 13 and 14).

Specimens examined: 42, wing length, 9 ♂, 227–244 (233).

Columba rupestris

Blue Hill Pigeon

Sino-Himalayan (Amurland, Korea, and China, to the Himalayas, and Russian Turkestan).

NORTHERN PLATEAU (N): Summit of Karakoram Pass (August 4). Northern Tibet, Blagodatny (June). Koko Nor (March). Zaidam, Naiji Gol (January); South Koko Nor Range (February); Kurlyk (October).

OUTER PLATEAU (N): Ladak, Leh (May 9, July 4); Fotu La (June 13); Bod Kharbu (April 26); Panamik (July 7 and 16); Sultan Chhushku (July 6); Sakti (August 1); Tsaka (July 18); Miru (September 24 and 25); Gya (July 6, September 25); Kungi (September 5 and 8); Tangtse (July 15 and 30); Lamayuru (July 30); Spanpuk (September 8 and 9); Hundar (September 10); Khalsar (September 11); Hanle (August 31); Namika La (June 26); Durgu (September 24). Zaskar, Phe (July 21); Char (July 16, September 25–30, October 1); Mune (July 18); Mune Gompa (September 19); Sarle (September 20); Braqnak (August 31, September 3–8); Lakong (July 11); Kurgiakh (July 11–15); Abring (July 18); Hamiling (July 22); Pensi La (July 23). Rupshu, Rachogba (June 23, July 18); Nichungi Valley (September 8); upper Taga Laung Valley (August 22). Spiti, Hansi (September 4); Losar (September 2 and 3); Kiomo (September 4); Lori (September 29). Southern Tibet, Kangmar (October 25); Gyangtse (May 5, November 25); Tuna (February 13); Khamba Dzong (September 3, November 4). Northeastern Tibet, Dobo (January 7). Amdo, Kuei-te (June 10); Sakhutu Valley (May 30, June 2); Shala River Valley (June).

SOUTHEASTERN PLATEAU (N): Tamnyen (September 30); Horbo (February 8).

Specimens examined: 156, wing length, 61 ♂, 224–247 (235); 29 ♀, 222–240 (230.5).

Other records: Recorded from northern Chang Tang as resident by Kozlov; common in western Tibet, and abundant at Lhasa.

Columba hodgsonii
Speckled Wood Pigeon

Sino-Himalayan (southwestern Kansu to Kashmir, south to Burma and Yunnan).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (July 11-18); Lhakhang Dzong (September 1).

SOUTHEASTERN PLATEAU (N): Tripe (September 11 and 15); Tsela Dzong (June 3).

Specimens examined: 10.

Streptopelia decaocto
Collared Turtle Dove

Eremian.

OUTER PLATEAU (N): Ladak, She (August 25). Northeastern Tibet, Dobo (January 9, February 5-8, April 6).

Specimens examined: 5.

Other records: Recorded in the Dras Valley, Ladak, on May 2, "evidently only on passage". Beick found this species breeding in the region of Hsi-ning.

Streptopelia tranquebarica
Red Turtle Dove

Sino-Himalayan (China to eastern Afghanistan, also Formosa, Hainan, and Philippines).

NORTHERN PLATEAU (N): Koko Nor (September). Zaidam (September).

OUTER PLATEAU (N): Ladak, Ranbirpura (September 23). Rupshu, Nimu (August 4).

Specimens examined: 11, wing length, 6 ♂, 133-140 (137.3).

Streptopelia orientalis
Rufous Turtle Dove

Central and eastern Palearctic, Oriental.

NORTHERN PLATEAU (N): Karakoram (October 16). Zaidam, no locality (September and October).

OUTER PLATEAU (N): Baltistan, Skardu (August 12-15). Ladak, Hundar (September 7); Nurla (August 1). Rupshu, Nimu (August 2 and 3). Zaskar, Abring (July 22). Spiti, Lithang (September 17); Dankhar Gompa (September 22); Mani (September 22). Southern Tibet, upper Chumbi Valley (April 11 and 14); Shigatse (April 27); Gyangtse (April 23 and 28, May 3, July 31, Sep-



tember 6); Chaksam (September 25). Northeastern Tibet, Kung-ho-ku-chih (May). Amdo, Kuei-te (May).

SOUTHEASTERN PLATEAU (N): Sho Kha Dzong (July 24); Kyikar (September 7); Deyang (September 26); Sang (June 26); Tangdong (March 1).

Specimens examined: 39, wing length, 16 ♂, 183–205 (193.5); 6 ♀, 186–202 (192).

Streptopelia senegalensis

Laughing Dove

Eremian.

OUTER PLATEAU (M OR E): Spiti, Mikim (September 20).

Specimen examined: 1.

Streptopelia chinensis

Spotted Dove

Southern Palearctic and Oriental.

OUTER PLATEAU (M OR E).

No specimens examined: The Second Yarkand Mission (1891, p. 119) collected one specimen at Leh, Ladak, on September 10, 1873.

Order PSITTACIFORMES

Family PSITTACIDAE

Subfamily PSITTACINAE

Psittacula derbiana

Lord Derby's Parakeet

Sino-Himalayan (western Szechwan to northeastern Himalayas, south to northwestern Yunnan).

SOUTHEASTERN PLATEAU (N): Dzeng (August 13); Tega-ting (June 7); Tongkyuk Dzong (January 4, March 31); Tanmyen La (June 19); Langong Chu (May 24); Sangacho Dzong (June 23); Kyimdong Dzong (July 23); Tripe (July 11); Kyikar (September 7); near Pe (August 27); Tsela Dzong (June 3); also "Takpo", no locality or date.

Specimens examined: 20, wing length, 6 ♂, 221–230 (226); 9 ♀, 208–224 (217).

Order CUCULIFORMES

Family CUCULIDAE

Subfamily CUCULINAE

Cuculus canorus

Cuckoo

Palaearctic, Oriental, and Ethiopian.

NORTHERN PLATEAU (N?): Zaidam, Dalay Dabasan Nor (August 26 and 27); no locality (September).

OUTER PLATEAU (N): Baltistan, Deosai Plain (August 9 and 22); Skardu (August 15); upper Tale Valley (August 24). Ladak, She (August 9); Pituk (August 15); Panamik (July 19 and 22); Qizil Langar (August 4). Eastern Tibet, upper Hwang ho (May). Northeastern Tibet, Chan Ku (July 24); Lachi Shan (July 4); Hsi-ning ho (August 12); Hsin-ch'eng (June 8); Dobo (May 30, August 6); Hung-ho-siae (June 13); Kimar (May 31); T'ien-t'ang Ssu (June 25). Amdo, valley of the Ba Chu (June 23); Ragya Gompa (May 20).

SOUTHEASTERN PLATEAU (N): Lilung (July 1); Pasum La (August 23); Lusha (June 16); Dza Chu, Yangtze Basin (first decade of May, and August).

Specimens examined: 33, wing length, 10 ♂, 210-235 (221.5); 9 ♀, 204-222 (212.4).

Other records: This species breeds also in southern Tibet.

Cuculus poliocephalus

Little Cuckoo

Eastern Palaearctic, Oriental, and Madagascar.

OUTER PLATEAU (N).

No specimens examined: Berezovsky and Bianki (1891) report one specimen collected on May 21 near Labrang in Amdo.

Clamator jacobinus

Pied Crested Cuckoo

Southern Palaearctic, Oriental, and Ethiopian, probably Eremian in origin.

OUTER PLATEAU (N): Ladak, She (August 9). Southern Tibet, Tingkye Dzong (June 20).

Specimens examined: 2.

Order STRIGIFORMES

Family STRIGIDAE

Subfamily STRIGINAE**Bubo bubo**

Eagle Owl

Palearctic and Oriental.

Superspecies: *B. ascalaphus* of Africa and Palestine (if *ascalaphus* is treated as a separate species) but *ascalaphus* is considered conspecific with *B. bubo* by Vaurie (1965).

NORTHERN PLATEAU (N): Chang Tang, Uzun Shor Köl (September). Koko Nor (August 7). Zaidam, Ghaz (November); Naiji Gol (October); Tsasa Gol (April).

OUTER PLATEAU (N): Ladak, Khardung (September 1); Chushul (June 10); Chimre (May 19); Lake Pangong (no date). Southern Tibet, Khamba Dzong (July 27); Lhasa (August 31). Eastern Tibet, Tang La (Przhevalsky, December); Camp 103 (June 12); Camp 128 (July 17). Northeastern Tibet, Yung-an-ch'eng (May 9); Dobo (June 25); Lassa (June 14).

SOUTHEASTERN PLATEAU (N): Hi Chu, Yangtze Basin (July); Ju Gompa (August 29); Tashu Lomba (May 2).

Specimens examined: 25, wing length, 10 ♂, 435-478 (460); 6 ♀, 445-505 (494).

Other records: Recorded from Chiu Gompa, western Tibet, on June 16, by Ali (1946).

Asio otus

Long-eared Owl

Holarctic.

OUTER PLATEAU (N): Southern Tibet, Khamba Dzong (October 20); Lhasa (March 15, or January 30). Eastern Tibet, Chasora River (April). Northeastern Tibet, Dobo (October 26); Lao-hu-k'ou (May 4).

Specimens examined: 6.

Asio flammeus

Short-eared Owl

Holarctic.

NORTHERN PLATEAU (N): Koko Nor, Baga Ulaan Gol (April 11).

OUTER PLATEAU (N): Baltistan, Shigar Valley (January 4).

Specimens examined: 2.

TIBET AND ITS BIRDS

Other records: This species has been reported from southern Tibet, but the specimen reported by Walton (1906, p. 241) from Khamba Dzong is an actual specimen of *A. otus* (see above), not *A. flammeus*.

Otus brucei Striated Scops Owl

Southern Palearctic.

Northern Plateau (probably M).

No specimens examined: One specimen was collected on October 10, 1873, at night at a "temperature 25° below zero [F]", apparently by Stoliczka, during the Second Yarkand Mission at Lake Qara Tagh; and another was taken at Shakhidulla on October 21, 1873, by the Mission.

Aegolius funereus Tengmalm's Owl

Holarctic.

OUTER PLATEAU (N): Northeastern Tibet, Rangta Gol Gorge, near Chertenton (June 26).

Specimen examined: 1.

Athene noctua Little Owl

Palearctic, and slightly Ethiopian; Eremian in origin.

NORTHERN PLATEAU (N): South shore of the Koko Nor (September); Koko Nor (September). Eastern Zaidam (middle of August).

OUTER PLATEAU (N): Ladak, Parkachik (July 6); Suru (July 7); Khardung La (August 19); Shyok River Valley, below the Saser Pass (July 22). Southern Tibet, Dochen (April 25, December 10); Kala (July 8); Khamba Dzong (October 24); Tuna (February 7); Tingri Dzong (July 5). Northeastern Tibet, Kuo-mang Ssu (March 22); Chan Ku (June 15); La-chi Shan-k'ou (July 8); Dobo (July 12-14, October 1-4 and 31); Dsiling (April 9). Amdo, Tsapfa (January 22); Serchen Gorge (July 26).

SOUTHEASTERN PLATEAU (N): Ju Gompa (February 23, August 23); Waterh (March 15); Drechu Gompa (April 18, July 27); Dza Chu, Yangtze Basin (second half of August); Hi Chu, Yangtze Basin (July); Dze Chu (September); Ge Chu (March).

Specimens examined: 40, wing lengths as follows:

From Ladak to southeastern Tibet only, 12 ♂, 175-187 (180); 3 ♀, 180-183 (182).

From Koko Nor, Zaidam, and northeastern Tibet only, 4 ♂, 163-175 (170); 6 ♀, 164-183 (172.5).

Other records: Occurs also in western Tibet where observed by Ali.

Strix aluco

Tawny Owl

Discontinuously Palearctic, also Formosa.

SOUTHEASTERN PLATEAU (N): Gya (January 21); Gyala (May 7).

Specimens examined: 2.

Order CAPRIMULGIFORMES

Family CAPRIMULGIDAE

Caprimulgus indicus

Jungle Nightjar

Eastern Palearctic and Oriental (Transbaicalia to India and Ceylon), also Palau Islands in Micronesia.

SOUTHEASTERN PLATEAU (N): Molo (April 15).

Specimen examined: 1.

Caprimulgus europaeus

Nightjar

Palearctic.

OUTER PLATEAU (N): Baltistan, Skardu (August 18).

Specimen examined: 1.

Order APODIFORMES

Family APODIDAE

Subfamily APODINAE

Apus apus

Swift

Palearctic.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May). Zaidam, Burchan Buddha Range (August); Bayan Gol near Kurlyk (May); Hatu Gol (June); Zaidam, no locality (August).

TIBET AND ITS BIRDS

OUTER PLATEAU (N): Ladak, Charasa (July 12); Dras (May 26, June 21 and 22, July 2); Chaliskot (July 12); Panamik (July 25); Chang Chenmo River (June 2); She (September 22 and 23). Eastern Tibet, upper Hwang ho (May). Northeastern Tibet, Dobo (June 5); Buguk Gol, near Hsin-ch'eng (June 3-5). Amdo, Mujik ho (July).

Specimens examined: 33, wing length, 13 ♂, 167-180 (173.5); 13 ♀, 165-178 (172.5).

Other records: Reported also from northern Chang Tang, Baltistan, Spiti, and western Tibet.

Apus pacificus White-rumped Swift

Eastern Palearctic (Siberia to northeastern India).

OUTER PLATEAU (N): Eastern Tibet, Camp 128 (July 18). Northeastern Tibet, Shara Hoto (August 2); Lo Ja Shan (June 10); Hsin-ch'eng (June 5). Amdo, Mujik ho (June).

SOUTHEASTERN PLATEAU (N): Molo (June 24); Je (July 17); Nanda (August 20); Dza Chu, Yangtze Basin (April, August); Hi Chu, Yangtze Basin (July); Jyekundo (May 19, July 18, August 4).

Specimens examined: 30, wing length, 16 ♂, 177-192 (183.2); 8 ♀, 172-187 (182).

Other records: Observed at Gyantse and Lhasa where it breeds, and perhaps was seen also in Ladak.

Order CORACIIFORMES

Family CORACIIDAE

Subfamily CORACIINAE

Coracias garrulus Roller

Western Palearctic.

OUTER PLATEAU (M): Ladak, Pituk (August 19). Zaskar, Ringdom Gompa (September 12).

Specimens examined: 2.

Family **ALCEDINIDAE****Alcedo atthis**
Kingfisher

Palaearctic, Oriental, and Australian.

OUTER PLATEAU (M): Southern Tibet, Gyangtse (November 16).

SOUTHEASTERN PLATEAU (M): Yigrong Tso (February 6).

Specimens examined: 3.

Other records: Recorded from Ladak on July 12.

Family **UPUPIDAE***Subfamily* **UPUPINAE****Upupa epops**
Hoopoe

Palaearctic, Oriental, and Ethiopian, probably Eremian in origin.

NORTHERN PLATEAU (N): Zaidam, no locality (August); Burchan Buddha Range (August).

OUTER PLATEAU (N): Baltistan, Skardu (August 12 and 18); Kapalu (August 27). Ladak, Leh (May 5 and 6, July 24 and 27, August 11 and 12); Dras (May 30); Kargil (June 4); Mulbekh (August 4); Tangtse (July 30); Sakti (September 1 and 2); Hundar (September 10); Spanpuk (September 9); Tegur (July 17). Zaskar, Char (September 28); Tetha (September 29); Kurgiakh (October 11); Reru (September 18). Rupshu, Tso Kar (August 17). Spiti, Po (September 27); Kaja (September 13). Southern Tibet, Khamba Dzong (September 26, October 7); Gyangtse (April 10 and 23); Lhasa (March 15, August 15); upper Chumbi Valley (April 15); Tingri Dzong (June 27); Niemo (April 23); Shigatse (April 27); Chusangka (April 16); Khambapadze (March 31, April 12). Eastern Tibet, Sok Gompa (April 14); Camp 101 (June 9); Tsurumun Chu (May). Northeastern Tibet, Hsin-ch'eng (May 10); Dobo (April 11, June 7); Rangta Gol Gorge (September 1).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 1); Camp 136 (April 9); Camp 77 (April 16); Gartoh Gompa (February 7).

Specimens examined: 69, wing length, 25 ♂, 140–159 (150); 19 ♀, 138–158 (148.3).

Other records: Common migrant in September in western Tibet.

Order PICIFORMES

Family PICIDAE

Subfamily JYNGINAE

Jynx torquilla

Wryneck

Palaearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N): Ladak, Spanpuk (September 8); Shuruk (September 6); Khardung (September 12). Spiti, Kuling (September 19). Southern Tibet, upper Chumbi Valley (April 28); Lhasa (August 24, September 3). Eastern Tibet, Camp 101 (June 9); Tsurumun Chu (April). Northeastern Tibet, Dobo (July 2 and 3); Hung-ho-siae (June 13); Hsin-ch'eng (April 28); Lao-hu-k'ou (May 17 and 19); Dzha Dzhe (May 26). Amdo, Mujik ho (July 18).

SOUTHEASTERN PLATEAU (N): Banajun (April).

Specimens examined: 35, wing length 11 ♂, 83-93 (87.3); 10 ♀, 84-90 (87.6).

Other records: Recorded as a migrant in northern Chang Tang by Kozlov (1899b).

Subfamily PICINAE

Picus squamatus

Scaly-bellied Green Woodpecker

Eastern Himalayas to Transcaspia, probably Palaearctic in origin.

OUTER PLATEAU (N): Baltistan, Skardu (August 14 and 18).

Specimens examined: 2.

Picus canus

Grey-headed Woodpecker

Palaearctic and Oriental, but of eastern Palaearctic origin.

OUTER PLATEAU (N): Northeastern Tibet, Hsi-ning ho (August 9); Dobo (January 30, March 20, April 6, 8, and 10, September 22, November 7); Kan-chia-p'u (November 16).

SOUTHEASTERN PLATEAU (N): Yigrong Tso (January 16); Gyala (May 7, July 7 and 24); Langong Chu (May 25); Tsela Dzong (June 2 and 4); Tumbatse (July 2); Dzeng (April 11); Pe (July 18); Temo Gompa (September 11); Showa (June 27); Ngom Chu (November); Re Chu (December); Bar Chu

(September and October); Den Chu (end of April); Tsatim River (October); Lingchung (March 25); Gartoh Gompa (February 7).

Specimens examined: 43, wing lengths as follows:

Northern Tsinghai ("kogo" only), 19 ♂, 144-161 (154).

Southeastern Tibet ("sordidior" only), 8 ♂, 155-161 (156.5).

Taxonomy: This species varies geographically in coloration and/or size, and a large number of "subspecies" are recognized. In my review (1965), I gave measurements for "sordidior" that were smaller than those of "kogo", but new material (which includes all the original series of "kogo"), contradicts what I had found originally.

Picus flavinucha

Large Yellow-naped Woodpecker

Sino-Himalayan, south to Sumatra.

SOUTHEASTERN PLATEAU (N OR E?).

No specimens examined: This species was observed by Sherriff near Gompo Ne, in the Po Tsangpo Gorge, on February 26, according to Ludlow (1951, p. 571).

Dryocopus martius

Black Woodpecker

Palaearctic, with a very discontinuous distribution in the southern part of its range.

OUTER PLATEAU (N): Northeastern Tibet, Chertenton (February 15 and 20, March).

SOUTHEASTERN PLATEAU (N): Peteng (July 3); Nambu La (August 29); Lusha (June 17); Tumbatse (July 2); Tse (December 17); Dze Chu (September 15).

Specimens examined: 12, wing length, 6 ♂, 247-259 (251.5); 6 ♀, 237-254 (248).

Dendrocopos major

Great Spotted Woodpecker

Palaearctic, and partly Oriental, but of Palaearctic origin.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March); Tsurumun Chu (April). Northeastern Plateau, Hsi-ning ho (August 9); Gazha Gou (October 15); Arna-Süing (January 8); Chertenton (January 10, February 20); Dobo (March 12, 21, and 22, June 9, July 5, December 17); Lassa (September 26); Lao-hu-k'ou (December 7); Kuo-mang Ssu (December 19); Hsün-hua (December); Dangkar (end of August or beginning of September). Amdo, Kuci-te (July 14, November 6).

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SOUTHEASTERN PLATEAU (N): Beyü (February 7).

Specimens examined: 29, wing length, 17 ♂, 135-142 (139.5); 7 ♀, 135-143 (138).

Dendrocopos darjellensis

Darjeeling Pied Woodpecker

Sino-Himalayan (western Szechwan to Nepal, south to Shan States, Yunnan, and northwestern Tonkin).

SOUTHEASTERN PLATEAU (N): Natrampa (April 27); Lung (April 30); Lao-ting (January 8); Trulung (February 19); Gya (January 21); Dem (February 7).

Specimens examined: 8.

Dendrocopos cathpharius

Lesser Pied Woodpecker

Sino-Himalayan (northern Szechwan to central Himalayas, south to Burma, northwestern Yunnan, northern Laos, northwestern Tonkin, and also Hupeh).

SOUTHEASTERN PLATEAU (N): Dem (February 7); Tsera (February 8); Tangme (February 17).

Specimens examined: 3.

Dendrocopos hyperythrus

Rufous-bellied Pied Woodpecker

Sino-Himalayan (Manchuria, west through western China to western Himalayas).

SOUTHEASTERN PLATEAU (N): Pemakochung (May 3).

Specimen examined: 1.

Picoïdes tridactylus

Three-toed Woodpecker

Holarctic.

SOUTHEASTERN PLATEAU (N): Bimbi La (September 9 and 11); Singo Samba (June 27); Laphu Chu (July 26); Bar Chu (September); Re Chu (December); Ngom Chu (October); Tcheuneu (March 31).

Specimens examined: 14, wing length, 5 ♂, 125-131 (129); 9 ♀, 122-135 (127).

Order PASSERIFORMES

Family HIRUNDINIDAE

Riparia riparia

Sand Martin

Holarctic.

NORTHERN PLATEAU (N): Koko Nor (June, August 5, September 3 and 7). Zaidam (April and August). Alak Nor (June 13).

OUTER PLATEAU (N): Southern Tibet, Gyangtse (April 14 and 27); Lhasa (August 31); Chaksam (July 27); Kangmar (June 18 and 19). Eastern Tibet, Camp 101 (June 9); Oring Nor (June); Siang-Si-Pei Range (May). North-eastern Tibet, Dobo (April 11, May 21); Buguk Gol near Hsin-ch'eng (June 4).

SOUTHEASTERN PLATEAU (N): Dza Chu, Mekong Basin (May 14-16); Drechu Gompa (April 28); Dzogchen Gompa (September 4).

Specimens examined: 50, wing length, 22 ♂, 102-114 (107); 11 ♀, 103-111 (106.7).

Hirundo rupestris

Crag Martin

Southern Palearctic, probably Eremian in origin.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May).

OUTER PLATEAU (N): Baltistan, Satpura (August 10); Prahnu (September 1). Ladak, Saspul (August 1); Dras (April 18, May 26, June 21); Pituk (June 29); Parkachik (July 5); Leh (July 2); Lamayuru (August 23); Shimsa Kharbu (April 19); Chang Chenmo River (June 3); Miru (August 13); Gya (August 13); Khardung (September 13); Khardung Nulla (September 12). Spiti, Kaja (September 13); Losar (September 4). Zaskar, Reru (September 18); Honupatta (June 19). Southern Tibet, Gyangtse (April 27, July 9); Khamba Dzong (October 4); Sho Shika (August 8). Eastern Tibet, between Gratou and Tchoungo (April 29); Dy Chu (Przhevalsky, June); Tsurumun Chu (April); upper Hwang ho (March). Northeastern Tibet, Dobo (March 21, April 4 and 11).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 10, May 19); Banajun (April).

Specimens examined: 82, wing length, 40 ♂, 130-145 (137.3); 18 ♀, 128-137 (133).

Other records: Reported as breeding in northern Chang Tang, Zaidam, western Tibet, and at Lhasa and its environs.

Hirundo rustica

Swallow

Holarctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Southern Tibet, Gyangtse (April). Eastern Tibet, upper Hwang ho (no date but end of April or beginning of May). Northeastern Tibet, Dobo (March 27, April 11).

SOUTHEASTERN PLATEAU (N): Near Sanga Chöling Gompa (September 28).
Specimens examined: 6.

Other records: Reported as a migrant on April 15 from the Zaidam by Kozlov (1899a).

Hirundo daurica

Red-rumped Swallow

Southern Palearctic, Oriental, and Ethiopian.

OUTER PLATEAU (N): Southern Tibet, Lhasa (August 18); Chaksam (July 30). Eastern Tibet, Dy Chu (Przhevalsky, June); Camp 132 (July 22); sources of Yalung River (June 15). Northeastern Tibet, Hsin-ch'eng (June 5); Tsan Chhu (July 8); northeastern Tibet, no locality (June). Amdo, Mujik ho (June).

SOUTHEASTERN PLATEAU (N): Lusha (June 18); Tromda (October 24); Gacha (October 5); Chamna (October 3); Temo Gompa (September 10); Hi Chu, Yangtze Basin (July); Jyekundo (June 10); Drechu Gompa (June 10); near Dzogchen Gompa (September 3); Ju Gompa (August 28).

Specimens examined: 49, wing length, 23 ♂, 121-132 (128.2); 16 ♀, 118-130 (124.7).

Delichon urbica

House Martin

Palearctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Baltistan, Shigar Nulla (August 22); above Satpura (August 10). Ladak, Kharbu (June 26); Indus Valley (June 28); Upshi (July 4); Spanpuk (September 9); Khardung (September 12); Ugu (August 5 and 12); Lamayuru (June 16, August 30); Miru (September 25); Saspul (May 1); Chang Chenmo River (June 1); Khalatse (April 30); Leh (August 30); Gya Valley (June 3, September 15); junction of Nubra and Shyok Rivers (July 10); Suru (July 12); Shergol (July 8); Dras (May 27). Zaskar, Yelchang (June 22). Spiti, Losar (September 3). Eastern Tibet, Camp 132 (July 22); Hi Chu, Yangtze Basin (July). Northeastern Tibet, near Hung-ho-siae (June 17); Kimar (July 18).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (May 5); Tamnyen La (June 23); Jyekundo (May 19, July 8); Lamdo (July 8); Dzogchen Gompa (July 22, September 3).

Specimens examined: 56, wing lengths as follows:

Ladak, Baltistan, Zaskar, and Spiti only, 11 ♂, 107–115 (111.9); 12 ♀, 100–113 (108).

Rest of the range, 12 ♂, 100–111 (105.7); 8 ♀, 100–106 (103.5).

Other records: Breeds in northern Chang Tang according to Kozlov.

Taxonomy: The birds from southeastern Tibet eastward belong to a form (*dasyppus*) the systematic relationships of which are not clear; *dasyppus* may represent a separate species and is so considered by some authors.

Family ALAUDIDAE

Calandrella cinerea

Short-toed Lark

Southern Palearctic and Ethiopian, Eremian in origin.

NORTHERN PLATEAU (N): Northern Tibet, Yagan Gol (August). Southeast of the Koko Nor (September 2). Zaidam, southern Zaidam (end of August, September); Hatu Gol, Burchan Buddha Range (August); Yamatiin (August); Zaidam, no locality (August).

OUTER PLATEAU (N): Ladak, Pituk (September 19 and 20); Khardung (September 9 and 13); Spanpuk (September 9); Char (September 23 and 27); Tangtse (September 29); Leh (September 16). Zaskar, Kurgiakh (September 30, October 1 and 2); Debring (September 27). Rupshu, Rogchin (September 27 and 28). Spiti, Kaja (September 12); Mani (September 22); Kibar (September 10). Western Tibet, Taklakot (September 5); Rakas Tal (September 6). Southern Tibet, Kangmar (September 26); Khamba Dzong (September 28, October 26); Gyantse (September 21 and 27); east of Mount Everest (September 17). Northeastern Tibet, Dobo (September 7).

SOUTHEASTERN PLATEAU (N): Dzung (April 13 and 14); Jyekundo (April 9 and 12); Surman Gompa (September 20); Lanyipa (April 12); Lamdo (April 15, June 8); Drechu Gompa (April 18); Lingchung (May 25).

Specimens examined: 170, wing length, 78 ♂, 93–103 (99); 50 ♀, 89–100 (93.9).

Other records: Breeds in the Kara Kash River Valley; and recorded on migration in northern Chang Tang.

Calandrella acutirostris
Hume's Short-toed Lark

Palaearctic (high central Asia), Eremian in origin.

NORTHERN PLATEAU (N): Chang Tang, Suget Karaul, Kara Kash Valley (June 27); Dashi Köl (June); Alak Nor (June 13); Yeshil Köl (August). Upper Shara Gol (July). Koko Nor (June 19 and 20); southeastern Koko Nor (mid-June). Zaidam, Syrty Plain (August); Ichigan Gol (June); Ihe Tsaydam Nor (June); Baga Tsaydam Nor (June).

OUTER PLATEAU (N): Baltistan, Skardu (August 12 and 13); Shigar (August 20); upper Tale Valley (August 24). Ladak, Tarkalung (September 5); Man (July 9); Popache (July 13 and 14); Polokongka La (September 11); Upshi (July 21); lower Taga Laung Valley (August 31); Pongunagu (July 24); Thugji (June 9); Gya (June 6); Kargil (May 28, June 3); Leh (May 4-9, 29, July 1 and 3, August 30 and 31, September 4); Bazgo Plain (no date); Dras (May 27); Matayan (May 25, August 12); Merak (July 8); Zulidok (July 3); Suru (July 7 and 12); Namika La (April 26); Chakar Talao (May 26); Chang Chenmo River (June 1); junction of Nubra and Shyok Rivers (July 16); Khalatse (April 29); Mirpal Tso (June 16); Panamik (June 11 and 13, July 16); Murgo (June 24); Kataklik (July 2); Puga (July 4); Pituk (September 20 and 21); Chushul (July 25); Stak (August 7); Tangtse (September 29); Rachogba (June 23); Spanpuk (September 8 and 9); Unmaru (September 6).

OUTER PLATEAU (N): Zaskar, Singi La (June 21); near Linshet (June 22); Ringdom Gompa (September 11); Mune Gompa (July 17 and 18, September 19); Abring (September 15); Char (September 26 and 27); Tiengul (September 18); Phe (September 16); Hamiling (July 22, September 16); Karzok Gompa (July 7); Tetha (July 16); Kurgiakh (July 15); Lakong (July 11). Rupshu, Debring (June 24 and 25, August 15, September 27); Tso Kar (June 30-July 1, August 8); Tso Kyun (July 11); Kiangchu (June 27); Tozeri (October 3); Rogchin (September 28); Muldem (August 23). Spiti, Kaja (September 14); Hansi (September 6). Kibar (September 8); Rangring (September 11); Losar (September 3); Kiomo (September 4).

OUTER PLATEAU (N): Western Tibet, Poling (October 3); Nilang (October 11); Taklakot (September 5); Jerko La (September 18); Gartok (September 20). Southern Tibet, Pomo Tso (September 10); Khamba Dzong (September 29, October 7); Gyantse (March 10, April 18, May 1, June 1, 3, 7, and 8, July 8); Tang La (Bailey, June 21); Tingkye Dzong (June 17, 23, and 28, July 5 and 10); Kharta Shika (August 9); Chushar (June 18); Gyankar Nangpa (June 19); Chodzong (June 6); Loroto (October 27); Tsatang (April 15). Eastern Tibet, sources of the Hwang ho (May); Oring Nor (June-July); between the Oring Nor and Tsaring Nor (July); Khara Nor (August); Kon Chun Chu (June).

SOUTHEASTERN PLATEAU (N): Tsona Dzong (April 15); Jyekundo (April 9 and 18, August 4); Dze Chu (August 23-31); near Chinto (April 17); Drechu Gumpa (April 18); Seshu (August 8); Lamdo (June 8).

Specimens examined: 263 +, wing length, 132 ♂, 89-102 (95.2); 57 ♀, 87-96 (91.9).

Calandrella cheleënsis

Eastern Short-toed Lark

Eastern Palearctic, Eremian in origin.

Superspecies: *C. rufescens*, western Palearctic.

NORTHERN PLATEAU (N): Koko Nor (March). Zaidam, Baruun (March); Kurlyk Nor (no date, but probably May or October); eastern Zaidam (April, May); Ghaz (no date); South Koko Nor Range (April); Zaidam, no locality (January, April).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (May). Northeastern Tibet, Dobo (March 21, April 4, June 10, September 2); Hsin-ch'eng (June 4 and 6).

Specimens examined: 30, wing length, 21 ♂, 94-102 (98.3); 6 ♀, 88-93 (91.5).

Melanocorypha mongolica

Mongolian Lark

Mongolo-Tibetan, Eremian in origin.

NORTHERN PLATEAU (N): Watershed between the Koko Nor and Hsi-ning ho (June 20); southeastern shore of the Koko Nor (August 27-September 3); north shore of the Koko Nor (April 7-12); east coast of the Koko Nor (June 18); Koko Nor, no locality (March, July, September). Dsurge Gol (April).

OUTER PLATEAU (N): Northeastern Tibet, steppe of the upper Hsi-ning ho (June 17 and 21); Hai-yen (March 28, June 24).

Specimens examined: 30, wing length, 25 ♂, 133-145 (138); 4 ♀, 120-126 (121.5).

Melanocorypha maxima

Long-billed Calandra Lark

Tibetan.

NORTHERN PLATEAU (N): Northern Tibet, Sungir Nor (July); Zaisan Saitu River (end of December). Koko Nor (February, March, April, September 24, October); southeastern shore of the Koko Nor (August 28); north shore of the Koko Nor (April 7-12); south shore of the Koko Nor (September); east coast of the Koko Nor (June 19 and 20); Tao-t'ang ho (July 31). Zaidam, Syrtyan

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Plain (July, August); Dalay Dabasan Nor (August 28); Gurab Angir Gol (September); Ghaz (November). Tsa-han Kundu (January).

OUTER PLATEAU (N): Ladak, Rupshu, Hanle (July 13 and 14). Western Tibet, Menza (September 17); Gartok (September 23). Southern Tibet, Khamba Dzong (September 6, October 9 and 10); Tingkye Dzong (June 17, July 6-11); Nagartse Dzong (May, July 20, September 13); Tuna (February 28, March 2); Yamdrok Tso (November 14); Guru La (May 30); Gyangtse (July 14, October 17). Eastern Tibet, Bukalik Tagh (September 7 and 8); Camp 104 (June 13); Camp 112 (June 20); Camp 114 (June 26); Tang La (Przhevalsky, November); Oring Nor (beginning of July); between the Oring Nor and the Tsaring Nor (July); Tsurumun Chu (January). Northeastern Tibet, upper Tatung River (October).

SOUTHEASTERN PLATEAU (N): Bum Chin Da (August 13); Gon La (March); Drechu Gompa (April 18); Ju Gompa (February 25).

Specimens examined: 180+, wing length, 67 ♂, 145-160 (153); 26 ♀, 133-153 (140.5).

Eremophila alpestris

Horned Lark

Holarctic, south to Baja California and Oaxaca in southern Mexico, recurring in the northern Andes around Bogota in Colombia.

Superspecies: *E. bilopha*, northern Sahara to Arabia and Syrian Desert.

NORTHERN PLATEAU (N): Northern Tibet and Chang Tang, Suget Dawan (June 26); Suget Karaul (June 27); Vallis Ventorum (end of December); Chiman Tagh (December); Dashi Köl (June); Russian Range (May); Zaisan Saitu (September 7); upper Shara Gol (June and July); Ulaan Bulaq (June); Blagodatny (May and June 7); no locality (November). Koko Nor, watershed between the Koko Nor and the Hsi-ning ho (June 20); east coast of the Koko Nor (June 18 and 19); south shore of the Koko Nor (September); Koko Nor, no locality (February, March, April, June, August 6, September 9). Zaidam, Burchan Buddha Range (May, August, September); Gurab Angir Gol (September); Bayan Gol (September); Kurlyk (October); Yamatiin (July); Habirga Hetse (June); Naiji Gol (January); Shang (December); eastern Zaidam (end of April); southeastern Zaidam (January); Gantsa (end of October); southern Zaidam (October); western Zaidam (August and December); Ichigan Gol (end of June); no locality (August).

OUTER PLATEAU (N): Baltistan, Deosai Plain (August 8 and 9); Burzil Pass (August 7). Ladak, Dras (May 25 and 28, July 3); Lamagoos Pass near Dras (August 11); Lahar near Dras (July 3); Machhoi (May 23); west of Marsimik La, and Marsimik La (May 29, June 6, July 25); Rimdi (July 16); Lungkar (July 15); Gulmatungo (July 4); between Suru and Parkutsc (July 8); Mini-

marg (May 23); Phobrang (May 27, July 13); Zingral (May 21, July 8); Chushul (June 27, July 24 and 26, August 1); Chushul River, 6 miles above Chushul (August 1); Tsultak (June 17, July 9 and 31, August 9, September 15); above Tsultak (July 31, August 1); Depsang Plains (July 29 and August 6); Man (July 29); Lukung (July 12, September 20); Pangong Tso (June 7, September 21, October 8); Muglib (July 29); Spangmik (July 28 and 29); Yogma (August 6); Tangtse (July 10); Kungma (August 5); Gogra (July 18, 19, and 21); Chajoshilga (August 5); Dutchem, near Tsaka La (June 16); Tsaka (July 18); Tsakjun Tso (July 20 and 22); upper Gya Valley (September 13); Burtsa Gamma (August 6); Pulö (August 3); Leh (May 9, August 11); Kaksang La (June 17); Khardung (July 15, August 5, September 13); Khardung La (September 13 and 14); south slope of the Khardung La (July 13 and 23); Saser Pass (July 21 and 22); below Saser Pass (August 1); Skiangpoche (July 13); Kum Bulak (June 16 and 18); Saser Brangsa (July 10, August 7); Shyok Valley at Camp 114 (July 6); Chip Chap River (June 22); Kotajilga (June 3 and 4); Khapalung (June 14); Ankartha Glacier (July 12); Khalatse (January 12 and 15); Mulbekh (May 29); Pituk (September 21); Shagrot (September 25 and 26); Fotu La (May 30, August); Namika La (June 26).

OUTER PLATEAU (N): Zaskar, Ringdom plains (July 3); Ringdom Gompa (July 24, September 10–12); below Sir Sir Pass (June 20); Singi La above Photaksar (June 21); Char (September 26); Kurgiakh (July 15, October 1); Phe (September 16); Pensi La (July 23); Abring (July 22); Lakong (July 10 and 11); Gulmatungo (July 25); Seni Gompa (July 20); Padam (July 19); More Plain (August 20 and 21). Rupshu, Tso Morari (June 14, 22, and 25); Debring (July 7, August 15); Debring Valley (September 12 and 27); summit of the Polokongka La (July 12 and 24); Tso Kar (June 24, September 29 and 30); Takumba (October 2); Ngori (October 2); Lachalung (August 22, October 4); Rogchin (September 28); Tozeri (October 2 and 3); Muldem (August 23). Spiti, Kibar (September 8); Lagudarsi (September 6); Mani (September 22); Kanzam La (September 1); Kaja (September 13); Lara (September 15).

OUTER PLATEAU (N): Western Tibet, Lipu Lekh (September 2); Polo La (October 5); Rakas Tal (September 6); near Mount Kailas (September 14); Gartok (September 21); Par Chu (September 19); Tsang Chok La (October 6). Southern Tibet, Kangmar (June 17); Khamba Dzong (September 7, 27, and 29, October 7, November 10); Tuna (February 5 and 7); Tingri Dzong (June 26 and 27, July 2 and 8); Phari (April 6 and 7); upper Kharta Valley (September 6); east of Mount Everest (September 17); Lhasa (January 4, 15, and 29, February 3 and 13, March 19); Tsona Dzong (July 17); Loroto (October 27); Loro Karpo Chu (October 15); Nagartse Dzong (April 19); Pede (April 5); Nethang (March 23 and 25); Gyangtse (June 6, November 21 and 29,

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December 22); Tsangpo Valley (Waddell, September); Bam Tso (June 1); Kala (September 27); Karo La (September 14).

OUTER PLATEAU (N): Eastern Tibet, Ma Pass (April 22); Tang La (Przhevalsky, November); Dungbura Range (December); Oring Nor (January 23 and 27, end of June); Tsurumun Chu (January); upper Hwang ho (June 22); Kung-ho-ku-chieh (May); Dy Chu (Przhevalsky, June); Kon Chun Chu (June); upper Yalung River (June 12); Camp 102 (June 10); Camp 103 (June 12); Camp 104 (June 13). Northeastern Tibet, Sin-dse (June 22); Hai-yen (June 19); Dobo (January 7 and 12, March 7, September 29, October 7, December 11); Lao-hu-k'ou (March 3); Hsin-ch'eng (June 3 and 6). Amdo, Kuei-te (November 4 and December 6); Shanyg (January 25); plain of the Ba Chu (June 22 and 24).

SOUTHEASTERN PLATEAU (N): Lenda (October 27); Tromda (October 24); Rabdang (October 26); Kongbo-nga La (October 22); Shugden Gompa (October 13); Kundur Chu (May 17-26); Ge Chu (March 11-13); Rkatchun Chu (January 28); Rkhombo-mtso (August 14-18); Ju Gompa (February 25).

Specimens examined: 570+, variations in the wing length:

Baltistan, Ladak, Zaskar, Rupshu, and Spiti: 141 ♂, 112-139 (123.7); 53 ♀, 107-128 (115.3). (Only 8 ♂ of 141 exceed 130 mm., and only 4 ♀ of 53 exceed 120).

Southern Tibet, 19 ♂, 111-124 (119); 10 ♀, 110-124 (114.4).

Eastern Tibet, 13 ♂, 112-126 (120); 10 ♀, 108-119 (112.5).

Northeastern Tibet, 11 ♂, 105-120 (112); 10 ♀, 96-109 (103.6).

Northern Plateau (Koko Nor and Zaidam only), 20 ♂, 114-124 (117.3); 15 ♀, 105-116 (110).

Southeastern Plateau, 9 ♂, 111-128 (121); 9 ♀, 109-120 (113.4).

Galerida cristata

Crested Lark

Palaearctic and Ethiopian, Eremian in origin.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (April or May). Northeastern Tibet, Dobo (January 23, 24, and 27, May 27). Amdo, Kuei-te (October 18, November 24).

Specimens examined: 9.

Other records: Recorded as sedentary in northern Chang Tang, by Kozlov (1899b).

Alauda arvensis

Skylark

Palaearctic.

NORTHERN PLATEAU (M): Zaidam, Gantsa (October); Ghaz (November).

OUTER PLATEAU (M): Baltistan, Skardu (November 21).

Specimens examined: 8.

Other records: A migrant in northern Chang Tang, according to Kozlov; and recorded also at the Koko Nor in October.

Alauda gulgula

Small Skylark

Southern and eastern Palaearctic.

NORTHERN PLATEAU (N): East coast of the Koko Nor (June 19); watershed between the Koko Nor and Hsi-ning ho (June 17); Koko Nor (June, August 6, September 22). Zaidam, Ghaz (November); Dulaan Gol (May 13).

OUTER PLATEAU (N): Baltistan, Skardu (August 2, 13, and 16); Deosai Plain (August 9). Ladak, Dras (May 26 and 29, June 21, August 15); Matayan (May 20 and 24, June 21); Minimarg (May 23, June 30); Zulidok (June 29); Bod Kharbu (April 26, June 12 and 27, October 8); Panamik (July 16 and 18); Pituk (June 30, August 6 and 22, September 19 and 21); Tikse (July 6); Mulbekh (June 10 and 25, July); Leh (May 4, 6, 11, and 22, July 3 and 4, August 31, September 16); Nimu (May 17, June 29); Sanko (June, July 10); Durgu (July 10); Nubra River Valley (June 25); Khalatse (June 15); plateau east of Kargil (June 7); Kargil (August 7); Abadan (June 22); Sakti (August 1 and 2); Stak (August 7 and 8); Spanpuk (September 8 and 9); Hundar (September 10); Shushot (July 3). Zaskar, Debring (June 24); Hamiling (September 16); Abring (July 22, September 15); Phe (July 21, September 16); Padam (July 19); Mani (July 17); Kurgiakh (July 15); Tangola (July 26). Spiti, Lithang (September 17); Kaja (September 13).

OUTER PLATEAU (N): Western Tibet, Taklakot (September 5). Southern Tibet, Shigatse (May 18); Pede (March 7, April 9 and 14); Khambapadze (January 16, March 31); Tathang Gompa (April 1); Jangtang (March 29); Nethang (March 23); Nagartse Dzong (April 11 and 17); Gyantse (April 12 and 27, May 28-31, June 6, October 6, December 17 and 22); Tsangpo Valley (Waddell, September); Lhasa (January 31, February 5, 15, 24, and 25, March 13-20, August 31); Phari (October 2); Khamba Dzong (June 14, September 16); Tingri Dzong (July 8 and 11). Eastern Tibet, Sari Sumdo (April 23); Tsurumun Chu (April); Kung-ho-ku-chih (March). Northeastern Tibet, Myn-dan-scha (June 15); Lao-hu-k'ou (June 22, December 1 and 4); Dobo

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(January 23–27, February 4, October 27); Durgu (April 12); Hsin-ch'eng (June 4); Yüo-schüi-tsuän (July 16); Lassa (October 12); Hai-yen (June 19 and 24); Tsi-tai (March 3). Amdo, Mujik ho (June); Waru La (June 4).

SOUTHEASTERN PLATEAU (N): Tamnyen (June 24, September 29); Gyala (May 6, July 21); Lusha (October 1); Gyadzong (January 21); Yigrong Tso (January 15); Dzeng (March 29, April 6 and 13); Chayul Dzong (May 5); Lunang (March 21); Shoka (October 13); Tsela Dzong (June 5, September 24); Lilung (May 26); Jungkar Gompa (July 23); Lagya Pass (June 18); Re Chu (December); Kundur Chu (May 24); Dza Chu, Yangtze Basin (July 21); By Chu (July 24); Chinkar My (March 23–29); Ju Gompa (August 28); Jyekundo (April 6); Lanyipa (April 12); Camp 77 (April 16).

Specimens examined: 253, variations in the wing length:

Baltistan, Ladak, Zaskar, Spiti, 49 ♂, 97–108 (101.4); 18 ♀, 90–100 (94.5).

Southern Tibet, 22 ♂, 102–112 (107.8); 17 ♀, 96–108 (102).

Northeastern Tibet, 13 ♂, 103–109 (107); 8 ♀, 96–104 (101.3).

Southeastern Plateau, 25 ♂, 101–112 (106); 10 ♀, 97–105 (100.7).

Family MOTACILLIDAE

Anthus novaeseelandiae

Richard's Pipit

Eastern Palearctic, Oriental, Ethiopian, and Australian.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May). Koko Nor, east coast of the Koko Nor (June 19 and 20). Zaidam, Burchan Buddha Range (August); Gurab Angir Gol (August); Hatu Gol (end of June); Nomokon Gol (May 30–June 9); Dulaan Gol (April); Zaidam, no locality (May 11 and August).

OUTER PLATEAU (N): Eastern Tibet, Kung-ho-ku-chih (May); mountains near Kung-ho-ku-chih (May); Siang-Si-Pei Range (May). Northeastern Tibet, Hai-yen (June 19–26). Amdo, Mujik ho (July 19).

Specimens examined: 38, wing length, 24 ♂, 97–104 (100); 14 ♀, 92–98 (95.6).

Anthus godlewskii

Godlewski's Pipit

Eastern Palearctic.

OUTER PLATEAU (N): Western Tibet, Rakas Tal (September 6). Southern Tibet, upper Kharta Valley (September 8); east of Mount Everest (September 12–21); southeast of Mount Everest (July 27); Kangmar (September 27);

Khamba Dzong (September 26–28); Tsona Dzong (September 30); Phari (October 2).

SOUTHEASTERN PLATEAU (N): Charme (September 28–29); Yangtze-Mekong Divide (end of August); Jyekundo (May 19); Camp 139 (August 31).
Specimens examined: 45, wing length 17 ♂, 90–98 (93.3); 16 ♀, 86–94 (89).

Anthus trivialis

Tree Pipit

Palaearctic.

NORTHERN PLATEAU (N): Chang Tang, Yeshil Köl (August). Kara Kash Valley (September 16); Kushku Maidan (September 8). Zaidam, no locality (September).

OUTER PLATEAU (N): Baltistan, Kapalu (August 28). Ladak, Namika La (August 24); Leh (May 8, August 3); Chang Chenmo River (June 2); Unmaru (September 6); Hundar (September 7 and 10); Spanpuk (September 7 and 8). Zaskar, valley near Ringdom Gompa (June 27); Hamiling (September 15); Char (September 26 and 27); Abring (September 15); Pensi La (September 13); Braqnak (September 1 and 2). Rupshu, Nichungi Valley (September 7); Tso Kar (September 29 and 30). Spiti, Kibar (September 8–10); Losar (September 3); Lara (September 15); Shelgo (September 14); Po (September 27 and 28); Lithang (September 16); Mani (September 22); Kuling (September 19); Shichiling (September 24); Hansi (September 4). Western Tibet, Trokpo Shar (September 15).

Specimens examined: 60, wing length, 17 ♂, 84–94 (89.2); 8 ♀, 83–88 (85.4).

Anthus hodgsoni

Indian Tree Pipit

Palaearctic (from the Pechora River eastward).

NORTHERN PLATEAU (M): Northern Tibet (September); Uzun Shor Köl (September).

OUTER PLATEAU (N): Southern Tibet, Choksum (October 12); Gyangtse (September 25); Lhasa (August 21, September 21); Khamba Dzong (September 28); east of Mount Everest (September 20); Kharta (August 8); Kama Valley (August 23); Sakyetang (June 22); Nyalam Dzong (July 18). Eastern Tibet, Ugutu Ula ("April", but probably early May). Northeastern Tibet, Lao-hu-k'ou (May 1 and 19); Rangta Gorge near Desen-laka (July 27); Rangta Gorge near Chertenton (July 4); Chertenton (July 4, 5, and 18). Amdo, Mujik ho (June).

SOUTHEASTERN PLATEAU (N): Lusha (October 1); Kangla (September 28); Penam Chu (July 9 and 11); Trulung (February 23); Lung (April 29); Taktsa

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(June 19); Lisum (May 26); Lilung Chu (October 4); Singo Samba (June 28); Pe (April 21); Temo La (September 7); Pemakochung (May 3); Kongtsuka (June 4); Camp 142 (September 2).

Specimens examined: 50, wing length, 25 ♂, 81-96 (87.4); 20 ♀, 80-91 (83.5).

Anthus roseatus Hodgson's Pipit

Sino-Himalayan (Shansi, Shensi, and Szechwan to northeastern Afghanistan).

NORTHERN PLATEAU (N): Southwestern shore of the Koko Nor (September); southeastern shore of the Koko Nor (September 22); eastern Koko Nor (July 28). Zaidam, South Koko Nor Range (May); Dulaan Gol (April).

OUTER PLATEAU (N): Baltistan, Deosai Plain (August 7-9); upper Tale Valley (August 23); above Satpura (August 10); Burzil Pass (August 7); Shigar Nulla (August 22). Ladak, Leh (May 7 and 11); Machhoi (May 23). Spiti, Kibar (September 7); Khar (September 20); Dankhar Gompa (September 26); Tabo (September 27); Po (September 27); Rangring (September 11). Southern Tibet, Kharta (August 10); Kama Valley (August 18); Chog La (June 28); Gotsa (March 3); upper Chumbi Valley (May 14). Eastern Tibet, Siang-Si-Pei Range (May); Ugutu Ula (April). Northeastern Tibet, Dzai Dabaa (May 15); Myn-dan-scha (June 7-16 and 30); Shara Hoto (September 25); Lao-hu-k'ou (April 30, May 1 and 9, June 24); Dsiling (May 17); Yüo-schüi-tsuän (July 12); Kimar (June 30-July 1); on the way from Mantuse to Kimar (May 23); Mantuse (April 9 and 12); Dobo (April 7 and 21, June 21); Hsin-ch'eng (May 10). Amdo, Waru La (June 4); Dzomo Nang Valley (June 21); mountains west of the Jupar Valley (June 25); Jahar Mountains (July).

SOUTHEASTERN PLATEAU (N): Lo La (May 16); Sang La, Tsangpo Valley (June 30); Bimbi La (June 9); Pa La (July 18); Doshong La (July 16); Kundur Chu (May 24); Chok Chu (September 12 and 13); Choni La (September 17); Dza Chu, Yangtze Basin (May 8-11); Ucherapu (August 8); Kiche Kha (May 1); Jyekundo (April 16); Camp 77 (April 16); Banajun (April 14-28).

Specimens examined: 102, wing length, 47 ♂, 86-98 (91.3); 26 ♀, 80-93 (86.4).

Other records: Reported as breeding in northern Chang Tang by Kozlov (1899b).

Anthus spinoletta Water Pipit

Discontinuously Holarctic.

NORTHERN PLATEAU (N): Koko Nor (March). Zaidam, South Koko Nor Range (March, April); Dulaan Gol (May 12); Gurab Angir Gol (August, Sep-

tember); Kurlyk (April, May, November); Bayan Gol at Kurlyk (October); Bayan (March 28); Gantsa (October); Burchan Buddha Range (May 30); Zaidam, no locality (January, November).

OUTER PLATEAU (N): Eastern Tibet, Ugutu Ula (April); upper Hwang ho (March or April). Northeastern Tibet, Lassa (October 11 and 12); Dobo (January 16, 17, and 27, February 4, March 7, 13, and 28, April 5, 7, and 21); near Lao-hu-k'ou (May 9). Amdo, Kuei-te (December 19); Dzomo Nang Valley (June 21); alpine meadows of mountain west of Jupar Range (June 26).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 19).

Specimens examined: 60, wing length, 36 ♂, 90-97 (93.4); 12 ♀, 84-94 (88.2).

Motacilla flava

Yellow Wagtail

Palaearctic, also western Alaska.

NORTHERN PLATEAU (N): Zaidam, Yamatiin (August).

OUTER PLATEAU (N): Ladak, Kharchar (August 17); Phobrang (June 5); Pituk (August 15-23, September 20); Kungi (September 5). Zaskar, Ringdom Gompa (September 12); Phe (September 16). Spiti, Kibar (September 8).

SOUTHEASTERN PLATEAU (N): Tongkyuk Dzong (May 20); Camp 140 (September 1).

Specimens examined: 13.

Motacilla citreola

Yellow-headed Wagtail

Central and eastern Palaearctic.

NORTHERN PLATEAU (N): Blagodatny (May). Eastern Koko Nor (July 28); Koko Nor (June, September 14). Zaidam, Yamatiin (September 14); South Koko Nor Range (April, September 14 and 23); Sarlag Uula (May); eastern Zaidam (April, August); Zaidam, no locality (August, September).

OUTER PLATEAU (N): Baltistan, Deosai Plain (August 8 and 9); Tale Valley (August 23); Burzil Pass (August 7). Ladak, Nubra Valley (July 18); Pituk (July 7, 8, and 27, August 16-26, September 20); Lotsun (May 28); Panamik (June 13, July 15 and 18); Chushul (June 13, July 2, 24, and 26); Lake Pangong (June 8); Chang Chenmo River (June 3); Khardung Ravine (July 15); Shu-shot (July 2); Nimu (May 17); Nyungstet (July 3 and 4); two miles below Suru (July 6 and 7); Suru Valley above Kargil (July 13); Dras (June 22); Sanko (July 10). Zaskar, Lakong (July 11); Yojjok (July 26); Shama Kurpo (July 24); Kursha Gompa (July 20); Ringdom Plain below Zulidok (no date). Rupshu, Tso Kar (August 19); Rachogba (June 23); Tsaka (July 18); Puga (June 26,

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July 2). Spiti, Mani (September 22); Po (September 27); Kibar (September 7-9); Ki Gompa (September 10).

OUTER PLATEAU (N): Southern Tibet, Gyangtse (April 25, October 3); Tsechen Gompa (June 7 and 25); Kala (July 7); Samoda (July 11); Dochen (June 23); Nagartse Dzong (July 20); Chaksam (July 30); Lhasa (August 15, 16, 29, and 31, September 2 and 13); Bam Tso (September 29); Tasam (July 17); Tingri Dzong (June 28 and July 9); Saugang (June 16). Eastern Tibet, Dy Chu (Przhevalsky, June); Tandi (April 12). Northeastern Tibet, San-dzhu-chin (May 4); Yung-an-ch'eng (May 10); Bognu Khoza (May 11); Tatumg River (May 14); Kuo-mang Ssu (May 17); Myn-dan-scha (June 2); Hai-yen (June 15); Dobo (April 21, 24, and 29, September 17); Boguk Gol near Hsin-ch'eng (May 10).

SOUTHEASTERN PLATEAU (N): Dzung (April 16); Molo (May 23); Miling (September 9); Dza Chu, Yangtze Basin (April); Hi Chu, Yangtze Basin (end of July); Tashu Lomba (May 2); Jyekundo (May 15); Camp 133 (September 31); Camp 140 (September 1); Ju Gompa (September 1); Banajun (April 25).

Specimens examined: 176, wing length, 88 ♂, 82-93 (87.8); 44 ♀, 78-87 (81.6).

Other records: Reported as breeding in northern Chang Tang by Kozlov (1899b).

Motacilla cinerea

Grey Wagtail

Palaearctic.

OUTER PLATEAU (N): Baltistan, Surmo (August 28). Ladak, Leh (June 1 and 3, September 16 and 17); Chimray (August 4); Umbih Valley (September 24); Lungnak Lunga River (August 22). Spiti, Tabo (September 28). Northeastern Tibet, Na-lung-kou Gorge (September 11); Tuo-lo-kou Gorge (September 3); Lao-hu-k'ou (May 9).

SOUTHEASTERN PLATEAU (N): Temo Gompa (September 10); Kyimpu (October 8).

Specimens examined: 18.

Motacilla alba

White Wagtail

Palaearctic, Oriental, Ethiopian.

Superspecies: *M. grandis*, Japan; *M. maderaspatensis*, India to Ceylon.

NORTHERN PLATEAU (N): Chang Tang, 32° 34' × 82° 42' (September 4); Suget Karaul (September 23 and 24); Camp 54 (August 31). Northern Tibet, Yagan Gol (August); Blagodatny (May). Koko Nor, south shore of the Koko Nor (September); Koko Nor (April, September). Zaidam, South Koko Nor

Range (April); Burchan Buddha Range (May and August); Hatu Gol (June 26, July); Bayan (March 28); Ichigan Gol (June); Gurab Angir Gol (August and September); Kurlyk (April); Yamatiin (August); eastern Zaidam (August); Zaidam, no locality (August and September).

OUTER PLATEAU (N): Baltistan, Skardu (August 15); upper Tale Valley (August 24); Kapalu (August 26 and 27); Khalan (August 30); Shigar Nulla (August 21); Doghani (August 24); Biagdangdo (September 2 and 3); Chalunka (September 2). Ladak, Indus Valley (September 11); upper Taga Laung Valley (August 17 and 19); Leh (September 9 and 17, August 9); Chushul (July 2); Kharchar (August 17); four miles below Suru (July 9); Umbih Valley (September 28); Mulbekh (June 9 and 10); Matayan (April 14); Upshi (June 28); Khardung Ravine (July 15); Pituk (July 5, August 4, 7, and 21-26, September 19 and 20); Nyungstet (July 3); Tangtse (July 14); Lamayuru (July 31, August 20); Kungi (September 6); Unmaru (September 6); Spanpuk (September 8 and 9); Ranbispur (September 23); Hiniskut (July 30). Zaskar, Ringdom Gompa (September 11); Braqnak (August 31); Abring (September 15); Phe (July 21); Itchor (July 17); Yojok (July 26). Rupshu, Rachogba (October 5); Lachalung (October 4); Miru (August 13). Spiti, Mani (September 22); Po (September 26 and 27); Traktse (September 2); Dankhar Gompa (September 21); Tabo (September 28); Khar (September 20); Lara (September 15); Losar (September 3); Seni Gompa (July 20).

OUTER PLATEAU (N): Western Tibet, Gartok (September 23); Taklakot (September 3). Southern Tibet, Balwa (October 15); Khamba Dzong (September 16-18, October 5); Gyangtse (March 9, April 3 and 4, May 1, June 15, July 4 and 9, September 16, October 3); Lhasa (March 19, April 25, August 18, September 2, 8, and 18); Chaksam (July 30); Tuna (March 25); upper Chumbi Valley (April 20 and 24); Nyalam Dzong (July 18); Kharta (August 8); Tingri Dzong (July 6); Shigatse (May 20); Chusangka (April 16); east of Mount Everest (July 24); north foot of the Me La (August 22). Eastern Tibet, Dy Chu (Przhevalsky, June); upper Hwang ho (March or April); Tsurumun Chu (April or May). Northeastern Tibet, Hsi-ning ho (April); Tatung River (May 12); Rangta Gol near Chertenton (June 3); Chertenton (June 18); Kimar (September 20); Mantuse (April 9); Dobo (October 25); near Dobo (April 24); Lassa (September 26). Amdo, Mujik ho (July 19); near Ragya Gompa (May 20).

SOUTHEASTERN PLATEAU (N): Gyadzong (January 20); Dzeng (April 1); Chunyima (December 24); Tsela Dzong (September 24); Kyikar (September 7); near Sanga Chöling (September 20); Lusha (June 16); Pe (September 23); Miling (September 29); Temo Gompa (September 14); Bar Chu (September, October 14-17); Dza Chu, Mckong Basin (November 17-24); Hi Chu, Yangtze Basin (August 8-12); Yangtze, no locality (March); Chzherku

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Gompa (August 21–September 3); Gurde Druka (September 23–25); Jyekundo (April 1, May 12, August 10); Tsonghai (May 30); Gartoh Gompa (February 7); Ju Gompa (September 3); Camp 136 (August 10); Camp 140 (August 31); Camp 143 (September 2 and 3); near Kantse (August 31); Jarsha (October 13).

Specimens examined: 272, wing length of males: *alboides*, 63 ♂, 88–100 (94.7); *leucopsis*, 37 ♂, 86–98 (92.4); *baicalensis*, 29 ♂, 90–98 (94.6).

Taxonomy: This species varies geographically and its races are usually strongly differentiated in males in breeding plumage by differences in the pattern of the head, wings, or colour of the back, see Vaurie (1959). The specimens listed above represent two breeding forms and three migrants: *alboides* which breeds throughout southern Tibet from Baltistan to the Yangtze and Szechwan, and *leucopsis* which breeds in northeastern Tibet, the basins of the Koko Nor and Zaidam, and in Amdo. The migrants are *dukhunensis* and *personata*, represented only by occasional specimens from the extreme west, and *baicalensis*, which is a common migrant in the east, about as far west as Khamba Dzong.

Family LANIIDAE

Subfamily LANIINAE

Lanius collurio

Red-backed Shrike

Palaearctic.

NORTHERN PLATEAU (N): Northern Tibet, Shara Gol (June); Blagodatny (May). Zaidam, southern Zaidam (September); eastern Zaidam (April, May, August); Kurlyk Nor (April, May); Bayan Gol near Kurlyk ("March" = April 5–9); Onota Gol (August); Tsu-neng Hötöl (May); foothills of Burchan Buddha Range (July); Ichigan Gol (June).

Specimens examined: 30, wing length, 14 ♂, 94–100 (97); 10 ♀, 92–98 (96).

Lanius cristatus

Brown Shrike

Central and eastern Palaearctic.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May).

Specimen examined: 1.

Other records: Osmaston (1927) claims that he saw two individuals in the Indus Valley in Ladak in May and June, where this species "probably breeds", but I believe he probably misidentified the birds he saw and is quite incorrect.

Lanius tephronotus

Tibetan Shrike

Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas).

OUTER PLATEAU (N): Ladak, Sanko (July 10); Pashkyum (June 6). Spiti, Shichiling (September 24). Southern Tibet, Gyantse (May 3 and 19, June 4, 13, 16, and 30, July 7); Shigatse (May 20); Saugang (June 17); Tsangpo Valley (Waddell, September); Khamba Dzong (October 7, 9, and 25); Kharta (August 11-18); upper Chumbi Valley (April 12-16, June 1); Lhasa (August 24). Eastern Tibet, upper Hwang ho (May); Kung-ho-ku-chih (May). Northeastern Tibet, Nien-po (May 24); Hsin-ch'eng (May 23); Myn-dan-scha (June 14); Rangta Gorge near Desen-laka (July 27); Rangta Gol near Chertenton (June 10); Chertenton (May 20, June 10); Lao-hu-k'ou (June 24). Amdo, near Ragya Gompa (May 24).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (May 5); Miling (December 11); Gyala (April 28); Tsela Dzong (May 30); Pemakochung (May 2); Showa (June 26); Daring Do (August 21); Cham Chu (August); Dze Chu (September 14-19); Den Chu (April 30); Sogon Gompa (August 5-7); Banajun (April 14-28); Lingchung (May 25); Rata (May 6); Jyekundo (May 19); Ju Gompa (probably August); Camp 136 (August 9 and 10).

Specimens examined: 79, wing length, 30 ♂, 97-112 (102.8); 20 ♀, 92-106 (100.7).

Lanius schach

Black-headed Shrike

Sino-Himalayan (southern Shensi to Russian Turkestan, south to Shan States, northern Yunnan, and northern Indochina), also Oriental and Australian.

OUTER PLATEAU (N): Baltistan, Shigar (August 19). Ladak, Spanpuk (September 8).

Specimens examined: 3.

Lanius excubitor

Great Grey Shrike

Holarctic.

NORTHERN PLATEAU (M): Zaidam, Bayan Gol (April 5); Ghaz (November).

OUTER PLATEAU (M): Amdo, Kuei-te (November 19).

Specimens examined: 3.

Lanius sphenocercus
Chinese Great Grey Shrike

Eastern Palearctic.

NORTHERN PLATEAU (N): Koko Nor (June). Zaidam, Dulaan Gol (April 18-19); South Koko Nor Range (April); Hatu Gol (June 26); Ihe Gol (July).

OUTER PLATEAU (N): Eastern Tibet, Kung-ho-ku-chih (May); Gazha Gou (October 14). Northeastern Tibet, Lao-hu-k'ou (December 19); Dobo (November 14); South Tatung Range (end of March).

SOUTHEASTERN PLATEAU (M or N, probably N): Hi Chu, Yalung Basin (beginning of April); Benchin Gompa (September 4); Dzogchen Gompa (September 4).

Specimens examined: 20, wing length, 6 ♂, 139-145 (142); 6 ♀, 136-142 (139.7).

Taxonomy: The taxonomy of this "species" is not altogether clear as it is composed of two very distinct forms which both occur in the Nan Shan, but which appear not to overlap so far as we know. These are "nominate" *sphenocercus* in the east, and *giganteus* in the west which is purely Tibetan. The latter is very much larger (the wing and tail are at least 20 mm. longer), distinctly darker, and lacks the white line above the eye and on the forehead of "nominate" *sphenocercus*. In other words, two distinct species may be involved. Only one specimen of "nominate" *sphenocercus* is included among the records above, a male with a wing length of 121, taken at Dobo on November 14, which probably was a migrant.

Family ORIOLIDAE

Oriolus oriolus
Golden Oriole

Western and central Palearctic, Oriental.

OUTER PLATEAU (N): Baltistan, Skardu (August 15); Shigar (August 19 and 20); Kapalu (August 28). Ladak, Pituk (September 20 and 21); Nimu (August 2); Leh (July 7); Kirkitchu (June 1); Kargil (June 3, July 16); Saspul Gompa (July 29).

Specimens examined: 13.

Other records: Koelz believes this species occurs also in Spiti, but he collected no specimens.

Family STURNIDAE

Sturnus roseus
Rose-coloured Starling

Eremian.

NORTHERN PLATEAU (N and M): Chang Tang, Muzluk Tagh (August). Zaidam, no locality (September).

OUTER PLATEAU (M OR E): Spiti, Kibar (September 8).

Specimens examined: 3.

Other records: The Second Yarkand Mission collected one specimen on September 13 on the Indus south of Chimre, Ladak; one individual was seen at Lhasa in September; and Ali (1946) saw one bird "in perfect summer dress" in the Karnali River Valley, western Tibet, on July 6, 1945. This species is probably a vagrant in Tibet as elsewhere, breeding there casually.

Sturnus vulgaris
Starling

Western Palearctic, east to Lake Baikal and Mongolia.

NORTHERN PLATEAU (M): Karakoram, I Valley, Shaksgam (July 27). Koko Nor (October 14). Zaidam, Dalay Dabasan Nor (September); Ghaz (November 13); southern Zaidam (October).

OUTER PLATEAU (M OR E): Southern Tibet, Gyangtse (November 5).

Specimens examined: 6.

Other records: Recorded also at the Koko Nor in October.

Sturnus cineraceus
Grey Starling

Eastern Palearctic.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March or April). Northeastern Tibet, Hung-ho-siae (June 13 and 17); Dobo (March 27, April 10, October 2); Kuo-mang Ssu (May 20); near Hsi-ning (August 15); Hsi-ning ho (October 6). Amdo, Mujik ho (July 16).

Specimens examined: 13, wing length, 8 ♂, 128-135 (131.4).

Family CORVIDAE

Garrulus glandarius

Jay

Palaearctic and Oriental.

OUTER PLATEAU (N): Ladak (no data). Northeastern Tibet, Chertenton (February 28, March, September); Rangta Gol near Chertenton (January 29, February 23); Rangta Gorge near Desen-laka (January 31, March 12).

SOUTHEASTERN PLATEAU (N): Lilung (June 30); Tsela Dzong (August 3); Gyala (July 21); Trulung (January 10); Chomo Dzong (August 12).

Specimens examined: 17, wing length (northeastern Tibet only), 4 ♂, 183–189 (186.5); 5 ♀, 171–178 (175).

Taxonomy: The Jays of Tibet belong to two distinct groups of populations, those of northeastern Tibet to the *brandti* group, those of southeastern Tibet and Ladak to the *bispecularis* group.

Garrulus lanceolatus

Black-throated Jay

Sino-Himalayan (central Himalayas to eastern Afghanistan).

OUTER PLATEAU (probably E): Ladak, no data.

Specimen examined: 1.

Cyanopica cyanus

Azure-winged Magpie

Discontinuously Palaearctic.

NORTHERN PLATEAU (N): Near the Koko Nor (August).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March, May). Northeastern Tibet, near Hsi-ning (September); Hung-ho-siac (June 13). Desen-laka (March 21); Lao-hu-k'ou (December 13); Tatung River (May 14); San-dzhu-chin (May 16); Kuo-mang Ssu (May 19); Tsan Chhu (July 8); Lachi Shan-k'ou (July 8); Dangkar ho (August 29); Nien-po (August 9); Khundzha ye-lo (August 9). Amdo, Kuei-te (November 10, December 17 and 30); Labrang (February 14); Ba Chu Valley (June 23).

SOUTHEASTERN PLATEAU (N): Yangtze-Mekong Divide (August).

Specimens examined: 31, wing length, 16 ♂, 138–145 (141.7); 8 ♀, 134–139 (136.3).

Pica pica
Magpie

Discontinuously Holarctic.

NORTHERN PLATEAU (N): Zaidam, Ihe Gol (March); north slope of Burchan Buddha Range (May); South Koko Nor Range (February, April, and October); Shang (December); Kurlyk (October); Zaidam, no locality (February).

OUTER PLATEAU (N): Baltistan, Skardu (August 16); Satpura (August 11). Ladak, Khalsar (September 11); Deshkit (September 11); Leh (May 25, June 3, July 24 and 25, September 3 and 17); Nurla (May 31); Kargil (May 27); Dras (April 15, May 27 and 29, November 10); Khalatse (June 14); Nimu (October 16); Tasgam (June 23); Shergol (June 25); Tiggur (July 1); Sakti (August 2). Zaskar, Yoijok (July 26); Tongul (July 26). Southern Tibet, Gyangtse (April 29, October 10); Khamba Dzong (September 12); Lhasa (August 18); Kham-bapadze (April 14); Chaksam (September 26); Kongka Dzong (April 11); Tsetang (March 30); Rinphung Dzong (April 20); Tathang Gompa (April 4); Loro Karpo Chu (October 14). Eastern Tibet, upper Hwang ho (March or April). Northeastern Tibet, Dobo (January 11, April 24); Lussar near Kum Bum (November 7); Desen-laka (March 1); Chertenton (March). Amdo, Kuei-te (October 19, November 2); Mujik ho (June).

SOUTHEASTERN PLATEAU (N): Deyang (September 28); Charme (May 11); Rong Chu near Dongkar (August 19); Changtrong (October 7); Lusha (October 1); Ngom Chu (October); Re Chu (February); Dza Chu, Mekong Basin (September); Banajun (April).

Specimens examined: 101, wing length: *bactriana* only, 9 ♂, 211–225 (217.6); 10 ♀, 200–225 (208.2); *bottanensis* only, 22 ♂, 242–270 (256.1); 14 ♀, 240–256 (246.5).

Taxonomy: The populations of Tibet belong to two forms that are very distinct morphologically and are isolated by a very broad gap in distribution east of Ladak. The form (*bactriana*) of Baltistan, Ladak, and Zaskar is very much smaller, and differs also in proportions, by the colour of the gloss on its secondaries (green rather than blue), and by being much whiter on the primaries than the form (*bottanensis*) which is widely distributed from southern and southeastern Tibet, north to northeastern Tibet. *Bottanensis* hybridizes with the form (*sericea*) of eastern China in some localities in the valleys of the Hwang ho and Hsi-ning ho (Kuei-te, Dobo, and Lussar), which differs from *bottanensis* chiefly by being smaller; these hybrids are not included in the measurements given above. I have treated all the populations of the Magpie as conspecific (1959), in common with virtually every modern author, but I consider now that some doubt is raised by *bottanensis* versus *bactriana* (and also other forms) and that it is possible that more than one species is involved.

Urocissa flavirostris
Yellow-billed Blue Magpie

Sino-Himalayan (southeastern Tibet to western Himalayas, south to Burma, northern Yunnan, and northern Tonkin).

OUTER PLATEAU (N): Ladak, no data. Southern Tibet, Sandi Dala (June 23).

SOUTHEASTERN PLATEAU (N): Yigrong Tso (February 5).

Specimens examined: 3.

Other records: Bailey (1915) and Ludlow (1944) have collected this species or observed it in other localities in southeastern Tibet, east to Pome; Bailey at Chema Chembo on July 7.

Podoces hendersoni
Henderson's Ground Jay

Central Palearctic (high central Asia).

NORTHERN PLATEAU (N): Chang Tang, Vallis Ventorum (December), Zaidam, Ghaz (November); Kurlyk (April and October); western Zaidam (December); eastern Zaidam (May and August); Zaidam, no locality (January, April, August, September).

Specimens examined: 19, wing length, 12 ♂, 137-151 (145.4); 7 ♀, 131-142 (138).

Pseudopodoces humilis
Hume's Ground Jay

Tibetan.

NORTHERN PLATEAU (N): Northern Tibet, Shara Gol (June); Ulaan Bulaq (June). Koko Nor (February, March, May, June, July, September). Zaidam, Ulaan Gol (March); Gurab Angir Gol (September); Yamatiin (July); eastern Zaidam (August).

OUTER PLATEAU (N): Western Tibet, Gartok (September 21); Nokyu (September 19); Mount Kailas (September 24). Southern Tibet, Tingri Dzong (June 28, July 4); Tuna (February 8 and 13); Nagartse Dzong (April 17, July 20); Khamba Dzong (September 9 and 26, October 9, 30, and 31, November 30); Gyangtse (July 1 and 14, December 22); Tsona Dzong (April 12); Yamdrok Tso (November 14); Tang La (Ludlow and Sherriff, October 1); near Phari Dzong (April 17); Pede (April 1-11); Tathang Gompa (April 1); Chitishio (April 6). Eastern Tibet, Omchanganyigu (April 9); Camp 117 (June 29); Tsurumun Chu (January); Tossun Nor (January). Northeastern Tibet, Mantuse (December 13 and 17); Hai-yen (March 28, June 1, 11, and 21); near Hai-yen (June 11 and 16); upper Hsi-ning ho (March 28); Dsiling

(December 13); Durgu (May 20–22). Amdo, Tsapfa (January 22); valley of the Ba Chu (June 24).

SOUTHEASTERN PLATEAU (N): Jyekundo (April 1 and 6, May, September); Ju Gompa (February 25); Dzogchen Gompa (September 5); Banajun (April).

Specimens examined: 136+, wing length, 48 ♂, 87–98 (92); 42 ♀, 84–94 (88.7).

Other records: Breeds in northern Chang Tang, and is common in the hills near Lhasa.

Nucifraga caryocatactes

Nutcracker

Palaearctic.

OUTER PLATEAU (N): Northern Chumbi Valley (March 4, April 4).

SOUTHEASTERN PLATEAU (N): Tongkyuk (January 4, December 25); Doshong La (August 18); Gyala (July 22); Sangacho Dzong (July 1).

Specimens examined: 8.

Other records: This species occurs also in southern Tibet where it is reported from the Kama Valley, east of Mount Everest; and has been collected also in northeastern Tibet in the South Tatung Range according to Bianki (1916), where it probably breeds.

Pyrrhocorax pyrrhocorax

Chough

Discontinuously Palaearctic, also northern Abyssinia.

NORTHERN PLATEAU (N): Karakoram, Suget [Pass] (November 8); Suget River (end of June). Northern Tibet, no locality (January, December). Zaidam, South Koko Nor Range (February, April); Naiji Gol (January); Gurab Angir Gol (August).

OUTER PLATEAU (N): Baltistan, Braldu Valley (November 24, December 23). Ladak, Chang La (September 14); Leh (July 10); Panamik (June 14, July 11); Saser Brangsa (July); Sultan Chhushku (June 27, July 3); Bod Kharbu (May 28); Tangtse (July 30); Sakti (August 2); Hanle (July 14); Khalatse (February 3). Zaskar, Braqnak (September 3); Kungi (September 6); Kungi La (September 10); Abring (September 15); Ringdom Gompa (September 11 and 12); Sarle (September 20); Char (September 25–27); Kursha Gompa (July 20). Spiti, Lagudarsi (September 5). Southern Tibet, Gyantse (January 28, March 9, May); Khamba Dzong (September 10 and 23, October 3); Kyishong (June 30); Chesang La (October 11); upper Chumbi Valley (March 3). Eastern Tibet, Dy Chu (Przhevalsky, June). Northeastern Tibet, Lao-hu-k'ou (May 7, November 19). Amdo, Kuei-te (December 23); Waru Valley (June 4); Mokhur Nyera (June 1).

TIBET AND ITS BIRDS

SOUTHEASTERN PLATEAU (N): Rabdang (October 26); Re Chu (December), Hi Chu, Yangtze Basin (July); Camp 136 (July 11); Kantse (September).

Specimens examined: 81, wing length, 28 ♂, 295–357 (323); 26 ♀, 280–323 (299.5).

Other records: Reported as breeding in northern Chang Tang, and probably in western Tibet; and is said to be very common at Lhasa.

Pyrrhocorax graculus

Alpine Chough

Discontinuously western and central Palearctic (east to the Altai and Tibet).

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Baltistan, Shigar Nulla (August 21). Ladak, Dras (April 15); Saser Pass (July 22); Panamik (June 12). Zaskar, Char (September 26); Braqnak (September 2–3); Kurgiakh (September 30). Rupshu, Debring (June 24). Spiti, Lagudarsi (September 7); Kibar (September 10). North-eastern Tibet, pass between Durgu and Kimar (April 13); Kimar (September 27).

SOUTHEASTERN PLATEAU (N): Nambu La (June 11); Deib Chu (January).

Specimens examined: 21, wing length, 10 ♂, 265–295 (284); 5 ♀, 260–277 (268).

Other records: This species is reported as breeding also on the Northern Plateau, on the northern Chang Tang and in the Zaidam; it also occurs and probably breeds in western Tibet, and has followed alpinists up to 8229 metres on Mount Everest, the highest record for any passerine bird in Tibet.

Corvus monedula

Jackdaw

Palearctic (east to Mongolia).

OUTER PLATEAU (probably E only): Ladak, Leh (May 14).

Specimen examined: 1.

Other records: also from Leh (August 2), and from Dras (April 15). The sight record of this species in the Zaidam on May 3 by Kozlov (1899a) is doubtful as it may refer to *C. dauuricus* instead.

Corvus dauuricus

Daurian Jackdaw

Eastern Palearctic, and probably Sino-Himalayan in origin.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho near Kung-ho-kuchih (March, April, May). Northeastern Tibet, Lao-hu-k'ou (December 2);

Dobo (March 21); Hsi-ning (November 9). Amdo, Kuei-te (October 26, November 23); Moshi Chusya (October 14).

SOUTHEASTERN PLATEAU (N): Sangacho Dzong (June 25); Jyekundo (May 9); Duchmé (May 3); Beyü (February 7).

Specimens examined: 23, wing length, 10 ♂, 242–258 (247.4); 7 ♀, 232–250 (241); seven specimens (including birds in juvenal plumage) of the 23 examined are in the black plumage.

Corvus frugilegus

Rook

Palaearctic.

OUTER PLATEAU (N): Northeastern Tibet, Dobo (March 21, May 26).

Specimens examined: 2.

Corvus macrorhynchos

Jungle Crow

Eastern Palaearctic (west to Turkestan).

OUTER PLATEAU (N): Baltistan, Shigar Valley (January 14, November 23). Ladak, Kargil bridge (June 1). Spiti, Mani (September 23). Eastern Tibet, upper Hwang ho (March or April). Northeastern Tibet, Lao-hu-k'ou (December 10); Dsen-laka (March 1). Amdo, Mujik ho (June).

SOUTHEASTERN PLATEAU (N): Pe (September 24); Tripe (September 16); Kyikar (September 9); Molo (April 18); Ngom Chu (November); Gur La (May 28); Kantse (September 12).

Specimens examined: 16, wing length, 8 ♂, 346–385 (361); 6 ♀, 330–357 (338).

Other records: This species occurs also in southern Tibet where it is reported from several localities, including Mount Everest up to 21,000 feet [6400 m.].

Corvus corone

Crow

Palaearctic.

NORTHERN PLATEAU (N): Koko Nor (no date). Zaidam, Ghaz (November); Zaidam, no locality (January).

OUTER PLATEAU (N): Baltistan, Skardu (November 20). Ladak, Kargil (April 20, June 2, July 28); Nimu (May 2, August 3); Leh (September 9 and 16–18); Pituk (September 19); She (September 22); valley below Dras (May 30). Northeastern Tibet, Dobo (February 7).

TIBET AND ITS BIRDS

Specimens examined: 19, wing length, 9 ♂, 340–355 (348); 8 ♀, 326–350 (336).

Corvus corax

Raven

Holarctic.

Superspecies? = *C. ruficollis* in Eremian zone.

NORTHERN PLATEAU (N): Karakoram Pass (September 3). Koko Nor (February, March, September).

OUTER PLATEAU (N): Baltistan, Shigar Valley (November 22). Ladak, Leh (May 6, July, August 30, September 16); Dras (April 17, October 9); Lamayuru (June 27); near Saser Pass (July 23); Gumbaz Mazar (June 20); Spanpuk (September 8); Machhoi (August 8); Polokongka La (July 4); Tsakzhun Tso (July 23). Zaskar, Ringdom Gompa (September 12); Mune Gompa (July 18). Rupshu, Hanle River (no date). Spiti, Mani (July 18). Southern Tibet, Khamba Dzong (September 20, October 3); Gyantse (October 13, November 11); Dasho (November 7). Northeastern Tibet, Dobo (January 30); Lussar (August–November).

SOUTHEASTERN PLATEAU (N): Tromda (October 25); Gartoh Gompa (February 4); Camp 142 (September 3); Kantse (September).

Specimens examined: 41, wing length, 13 ♂, 462–517 (486); 12 ♀, 432–480 (467).

Other records: Breeds also in northern Chang Tang, Zaidam, and probably also in western Tibet where it occurs.

Family BOMBYCILLIDAE

Subfamily BOMBYCILLINAE

Bombycilla garrulus

Waxwing

Holarctic.

OUTER PLATEAU (M).

No specimens examined: Observed at Desen-laka, northeastern Tibet, by Beick on March 10, and April 15, 1928.

Family CAMPEPHAGIDAE

Pericrocotus ethologus

Flame-coloured Minivet

Sino-Himalayan (Manchuria to eastern Afghanistan, south to Indo Chinese countries).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (March 20, April 21 and 23).

SOUTHEASTERN PLATEAU (N): Gyala (July 10); Tse (October 9); Lusha (October 2); Molo (April 14 and 15); 10 miles west of Tongkyuk (March 31); Kyimpu (October 6); Natrampa (May 2).

Specimens examined: 17, wing length, 12 ♂, 90–95 (92.6); 5 ♀, 89–92 (90.2).

Family IRENIDAE

Chloropsis hardwickii

Orange-bellied Leaf Bird

Sino-Himalayan (southeastern Tibet to western Himalayas, south to Burma and Malaya).

SOUTHEASTERN PLATEAU (N): Tsakchugong (February 25).

Specimens examined: 2.

Family PYCNONOTIDAE

Microscelis madagascariensis

Black Bulbul

Oriental and eastern Ethiopian.

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 9 and 12).

SOUTHEASTERN PLATEAU (N): Trulung (February 23).

Specimens examined: 3.

Other records: Bailey has collected this species at Tangme, in Pome, on July 1, 1913.

Family CINCLIDAE

Cinclus cinclus

Dipper

Discontinuously Palearctic.

NORTHERN PLATEAU (N): Northern Tibet, Shara Gol (February). Zaidam, Naiji Gol (January); Nomokon Gol (February, November); Tsa-han Obotu (January); Hatu Gol (June); eastern Zaidam (February). Confluence of Jagharu Gol and Chakdin Koto Gol (March 13).

OUTER PLATEAU (N): Baltistan, above Satpura (August 10). Ladak, Dras (May 24-27); Tangtse (July 30, September 16); near Tangtse (May 26); Pho-brang (May 28); Chang Chenmo River (May 31); Leh (May 12, July 5); Tsultak (July 31); Gya (July 5); Shagrot (September 25 and 26). Spiti, Kibar (September 7). Southern Tibet, upper Chumbi Valley (April 3, 20, and 29, May 15); Dota (January 26); Bod La (August 9); north foot of Cho La (August 20); Tulung La (August 9); Kharta Shika (August 11 and 20); Chulungphu (August 1); Gyantse (July 1, December 23); Khamba Dzong (October 21, November 4-6, and 19); O-dja (February 23). Eastern Tibet, Tioungue (April 17); Dy Chu (Przhevalsky, June); Ugotu Ula (April). Northeastern Tibet, near Dangkar (end of August); Dobo (January 6-9 and 24-30, March 12); Lao-hu-k'ou (February 7, March 5, December 9 and 13); between Wei-yuän-p'u and Lao-hu-k'ou (March 21 and 28, November 19); Tsi-tai (March 4); Sin-dse (June 15); Rangta Gorge near Desen-laka (April 19); Rangta Gorge near Kimar (December 29); Chertenton (January 20). Amdo, Sikho Shan, Jahar Mountains (November 7); Ja Ja Chu (January); Kuei-te (December 31); Labrang (February 16); upper Jupar Valley (June).

SOUTHEASTERN PLATEAU (N): Le La (October 2); Trulung (March 1); Molo (April 14); Lusha La (June 10); Bimbi La (September 13); Chok Chu (August 12 or 13); Dza Chu (November); Go Chu (March 16); Den Chu (April 30, May 1); Bar Chu (October); De Chu (November); Beyü (February 5); Kolondo (February 17); Camp 54 (February 18); Marung (February 19); Göze Gompa (February 20); Buho (February 23); Tengko (February 18 and 23); Dege Gönchen (February 14); Jyekundo (April 3 and 6); T'sin Da (April 14); Gur La (April 24); Camp 136 (August 10).

Specimens examined: 152+, wing lengths as follows:

Baltistan, Ladak, and Spiti only, 8 ♂, 97-105 (101.4).

Other regions only, 59 ♂, 94-104 (99.5); 46 ♀, 86-101 (91.4).

Other records: Breeds also in northern Chang Tang, reported also from western Tibet and near Lhasa on Kyi Chu.

Cinclus pallasii
Brown Dipper

Eastern and central Palearctic, Oriental.

OUTER PLATEAU (N): Baltistan, upper Tale Valley (August 24). Ladak, Dras (May 26, October 11); Kargil (October 23); Khardung (September 12); Panamik (July 15); Hangru (October 6). Southern Tibet, upper Chumbi Valley (February 15, April 24 and 30, May 15, June 4); Karo La (September 15).

SOUTHEASTERN PLATEAU (N): Buho (February 25).

Specimens examined: 14.

Other records: This species occurs also in Spiti and western Tibet.

Family TROGLODYTIDAE

Troglodytes troglodytes
Wren

Holarctic.

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April and May).

OUTER PLATEAU (N): Baltistan, above Satpura (August 10). Ladak, Matayan (October 12); Khardung Ravine (July 15); Hemis Shukpa (February 7); Goma Hanu (April 9). Western Tibet, Nilang (October 8). Southern Tibet, upper Chumbi Valley (January 15, March 20, July 25); Lhagyari (November 2); Khamba Dzong (October 9, November 5); Gyangtse (March 19, November 30, December 27); Chu Nullah (October 10); Phuse La (July 28); Boldan Gumpa (July 15); Me La (August 4 and 8); Lhasa (February 12 and 25, March 19). Eastern Tibet, Ugutu Ula (April); Chasora River (May). Northeastern Tibet, Mantuse (April 13); Kuo-Mang Ssu (April 21 and 25); near Lassa (October 4); Lao-hu-k'ou (December 11); Chertenton (February 24). Amdo, two days above Ragya Gumpa (May 13); Sakhutu Canyon (June 1).

SOUTHEASTERN PLATEAU (N): Lo La (July 2); Nyima La (July 4); Kashong La (July 18); Trakan La (August 11); Bimbi La (June 3 and 5); Gyandro (October 24); Trulung (March 3); Tongkyuk (January 3); Gyadzong (January 18); Migyitün Gumpa (May 30); Dzeng (March 29); Budi Tsepo La (August 22); Lubong (February 21); Nam La (September 3); Chok Chu (September 12); Bar Chu (October); Ngom Chu (October); Atsur (May 24); Gartoh Gumpa (February 7); Buho (February 23).

Specimens examined: 70, wing length, 30 ♂, 46–59 (52.5); 22 ♀, 47–54 (50.7).

Family PRUNELLIDAE

Prunella collaris

Alpine Accentor

Western, southern, and central Palearctic, discontinuous.

NORTHERN PLATEAU (N): Zaidam, north slope of the Burchan Buddha Range (end of May); South Koko Nor Range (May).

OUTER PLATEAU (N): Baltistan, Burzil Pass (August 6). Ladak, Khardung Pass (September 14). Western Tibet, Nilang (October 11); Lipu Lekh (September 2). Southern Tibet, east of Mount Everest (September 16–20); upper Kharta Valley (September 6); Trimo (April 9); Chog La (May 21); Me La (August 4 and 8). Eastern Tibet, Kon Chun Chu (June); Mzushu Rg'mchon, (January). Northeastern Tibet, Rangta Gorge (December 23); Kimar (March 28); South Tatung Range (February, March 19); La-chi Shan-k'ou (June 4, July 2). Amdo, Mujik ho (November 6); Mujik Mountains (June); Jahar Mountains (June); Jupar Tshargen (June).

SOUTHEASTERN PLATEAU (N): Bimbi La (June 5); Ba La (June 30); Le La (May 8); Temo La (March 22); Sokpo La (August 12); Tsema La (June 17); Tsara La (December 2); Ju Gompa (end of February); Camp 90 (May 17).

Specimens examined: 55, wing length, 27 ♂, 97–111 (103.5); 14 ♀, 91–103 (97).

Prunella himalayana

Himalayan Accentor

High central Asia, probably Sino-Himalayan in origin.

NORTHERN PLATEAU (M?).

OUTER PLATEAU (probably N): No locality, but probably southern Tibet (October and November).

Specimens examined: 3.

Other records: The Second Yarkand Mission collected one specimen on October 17, 1873, at Balakchi [= Bilakchi], Kara Kash Valley; and Ludlow (unpublished field notes) saw this species on Mount Kailas, western Tibet, between September 9 and 12, where it is not possible to collect birds.

Prunella rubeculoides

Robin Accentor

Sino-Himalayan (Tsinghai and Szechwan to Ladak).

NORTHERN PLATEAU (N): Koko Nor, Lha La (September 21); Koko Nor (no data). Zaidam, South Koko Nor Range (February); Yamatiin (July);

north slope of the Burchan Buddha Range (May). Amnen Kor (June 23).

OUTER PLATEAU (N): Baltistan, Tale Pass (August 23 and 24); upper Tale Valley (August 23 and 24); Deosai Plain (August 8 and 9). Ladak, Leh (May 11 and 14, June 30, July 2, August 30, September 16 and 17); Khardung (June 5, July 14, September 13); Khardung La (July 14, 15, 31, September 14); 2 miles below Suru (July 7); Nola (June 12); Dras (April 18); Lake Pangong (June 9); Man (June 21); Merak (June 21); Chushul (June 17 and 18, July 24); Phobrang (May 27); Pamzal Marg (June 16); Chang Chenmo River (June 1); Chang La (July 8); Khalatse (January 5 and 7); Zingral (August 1); Chorten Chen (August 19 and 31); Tangtse (July 30); Tsultak (July 31); Sakti (June 16); Gya (August 14); Miru (September 24 and 25); Hemis Shukpa (February 20); Saser Pass (July 20). Zaskar, Singhi La (June 21); Ringdom Gompa (September 11); Ringdom Plain below Zulidok (July 1); Sarle (September 20 and 21); Kurgiakh (July 11-15); Lakong (July 11); Shama Kurpo (July 24); Bok (September 14); Char (September 23 and 28); Kungi La (September 6 and 7). Rupshu, Da (July 12); Karzok (July 6 and 7). Spiti, Lagudarsi (September 5). Western Tibet, near Gartok (September 19); Sazi La (September 27).

OUTER PLATEAU (N): Southern Tibet, Gyangtse (April 10, October 6, November 6 and 16, December 18); Khamba Dzong (September 9 and 28, October 4, 5, and 24, November 10 and 25); Tuna (March 2); Phari Dzong (January 27); Tingri Dzong (July 10); Phuse La (July 25); east of Mount Everest (September 9 and 16); Tsona Dzong (July 18); Lhagyari (October 31); Pomo Tso (September 10); Lhasa (January 9, February 8, 9, 13, and 20, March 15 and 19); Shigatse (April 27, May 4-6); Tsetang (April 15); Pede (April 11 and 13); Chushul Dzong (March 25); Nagartse Dzong (April 17); on the way to Nagartse Dzong (April 15); Tsan Djung Nur Gol (April 3); Nyengo (March 20); Rinphung Dzong (April 20); Kongka Dzong (April 12). Eastern Tibet, Omchangsanyigu (April 9); Aio (April 16); Kon Chun Chu (June); Mzushu Rg'mchon (January); Siang-Si-Pei Range (May); Camp 119 (July 3). North-eastern Tibet, Lao-hu-k'ou (January 15, October 10 and 11, November 19, December 10, 13, and 16); Rangta Gorge near Desen-laka (January 23, February 18, March 4); Kimar (April 2 and 20); near Lassa (October 14); upper Hsining ho (March 27); Shara Hoto (September 25). Amdo, Jahar Mountains (September); upper Tagso Nang Canyon (June 4); near Ragya Gompa (June 4); Labrang (February 20).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (April 22); Re Chu (December) Hrombo Tso (August); Banajun (April); Ju Gompa (September 3); Beyü (February 5); Jyckundo (April 1); Drechu Gompa (July 3); Camp 139 (August 3); Camp 144 (September 3).

Specimens examined: 203, wing length, 75 ♂, 77-89 (81.7); 61 ♀, 70-82 (77).

Prunella strophhiata
Rufous-breasted Accentor

Sino-Himalayan (Tsinghai and Szechwan to northeastern Afghanistan).

NORTHERN PLATEAU (N): Eastern Koko Nor (July 27). Zaidam, South Koko Nor Range (May).

OUTER PLATEAU (N): Baltistan, Burzil Pass (August 7); Shigar Nulla (August 22); Biagdangdo (September 4). Ladak, Hundar (September 10). Southern Tibet, upper Chumbi Valley (April 3, 6, and 8, May 3 and 5); Chog La (June 20); Kama Valley (June 27); Nyalam Dzong (July 18); Lapche Gompa (July 26); Me La (August 4). Eastern Tibet, upper Hwang ho (no data); Uguta Ula (April); Chasora River (April). Northeastern Tibet, Lao-hu-k'ou (May 13, October 14); near Lao-hu-k'ou (April 24); Lassa (October 14); near Lassa (October 4 and 14); Kimar (April 19, May 12 and 28, July 30); Rangta Gol Gorge near Kimar (April 17 and 20, July 4); Rangta Gol Gorge (September 16); Pei-ta-t'ung (October). Amdo, Mujik ho (June); Tagso Nang Canyon (June 2); near Ragya Gompa (June 2).

SOUTHEASTERN PLATEAU (N): Molo (April 15); Tse (December 18); Gyadzong (January 17); Tulung La (August 9); Bimbi La (October 14); Deyang La (August 11); Kamchang (December 5); Doshong La (August 16); Trimo (October 31); Tongkyuk Dzong (December 22); Sang La (June 28); Budi Tsepo La (August 22); Nam La (September 2); Natun Chu (May 20); Re Chu (January, November, December); Banajun (April); Tara (May 29); Choupow (May 23).

Specimens examined: 69, wing length, 34 ♂, 65-72 (68.3); 20 ♀, 62-67 (65.2).

Other records: Has been collected in the Kara Kash Valley in September; a nest was found near Suru, Ladak, on July 6; and is common near the Tso Morari in Rupshu.

Prunella fulvescens
Brown Accentor

High central Asia (from Transbaicalia and Nan Shan to the Tian Shan and northern Afghanistan), perhaps Sino-Himalayan in origin.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May); Kuku Usu River (June). Zaidam, Gurab Angir Gol (August); Naiji Gol (January); South Koko Nor Range (April); mountains of southeastern Zaidam (September).

OUTER PLATEAU (N): Ladak, Dzongpolas (July 7, September 4); Miru (September 25); Shagrot (September 26); Bod Kharbu (April 26); Khardung La, Khardung, and Khardung Ravine (July 13, 15, 22, and 28, September 13);

Chang Chenmo River (June 1 and 2); Saser Pass (July 21, 25, and 26); Skiang-poche (July 13 and 24); Thalam Buti Valley (July 14); Pituk (no data); Leh (September 5 and 16); Muglib (July 29); Chushul River (July 31); Lukang (July 12); Pamzal Marg (July 17); Taga Laung Valley (August 2 and 6). Zaskar, Kungi La (September 7). Rupshu, Rachogba (June 23, October 6); near Muldem (October 6); Lachalung (August 22); Tso Kar (September 29); Tozeri (October 3); Rogchin (September 28); Tso Morari (June 21); Khanlagyal (June 5); Karzok Gompa (July 7); Da (July 12). Western Tibet, Sazi La (September 27).

OUTER PLATEAU (N): Southern Tibet, Rongbuk Gompa (June 1); Nyalam Dzong (July 15 and 16); Kharta Shika (August 9); Phuse La (July 28); Shigatse (April 27, May 4, 6, and 15); Karo La (September 14); Gyangtse (April 23, May 3, November 10 and 14, December 18); Khamba Dzong (September 3, October 5 and 7, November 14); Chushul Dzong (March 24); Khambapadze (April 14); Nethang (March 23); Samye Gompa (March 21 and 23); Loroto (October 27); Lhasa (January 14 and 30, February 9, 10, 13, and 26, March 20); Dza La (August 10).

OUTER PLATEAU (N): Eastern Tibet, Sok Gompa (April 14); Dy Chu (Przhevalsky, June and July); upper Hwang ho (March or April). North-eastern Tibet, near Hsi-ning (August 11); Dobo (January 7, September 18, November 21); near Dobo (January 12, December 17); Dsiling (April 9); Hai-yen (March 27); upper Hsi-ning ho near Hai-yen (June 17); Mantuse (April 5); near Lao-hu-k'ou (May 17). Amdo, Kuei-te (October 30, November 30); Ragya Gompa (May 22); five miles below Tsangar Gompa (May 13).

SOUTHEASTERN PLATEAU (N): Tromda (April 3, October 25); Sanga Chöling (October 22); Dzeng (May 7); Le La (May 7); Yigrong Tso (February 12); Re Chu (February, December); Yangtze-Mekong Divide (beginning of September); Beyü (February 6).

Specimens examined: 156+, wing length, 62 ♂, 72-81 (76.8); 43 ♀, 70-78 (74.3).

Other records: Collected also in August in the Kara Kash Valley where it may breed; and said to breed in northern Chang Tang by Kozlov (1899b).

Prunella montanella

Siberian Accentor

Eastern Palearctic.

OUTER PLATEAU (probably E): Ladak, Dras (April 15).

Specimen examined: 1.

Prunella atrogularis
Black-throated Accentor

Central Palearctic.

NORTHERN PLATEAU (N and M): Northern Chang Tang, Uzun Shor Köl (September).

OUTER PLATEAU (M): Baltistan, Braldu Valley (January 2).

Specimens examined: 2.

Other records: Breeds in northern Chang Tang, according to Kozlov. Bailey (1913) says he found a nest on June 27 at Pugo, southeastern Tibet, but he apparently did not collect the birds, and I believe this record is not valid. The nesting records of Stuart Baker (1933) in southern Tibet are very doubtful and probably invalid.

Prunella immaculata
Maroon-backed Accentor

Sino-Himalayan (northern Szechwan to central Himalayas, south to northwestern Yunnan).

SOUTHEASTERN PLATEAU (N): Penam Chu (July 9); Sang La (June 27); Tsela Dzong (June 1); Deyang La (July 11); Tamnyen La (June 22); Sur La (August 19); Tripe (September 9); Tumbatse (July 1); Re Chu (beginning of February).

Specimens examined: 10.

Other records: A nest was allegedly found at Lake Pangong in Ladak but this record has been questioned as a case of misidentification and is probably not valid.

Family MUSCICAPIDAE

Subfamily SYLVIINAE

Oligura castaneo-coronata
Chestnut-headed Ground Warbler

Sino-Himalayan (Szechwan to western Himalayas, south to Burma, northern Yunnan, and northern Tonkin).

SOUTHEASTERN PLATEAU (N): Migyitün Gompa (May 24); Tangme (February 8); Trulung (January 11, February 9); Lo La (July 4).

Specimens examined 5.

Cettia montanus
Mountain Bush Warbler

Sino-Himalayan (southern Shensi, Szechwan, and southern Kansu to western Himalayas, south to Indo Chinese countries, Sunda Islands to Timor, also Formosa).

SOUTHEASTERN PLATEAU (N): Tangdong (February 20).

Specimen examined: 1.

Cettia major
Large Bush Warbler

Sino-Himalayan (Szechwan to western Himalayas, south to northern Yunnan).

SOUTHEASTERN PLATEAU (N): Migyitün Gompa (May 30); Bimbi La (June 10, October 14).

Specimens examined: 3.

Cettia flavolivaceus
Aberrant Bush Warbler

Sino-Himalayan (southern Shensi and Szechwan to western Himalayas, south to Burma, northern Yunnan, and northern Tonkin).

OUTER PLATEAU (N): Southern Tibet, Le (November 1).

Specimen examined: 1.

Cettia acanthizoides
Verreaux's Bush Warbler

Sino-Himalayan (southern Shensi and Szechwan to central Himalayas, south to Burma, northern Yunnan, and northern Fukien).

SOUTHEASTERN PLATEAU (N): Laoting (March 11); Sang La (June 2); Nam La (September 6); Lung (April 29); Yigrong Tso (February 3); Gyadzong (January 23); Pemakochung (May 3); Tripe (July 12 and 26); Tsakchugong (February 26); Gyala (July 10 and 23); Lilung (October 1); Temo La (September 7); Molo (May 23, June 24); Kyikar (August 29); Doshong La (July 16).

Specimens examined: 22, wing length, 15 ♂, 51-56 (53.2); 5 ♀, 50-54 (51).

Cettia brunnifrons
Rufous-capped Bush Warbler

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Burma and northern Yunnan).

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OUTER PLATEAU (N): Southern Tibet, Changdong (June 9); Dima (June 11).

SOUTHEASTERN PLATEAU (N): Migyitün Gompa (May 22, 24, and 31, September 1); "Mago, 14,000 feet" (August 2).

Specimens examined: 7.

Bradypterus thoracicus

Spotted Bush Warbler

Western Amurland to the Altai, south to northwestern Himalayas, northern Yunnan, and southern China; probably Sino-Himalayan in origin.

OUTER PLATEAU (N): Southern Tibet, Popti La (August 26). Northeastern Tibet, Rangta Gol Gorge at Sugri-Kou (July 25); Desen-laka (July 17); Yüo-schüi-tsuän (July 10). Amdo, Jupar Range (no date); Mujik Mountains (June); Jahar Range (June).

SOUTHEASTERN PLATEAU (N): Temo La (September 7); Nunbhu Phu Chu Valley (May 27); Sang La (June 29); Migyitün Gompa (May 30); Rong Chu near Dongkar Dzong (August 19); Singo Samba (June 27); Lho La Chu Valley (June 26); Lusha (September 16); Lusha La (June 8).

Specimens examined: 21, wing length, 14 ♂, 52-60 (56.7); 6 ♀, 52-58 (55.5).

Bradypterus major

Large-billed Bush Warbler

Tibetan.

OUTER PLATEAU (N): Ladak, Mulbekh (August 3); Bod Kharbu (July 7); between Mulbekh and Shamshah Kharbu (July 18); Sanko (July 7); two miles below Suru (July 7 and 8); Kargil (June 4, July 9); Hundar (July 9); Dras (July 1); Panamik (July 18); Pituk (August 17); Nubra Valley (July 18). Zaskar, Grantung (July 27).

Specimens examined: 22, wing length, 15 ♂, 58-63 (60.3), 4 ♀, 57-60 (59).

Bradypterus tacsanowskii

Chinese Bush Warbler

Eastern Palearctic.

OUTER PLATEAU (N): Northeastern Tibet, Yüo-schüi-tsuän (July 13); Lao-hu-k'ou (May 19).

SOUTHEASTERN PLATEAU (N): Pe (August 23).

Specimens examined: 5.

Locustella certhiola
Pallas' Grasshopper Warbler

Eastern Palearctic.

NORTHERN PLATEAU (N): Zaidam, Gurab Angir Gol (August); Yamatiin (August); Zaidam, no locality (August).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (May).

Specimens examined: 5.

Locustella naevia
Grasshopper Warbler

Western Palearctic (east to Pamirs and Mongolia).

NORTHERN PLATEAU (N).

No specimens examined: Found in the Zaidam on May 19 by Kozlov (1899a) where it breeds.

Acrocephalus agricola
Paddy-field Warbler

Discontinuously Palearctic.

NORTHERN PLATEAU (N).

No specimens examined: Found in the Zaidam on May 19 by Kozlov (1899a) where it breeds.

Acrocephalus dumetorum
Blyth's Reed Warbler

Palearctic.

OUTER PLATEAU (N): Ladak, Unmaru (September 6); Tarkalung (September 5); Hundar (September 7); She (September 23); Spanpuk (September 7). Spiti, Rangring (September 6); Shelgo (September 13).

Specimens examined: 11.

Acrocephalus scirpaceus
Reed Warbler

Western Palearctic.

NORTHERN PLATEAU (N).

No specimens examined, but breeds in the Zaidam according to Kozlov (1899a).

Acrocephalus arundinaceus
Great Reed Warbler

Discontinuously Palearctic.

NORTHERN PLATEAU (N): Zaidam, Kurlyk Nor (May).

OUTER PLATEAU (N): Eastern Tibet, Kung-ho-ku-chih (May).

Specimens examined: 2.

Hippolais caligata
Booted Warbler

Palearctic.

OUTER PLATEAU (M).

No specimens examined: Reported by Ward (1906) as a migrant in Baltistan.

Sylvia nisoria
Barred Warbler

Western Palearctic (east to Sinkiang and Mongolia).

OUTER PLATEAU (M): Ladak, Kataklik (July 2).

Specimen examined: 1.

Sylvia communis
Whitethroat

Western Palearctic (east to Sinkiang and Mongolia).

OUTER PLATEAU (N): Ladak, Chang Chenmo River (June 1); Unmaru (September 6); Hundar (September 7); Tarkalung (September 5). Spiti, Losar (September 3).

Specimens examined: 5.

Sylvia curruca
Lesser Whitethroat

Palearctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (E OR M): Ladak, Zaskar, Sarle (September 20).

Specimen examined: 1.

Other records: Four specimens without data in the collection of the American Museum of Natural History were most probably collected in eastern Ladak; but the records of *S. curruca* in the literature from Ladak are erroneous and refer instead to *S. althaea*. Kozlov states that *S. curruca* breeds in the Zaidam (1899a).

Sylvia minula
Desert Lesser Whitethroat

Eremian.

NORTHERN PLATEAU (N): Chang Tang, Russian Range (May). Northern Tibet, Su-lo ho (April). Zaidam, Kurlyk (May and June); eastern Zaidam (April, May, mid-August, September).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (May, July 14). North-eastern Tibet, Hsin-ch'eng (May 10).

Specimens examined: 20, wing length, 13 ♂, 65-71 (68); 4 ♀, 62-67 (64.5).

Sylvia althaea
Hume's Lesser Whitethroat

Iran to northwestern Himalayas, probably Eremian.

OUTER PLATEAU (N): Baltistan, Skardu (August 12-16); Shigar (August 19); upper Tale Valley (August 24); Shyok River (July 15). Ladak, Suru Valley above Kargil (July 13); Kargil (June 5, July 15); Mulbekh (June 10); Sanko (July 8 and 27); Pituk (July 7, August 7, 15-17); Panamik (June 12, 13, and 17, July 16); Spanpuk (September 8); Unmaru (July 9, September 6); Khalsar (September 11); Hundar (September 10); Nubra Valley (July 20); Durgu (May 22); Stak (August 9). Zaskar, Sarle (September 20).

Specimens examined: 66, wing length, 20 ♂, 68-76 (71); 13 ♀, 66-71 (68.3).

Sylvia nana
Desert Warbler

Eremian.

NORTHERN PLATEAU (M).

No specimens examined: The Second Yarkand Mission collected one specimen at Shakhidulla on October 20, 1873, and this species is recorded as a migrant in the northern Chang Tang by Kozlov.

Phylloscopus collybita
Chiffchaff

Palaearctic.

NORTHERN PLATEAU (N): Northern Chang Tang, Russian Range (May or June).

OUTER PLATEAU (N): Baltistan, Skardu (August 12, 13, and 16); Shigar (August 19-21); Deosai Plain (August 9); upper Tale Valley (August 23); Abadon (June 22); Chalunka (September 2). Ladak, Zoji La (June 20); Dras (May 25); three and four miles below Dras (May 30); Matayan (May 24); Suru (July 11); two miles below Suru (July 7); Parkutse (July 5); Kargil

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(April 20, June 1 and 4, July 9 and 15); Lotsun (October 9); Sanko (July 10 and 27); Pashkyum (June 6 and 25, August 20); Lamayuru (May 30, July 30 and 31, August 30); Shamshah Kharbu (May 26); Bod Kharbu (June 12); Indus Valley (June 30); Pituk (June 16, July 5 and 17, August 7, 20, 21, and 30); Leh (May 4, and 13, June 29 and 30, July 2, 9, and 26, August 27 and 28, September 7 and 8); Nubra Valley, Camp 23 (June 16); Panamik (June 11, July 15 and 18); Unmaru (July 9, September 6); Pamzal Marg (July 22); Chang Chenmo River (June 1); Nyungstet (July 3); Kharu (July 10); Upshi (June 28); Chushul (July 25 and 26); Chushul River (July 31); Chimre (August 4); Kirkitchu (May 31); Nimu (July 28); Sakti (August 3); Spanpuk (September 8 and 9); Tarkalung (September 5); Stak (August 9). Zaskar, Ringdom Gompa (July 23, September 11); Mune Gompa (September 19); Sarle (September 20); Seni Gompa (July 20); Tetha (July 16); Yoijok (July 26); Gulmatungo (July 25). Spiti, Dankhar Gompa (September 25); Lithang (September 16); Shelgo (September 13).

Specimens examined: 137, wing length, 60 ♂, 55–68 (59.7); 30 ♀, 51–62 (55).

Other records: This species is very common in the Kara Kash Valley where it has been collected in August and is believed to breed.

Phylloscopus neglectus

Plain Willow Warbler

Iran to northwestern Himalayas, probably western Palearctic in origin.

OUTER PLATEAU (N): Ladak, Panamik (July 20).

Specimen examined: 1.

Phylloscopus tytleri

Tytler's Willow Warbler

Northwestern Himalayas, probably Sino-Himalayan in origin.

OUTER PLATEAU (N).

No specimens examined: A specimen was collected at Shergol, Ladak, August 20, 1873, during the Second Yarkand Mission.

Phylloscopus affinis

Tickell's Willow Warbler

Sino-Himalayan (northern Szechwan and Nan Shan to northwestern Himalayas, south to northwestern Yunnan).

NORTHERN PLATEAU (N): Koko Nor, Khomu-Daban Shi-Ku (September 2); Koko Nor, no date. Zaidam, South Koko Nor Range (May, August); Dulaan Hiid (May 1); Burchan Buddha Range (August); Hatu Gol (July). Amnen Kor (June 17–19).

OUTER PLATEAU (N): Baltistan, Deosai Plain (August 8); Shigar Nulla (August 22 and 23); above Satpura (August 10). Ladak, between Suru and Parkutse (July 8); Lamayuru (August 23); Chushul (July 24–26); Kakstet (June 25); Leh (August 8); Tangtse (July 30); Pangong Tso (June 7). Zaskar, Bok (July 23); Ringdom Swamp (July 3); Ringdom Plain below Zulidok (July 1); valley between Ringdom Gompa and Pigdong La (June 27). Rupshu, Da (July 12); Puga (July 5); Tsakzhun Tso (July 20 and 21); Nichungi Valley (September 6 and 9). Spiti, Shelgo (September 12 and 13); Losar (September 4). Southern Tibet, Nyalam Dzong (July 17); Kharta (August 19); Shigatse (April 25, May 5); Gyantse (April 20, May 1–3 and 24, June 16 and 30, July 2, September 21); Khamba Dzong (October 4–7); Trimo (October 31); Dza La (August 10); Cho La (Ludlow and Sherriff, August 20); Lhasa (August 24, September 20).

OUTER PLATEAU (N): Dy Chu (Przhevalsky, June); upper Hwang ho (May); Chasora River (April 22); Tsurumun Chu (April, May); Siang-Si-Pei Range (May). Northeastern Tibet, Dzai Dabaa (May 15); Myn-dan-scha (June 22); Kuo-mang Ssu (May 12 and 17); Yüo-schüi-tsuän (July 13); Lao-hu-k'ou (May 6 and 9, June 24, October 10); near Lao-hu-k'ou (May 9, 16, and 19); Hsin-ch'eng (May 26, June 4); Lassa (September 17, October 4); near Lassa (September 15, 17, and 18); Kimar (April 29, June 28); near Kimar (May 18 and 25, June 28, September 23); Hai-yen (June 17). Amdo, Mujik Mountains (June); Serchen Gorge (May 16).

SOUTHEASTERN PLATEAU (N): Bimbi La (September 8); Kyimdong Dzong (October 11); Langpe (July 9); Tse (October 7); Chayul Dzong (April 22, October 25); Lilung (May 26); Dzeng (April 16); Charme (October 21); Gyala (May 7); Tripe (May 10); Deyang (July 28); Penam Chu near Je (July 10); Penam Chu near the Penam Tso (July 9); Molo (June 23); Gyandro (October 10); Den Chu (April 30, May 1); Kiche Kha (May 1); Riwoche (May 5); Jyekundo (May 7); Camp 137 (August 11).

Specimens examined: 148, wing length, 82 ♂, 56–63 (59.7); 32 ♀, 52–59 (55.1).

Other records: This species is also a common breeder in western Tibet, according to Ali (1946, p. 299).

Phylloscopus griseolus
Olivaceous Willow Warbler

Palaearctic (high central Asia).

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May and June).

OUTER PLATEAU (N): Baltistan, upper Tale Valley (August 23); Shigar Nulla (August 21); Skardu (August 13); Satpura (August 10); Biagdangdo (Sep-

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tember 3 and 4). Ladak, Pandras (May 24), Honupatta (June 20); Suru (July 6); Sanko (July 11); Kharbu (August 22); Leh (May 23, September 17); Kharchar (August 18); Stak Nulla (August 19); Khardung (September 13); Unmaru (September 6); Tangtse (July 30); Chushul (June 18). Zaskar, Linshet (June 23); valley between Ringdom Gompa and the Pigdong La (June 27); Mune Gompa (July 17); Kungi (September 6); Abring (September 15); Kurgiakh (July 11); Burdun Gompa (July 19). Rupshu, Lachalung (August 22); Rachogba (June 23). Spiti, Traktse (September 1); Losar (September 2 and 3); Rangring (September 10 and 11); Po (September 27).

Specimens examined: 46, wing length, 16 ♂, 59–70 (64.8); 10 ♀, 58–62 (60).

Other records: Breeds in northern Chang Tang according to Kozlov (1899b).

Phylloscopus fuscatus

Dusky Warbler

Eastern and central Palearctic, probably Sino-Himalayan in origin.

NORTHERN PLATEAU (N): Amnen Kor (June).

OUTER PLATEAU (N): Southern Tibet, Khamba Dzong (September 7); Sakang (September 25). Eastern Tibet, upper Hwang ho (August); Siang-Si-Pei Range (May). Northeastern Tibet, Lao-hu-k'ou (May 6 and 12, June 22); near Lao-hu-k'ou (May 16); Hung-ho-siae (June 13 and 15); near Hung-ho-siae (June 17).

SOUTHEASTERN PLATEAU (N): Nam La (August 31, September 3–6); Langong (May 30); Chianang (June 5); Sang La (June 28); Bimbi La (June 7–9); Mira La (August 15); Namphu La (June 14); Poda (June 26); Dib La (September 20); Sanga Chöling (October 18); Migyitün Gompa (September 1); Kyimpu (October 22); Tse (October 5, 8, and 9); Pe (September 22); Charne (September 29); Lusha (October 1); Chamna (October 3); Cha La (September 20); Temo Gompa (September 15); Tsela Dzong (September 27); Kangka (September 28); Dza Chu, Yangtze Basin (May); confluence of Dza Chu and Gam Chu (August 19); Bar Chu (October 4); Chok Chu (September 13); Camp 141 (September 2); Drechu Gompa (June 10).

Specimens examined: 71, wing length, 38 ♂, 57–68 (62.4); 25 ♀, 54–61 (56.8).

Other records: The Second Yarkand Mission collected one specimen at Shakhidulla in the Kara Kash Valley on October 19, 1873, and another in the Nubra Valley, Ladak, also in October; one specimen was taken also in the Kama Valley, near Mount Everest, on August 24, 1921.

Taxonomy: This species varies geographically and the population of southeastern Tibet ("*tibetanus*") is darker and its wing length averages slightly smaller; but this does not seem a sufficient reason to treat it as a separate species,

as Ripley proposes (1961). I therefore adhere to my original review (1959) and recognize only one species.

Phylloscopus arandii

Milne-Edwards' Warbler

Sino-Himalayan (Hopeh to eastern Tibet, south to northern Yunnan).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (May); Tsurumun Chu (April); Chasora River (May); Kung-ho-ku-chih (May). Northeastern Tibet, Lao-hu-k'ou, and near Lao-hu-k'ou (May 6, 13, and 19); Hung-ho-siae (June 13 and 15); near Hung-ho-siae (June 16 and 17); Hsin-ch'eng (June 17); Chertenton (May 17). Amdo, Mujik ho (June); Kuei-te (June); mountains opposite Ragya Gomba (June); Ba Chu (June 23); Tagso Nang Canyon (June 2).

SOUTHEASTERN PLATEAU (N): Jyekundo (May 5); Gur La (May 25).

Specimens examined: 26, wing length, 16 ♂, 60-65 (62.8); 4 ♀, 57-60 (59).

Phylloscopus pulcher

Orange-barred Willow Warbler

Sino-Himalayan (Szechwan and Tsinghai to northwestern Himalayas, south to northern Burma and northern Yunnan).

OUTER PLATEAU (N): Ladak, Zaskar, Debring (June 25). Southern Tibet, northern Chumbi Valley (no date, "shot off a nest"). Northeastern Tibet, Kimar (September 18).

SOUTHEASTERN PLATEAU (N): Yarap (May 9); Nam La (September 2); Lusha La (June 8); Temo La (May 17); Gur La (May 25).

Specimens examined: 9.

Phylloscopus inornatus

Yellow-browed Warbler

Palaearctic.

OUTER PLATEAU (N): Baltistan, Shigar (August 19-21); Skardu (August 16); Kapalu (August 27); Chalunka (September 2); Biagdangdo (September 3 and 4). Ladak, Lamayuru (August 30); Hundar (September 7 and 10). Zaskar, Sarle (September 20); Kungi (September 7); Char (September 25); Bok (September 13). Spiti, Shelgo (September 12); Kaja (September 12); Kibar (September 7); Lithang (September 16); Dankhar Gomba (September 21); Mani (September 22); Losar (September 3); Po (September 26 and 27); Lara (September 14). Western Tibet, Nilang (October 30); Poling (October 2). Eastern Tibet, upper Hwang ho (May); Ugutu Ula (April); Chasora River (May). Northeastern

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Tibet, Lao-hu-k'ou (May 6, June 23 and 24); near Lao-hu-k'ou (May 4 and 5, June 24); Hsin-ch'eng (May 16); near Lassa (September 15); Desen-laka (July 25); Kuo-mang Ssu (May 17 and 18); San-dzhu-chin (May 16). Amdo, Mujik Mountains (June); Tagso Nang Canyon (June 2); near Ragya Gompa (May 26).

SOUTHEASTERN PLATEAU (N): Gyala (April 25, May 7); Dzeng (April 14 and 17); Tsela Dzong (June 5); Charme (September 29); Lisum (May 27); Gur La (May 25).

Specimens examined: 102, wing length, 54 ♂, 54-66 (58.5); 9 ♀, 54-56 (54.8).

Phylloscopus proregulus Pallas' Warbler

Central and eastern Palearctic.

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (April 22 and 30, May 30). Northeastern Tibet, near Lao-hu-k'ou (May 5 and 9); Kuo-mang Ssu (April 21); Chertenton (May 15). Amdo, Tagso Nang Canyon (June 2).

SOUTHEASTERN PLATEAU (N): Dzeng (August 13); Tse (October 5); Tamnyen La (June 21); Molo (April 14); Bimbi La (June 5); Lo La (May 14); Trön (April 25); Tripe (April 22); Kyimpu (May 9 and 10).

Specimens examined: 24, wing length, 9 ♂, 51-55 (53.3); 8 ♀, 49-52 (50.7).

Phylloscopus maculipennis Grey-faced Willow Warbler

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Burma, northern Yunnan, and mountains of Indochina).

SOUTHEASTERN PLATEAU (probably N): Trulung (January 10); Gyadzong (January 19); Yigrong Tso (February 14).

Specimens examined: 3.

Phylloscopus borealis Arctic Warbler

Northern Palearctic and western Alaska.

OUTER PLATEAU (M or E): Northeastern Tibet, Dobo (May 31).

Specimens examined: 2.

Other records: One specimen was taken also at Lingchung, Southeastern Plateau, on May 28, 1890, by Bonvalot and the Prince d'Orléans, according to Oustalet.

Phylloscopus magnirostris
Large-billed Willow Warbler

Sino-Himalayan (Szechwan and Nan Shan to northeastern Afghanistan, south to northern Burma, and northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 25 and 31, June 1). Amdo, opposite Ragya Gompa (May 26, June); north of Ragya Gompa (June 2).

SOUTHEASTERN PLATEAU (N): Kyimpu (May 10).

Specimens examined: 8.

Phylloscopus trochiloides
Greenish Warbler

Palaearctic.

NORTHERN PLATEAU (N): Amnen Kor (June).

OUTER PLATEAU (N): Baltistan, Skardu (August 12); Shigar (August 19); Shigar Nulla (August 22). Ladak, Lamayuru (August 30). Spiti, Kuling (September 19); Rangring (September 11); Shelgo (September 12 and 13); Kaja (September 13); Losar (August 1 and 4). Southern Tibet, Tildan Gompa (July 13); upper Chumbi Valley (May 26 and 28); Popti La (August 26); Kama Valley (June 24); Sakyatang (June 22). Northeastern Tibet, Rangta Gol near Kimar (May 28); Desen-laka (July 26); near Desen-laka (July 30); Wei-yuän-p'u (May 19); Chertenton (June 27, July 4). Amdo, Mujik Mountains (June).

SOUTHEASTERN PLATEAU (N): Sang La (June 29); Lo La (May 14); Nam La (September 4); Bimbi La (September 12); Ba La (June 23); Lusha La (June 8 and 11); Lisum (May 26 and 27); Tsela Dzong (June 1, September 27); Tse (October 8 and 10); Charme (May 11, September 28); Je (July 16); Gur La (May 25); Camp 137 (August 11).

Specimens examined: 58, wing length, 20 ♂, 59–67 (63.2); 11 ♀, 55–61 (58.7).

Phylloscopus occipitalis
Crowned Willow Warbler

Central and eastern Palaearctic.

OUTER PLATEAU (N): Ladak, Dras (May 25).

Specimen examined: 1.

Other records: A nest was also found in the Wakka Nallah, Ladak, by Ludlow on June 28, 1919.

Phylloscopus reguloides
Blyth's Crowned Willow Warbler

Sino-Himalayan (Szechwan to western Himalayas, south to northern Burma, northern Yunnan, and mountains of southeastern China and Indochina).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (April 12 and 16).

SOUTHEASTERN PLATEAU (N): Gyala (May 7, July 10 and 22); Molo (June 24); Je (July 16); Lokmo (June 1); Tongkyuk Dzong (May 21); Kyikar (August 29, September 7); Natrampa (April 27).

Specimens examined: 15, wing length, 7 ♂, 57-61 (59).

Seicercus burkii
Yellow-eyed Flycatcher-Warbler

Sino-Himalayan (southern Shensi and Szechwan to western Himalayas, south to Burma, northern Yunnan, and mountains of southeastern China to northern Tonkin).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 16, 19, and 21-26, June 9).

SOUTHEASTERN PLATEAU (N): Lisum (May 28); Doshong La (July 17), August 16); Tripe (September 12 and 15); Kyikar (August 29); Je (July 16); Gyala (July 22); Lung (April 28); Pemakochung (May 4); Singo Samba (June 28).

Specimens examined: 19, wing length, 10 ♂, 56-62 (59.6).

Abroscopus schisticeps
Black-faced Flycatcher-Warbler

Sino-Himalayan (southeastern Tibet to central Himalayas, south to Burma, Yunnan, and Tonkin).

SOUTHEASTERN PLATEAU (N): Trulung (February 19).

Specimens examined: 2.

Regulus regulus
Goldcrest

Palaearctic.

OUTER PLATEAU (N): Ladak, Kargil (April 30). Southern Tibet, upper Chumbi Valley (April 3). Northeastern Tibet, Kuo-mang Ssu (April 21, 24, and 25); Lao-hu-k'ou (January 25, May 9, December 31); Tsa-lung Ssu (March 16 and 18); Lassa (October 4); Rangta Gol near Chertenton (February 19 and 24); Chertenton (February 12, 18, and 24); South Tatung Range (February).

SOUTHEASTERN PLATEAU (N): Gya (January 19); Beyü (February 7).

Specimens examined: 34, wing length, 22 ♂, 53–58 (55.7); 9 ♀, 51–55 (53).

Other records: A migrant in northern Chang Tang according to Kozlov.

Leptopoecile sophiae

Severtzov's Tit-Warbler

Sino-Himalayan (Tsinghai and Szechwan to the Pamirs and Tian Shan).

NORTHERN PLATEAU (N): Western Nan Shan (July). Eastern Koko Nor (July 29, September); Lake Koko Nor (October). Zaidam, Naiji Gol (January); South Koko Nor Range (February, end of August); Dulaan Hiid (August 20–22); Kurlyk (October); Zaidam, no locality (January).

OUTER PLATEAU (N): Ladak, Panamik (June 21, July 22); Taksay (July 24); junction of Shyok and Nubra Rivers (July 11); Aranu (July 12); Unmaru (September 6); Hundar (September 10); Khardung (September 12); Leh (May 4). Southern Tibet, Gyantse (January 3 and 21, February 2, March 15, May 2, 7, and 25, October 10). Eastern Tibet, "Hauts plateaux du Tibet" (January 5); Dy Chu (Przhevalsky, June); Mzushu Rg'mchon (January); Ugotu Ula (April). Northeastern Tibet, Lao-hu-k'ou (January 3 and 15, February 7 and 12, May 3, 6, 9, and 16, November 25, December 9, 16, and 19); near Lao-hu-k'ou (January 3 and 15, February 12, May 1, 6, and 9, November 21, December 6, 7, 26, and 31); near Lassa (October 17); Durgu (May 18); south slope of South Tatung Range (March 4); South Tatung Range (May 18); Rangta Gol Gorge near Kimar (April 20, 23); Kimar (April 2 and 17, May 24); Desen-laka (January 29); Chertenton (February). Amdo, Jahar Mountains (June); Kuei-te (December 13).

SOUTHEASTERN PLATEAU (N): Le La (May 7); Sang La (September 13 and 14); Sur La (July 28, August 16); Pa La (July 18 and 20); Bod La (August 30); Dzeng (April 6); Nam La (August 31, September 1, 2, and 4); north foot of Cho La (August 20); Kyimpu (May 10); Sobhe La (December 31); Tsela Dzong (March 25); Re Chu (December); Bar Chu (October); Menton La (September); N'ko-gun River (August 13–18); Banajun (April); Riwoche (May 5); Jyekundo (April 4).

Specimens examined: 153, wing length 88 ♂, 50–56 (52); 44 ♀, 48–53 (50.8).

Leptopoecile elegans

Crested Tit-Warbler

Sino-Himalayan (Tsinghai and Szechwan to eastern Tibet).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April, May); Dulaan Hiid (August 16–22).

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OUTER PLATEAU (N): Eastern Tibet, Ugutu Ula (April); Chasora River (April). Northeastern Tibet, Lao-hu-k'ou (January 2 and 3, May 1, October 13, December 10 and 15); near Lao-hu-k'ou (January 3, 9, 11, and 17, February 3, 10, and 27, May 1 and 9, December 12); Kuo-mang Ssu (January 3, February 27, April 21, 24, and 25, November 21, December 2 and 28); T'ien-t'ang Ssu (March 16 and 18); San-dzhu-chin (May 16); Tsa-lung Ssu (March 16); Chertenton (March 13-17). Amdo, Mujik Mountains (June); opposite Ragya Gompa (May 26); Labrang (February 13).

SOUTHEASTERN PLATEAU (N): Sur La (August 16 and 19); Doshong La (July 13); Sobhe La (December 31); Tse (December 15, 17, and 19); Re Chu (January); Nom Chu (April 1 or 2); Bar Chu (November 2).

Specimens examined: 80, wing length, 50 ♂, 53-58 (55.8); 27 ♀, 52-58 (55.3).

Prinia atrogularis

Black-throated Prinia

Sino-Himalayan (western and southeastern China to central Himalayas, south to Indo Chinese countries and Sumatra).

SOUTHEASTERN PLATEAU (N): Lubong (February 21); Gya (February 10); Trulung (March 13); Tsakchugong (February 26).

Specimens examined: 5.

Rhopophilus pekinensis

White-browed Chinese Warbler

Sino-Himalayan (southern Manchuria to eastern Tibet and Sinkiang).

NORTHERN PLATEAU (N): Zaidam, Kurlyk (June, October); eastern Zaidam (January, April, August).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March, May); Kung-ho-ku-chih (May). Amdo, Kuei-te (November 19 and 30).

Specimens examined: 37, wing lengths as follows:

Zaidam only, 16 ♂, 65-73 (69.5); 6 ♀, 62-68 (66).

Other specimens, 6 ♂, 62-65 (64.1); 3 ♀, 62-64 (63.3).

Subfamily RHIPIDURINAE

Rhipidura hypoxantha

Yellow-bellied Fantail

Sino-Himalayan (Szechwan to western Himalayas, south to northern Burma, northern Yunnan, and northern Tonkin).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (June 6 and 9).

SOUTHEASTERN PLATEAU (N): Showa (February 5); Molo (June 24); Doshong La (July 16); near Trulung (January 10); Tongkyuk Dzong (May 21); Yigrong Tso (February 8); Tripe (September 13); Michi (June 21).

Specimens examined: 10, wing length, 5 ♂, 58–59 (58.5).

Other records: Collected also at the Su La, by Bailey on June 25, 1913.

Subfamily MUSCICAPINAE

Ficedula parva

Red-breasted Flycatcher

Palaearctic.

NORTHERN PLATEAU (M).

OUTER PLATEAU (N).

No specimens examined: Reported on migration from the northern Chang Tang in the autumn between October 2 and 13 by Kozlov (1899b); and reported as breeding in Ladak, and perhaps also in southern Tibet.

Ficedula strophhiata

Orange-gorgeted Flycatcher

Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas, south to Burma, Yunnan, and Indochina).

OUTER PLATEAU (N): Southern Tibet, Jamila (June 14); Changdong (June 9).

SOUTHEASTERN PLATEAU (N): Singo Samba (June 27); Tamnyen La (June 22); Migyitün Gompa (May 24); Langong Chu (April 21); Sang La (June 27).

Specimens examined: 8.

Ficedula hyperythra

Red-breasted Blue Flycatcher

Sino-Himalayan (southeastern Tibet to western Himalayas, south to Burma, Yunnan, and Indochina).

SOUTHEASTERN PLATEAU (N): Pemakochung (May 2).

Specimen examined: 1.

Other records: A nest, with fledged young, was found at Laoting by Bailey on July 8, 1913.

Ficedula hodgsonii

Rusty-breasted Blue Flycatcher

Sino-Himalayan (Szechwan to central Himalayas, south to northwestern Yunnan).

OUTER PLATEAU (N): Amdo, Mujik Mountains (July).

SOUTHEASTERN PLATEAU (N): Singo Samba (May 17); Molo (June 23); Chunyima (May 8); Tamnyen La (June 19 and 24); Tsela Dzong (August 3); Chok Chu (September 12); Routoumdo (May 17); Gur La (May 25).

Specimens examined: 17, wing length, 14 ♂, 70-76 (72.5).

Ficedula superciliaris

White-browed Blue Flycatcher

Sino-Himalayan (Szechwan to northeastern Afghanistan, south to Burma).

OUTER PLATEAU (N): Southern Tibet, Laptang (June 22).

SOUTHEASTERN PLATEAU (N).

Specimen examined: 1.

Other records: This species was collected while nesting at the Su La, South-eastern Plateau, by Bailey on June 25, 1913.

Ficedula tricolor

Slaty-blue Flycatcher

Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas, south to northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Kama Valley (August 25); upper Chumbi Valley (May 1).

SOUTHEASTERN PLATEAU (N): Bimbi La (September 9 and 10); Tse (October 5); Nyima La (July 5); Kyikar (August 29, September 7); Deyang (May 13); Deyang La (August 8); Lo La (May 15); Lisum (May 27); Sang La (June 27); Natrampa (May 2); Kyimdong Dzong (October 11); Singo Samba (June 28); Chianang (June 5); Gyala (July 23 and 24).

Specimens examined: 23, wing length, 10 ♂, 60-62 (61.4); 6 ♀, 56-60 (58.2).

Cyornis vivida

Rufous-bellied Blue Flycatcher

Sino-Himalayan (eastern Himalayas, south to Indo Chinese countries and Sumatra, also Formosa).

SOUTHEASTERN PLATEAU (N): Nyuksang (May 6).

Specimen examined: 1.

Niltava grandis

Large Niltava

Sino-Himalayan (eastern Himalayas, south to Indo Chinese countries and Sumatra).

SOUTHEASTERN PLATEAU (N).

No specimens examined: Ludlow noted in his field book that he shot a specimen of this species at Pemakochung on May 6, 1947, but that "the specimen was too mutilated to preserve."

Niltava sundara

Rufous-bellied Niltava

Sino-Himalayan (Himalayas south to Indo Chinese countries).

OUTER PLATEAU (N): Southern Tibet, Jamila (June 16).

SOUTHEASTERN PLATEAU (N).

Specimen examined: 1.

Other records: Bailey (1915, p. 75) collected this species at Laoting, Pome, Southeastern Plateau, on July 8, 1913, together with a nest containing three eggs.

Muscicapa striata

Spotted Flycatcher

Western Palearctic (east to Lake Baikal and Mongolia).

NORTHERN and OUTER PLATEAU (M).

No specimens examined: The Second Yarkand Mission collected one specimen on September 17, 1873, at Tangtse, Ladak; another was taken at the foot of the Suget Pass on September 22 by Henderson.

Muscicapa sibirica

Sooty Flycatcher

Eastern Palearctic (west to northwestern Himalayas, and south to northern Yunnan).

OUTER PLATEAU (N): Spiti, Mani (September 23).

SOUTHEASTERN PLATEAU (N): Singo Samba (June 27); Deyang (September 26); Gyala (July 24); Je (July 15); Penam Chu (July 12); Migyitün Gompa (May 23); Lusha (June 17); Lusha La (June 15); Chomo Dzong (August 12); Langong (July 17); Sangacho Dzong (June 23); Chupalong (June 6); Kongtsuka (June 5).

Specimens examined: 18, wing length, 8 ♂, 74-79 (76.3); 6 ♀, 73-79 (76.5).

Muscicapa latirostris

Brown Flycatcher

Eastern Palearctic (west to the Yenisei and northwestern Himalayas).

OUTER PLATEAU (M).

No specimens examined: The Second Yarkand Mission collected one specimen on the Indus, south of Chimre, Ladak, on September 18, 1873.

Subfamily TURDINAE

Saxicola torquata

Stonechat

Palearctic and Ethiopian.

NORTHERN PLATEAU (N): Koko Nor (September 19). Zaidam, South Koko Nor Range (August).

OUTER PLATEAU (N): Ladak, Leh (May 7 and 11). Zaskar, Char (September 26 and 27). Spiti, Mani (September 22); Lara (September 29). Western Tibet, Taklakot (September 5); Trokpo Shar (September 15); Menza (September 17). Southern Tibet, Dejen Gompa (October 10); Kharta Shika (August 9); east of Mount Everest (September 24); Khamba Dzong (September 12, 18, 25, and 26); Sakang (September 25); Gyangtse (April 20, September 26 and 28); Tang La (Ludlow, October 1); Lhasa (September 20 and 21). Northeastern Tibet, Lao-hu-k'ou (April 28, May 1, 7, and 19); near Lao-hu-k'ou (April 28, May 6); Yüo-schüi-tsuän (July 15); Dobo (April 21); Kuo-mang Ssu (April 24); Mantuse (May 18); Dschu-lin-kou Gorge (September 5); Durgu (May 18); Chan Ku (July 12).

SOUTHEASTERN PLATEAU (N): Kyimdong (October 20); Cha La (September 21); Tse (October 10 and 11); Dza Chu (August); Banajun (April); Jyekundo (April 15); Lamdo (April 15); Camp 137 (August 11).

Specimens examined: 75, wing length, 39 ♂, 69–79 (74.6); 27 ♀, 67–76 (71.7).

Other records: Breeds in northern Chang Tang according to Kozlov.

Saxicola insignis

Hodgson's Stonechat

Central Palearctic (high central Asia).

SOUTHEASTERN PLATEAU (N): Drechu Gompa (May 2).

Specimens examined: 10, wing length, 9 ♂, 88–92 (90.3).

Saxicola ferrea

Grey Bush Chat

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Indo Chinese countries).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (April 6 and 10).

SOUTHEASTERN PLATEAU (N): Tongkyuk Dzong (September 4).

Specimens examined: 3.

Oenanthe pleschanka

Pied Wheatear

Central Palearctic.

NORTHERN PLATEAU (M): Zaidam, Bayan (March).

OUTER PLATEAU (N): Baltistan, Shigar (August 19 and 21); Skardu (August 12 and 13); Kapalu (August 28); Doghani (August 24); Surmo (August 28); Prahnu (August 31). Ladak, Pashkyum (June 25, July 28); Kargil (June 2, 3, 6, 11, and 24); opposite Kargil (June 13); Kirkitchu (July 16); between Kirkitchu and the junction of the Dras and Shigo Shigar Rivers (July 17); Kharbu (May 31); Chaliskot (July 11). Spiti, Ki Gompa (September 10). Eastern Tibet, Tsurumun Chu (April); Ugutu Ula (April); Kung-ho-ku-chih (May); Balekun Mountains (May). Northeastern Tibet, Ma-li Ku (August 11); Hsining (April 30); Dobo (September 1).

Specimens examined: 38, wing length, 13 ♂, 90–101 (95.8); 7 ♀, 87–98 (92.3).

Other records: Recorded also in the Kara Kash Valley.

Oenanthe picata

Eastern Pied Wheatear

Iran to Ladak, probably Eremian in origin.

OUTER PLATEAU (N): Baltistan, Skardu (August 12 and 13); Doghani (August 24); Shigar (August 21); Marcha (August 29). Ladak, Indus Valley (July 5, August 25); Khalatse (April 29); Indus bridge below Khalatse (June 16); Kargil (July 16); between Kirkitchu and the junction of the Dras and Shigo Shigar Rivers (July 17).

Specimens examined: 17, nearly all immature of the *picata* phase.

Oenanthe deserti

Desert Wheatear

Eremian (Sahara to Mongolia).

NORTHERN PLATEAU (N): Chang Tang, Kum Bulak, Qizil Koran Range (June 18). Northern Tibet, Blagodatny (June); Da Chuan Spring, Shara Gol

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(May). Koko Nor, east coast of the lake (June 17). Zaidam, Sun Dzhin Gol (June); South Koko Nor Range (April); Hatu Gol (June); Bayan Gol near Kurlyk (April 2, June, October); Kurlyk (June); Dulaan Hiid (April); Tsagaan Nor (April); southern Zaidam (April, August). Dabasan Gobi (April); Alyk Norin Gol (June).

OUTER PLATEAU (N): Ladak, Lamayuru (June 16); plateau east of Kargil (June 7); Bod Kharbu (April 26, October 7); Kharbu (April 26); Pituk (May 3, July 10, September 19 and 21); Indus Valley (September 10); Leh (July 1, August 24); near Leh (May 18); Khardung (June 22, July 21, September 13); Khardung Valley (July 22); Murgo (June 23, August 9); Fotu La (May 31, June 5 and 27, August 2 and 3); Saser Brangsa (July 11); Kataklik (July 1); Namika La (June 11 and 26, July 29); Nurla (October 7); Spangmik (July 28); Spanpuk (September 8 and 9); Hundar (September 10); Chang La (July 9); Chushul (July 24); Pulö (August 3); Nimu (May 2); above Nimu (May 13); Gya (July 5 and 6); Taga Laung La (June 6); upper Taga Laung La (August 23); Panamik (July 19). Zaskar, Char (September 24, 26, and 27); Seni (July 19 and 20); Hamiling (July 22); Phe (July 21, September 21); Lakong (July 21); Abring (September 15); Shama Kurpo (July 24). Rupshu, Debring (July 7, September 27); Tso Kar (July 1 and 11, August 19); More Plain (August 20); Puga (July 5); above Puga (June 22); Thugji Pass (June 9); Gian (June 26); Rachogba (June 23). Spiti, Kaja (September 13); Ki Gompa (September 10); Losar (September 2 and 3); Lagudarsi (September 5); Po (September 26). Western Tibet, no locality, Pike collector (July 25). Southern Tibet, Gyangtse (May 31); Tingri Dzong (June 25 and 30, July 7); Kalashar (May 10); Chaksam (July 27). Eastern Tibet, Camp 121 (July 5); upper Hwang ho (March). Amdo, valley of the Hwang ho near Kuei-te (July 14).

Specimens examined: 167, wing length, 81 ♂, 95-107 (100.1); 27 ♀, 92-101 (95.6).

Other records: This species is said to be common in western Tibet, and occurs in small numbers in Lhasa during the summer.

Oenanthe isabellina

Isabelline Wheatear

Eremian (southeastern Russia to northwestern Manchuria).

NORTHERN PLATEAU (N): Northern Tibet, Yagan Gol (August). Koko Nor (March, April). Zaidam, Kurlyk (April, May); South Koko Nor Range (April); Hatu Gol (June); Zaidam, no locality (August, September). Amnen Kor (June).

OUTER PLATEAU (N): Tatung River (May 13); Chertenton (June 5); Dobo (May 27, June 10); near Dobo (May 28, June 10). Amdo, Ragya Gompa (May 20).

Specimens examined: 34, wing length, 17 ♂, 96–103 (100.4); 7 ♀, 94–100 (96).

Oenanthe alboniger

Hume's Wheatear

Eremian.

OUTER PLATEAU (probably N).

No specimens examined: Osmaston (1930) states that he collected a specimen at Honupatta in Ladak on June 19, 1928, and this species is recorded also for Zaskar.

Monticola saxatilis

Rock Thrush

Eremian.

NORTHERN PLATEAU (N): Northern Tibet, Chang Tang, Camp 55 (September 3). Koko Nor, "mountains between the Koko Nor and Hsi-ning ho" (June 20). Zaidam, Kurlyk Nor (September 7); Irgitsyk (May 7); Baruun (May 9); eastern Zaidam (August 9).

OUTER PLATEAU (N): Ladak, Lachuruk (September 5); Hundar (September 7); Spanpuk (September 9); Khalsar (September 12); Khardung (September 13); Mulbekh (April 25). Northeastern Tibet, Dobo (August 4); near Dobo (August 23); Hai-yen (June 17). Amdo, Kuei-te (July 13).

Specimens examined: 19, wing length, 5 ♂, 120–124 (122).

Monticola solitarius

Blue Rockthrush

Eremian.

OUTER PLATEAU (N): Baltistan, Shigar (August 20 and 21); Doghani (September 24 and 25); Chalunka (September 2). Ladak, Dras (May 29, July 21); Dras Valley (June 21 and 23); Mulbekh (August 4); Kargil (May 26); Pituk (May 4, July 5, August 4 and 26); Saspul Gompa (June 27, August 1); Rabila (July 28); Leh (May 13, August 10 and 12, September 17); Marsalang (August 5); Himis (June 30); Sakti (August 2 and 3); Chimre (May 18 and 19, August 4); Nurla (July 30); Chorten Chen (August 30); She (August 25); junction of the Shyok and Nubra Rivers (October 7). Zaskar, Grantung (July 27); Sanko (July 26); Gulmatungo (July 25). Spiti, Shelgo (September 14); Kuling (September 20); Dankhar Gompa (September 25); Po (September 27). Southern Tibet, Kharta Shika (August 21).

Specimens examined: 49, wing length, 15 ♂, 118–127 (122); 6 ♀, 116–124 (119).

Other records: Observed feeding young in western Tibet by Ali (1946).

Monticola rufiventris
Chestnut-bellied Rockthrush

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Burma, Yunnan, and mountains of southeastern China to northern Tonkin).

OUTER PLATEAU (N): Southern Tibet, Tang Mar (June 24).

SOUTHEASTERN PLATEAU (N): Natrampa (July 11); Tangme (February 18); Langpe (July 9).

Specimens examined: 6.

Phoenicurus alaschanicus
Przhevalsky's Redstart

Tibetan.

Superspecies: *P. erythronotus*, central and eastern Palearctic.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May); south slope of Humboldt Range (May). Zaidam, Hatu Gol (mid-July); Dulaan Gol (April); South Koko Nor Range (April, May 18, end of August); Zaidam, no locality (August).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March, April); Chasora River (April); Kung-ho-ku-chih (May). Northeastern Tibet, Lao-hu-k'ou (October 10, November 24, 27, and 28; December 1, 7, 10, and 26); near Lao-hu-k'ou (February 15, November 27, December 1, 7, and 10); Buguk Gol (November 12); near Lassa (October 12); Shiku River (August 13); Kuo-mang Ssu (January 17); Hsin-ch'eng (November 16). Amdo, Kuei-te (October 17 and 19, November 10).

Specimens examined: 38, wing length, 27 ♂, 89-95 (92.1); 10 ♀, 83-92 (88).

Phoenicurus erythronotus
Eversmann's Redstart

Central and eastern Palearctic.

Superspecies: *P. alaschanicus*, northeastern Tibet.

OUTER PLATEAU (probably E): Baltistan, Shigar (January 16).

Specimen examined: 1.

Phoenicurus caeruleocephalus
Blue-headed Redstart

Central Palearctic.

OUTER PLATEAU (N).

No specimens examined: Said to breed in Baltistan, and reported by Osmaston (1930) from Karbos on July 21, 1928.

Phoenicurus ochruros

Black Redstart

Western Palearctic, east to Tibet and Mongolia.

NORTHERN PLATEAU (N): Blagodatny (May); Ulaan Bulaq (June). Koko Nor (April); eastern Koko Nor (July 23). Zaidam, Gurab Angir Gol (August); Habirga Hetse (June); southern Zaidam (October); Zaidam, no locality (September).

OUTER PLATEAU (N): Baltistan, Skardu (August 13); Satpura (August 10); Shigar Nulla (August 19 and 21); Khalan (August 20); Tale La (August 24); Kapalu (August 27); Biagdangdo (September 3); Chalunka (September 2); Prahnu (September 1). Ladak, Zoji La (June 20); Dras (May 21, June 23); Matayan (August 15); Machhoi (May 1); Kirkitchu (May 31, June 24); Lamayuru (June 17); Mulbekh (May 12); Kargil (April 19); Suru Valley, 10 miles above Kargil (July 12); Bod Kharbu (June 11); Pituk (September 19 and 20); Leh (May 5, 14, and 15, July 6 and 10, August 3 and 10-14, September 5); Tangtse (July 12, 19, and 30); Saser Pass (July 22); Saser Brangsa (July 10); Nurla (April 30); Terong (June 20 and 24); Nyungstet (July 3); Kataklik (July 4); Khardung (July 15); She (September 22); Miru (September 24); Chushul (June 18); Chimre (August 4); Sakti (August 2); Hundar (September 10); Spanpuk (September 8 and 9); Tarkalung (September 5); Zaskar, Mune Gompa (July 17); Hamiling (July 22, September 16); Kurgiakh (July 15); Abring (September 15); Char (September 24); Sarle (September 20 and 22); Kungi (September 6-8); Braqnak (September 2). Rupshu, Lachalung (October 4); Da (July 12). Spiti, Kaja (September 14); Losar (September 3); Kiomo (September 4); Kuling (September 19 and 20). Western Tibet, Dunkar (September 28); Taklakot (September 5).

OUTER PLATEAU (N): Southern Tibet, Dejen Gompa (October 10); Changdong (October 13); Che Dala (October 30); Tak Che (August 21); Kuti Pokri (October 2); Kharta Shika (August 15); east of Mount Everest (September 16, 18, and 24); Phari Dzong (April 7); Khamba Dzong (September 28, October 3, 7, and 9, November 8); Gyangtse (April 4, 8, 23, 25, and 28, May 3); Shigatse (May 5 and 6); Lhasa (September 12). Eastern Tibet, Omchanganyigu (April 9); Mamoikeumar (April 11); Camp 101 (June 9); Camp 120 (July 4); upper Hwang ho (March); Siang-Si-Pei Range (May, April); Shara Hoto (July 20). Northeastern Tibet, Dsiling (April 9, 12, and 24); Dobo (April 6, June 7 and 27, July 4); near Dobo (August 4, September 6); Mantuse (April 12 and 25); Durgu (May 20); La-chi Shan-k'ou (July 12 and 13); near Hsi-ning (August 13); Amdo, near Kuei-te (July 13); 5 miles below Tsangar Gompa (May 13); Dzomo Valley (June 22).

SOUTHEASTERN PLATEAU (N): Hi Chu, Yangtze Basin (July); Dy Chu (Koz-

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lov, March); Dza Chu, Yangtze Basin (August 20 and 21); Yangtze-Mekong Divide (August 6–8); Ju Gompa (no date); Gartoh Gompa (February 7); Jyekundo (April 3, 9, and 15); Sacha Sumdo (April 13 and 14); T'sin Da (April 15); Lamdo (April 15); Drechu Gompa (April 18).

Specimens examined: 250+, wing length, 108 ♂, 84–96 (88.9); 59 ♀, 80–90 (84).

Phoenicurus hodgsoni Hodgson's Redstart

Sino-Himalayan (southern Shensi and Szechwan to southern Tibet).

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Southern Tibet, Gyangtse (March 31, April 23 and 27, June 1, September 8); Khamba Dzong (October 7, 9, and 31); Kharta Shika (August 11 and 20, September 4); Chaksam (July 30); Khambapadze (April 12 and 14); Tathang Gompa (April 3 and 4); Pan (April 24); Lhasa (February 1). Eastern Tibet, upper Hwang ho (May); Chasora River (April); Ugutu Ula (April); Kung-ho-ku-chih (May). Northeastern Tibet, Lao-hu-k'ou (April 25, May 2); Dsiling (May 6); Chertenton (June 25); Yung-an-ch'eng (May 7); Lassa (September 13, October 14). Amdo, near mouth of Gochen Gorge (May 13); Ragya Gompa (May 20).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (May 5); Dzeng (April 3); Sang (June 26); Hi Chu, Yangtze Basin (July); Yangtze-Mekong Divide (beginning of September); Gur La (May 25); Jyekundo (April 3, 10, 12, and 15); Lanyipa (April 12 and 13); T'sin Da (April 15); Lamdo (April 15, May 9); Banajun (first half of April).

Specimens examined: 64, wing length, 38 ♂, 82–89 (85.5); 19 ♀, 80–88 (83.6).

Other records: Breeds in the Zaidam, according to Kozlov (1899a).

Phoenicurus frontalis Blue-fronted Redstart

Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas).

NORTHERN PLATEAU (N): Koko Nor (no date); Lha La (September 2). Zaidam, South Koko Nor Range (March, May); Dulaan Gol (April); Dulaan Hiid (August).

OUTER PLATEAU (N): Baltistan, Burzil Pass (August 25). Southern Tibet, Changdong (October 13); Kama Valley (August 28); Gotsa (April 4); upper Chumbi Valley (April 8 and 30). Eastern Tibet, upper Hwang ho (March); Ugutu Ula (April); Chasora River (April). Northeastern Tibet, Mantuse (April 13); Durgu (April 12); Kuo-mang Ssu (May 1); Lao-hu-k'ou (May 2,

October 10); near Lao-hu-k'ou (May 2); Rangta Gol Gorge (September 30); Rangta Gol Gorge near Kimar (July 18); Kimar (March 30, April 19, July 8); Myn-dan-scha (June 14); Tsan Chhu (July 27). Amdo, Mujik Mountains (June); Jahar Mountains (June); Dzomo Valley (June 22).

SOUTHEASTERN PLATEAU (N): Gya (January 24); Yarap (May 19); Tsema La (June 17); Ge Chu (April); Banajun (April); Atsur (May 24); near Chinto (April 17); Camp 137 (August 11).

Specimens examined: 52, wing length, 28 ♂, 83–92 (87.5); 13 ♀, 79–85 (82).

Other records: Recorded also from the region north of Lhasa.

Phoenicurus schisticeps

White-throated Redstart

Sino-Himalayan (Tsinghai to southern Tibet, south to northern Yunnan).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (May 13).

OUTER PLATEAU (N): Southern Tibet, Gotsa (January 16 and 19); Lhakhang Dzong (September 1); no locality (March, October, November). Eastern Tibet, Chasora River (April); Ugutu Ula (April or May). Northeastern Tibet, Lao-hu-k'ou (January 11, November 25, December 2, 10, and 19); near Lao-hu-k'ou (January 3 and 15, February 7, April 24, November 27, December 19); Lassa (December 19); Hung-ho-siae (November 16); Buguk Gol (November 16); Kuo-mang Ssu (May 18); Rangta Gol Gorge (March 15); Rangta Gol Gorge near Desen-laka (March 10, July 30); Desen-laka (March 12, July 29); near Kimar (June 12); Chertenton (February, March 15, May 24). Amdo, Mujik Mountains (June); mountains west of the Jupar Valley (June 26); Tagso Nang Canyon (June 2); Dzomo Valley (June 22).

SOUTHEASTERN PLATEAU (N): Dzung (April 7); Simbiteng (December 10); Langong (July 17); Lilung (June 21); Lusha (June 16 and 17); Dem (February 7); Molo (April 14, June 24); Taktsa (June 19); Doshong La (July 17); Gya (January 27); Dze Chu (September); Bar Chu (September); Banajun (April); Tincagha (May 14); Kongtsuka (June 1); Rata (May 6); Gartoh Gompa (February 7); Sacha Sumdo (April 14).

Specimens examined: 92, wing length, 56 ♂, 81–90 (85.3); 27 ♀, 78–86 (81.7).

Other records: Occurs at Lhasa in autumn.

Phoenicurus aureoreus

Daurian Redstart

Central and eastern Palearctic, perhaps Sino-Himalayan in origin.

OUTER PLATEAU (N): Northeastern Tibet, Chertenton (May 20, June 25).

SOUTHEASTERN PLATEAU (N): Kyimdong (October 9); Tsela Dzong (June 1);

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Doshong La (July 17); Changtrong (October 7); Lusha (June 18); Dzung (March 29); Natrampa (May 3); Gyala (July 10); Kyikar (September 7); Kongtsuka (June 8); Yenching (June 10); Choka (May 16); Tincagha (May 14).

Specimens examined: 18, wing length, 8 ♂, 73–78 (75.3); 7 ♀, 71–76 (73.5).

Phoenicurus erythrogaster Güldenstädt's Redstart

Tsinghai and Kansu west to the Caucasus, probably Sino-Himalayan in origin.

NORTHERN PLATEAU (N): Northern Chang Tang, Suget Dawan (September 2); I Valley, Shaksgam (July 26). Koko Nor (October). Zaidam, Naiji Gol (January); Zaidam, no locality (January, March, September). Amnen Kor (June).

OUTER PLATEAU (N): Baltistan, Shigar Valley (November 24); Braldu Valley (January 2, December 23). Ladak, Bod Kharbu (April 28, October 7 and 20); Lamayuru (April 28); Mulbekh (April 25); Pituk (September 19 and 21); Leh (May 9, 11, and 16); Zingral (May 21); Muglib (July 29); She (September 22); Ranbirpura (September 23); Miru (September 24); Tangtse (October 9); Duhang (September 21); Lotsun (October 9); Tiggur (November 16); Satti (November 17); Saser Pass (July 22 and 23, August 24); below the Saser Pass (July 31); Ladak, no locality (July 8). Zaskar, Debring Valley (September 12). Rupshu, Rachogba (October 6).

OUTER PLATEAU (N): Southern Tibet, Upper Kharta Valley (September 7); east of Mount Everest (September 9 and 12); Khamba Dzong (September 9, October 4 and 5, November 19 and 28); Tuna (February 3); Gyangtse (March 4 and 19, November 21); Pomo Tso (September 10); Putrang La (October 31); Dza La (August 10); Lhasa (January 9, 20, and 30, February 7, 10–12, and 23, March 9, 15, and 19). Northeastern Tibet, near Hsi-ning (March); Lo-khy-ku (August 17); Mantuse (December 13 and 17); Kuo-mang Ssu (February 10); Dsiling (December 17); Lao-hu-k'ou, and near Lao-hu-k'ou (January 15, February 10, 12, and 15, December 1, 7, 10, 16, and 19); Desen-laka (January 24, March 9); Chertenton (March). Amdo, Kuei-te (November 6); Thothug Nyera, Jupar Range (July).

SOUTHEASTERN PLATEAU (N): Gyandro (October 10); Le La (October 23); Trasum Kye La (August 23); Hi Chu, Yangtze Basin (July); Yangtze-Mekong Divide (August); Sasha Sumdo (April 13); Camp 139 (August 31); Rombatsa (October 31).

Specimens examined: 162, wing length, 99 ♂, 92–115 (108), 45 ♀, 95–107 (102.3).

Other records: Breeds in northern Chang Tang according to Kozlov (1899b).

Chaimarrornis leucocephalus

White-capped Water Redstart

Sino-Himalayan (southern Shensi and Shansi to the Pamirs, Hissar and Zeravshan Ranges).

NORTHERN PLATEAU (N): Eastern Koko Nor (July 23 and 25).

OUTER PLATEAU (N): Baltistan, Tale La (August 23); Burzil Pass (August 5). Ladak, Zoji La (August 8); Machhoi (August 8); Hangru (October 6); Miru (September 5). Zaskar, Char (September 23 or 27). Rupshu, Burdun Gompa (September 18). Spiti, Mani (September 22). Southern Tibet, Balwa (October 15); Changdong (June 10); Kharta Shika (August 15); Chog La (August 29); upper Chumbi Valley (March 15, April 3 and 7, May 11). Eastern Tibet, Ugutu Ula (April or May); Tsurumun Chu (April). Northeastern Tibet, Wei-yuän-p'u (May 5); between Wei-yuän-p'u and Lao-hu-k'ou (October 14); Hsi-ning (no date); near Hsi-ning (May 6, August); Hsi-ning ho (August 17); Dangkar ho (September 25); Lassa (October 12); Muu Bayshin (August 23); Dzai Dabaa (May 15 and 17); Chertenton (May 21 and 23). Amdo, Mujik Mountains (June or July); Tagso Nang River (June 2).

SOUTHEASTERN PLATEAU (N): Trulung (February 21); Molo (June 23); Hi Chu, Yangtze Basin (July); Dza Chu (April); Yangtze-Mekong Divide (August); Banajun (April); Rata (May 6); Jyekundo (May 19).

Specimens examined: 53, wing length, 21 ♂, 96–108 (101.5); 10 ♀, 89–96 (92.8).

Other records: Recorded from Lhasa, and from Drepung Gompa, north of Lhasa, during the summer.

Rhyacornis fuliginosus

Plumbeous Water Redstart

Sino-Himalayan (Hopeh to northeastern Afghanistan).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (April 19, May 1). Northeastern Tibet, Chertenton (May 20 and 22, July 2 and 4).

SOUTHEASTERN PLATEAU (N): Dzung (April 14).

Specimens examined: 10, wing length, 7 ♂, 75–78 (76.7).

Other records: Reported from Ladak, but the record is not certain.

Hodgsonius phoenicuroides

Hodgson's Shortwing

Sino-Himalayan (Hopeh to northwestern Himalayas, south to northern Tonkin).

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OUTER PLATEAU (N): Northeastern Tibet, Tatung River (August); Chertenton (May); Lassa (September 18).

SOUTHEASTERN PLATEAU (N): Gyandro (July 26); Kyimdong (June 15, October 9); below Migyitün (May 26); Kyikar (August 29); Lusha (June 16); Tumbatse (July 2); Tripe (July 9 and 12, September 15); Doshong La (July 15, August 18); Sang (June 26); near Dongkar (August 20); Gyala (July 11, 23, and 24); Je (July 16); Budi Tsepo La (August 22); valley before Markham Dzong (June 1).

Specimens examined: 27, wing length, 12 ♂, 71-78 (73.6); 10 ♀, 69-73 (70.5).

Brachypteryx montana

Blue Shortwing

Sino-Himalayan (Szechwan to central Himalayas, south to Formosa, Indo Chinese countries, and Sunda Islands).

SOUTHEASTERN PLATEAU (N): Near Nyuksang (May 7); Lo La (July 4).

Specimens examined: 3.

Brachypteryx stellatus

Gould's Shortwing

Sino-Himalayan (eastern and central Himalayas, south to northern Burma and northern Tonkin).

SOUTHEASTERN PLATEAU (N): Lo La (May 14, July 3); Singo Samba (June 27); Migyitün Gumpa (September 1).

Specimens examined: 6.

Luscinia calliope

Siberian Rubythroat

Central and eastern Palearctic.

OUTER PLATEAU (N): Northeastern Tibet, Yüo-schüi-tsuän (July 13); Hsin-ch'eng (May 10 and 23); Shiku River (August 14); Myn-dan-scha (June 9, 10, 12, and 15); Hung-ho-siae (June 13); Lao-hu-k'ou (May 16); T'ien-t'ang Ssu (May 20, June 5); Rangta Gol Gorge near Chertenton (June 17 and 18); Chertenton (May 15 and 20, June 26).

Specimens examined: 23, wing length, 16 ♂, 75-82 (78); 6 ♀, 71-76 (74).

Luscinia pectoralis

Himalayan Rubythroat

Sino-Himalayan (Tsinghai and Szechwan to the Pamirs and Tian Shan, south to northern Burma, and northern Yunnan).

NORTHERN PLATEAU (N): Koko Nor, Urto (September 2). Zaidam, South Koko Nor Range (August).

OUTER PLATEAU (N): Baltistan, Burzil Pass (August 17); Deosai Plain (August 9); Shigar Nulla (August 22); upper Tale Valley (August 24). Ladak, Zoji La (June 20); Dras (April 15, two specimens, one is *pectoralis*, the other *tschebaiewi*); Matayan (August 15); Machhoi (May 23); Tsaka La (July 19). Zaskar, Bok (July 23); Ringdom Gompa (July 23); Shama Kurpo (July 24). Western Tibet, Menza (September 16 and 17). Southern Tibet, Khamba Dzong (October 5); Gyangtse (October 2); Tsona Dzong (July 20); Chesang La (August 17). Eastern Tibet, Dy Chu (Przhevalsky, June); Siang-Si-Pei Range (May). Northeastern Tibet, near Lao-hu-k'ou (June 24); Hsin-ch'eng (May 16); San-dzhu-chin (May 16); Dzai Dabaa (May 15); Kimar (May 12, 24, and 29). Amdo, Jahar Mountains (June).

SOUTHEASTERN PLATEAU (N): Nyima La (July 4); Sang La (June 28-30); Kashong La (July 21); Bimbi La (June 9); Nam La (September 4); Doshong La (July 16); Lusha La (June 12); Langong (June 4); Trakan La (August 10); Namphu La (June 5 and 9); Lapu (June 16); Poda (June 26); Dza Chu, Yangtze Basin (May); Kundur Chu (May); Gon Chu (May); Ge Chu (April); Banajun (April); Camp 90 (May 17); Camp 139 (August 31); Camp 140 (September 1); Jyekundo (May 17).

Specimens examined: 94, wing length: *tschebaiewi*, 47 ♂, 73-82 (77.5); 16 ♀, 68-75 (71.2); *pectoralis*, 10 ♂, 72-78 (74).

Taxonomy: Two distinct forms are involved which are perhaps separate species; these are *pectoralis* and *tschebaiewi*, the latter differing from *pectoralis* in both sexes by having a conspicuous broad white malar streak which is lacking altogether in *pectoralis*. Other morphological differences exist, notably in the immature plumage. *Pectoralis* breeds in Ladak, and, according to Ali (1946), apparently in western Tibet also. The only specimens I have seen from western Tibet are *tschebaiewi*, and the latter (see above) was taken at the same locality and date as *pectoralis* in Ladak. With this exception, all the birds from Baltistan, Ladak, and Zaskar are *pectoralis*; all the others are *tschebaiewi*.

Luscinia svecica

Bluethroat

Palaearctic.

NORTHERN PLATEAU (N): Koko Nor (August). Zaidam, Gurab Angir Gol (August).

OUTER PLATEAU (N): Ladak, Kargil (April 20, June 2, 4, 5, July 15); Pash-kyum (May 6, June 8 and 25); Kharbu (May 31); Bod Kharbu (June 12, 13, August 21); Sanko (July 6-10); halfway between Suru and Sanko (July 9); two miles below Suru (July 6); Mainjni (July 12); Hiniskut (July 30); Pituk

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(May 26 and 29, July 7, August 16, 17, 20-23, and 26; September 19-21); Chaliskot (June 11); Shushot (May 31); Stak (August 9); Indus Valley (June 29); Indus Valley near Leh (July 3); Leh (May 13, July 5, August 29, September 10 and 16); near Leh (May 4); junction of the Shyok and Nubra Rivers (July 16); Nubra Valley (June 16, 25, and 26); Panamik (June 20, July 15 and 18); Deshkit (August 14); Nyungstet (July 3 and 4); Spanpuk (September 8 and 9); Hundar (September 7 and 10); Unmaru (September 6); Chimre (May 18); Sakti (August 2); She (September 22); Miru (September 24); Khalsar (June 29). Zaskar, Seni Gompa (July 20); Char (September 24 and 25). Rupshu, Tso Kar (September 29). Spiti, Shelgo (September 12-14); Lithang (September 16); Rangring (September 11); Shichiling (September 25); Kuling (September 19). Western Tibet, Gartok (September 24). Southern Tibet, Khamba Dzong (September 6, October 4, 9, and 11); Kala (September 27); Tang La (Ludlow and Sherriff, October 1); Bam Tso (September 28); Gyangtse (September 24, October 2 and 3); Sakang (September 25).

SOUTHEASTERN PLATEAU (N OR M): Tromda (October 25); Dza Chu, Yangtze Basin (May 11).

Specimens examined: 149, wing length, 70 ♂, 68-78 (73.4); 23 ♀, 68-74 (71).

Other records: This species was collected also at Lhasa on September 21, 1904.

Luscinia pectardens Père David's Orangethroat

Sino-Himalayan (southern Shensi and Szechwan to eastern Himalayas, south to northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 11 and 19).

SOUTHEASTERN PLATEAU (N): Tripe (July 25 and 28, September 9 and 16); Kyikar (August 29); Tsela Dzong (September 25); Pe (September 19); Gyala (July 9-11); Lusha La (September 17).

Specimens examined: 14, wing length, 7 ♂, 71-76 (72.6); 5 ♀, 69-74 (72).

Luscinia brunnea Indian Blue Robin

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Burma, and northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Laptang (June 22); upper Chumbi Valley (May 11).

SOUTHEASTERN PLATEAU (N): Pemakochung (May 3).

Specimens examined: 5.

Tarsiger cyanurus
Red-flanked Bluetail

Palaearctic (discontinuous), and Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas).

NORTHERN PLATEAU (probably M): Zaidam, Nomokon Gol (September 29).

OUTER PLATEAU (N): Ladak, She (September 23). Southern Tibet, upper Chumbi Valley (April 3, 10, 11, 19, and 22, May 2); near Lhaxhang Dzong (September 1). Northeastern Tibet, Desen-laka (July 17 and 18); Rangta Gol Gorge near Chertenton (May 15, July 7); Chertenton (May 17, July 5).

SOUTHEASTERN PLATEAU (N): Tumbatse (July 2); Temo La (September 6); Budi Tsepo La (August 21); Molo (April 17, May 21); Kyimpu (May 10); Dzeng (April 1); Gya (January 22); Lusha La (September 17); Nam La (August 30); Bolongo Mountain (September 14); Yar Chun (October 5); Dza Chu, Yangtze Basin (April 30).

Specimens examined: 30, wing length, 10 ♂, 80–87 (83.9); 6 ♀, 79–83 (80.5).

Tarsiger hyperythrus
Rufous-bellied Bush Robin

Sino-Himalayan (Szechwan to Eastern Himalayas, south to Burma, and northern Yunnan).

SOUTHEASTERN PLATEAU (N): Trulung (January 11, February 20); Migyitün (May 31); Lo La (July 3).

Specimens examined: 5.

Tarsiger indicus
White-browed Bush Robin

Sino-Himalayan (western Szechwan to western Himalayas, south to northern Yunnan, also Formosa).

SOUTHEASTERN PLATEAU (N): Near Trulung (January 10); Tangme (February 18); Nam La (September 6); Lung (April 29); Singo Samba (June 30); Lo La (July 12); south foot of the Lo La (April 24).

Specimens examined: 8.

Tarsiger chrysaeus
Golden Bush Robin

Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas, south to Burma, and northern Yunnan).

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OUTER PLATEAU (N): Southern Tibet, Boldan Gompa (July 15).

SOUTHEASTERN PLATEAU (N): Singo Samba (June 27); Lo La (May 15, July 13); Migyitün Gompa (May 31); Nyima La (July 5); Lung (October 19).

Specimens examined: 7.

Turdus unicolor

Tickell's Thrush

Central and western Himalayas, probably Sino-Himalayan in origin.

OUTER PLATEAU (N): Ladak, Dras (April 16).

Specimen examined: 1.

Turdus ruficollis

Black (or Red) Throated Thrush

Central Palearctic.

Black throated (*atroglaris*).

NORTHERN PLATEAU (M): Koko Nor (November). Zaidam (September).

OUTER PLATEAU (M): Baltistan, Braldu Valley (December 31); Shigar (January 20). Southern Tibet, upper Chumbi Valley (no date); southern Tibet, no locality (October). Eastern Tibet, Sok Gompa (April 14); upper Hwang ho (March). Northeastern Tibet, Hung-ho-siae (November 20); Dzai Dabaa (May 15); Chan Ku (October 14); near Kuo-mang Ssu (September 11-13); Chertenton (February); Dangkar (March).

SOUTHEASTERN PLATEAU (M): Dzeng (April 2); Tchoungo (April 30); Ngom Chu (November 9-12).

Specimens examined: 20, wing length, 10 ♂, 136-145 (139.7); 5 ♀, 131-142 (135).

Red throated (*ruficollis*).

OUTER PLATEAU (M): Ladak, Rupshu, Tso Kar (September 28). Southern Tibet, upper Chumbi Valley (March 15, April 6); Gotsa (January 16); Gyantse (February 8, April 18, 19, and 25); Lhasa (January 8, March 15). Northeastern Tibet, Lao-hu-k'ou (December 1, 13, and 30); Hung-ho-siae (November 12); Buguk Gol (November 12).

SOUTHEASTERN PLATEAU (M): Laoting (March 11); Kyimdong (April 8); Gyandro (October 24); Tangme (February 18); Lilung (December 9); Sangyü (January 1).

Specimens examined: 25, wing length, 11 ♂, 135-147 (140.1); 10 ♀, 130-142 (133.9).

Note: Several individuals among the birds listed are hybrid *atroglaris* × *ruficollis*.

Other records: Both black and red throated forms are recorded as migrant in northern Chang Tang by Kozlov (1899b).

Turdus naumanni
Naumann's Thrush

Northern, central, and eastern Palearctic.

NORTHERN PLATEAU (M): Zaidam, Naiji Gol (October 10).

OUTER PLATEAU (M): Northeastern Tibet, Dobo (October 27).

Specimens examined: 2.

Turdus pilaris
Fieldfare

Northern Palearctic.

NORTHERN PLATEAU (M OR E): Zaidam, Zaisan Saitu River (January 10).

Specimen examined: 1.

Other records: Recorded as a migrant in northern Chang Tang by Kozlov (1899b).

Turdus albocinctus
White-collared Blackbird

Sino-Himalayan (western Szechwan to northwestern Himalayas).

OUTER PLATEAU (N): Upper Chumbi Valley (April 4, May 10, 13, and 18).

SOUTHEASTERN PLATEAU (N): Trulung (January 11); Deyang (July 28); Sangyü (January 14); between Yarap and Migyitün (May 20); Kyimdong (October 9).

Specimens examined: 9.

Turdus merula
Blackbird

Western and southern Palearctic, Oriental.

NORTHERN PLATEAU (M): Zaidam, Ghaz (November).

OUTER PLATEAU (N): Baltistan, Shigar Nulla (August 22). Ladak, Zoji La (June 20). Southern Tibet, Kharta Shika (August 18 and 21); Chulungphu (August 1); Gotsa (January 19); Chu Nallah (December 15); Saugang (June 15); Chesang La (August 17); Karo La (September 14); Tsona Dzong (July 19); near Tsona Dzong (August 11); Tre (April 17); Tsukhang (July 15); Cha La (July 30).

SOUTHEASTERN PLATEAU (N): Langong (July 17); Nambu La (August 31); Gyandro (October 24); Sokpo La (August 12); Tongkyuk (March 13); Lao-

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ting (March 7 and 11); Bimbi La (June 7 and 9); Trakan La (August 9); Sang La (June 29 and 30).

Specimens examined: 38, wing length, 15 ♂, 150-167 (159); 10 ♀, 145-161 (151).

Turdus rubrocanus

Grey-headed Thrush

Sino-Himalayan (southern Shensi and Tsinghai to northwestern Himalayas).

NORTHERN PLATEAU (N): East of the Koko Nor (July).

OUTER PLATEAU (N): Northeastern Tibet, south slopes of the Tatung Range (July); Chertenton (June 9, July 2 and 5).

SOUTHEASTERN PLATEAU (M): Lubong (February 28); Dzama (February 22).

Specimens examined: 9.

Turdus kessleri

Kessler's Thrush

Sino-Himalayan (Szechwan and northeastern Tibet).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (May, September 14, November); Burchan Buddha Range (end of July); Bamburtsik (March).

OUTER PLATEAU (N): Eastern Tibet, Dy Chu (Przhevalsky, June); Mzushu Rg'mchon (January and February); Chasora River (April or May); Ugutu Ula (April or May). Northeastern Tibet, Dzha Dzhe (May 26); Kuo-mang Ssu (May 5, 20, and 21); Lao-hu-k'ou (March 19); Durgu (April 9); Desenkaka (February 10); Kimar (January 1, March 22, June 13). Amdo, Kuei-te (July 10); Mujik Mountains (April, June); Jahar Mountains (June, November 5); Tagso Nang Canyon (June 2); Ragya Gompa (May 26 and 30).

SOUTHEASTERN PLATEAU (N): Tongkyuk (March 13-21); Laoting (March 6 and 12); Payoundou (April 26); Trashiling (April 25); Nom Chu (March 30-April 2); Bar Chu (beginning of October); Dze Chu (September 14-19); Gurde Druka (September 23-October 1); Dza Chu, Yangtze Basin (August 21); Hi Chu (August 10); Banajun (April 11-13); Sacha Sumdo (March 25, April 13); Camp 135 (August 8); Camp 137 (August 11).

Specimens examined: 87, wing length, 33 ♂, 152-163 (158.4); 30 ♀, 146-157 (150.8).

Turdus iliacus

Redwing

Northern Palearctic.

NORTHERN PLATEAU (M or E): Zaidam, Ghaz (October).

Specimen examined: 1.

Turdus mupinensis
Verreaux's Song Thrush

Sino-Himalayan (Hopeh to eastern Tibet, south to northern Yunnan).

OUTER PLATEAU (N): Northeastern Tibet, Chertenton (June 5); Rangta Gol Gorge near Chertenton (May 17); Rangta Gol (June 9).

Specimens examined: 4.

Zoothera dauma
Golden Mountain Thrush

Eastern Palearctic, Oriental, Australian.

NORTHERN PLATEAU (M): Koko Nor (September 19 and 20).

Specimens examined: 2.

Zoothera mollissima
Plain-backed Mountain Thrush

Sino-Himalayan (Szechwan to northwestern Himalayas, south to northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Tang Mar (June 24); Kangmar (May 20).

SOUTHEASTERN PLATEAU (N): Lilung Chu (October 3); Tripe Valley (September 10).

Specimens examined: 4.

Zoothera dixoni
Long-tailed Mountain Thrush

Sino-Himalayan (Szechwan to western Himalayas, south to northern Burma and northern Yunnan).

SOUTHEASTERN PLATEAU (N): Near Trulung (January 10); Lisum (May 28); Tsemachi (June 13); Molo (August 20); Sur La (August 17); Nyima La (July 4).

Specimens examined: 6.

Myophonus caeruleus
Blue Whistling Thrush

Sino-Himalayan (Hopeh to the Tian Shan, west to the Dzungarian Ala Tau and mountains of Bukhara, south to Indo Chinese countries, Sumatra, and Java).

OUTER PLATEAU (N): Baltistan, Khalan (August 20); Surmo (August 28);

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Marcha (August 29). Ladak, Tasgam (August 6); Shimsa Kharbu (October 10); Kargil (July 13). Zaskar, Parkutse (July 25); Char (September 27). Southern Tibet, Khasa (June 20); upper Chumbi Valley (May 1 and 10, July).

SOUTHEASTERN PLATEAU (N): Tongkyuk River (September 3).

Specimens examined: 16.

Grandala cœlicolor

Grandala

Sino-Himalayan (Szechwan and Tsinghai to northwestern Himalayas).

OUTER PLATEAU (N): Southern Tibet, Chog La (August 29); Tsona Dzong (April 12). Eastern Tibet, Ugutu Ula (April). Northeastern Tibet, La-chi Shan-k'ou (July 4); Kimar (June 13, July 23); Durgu (April 7). Amdo, Jahar Mountains (June).

SOUTHEASTERN PLATEAU (N): Chunyima (March 20); Doshong La (July 15); Lunang (December 20); Pero La (July 10); Beyü (February 6).

Specimens examined: 34, wing length, 21 ♂, 139-150 (143.7); 9 ♀, 131-148 (138.7).

Enicurus maculatus

Spotted Forktail

Sino-Himalayan (Southeastern Tibet to northwestern Himalayas, south to southern China, and Indo Chinese countries).

SOUTHEASTERN PLATEAU (N): Trulung (February 20).

Specimen examined: 1.

Subfamily TIMALIINAE

Babax lanceolatus

Chinese Babax

Sino-Himalayan (south Kansu and Szechwan to eastern Tibet, south to southeastern China, northern Burma, northern Yunnan).

SOUTHEASTERN PLATEAU (N): Tara (May 27 and 29); Beyü (February 6); Gartoh Gompa (February 6).

Specimens examined: 8.

Babax waddelli

Giant Babax

Tibetan.

OUTER PLATEAU (N): Southern Tibet, Gyantse (February 3, April 2, May 14 and 27, September 19, November 25); Tsechen Gompa (June 4); Chaksam

(July 30, September 25); Tsangpo Valley (Waddell, September); Kyishong (April 8); Saugang (January 4); Tathang Gompa (April 3, 4, and 9); Tsetang (March 31); Kongka Dzong (April 9 and 11); Jangtang (March 29); Chushul Dzong (March 25); Lhasa (January 25, February 22).

SOUTHEASTERN PLATEAU (N): Lilung (May 26); Luti (August 10); Temo Gompa (September 13); Kyimdong (April 9, June 18); Dzeng (March 31, April 14); Laphu Chu Valley near Nang Dzong (July 25); Lasor (March 30); Le La (May 7, July 5); Charme (October 22); Pe (September 19); Tripe (July 27); Taktsa (June 19).

Specimens examined: 55, wing length, 22 ♂, 128–145 (137); 20 ♀, 125–142 (133.8).

Babax koslowi

Kozlov's Babax

Tibetan.

SOUTHEASTERN PLATEAU (N): Dza Chu, Mekong Basin (November); Dze Chu (September); Re Chu (January, December); Bar Chu (October); De Chu (November); Shugden Gompa (June 29).

Specimens examined: 15, wing length 8 ♂, 115–126 (119); 5 ♀, 109–120 (117.4).

Garrulax albogularis

White-throated Laughing-Thrush

Sino-Himalayan (Szechwan to northwestern Himalayas, south to northern Yunnan, northern Tonkin, also Formosa).

OUTER PLATEAU (N): Southern Tibet, Khasa (September 24).

SOUTHEASTERN PLATEAU (N).

Specimen examined: 1.

Other records: Bailey has collected this species in the lower Yigrong Valley, Pome, Southeastern Plateau, on July 5, 1913.

Garrulax striatus

Striated Laughing-Thrush

Sino-Himalayan (southeastern Tibet to western Himalayas, south to Burma).

SOUTHEASTERN PLATEAU (N): Near Trulung (January 10).

Specimen examined: 1.

Garrulax variegatus
Variegated Laughing-Thrush

Western and central Himalayas, but probably Sino-Himalayan in origin.

OUTER PLATEAU (N?): Ladak, no data.

Specimen examined: 1.

Note: This specimen is in the British Museum and was acquired with the Gerrard Collection in 1876. Its original label states it was collected in "Ladakh", but some unknown person has crossed out the name Ladakh and substituted "Cashmere" for it, but as this species is probable in Ladak, I accept this record.

Garrulax davidi
Père David's Laughing-Thrush

Sino-Himalayan (Manchuria to Kansu, Szechwan, and eastern Tibet).

NORTHERN PLATEAU (N): Koko Nor, no date. Zaidam, South Koko Nor Range (beginning of September).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March); Tsurumun Chu (April). Northeastern Tibet, Kuo-mang Ssu (May 17); Lao-hu-k'ou (October 11, December 4); near Lao-hu-k'ou (November 25, December 7 and 13); Hung-ho-siae (November 12); Buguk Gol (November 12); Chertenton (February, June 19). Amdo, Kuei-te (October 27, November 9, December 30); Gui-Dui Sha (July 9); Mujik Mountains (July).

Specimens examined: 28, wing length, 14 ♂, 92-99 (96); 12 ♀, 89-96 (94).

Garrulax maximus
Giant Laughing-Thrush

Sino-Himalayan (southern Kansu and Szechwan to eastern Tibet, south to northern Yunnan).

OUTER PLATEAU (N): Amdo, Labrang (February 16).

SOUTHEASTERN PLATEAU (N): Dzeng (March 31); Laoting (March 13); Lepo (April 6); Tse (December 16 and 18); Tsela Dzong (August 3, September 25); Gya (January 20 and 23); Tripe (July 27); Gyala (July 10); Poda (June 25); Sen Chu (March 20); Dze Chu (September 14-18); Bar Chu (September, October); Dza Chu, Mekong Basin (November); Den Chu (April 30, May 1); Re Chu (January); Chok Chu (September 13); Riwoche (May 5); Lagong (May 8); Beyü (February 6).

Specimens examined: 38, wing length, 15 ♂, 132-143 (138.2); 20 ♀, 129-139 (134.5).

Garrulax ocellatus
Spotted Laughing-Thrush

Sino-Himalayan (Szechwan to western Himalayas, south to northern Burma, and northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Relde (June 25); upper Chumbi Valley (May 23).

SOUTHEASTERN PLATEAU (N): Migyitün (May 22); Natrampa (May 2).

Specimens examined: 4.

Garrulax lineatus
Streaked Laughing-Thrush

Sino-Himalayan (southeastern Tibet to northern Afghanistan and the Tian Shan).

OUTER PLATEAU (N): Baltistan, Skardu (August 13 and 16). Southern Tibet, Khasa (June 13, October 6); Jamila (June 15); Lepo (April 5).

Specimens examined: 8.

Garrulax elliotii
Elliot's Laughing-Thrush

Sino-Himalayan (southern Shensi and Szechwan to southeastern Tibet and northern Yunnan).

OUTER PLATEAU (N): Northeastern Tibet, Chan Ku (October 14); near Hsining (September); La Za ho (August 28); Nien-po (May 24); Lao-hu-k'ou (January 12, February 7 and 15, November 27, December 19); near Lao-hu-k'ou (December 2); T'ien-t'ang Ssu (June 16); Kuo-mang Ssu (May 18); Tatung River (February); Chertenton (March, June 16). Amdo, Mujik Mountains (July); Sasu Ma (February 7).

SOUTHEASTERN PLATEAU (N): Lagya Pass (June 18); Chatou (May 10); Gajung (May 13); Re Chu (February, December); Dza Chu, Mekong Basin (November 23); Bar Chu (September); Dze Chu (September); Chok Chu (August, September 13); Dza Chu, Yangtze Basin (April); Sen Chu (March); Ngom Chu (beginning of November); Banajun (April); Beyü (February 6).

Specimens examined: 64, wing length, 29 ♂, 100-108 (104); 28 ♀, 95-107 (99).

Garrulax erythrocephalus
Red-headed Laughing-Thrush

Sino-Himalayan (Szechwan to western Himalayas, south to Indo Chinese countries and Malay Peninsula).

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SOUTHEASTERN PLATEAU (N): Migyitün (May 22); Le (November 1); Satang (February 6); Trulung (January 10); Pemakochung (May 4).

Specimens examined: 7.

Garrulax affinis

Black-faced Laughing-Thrush

Sino-Himalayan (Szechwan to central Himalayas, south to northern Burma, northern Yunnan, and northwestern Tonkin).

OUTER PLATEAU (N): Southern Tibet, Changdong (June 9); upper Chumbi Valley (April 7, May 7, 25, 27, 28, and 31, June 1); Gotsa (January 16 and 19).

SOUTHEASTERN PLATEAU (N): Kumang (May 7); Lusha La (June 11); Nyima La (July 5); Migyitün (May 22); below Migyitün (May 26); Miling (December 11); Trulung (February 24); near Trulung (January 9); Lo La (July 12); Tongkyuk (December 28); Tongkyuk River (September 2); Tripe (July 26); Gya (January 24).

Specimens examined: 23+, wing length, 9 ♂, 106–113 (108.7); 7 ♀, 103–108 (105.3).

Garrulax henrici

Prince d'Orléans' Laughing-Thrush

Sino-Himalayan (Szechwan to southern Tibet).

OUTER PLATEAU (N): Southern Tibet, Teng (June 15); Kharta Shika (August 2); Chaksam (September); Tsangpo Valley (Waddell, September); Tsetang (March 31); Jangtang (March 29); Samye Gumpa (March 21); Jora (April 20); Tro Shika (April 20). Eastern Tibet, Aio (April 16); Suti (April 18).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (April 22, September 25); Kap (April 24); Dzeng (April 15); Laphu Chu Valley near Nang Dzong (July 26); Migyitün (May 24–27); Le La (May 8); Trulung (February 26); Pe (September 21); Tongkyuk (January 4); Tsela Dzong (September 27); Gya (January 17); Showa (February 3, June 27).

Specimens examined: 38, wing length, 14 ♂, 102–113 (107.3); 18 ♀, 100–111 (104.8).

Garrulax subunicolor

Plain-coloured Laughing-Thrush

Sino-Himalayan (southeastern Tibet to central Himalayas, south to Burma, Yunnan, and Tonkin).

SOUTHEASTERN PLATEAU (N): Migyitün (May 24 and 26).

Specimens examined: 2.

Pomatorhinus ruficollis

Rufous-necked Scimitar Babbler

Sino-Himalayan (Szechwan and southern Kansu to western Himalayas, south to Indo Chinese countries, also Formosa).

SOUTHEASTERN PLATEAU (N): Sangyü (January 14); Gya (January 18 and 19); Yigrong Tso (January 16); Dza Chu, Mekong Basin (November); Re Chu (December); De Chu (November); Ngom Chu (October 9-12).

Specimens examined: 14, wing length of 14 adults, 80-104 (93).

Pomatorhinus erythrocnemis

Chinese Rusty-cheeked Scimitar Babbler

Sino-Himalayan (Szechwan to eastern Himalayas, south to southeastern China and Indo Chinese countries).

SOUTHEASTERN PLATEAU (N): Tsonghai (May 30).

Specimen examined: 1.

Leiothrix lutea

Peking Robin

Sino-Himalayan (Szechwan and southeastern China to western Himalayas, south to Burma, Yunnan, and Tonkin).

SOUTHEASTERN PLATEAU (N): Tsakchugong (February 24); Trulung (March 3); Yigrong Chu (August 4).

Specimens examined: 3.

Myzornis pyrrhoura

Firetailed Myzornis

Sino-Himalayan (southeastern Tibet to central Himalayas, south to northern Burma, and northwestern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Dima (June 11).

SOUTHEASTERN PLATEAU (N): Chudi Chu (April 25); Lo La (May 13).

Specimens examined: 3.

Cutia nipalensis

Nepal Cutia

Eastern and central Himalayas south to Indochina; probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Tsera (January 29).

Specimens examined: 4.

Pteruthius erythropterus
Red-winged Shrike-Babbler

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Indo Chinese countries and Greater Sundas).

SOUTHEASTERN PLATEAU (N): Dzama (February 22).

Specimen examined: 1.

Pteruthius xanthochloris
Green Shrike-Babbler

Sino-Himalayan (Szechwan to western Himalayas, south to Burma, northwestern Yunnan, and Fukien).

SOUTHEASTERN PLATEAU (N): Laoting (January 8); Tongkyuk (December 27); Trulung (February 25); Gya (January 19-21); Le (November 1); Lepo (April 8); Lung (October 22).

Specimens examined: 9, wing length, 6 ♂, 61-66 (63.1).

Actinodura nipalensis
Hoary Barwing

Central and eastern Himalayas, probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Trulung (January 12, March 2); Tsera (January 29, February 8); Dzama (February 22); Tsakchugong (February 26); Le (November 1).

Specimens examined: 9, wing length, 5 ♂, 94-101 (96.2); 4 ♀, 90-94 (92).

Minla ignotincta
Red-tailed Minla

Sino-Himalayan (Szechwan to central Himalayas, south to Burma, Yunnan, Tonkin).

SOUTHEASTERN PLATEAU (N): Trulung (March 3); near Trulung (January 10); Tangme (February 17).

Specimens examined: 3.

Minla strigula
Stripe-throated Minla

Himalayas and Indo Chinese countries to Malaya, probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Tsera (January 29); Lo La (May 13); Dem (February 7); Gya (January 17 and 19).

Specimens examined: 7.

Yuhina flavicollis
Yellow-naped Yuhina

Himalayas and Indo Chinese countries south to Tenasserim, probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Near Trulung (January 9); Yigrong Tso (February 1).

Specimens examined: 2.

Yuhina gularis
Stripe-throated Yuhina

Sino-Himalayan (Szechwan to western Himalayas, south to Burma, Yunnan, and northwestern Tonkin).

OUTER PLATEAU (N): Southern Tibet, Jamila (June 14).

SOUTHEASTERN PLATEAU (N): Migyitün (May 23, August 27); below Migyitün (May 26); Gya (January 18, February 10).

Specimens examined: 6.

Yuhina occipitalis
Rufous-vented Yuhina

Sino-Himalayan (southeastern Tibet to central Himalayas, south to northern Burma, and northwestern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Dima (June 11); Kama Valley (June 23); upper Chumbi Valley (April 25, May 5, 8, and 14, June 10).

SOUTHEASTERN PLATEAU (N): Migyitün (May 25); between Migyitün and Yarap (May 21); Le (November 1); Tangme (February 9).

Specimens examined: 13, wing length of 11 adults, 61–68 (64.5).

Alcippe cinerea
Dusky-green Tit-Babbler

Central and eastern Himalayas, south to northern Burma and Laos, probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Trulung (January 10).

Specimens examined: 2.

Alcippe castaneiceps
Chestnut-headed Tit-Babbler

Central and eastern Himalayas, south to Indo Chinese countries and Malaya, probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Tangme (January 13, February 8).

Specimens examined: 2.

Alcippe vinipectus
White-browed Tit-Babbler

Sino-Himalayan (Szechwan to western Himalayas, south to northern Burma and northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 7, 14, and 24).

Specimens examined: 5.

Alcippe striaticollis
Mountain Tit-Babbler

Sino-Himalayan (southwestern Kansu and Szechwan to southeastern Tibet).

SOUTHEASTERN PLATEAU (N): Sur La (August 16-21); Pa La (July 20); Bimbi La (September 13); Lang La (April 13); Tripe (April 23, July 15); Pe (July 7); Deyang (September 26); Molo (June 24 and 25); Kyikar (September 7); Temo La (September 7); Tse (December 14); Tsela Dzong (May 31); Gyala (July 10); Re Chu (December); De Chu (November); Dza Chu, Mekong Basin (November).

Specimens examined: 39, wing length, 22 ♂, 58-63 (61.3); 17 ♀, 57-62 (59.4).

Alcippe cinereiceps
Grey-headed Tit-Babbler

Sino-Himalayan (southern Shensi and Szechwan to eastern Himalayas, south to northern Burma, northern Yunnan, northern Tonkin, southeastern China, and Formosa).

SOUTHEASTERN PLATEAU (N): Lung (April 29, October 22); Lepo (April 8); Tongkyuk (January 7); near Nyuksang (May 7); Trimo (April 11); Lo La (July 4 and 12); Gya (January 17 and 18); Showa (February 3).

Specimens examined: 15, wing length, 10 ♂, 58-65 (61.5).

Heterophasia pulchella
Beautiful Sibia

Sino-Himalayan (southeastern Tibet and eastern Himalayas, south to Burma and Yunnan).

SOUTHEASTERN PLATEAU (N): Dem (February 7); near Trulung (January 9).

Specimens examined: 4.

Stachyris ruficeps
Red-headed Babbler

Sino-Himalayan (Szechwan to eastern Himalayas, south to Indo Chinese countries, and also Formosa).

SOUTHEASTERN PLATEAU (N): Trulung (February 25); Tsakchugong (February 26); Lubong (February 21).

Specimens examined: 4.

Pnoepyga albiventer
Scaly-breasted Wren-Babbler

Sino-Himalayan (Szechwan to western Himalayas, south to Burma, Yunnan, and Indochina).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (June 6).

SOUTHEASTERN PLATEAU (N): Lo La (July 4 and 12, August 13); Migyitün (August 26); Lung (April 30); Chunyima (September 5); Laoting (January 8); Trulung (January 11); near Trulung (January 9).

Specimens examined: 15, wing length, 10 ♂, 61-66 (63.2).

Pnoepyga pusilla
Lesser Scaly Wren-Babbler

Sino-Himalayan (southern Shensi and Szechwan to central Himalayas, south to Indo Chinese countries, and Sunda Archipelago to Timor).

SOUTHEASTERN PLATEAU (N): Lung (October 19); Senge Dzong (May 6).

Specimens examined: 2.

Spelaeornis troglodytoides
Barred-wing Wren-Babbler

Sino-Himalayan (southern Shensi and Szechwan to eastern Himalayas, south to northern Burma, and northern Yunnan).

OUTER PLATEAU and SOUTHEASTERN PLATEAU (N).

No Tibetan specimens examined, but I am confident nevertheless that this species, which is extremely secretive, occurs north of the Main Range in southern and southeastern Tibet, as I have seen specimens from the Dib La, on the border of eastern Bhutan and Tibet, and, farther east, from the Nyug La, western Szechwan, and southern Shensi; it occurs also in southern Kansu.

Panurus biarmicus

Bearded Reedling

Discontinuously Palearctic.

NORTHERN PLATEAU (N): Koko Nor (November). Zaidam, Gurab Angir Gol (September); eastern Zaidam (August); Zaidam, no locality (January, April, October).

Specimens examined: 14, wing length, 9 ♂, 61-65 (63).

Paradoxornis unicolor

Brown Parrotbill

Sino-Himalayan (Szechwan to central Himalayas, south to northern Burma and northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, Nyam Jan Chu (April 5).

SOUTHEASTERN PLATEAU (N): Senge Dzong (April 25).

Specimens examined: 3.

Paradoxornis conspicillata

Spectacled Parrotbill

Sino-Himalayan (southern Shensi and Szechwan to eastern Tibet).

OUTER PLATEAU (N).

No specimens examined: Bianki (1916) states that one specimen was taken by Kozlov on February 18, 1908, at Uchu-sy, near Wei-yuän-p'u, northeastern Tibet, and that another was brought back in "spirit" for an anatomical specimen.

Paradoxornis fulvifrons

Fulvous Parrotbill

Sino-Himalayan (southern Shensi and Szechwan to central Himalayas, south to northern Burma and northern Yunnan).

SOUTHEASTERN PLATEAU (N): Lo La (May 13, July 3 and 12); Lung (April 29).

Specimens examined: 11, wing length, 7 ♂, 54-59 (56.3).

Family AEGITHALIDAE

Aegithalos caudatus

Long-tailed Tit

Palearctic.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March and April); Tsurumun Chu (April, May 11); Chasora River (May); Kung-ho-ku-chih

(May). Northeastern Tibet, Tsa-lung Ssu (March 16); Desen-laka (February 4 and 10); Rangta Gol (February 5); Rangta Gol Gorge near Chertenton (February 3). Amdo, Mujik ho (June); Kuei-te (November 9); Ba Chu (June 23); Labrang (February 15 and 20).

Specimens examined: 29, wing length, 11 ♂, 62–65 (63); 6 ♀, 59–62 (60.5).

Aegithalos iouschistos

Blyth's Long-tailed Tit

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Burma and northern Yunnan).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (April 13 and 23).

SOUTHEASTERN PLATEAU (N): Risho (December 6); Langong Chu (April 21); Langong Chu between Molo and Lilung (May 25); Pe (July 7 and 19, September 20); Lepo (April 5 and 7); Tse (December 19); Dzeng (August 13); Gyala (July 22); Lo La (July 3); Natrampa (April 27); Shoka (May 26); Lung (April 28); below Migyitün (May 26); Tongkyuk (January 5); Gartoh Gompa (February 7).

Specimens examined: 25, wing length, 9 ♂, 57–61 (59.8); 6 ♀, 55–59 (57).

Aegithalos concinnus

Red-headed Long-tailed Tit

Sino-Himalayan (southern Shensi to northwestern Himalayas and northern Baluchistan, south to Burma, Yunnan, Indochina, also Formosa).

SOUTHEASTERN PLATEAU (N): Trulung (January 11, February 19 and 22, March 1).

Specimens examined: 4.

Family PARIDAE

Subfamily PARINAE

Parus palustris

Marsh Tit

Discontinuously Palearctic.

SOUTHEASTERN PLATEAU (N): Penam Chu near Je (July 11).

Specimen examined: 1.

Parus montanus

Willow Tit

Palaearctic.

Superspecies: *P. atricapillus*, North America.

OUTER PLATEAU (N): Eastern Tibet, Mzushu Rg'mchon (February); Dy Chu (Przhevalsky, June); upper Hwang ho (March); Tsurumun Chu (April and May). Northeastern Tibet, Lao-hu-k'ou (June 24, December 15); near Lao-hu-k'ou (January 3, 9, 15, 17, and 21, February 5, 12, and 27, December 19); Lassa (September 18, October 17); near Lassa (September 15, October 4); Kuo-mang Ssu (January 17, February 10); Desen-laka (January 24); Rangta Gol (June 15); Chertenton (March 14-17). Amdo, Jahar Mountains (April); Kuei-te (December 14); Tagso Nang Canyon (June 2); near Ragya Gompa (May 27); Labrang (February 16).

SOUTHEASTERN PLATEAU (N): Dze Chu (beginning of September); Dza Chu, Mekong Basin (November); Sen Chu (March); Gur La (May 25); Ju Gompa (no date); Gartoh Gompa (February 7); Camp 54 (February 18).

Specimens examined: 59, wing length, 29 ♂, 65-71 (67); 20 ♀, 62-69 (65.3).

Parus superciliosus

White-browed Tit

Sino-Himalayan (Szechwan and Nan Shan to eastern Tibet).

NORTHERN PLATEAU (N): Koko Nor (February). Zaidam, South Koko Nor Range (May).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March); Mdzhugdi La (January); Chasora River (April). Northeastern Tibet, Myn-dan-scha (June 14); near Hsi-ning (August); Lao-hu-k'ou (May 19, October 11, December 7, 9, 10, 16, and 19); near Lao-hu-k'ou (January 3, May 6 and 19, June 22, December 25); near Lassa (October 11); Kuo-mang Ssu (January 3); Kimar (April 17). Amdo, Jahar Mountains (June).

SOUTHEASTERN PLATEAU (N): Dze Chu (September); Sen Chu (March); Menton La (September); Miri La (March); Jyekundo (March 24, April 4, 5, and 13); Lanyipa (April 13); Sacha Sumdo (April 13); Ju Gompa (September); Camp 139 (August 31).

Specimens examined: 56, wing length, 32 ♂, 61-69 (65.6); 21 ♀, 60-66 (64).

Parus dichrous

Brown Crested Tit

Sino-Himalayan (southern Shensi, Szechwan, and Tsinghai to western Himalayas).

OUTER PLATEAU (N): Northeastern Tibet, Tsa-lung Ssu (March 18); near

T'ien-t'ang Ssu (March 18); Desen-laka (January 15 and 22); Rangta Gol Gorge near Chertenton (March 12); Chertenton (February 23, March). Amdo, Tagso Nang Canyon (June 2).

SOUTHEASTERN PLATEAU (N): Lusha La (September 17); Molo (April 18, June 23); Tse (December 16); Migyitün (May 23); Na La (August 31); Penam Chu near Je (July 10 and 11); Dza Chu, Mekong Basin (November); Bar Chu (September); Lo Chu (April); Nom Chu (March); Gartoh Gompa (February 7); Beyü (February 7).

Specimens examined: 26, wing length, 12 ♂, 71-78 (75); 9 ♀, 69-72 (71.2).

Parus ater

Coal Tit

Palaearctic.

OUTER PLATEAU (N): Southern Tibet, Dima (October 14).

SOUTHEASTERN PLATEAU (N): Bimbi La (September 6, 12, and 13); Lang La (April 13); Lung (October 25); Doshong La (July 17); Tongkyuk (December 25); Temo Gompa (December 23); Kangka (September 28); Gya (January 19 and 23).

Specimens examined: 12, wing length, 5 ♂, 58-61 (60).

Parus rubidiventris

Black Crested Tit

Sino-Himalayan (southern Shensi and Szechwan to the Pamirs and Tian Shan).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April and May); Dulaan Hiid (August).

OUTER PLATEAU (N): Southern Tibet, Kama Valley (June 28, August 27); upper Chumbi Valley (March 20); Gotsa (January 19). Eastern Tibet, Aio (April 16). Northeastern Tibet, Lao-hu-k'ou (November 28, December 17); near Lao-hu-k'ou (December 17); near Lassa (October 17); Kuo-mang Ssu (January 3, April 24); Desen-laka (January 20); Chertenton (March). Amdo, Mujik Mountains (June); Jahar Mountains (June); Labrang (February 14 and 16).

SOUTHEASTERN PLATEAU (N): Chungpo Tengchen (April 26); Kap (April 24); Tamnyen La (June 21); Sang La (June 27); Doshong La (July 17); Dza Chu, Mekong Basin (November); Sen Chu (March); Bar Chu (September); Lo Chu (April).

Specimens examined: 45, wing length, 27 ♂, 66-73 (69); 16 ♀, 61-68 (65).

Other records: This species has been collected also in Baltistan and western Tibet.

Parus cyanus

Azure Tit

Central and eastern Palearctic.

Superspecies: See below.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March); Kung-ho-ku-chih (May). Amdo, near Kuei-te (November 23).

Specimens examined: 12, wing length, 9 ♂, 64–69 (65.7).

Taxonomy: All the 12 specimens are *berezowskii*, which is rare in collections, and constitutes a very isolated population of the *flavipectus* group of *P. cyanus*. Important differences in the coloration of the adult and juvenal plumages between the populations of *P. cyanus* and those of the *flavipectus* group (which includes *berezowskii*) suggest that the two birds may not be conspecific, but they are related and form one superspecies if not conspecific. If this view is correct, the species listed here from Tibet should be called *P. flavipectus*, rather than *P. cyanus*; for diagnoses of all the forms of the complex and their distribution, which is complicated in Turkestan, see Vaurie (1959).

Parus major

Great Tit

Palearctic and Oriental.

Superspecies: *P. bokharensis*, Turkestan from Transcaspia to Dzungaria.

OUTER PLATEAU (N): Baltistan, Skardu (August 12–16); Doghani (August 24); Kapalu (August 24). Ladak, Kargil (June 4 and 5); Olthingthang (August 26); Khalatse (June 15); Likir Gompa (August 3); Nimu (August 27); Pituk (September 19); Stak (August 9); Leh (May 5–8, June 4 and 5, July 6, August 9–14, September 16, 18, and 23); Khardung Nulla (September 12); Hundar (September 7 and 10); Khalsar (September 12); Panamik (July 19). Southern Tibet, Gyangtse (January 19, April 19, 25, and 27, May 3, September); Shigatse (April 25 and 27, May 6); Tathang Gompa (April 1); Chaksam (September 25); Chushul Dzong (March 24); Tsetang (March 31); Lhasa (January 20–25 and 28, February 2, March 2, August 24, September 3). Eastern Tibet, upper Hwang ho (March). Northeastern Tibet, Dobo (January 5, March 12, June 29, October 31, December 12); near Hsi-ning (March); Dangkar (August 30); near Hung-ho-siae (November 12 and 16); Buguk Gol (November 12); between Kum Bum and Hsi-ning (November 9). Amdo, Mujik Mountains (June); Kuei-te (October 18).

SOUTHEASTERN PLATEAU (N): Jungkar Gompa (no date); Langong Chu (May 24); Laphu Chu Valley near Nang Dzong (July 25); Dzeng (March 27, April 5); Lenda (April 1); Kyimdong (April 8, October 11); Deyang (September 28); Lusha (June 16); Temo Gompa (September 9); Gyala (May 6); Tsela

Dzong (September 26); Je Chu (October 30); Ngom Chu (October); Tsatim River (November 3); Banajun (throughout April); Routoumdo (May 17); Dege Gönchen (February 12).

Specimens examined: 137, wing length as follows:

Baltistan and Ladak, 17 ♂, 73–80 (76.1); 7 ♀, 68–74 (73).

Southern and southeastern Tibet, 26 ♂, 73–82 (78); 9 ♀, 73–76 (74.7).

Northeastern Tibet and Amdo, 17 ♂, 71–80 (75); 4 ♀, 71–72 (71.5).

Parus monticolus

Green-backed Tit

Sino-Himalayan (southern Shensi and Szechwan to northwestern Himalayas, south to Indo Chinese countries, also Formosa).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (March 20 and 23, April 3–8).

SOUTHEASTERN PLATEAU (N): Trulung (February 22 and 25); near Trulung (January 10).

Specimens examined: 11.

Other records: North of the Main Range, this species was collected also at Dem on June 29, 1913, and at Laoting on July 8, 1913; it was observed also at Lhakhang Dzong in September by Ludlow.

Sylviparus modestus

Yellow-browed Tit

Sino-Himalayan (Szechwan to northwestern Himalayas, south to Indo Chinese countries and northwestern Fukien).

OUTER PLATEAU (N?).

SOUTHEASTERN PLATEAU (N): Trulung (February 22); Chudi Chu (April 25).

Specimens examined: 3.

Other records: This species breeds also on the Outer Plateau in Ladak where it has been collected near Kharbu and at Leh in August, but these records date back to 1873, and the status in Ladak may have changed.

Subfamily SITTINAE

Sitta europaea

Nuthatch

Palaearctic and Oriental.

SOUTHEASTERN PLATEAU (N): Langong Chu (May 25); Tongkyuk River (September 3); Gyala (May 1 and 2, July 9 and 22); Pe (July 7); Molo (April 15); Lilung (June 30); Tripe (April 23); Trulung (January 12, February 24 and

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25); Tse (October 5, December 15); Nam La (September 6); Gya (January 23); Pemakochung (May 1).

Specimens examined: 24, wing length, 14 ♂, 82–88 (84.5); 7 ♀, 79–85 (82.3).

Sitta villosa

Chinese Nuthatch

Manchuria to eastern Tibet, origin doubtful but perhaps a relict of an Eremian or Holarctic form.

OUTER PLATEAU (N): Northeastern Tibet, Lao-hu-k'ou (May 1, June 17, December 4 and 15); near Lao-hu-k'ou (January 9, 17, and 23, February 27, December 16, 17, and 24); T'ien-t'ang Ssu (March 18); Kuo-mang Ssu (April 24); near Desen-laka (February 12); Rangta Gol Gorge near Chertenton (January 8, February 23); Chertenton (February 17 and 26, March, beginning of September); Dschu-lin-kou (September 6).

Specimens examined: 25, wing length, 17 ♂, 70–74 (71.7); 8 ♀, 68–72 (70).

Sitta leucopsis

White-checked Nuthatch

Sino-Himalayan (Szechwan to northwestern Himalayas and neighbouring Afghanistan).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (April). Northeastern Tibet, Lassa (October 4); near Lao-hu-k'ou (February 24); Chertenton (February 26). Amdo, Labrang (February 14).

SOUTHEASTERN PLATEAU (N): Dza Chu near Chamdo, Mekong Basin (November); Re Chu (January, December); Nom Chu (April 1 or 2).

Specimens examined: 17, wing length, 13 ♂, 72–77 (74.2); 4 ♀, 69–74 (72).

Other records: This species was collected also in the Tsangpo Valley at Dzeng on April 12, and at Tse on December 17 by Ludlow.

Subfamily TICHODROMADINAE

Tichodroma muraria

Wall Creeper

Discontinuous and virtually southern Palearctic, probably Eremian in origin.

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April); Najji Gol (January); Burchan Buddha Range (August and November).

OUTER PLATEAU (N): Baltistan, Tale Valley (August 23). Ladak, Leh (May 9, September 16); Chorten Chen (August 18); Khardung Ravine (July 30, September 12); upper Gya Valley (September 13); Umbih Valley (September

24); Gharnak (August 1). Zaskar, Char (July 16, September 28); Reru (September 18). Rupshu, Kanhlagyal (August 22). Spiti, Hurling (September 30); Kuling (September 19); Kaja (September 12 and 13); Dankhar Gompa (September 21); Kibar (September 8 and 9). Southern Tibet, upper Chumbi Valley (April 24); Tulung La (August 9); Khamba Dzong (November 23); Gyantse (December 14). Northeastern Tibet, Myn-dan-scha (June 13); Dangkar ho (March); Dobo (March 15, October 12, December 17); Wei-yuän-p'u (May 5); between Wei-yuän-p'u and Lao-hu-k'ou (May 5); Lao-hu-k'ou (May 9). Amdo, Jahar Mountains (June); near Ragya Gompa (May 20); Deyang Valley (June).

SOUTHEASTERN PLATEAU (N): Yigrong Tso (February 4); Dza Chu, Yangtze Basin (November); Hi Chu, Yangtze Basin (July); Banajun (April); Jyekundo (April 9, August 5); Sacha Sumdo (April 14); Dege Gönchen (February 11); Ju Gompa (August 28); Camp 77 (April 16).

Specimens examined: 69, wing length, 33 ♂, 101-110 (105.3); 8 ♀, 97-105 (101.5).

Other records: This species has been recorded also in western Tibet by Ali where it apparently breeds, and Ludlow (1950) says it is common in Lhasa.

Family CERTHIIDAE

Certhia familiaris

Tree Creeper

Holarctic.

OUTER PLATEAU (N): Southern Tibet, Sakyatang (June 22); upper Chumbi Valley (April 20). Eastern Tibet, Chasora River (April, May); Ugutu Ula (April). Northeastern Tibet, Kuo-mang Ssu (January 9, April 21); T'ien-t'ang Ssu (March 18); Lao-hu-k'ou (December 31); near Lao-hu-k'ou (May 1, December 17); Tsa-lung Ssu (March 16); Rangta Gol Gorge (March 20); Chertenton (February 26, March 14-17 and 20); South Tatung Range (February). Amdo, Mujik Mountains (June); Haowa Valley (May 31); Labrang (February 20).

SOUTHEASTERN PLATEAU (N): Pe (April 21, July 18); Tongkyuk (January 3); Tongkyuk River (September 2); Doshong La (July 16, August 17); Molo (April 17); Podzo Sumdo (October 15); Singo Samba (June 28, July 1); Bimbi La (October 14); Langong (July 16); Sur La (August 17); Gya (January 24); Showa (February 4); Dza Chu, Mekong Basin (November); Re Chu (December); Chok Chu (September); Gur La (May 25); Atsur (May 24).

Specimens examined: 53, wing length, 30 ♂, 63-73 (69); 8 ♀, 62-67 (64.7).

Certhia himalayana
Himalayan Tree Creeper

Sino-Himalayan (Szechwan to northern Afghanistan and Tian Shan, south to northern Yunnan).

OUTER PLATEAU (N): Baltistan, Shigar Valley (January 1). Ladak, Dras (April 15); Khalatse (November 17).

Specimens examined: 3.

Certhia nipalensis
Stoliczka's Tree Creeper

Sino-Himalayan (western Szechwan to central Himalayas, south to northern Burma).

SOUTHEASTERN PLATEAU (N): Trulung (March 2); Yigrong Tso (January 15); south foot of the Lo La (April 24).

Specimens examined: 3.

Family REMIZIDAE

Remiz pendulinus
Penduline Tit

Eremian.

Superspecies, some of the Palearctic forms now included in *R. pendulinus*, such as *coronatus* and *consobrinus* which range from Turkestan east to northern China, may not be conspecific with *R. pendulinus*, but all the forms are related and constitute a superspecies, if not conspecific.

OUTER PLATEAU (N): Ladak, Chang Chenmo River (June 1).

Specimen examined: 1.

Cephalopyrus flammiceps
Fire-capped Tit

Sino-Himalayan (Szechwan to northwestern Himalayas, south to northern Yunnan).

OUTER PLATEAU (probably M or E): Spiti, Mani (September 22); Dankhar Gompa (September 25).

Specimens examined: 5.

Other records: Koelz (1940) states that he saw a flock at the mouth of the Kungi Nullah, Suru Valley, Ladak, in September, and collected one specimen which unfortunately was lost.

Family DICAIEIDAE

Dicaeum ignipectus
Fire-breasted Flowerpecker

Sino-Himalayan (Szechwan to western Himalayas, south to Indo Chinese countries, Malay Peninsula to Sumatra, also Formosa and Philippines).

SOUTHEASTERN PLATEAU (probably N): Tsakchugong (February 24-26); Tangme (February 9).

Specimens examined: 4.

Family NECTARINIIDAE

Aethopyga nipalensis
Green-tailed Sunbird

Himalayas west to Garhwal and Indo Chinese countries, probably Sino-Himalayan in origin.

SOUTHEASTERN PLATEAU (N): Dzama (February 22); Trulung (February 20); near Trulung (January 10).

Specimens examined: 5.

Aethopyga gouldiae
Mrs Gould's Sunbird

Sino-Himalayan (northern Szechwan to western Himalayas, south to Indo Chinese countries and southern China).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (June 14 and 16).

SOUTHEASTERN PLATEAU (N): Lung (April 28); Gyala (May 2 and 3, July 10); Lepo (April 7); Pe (July 7); Tripe (April 22 and 23); Lokmo (June 1); Sang La (June 27); Tsela Dzong (June 1); Migyitün (May 22).

Specimens examined: 20, wing length, 13 ♂, 53-57 (55.8).

Aethopyga ignicauda
Fire-tailed Sunbird

Himalayas west to Garhwal, south to northern Burma and northern Yunnan, probably Sino-Himalayan in origin.

OUTER PLATEAU (N): Southern Tibet, Dima (June 11); Dejen Gompa (June 7); upper Chumbi Valley (May 4-8).

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SOUTHEASTERN PLATEAU (N): Me La (August 3); Lo La (May 13, July 13); Migyitün (May 31).

Specimens examined: 17, wing length, 13 ♂, 56–69 (59.3); 4 ♀, 54–57 (56).

Family PLOCEIDAE

Passer domesticus

House Sparrow

Palaearctic, Oriental, and Nile Valley; probably Eremian in origin, now very widespread and commensal.

OUTER PLATEAU (N): Baltistan, Doghani (August 24 and 25); Skardu (August 12); Kapalu (August 21 and 27); Khalan (August 30); Safaranga (August 18); Biagdangdo (September 3). Ladak, Dras (April 15, May 2); Machhoi (May 1); Tasgam (October 11); Matayan (April); Mulbekh (April 24 and 25); Kargil (May 26); Lamayuru (June 16); Pituk (July 5, September 19–21); Stak (August 9); Leh (May 7 and 21, July 1, 2, and 26, August 9–14 and 28); Khardung (September 13); Hundar (September 7); Spanpuk (September 8); Unmaru (September 6); Panamik (June 11–13); Sakti (July 30, August 2 and 3); Tangtse (July 30); Chushul (July 26); Gya (September 25). Zaskar, Shama Kurpo (July 24); Tetha (July 15); Abring (July 22, September 15); Hamiling (July 22); Mune Gompa (July 17 and 18); Sarle (September 21); Char (September 27). Rupshu, Karzok (June 19). Spiti, Hansi (September 5); Khar (September 20); Losar (September 2); Po (September 26). Western Tibet, Taklakot (September 5); Tolingmath (September 29).

Specimens examined: 119, wing length, 45 ♂, 77–85 (81), and one individual ♀; 18 ♀, 74–80 (77.8).

Passer montanus

Tree Sparrow

Palaearctic and Oriental, also Formosa, very widespread and commensal.

NORTHERN PLATEAU (N): Zaidam, Kurlyk (October and December); Baruun (May); Zaidam, no locality (January, May, August, September).

OUTER PLATEAU (N): Southern Tibet, Tingri Dzong (June 30, July 5); Khamba Dzong (October, November); Gyangtse (May 22, November 4, 7, and 8, December 18); Shigatse (May 4–15); Pede (April 1, 5, 9, 13, and 14); Khambapadze (February 14, April 11–19); Pan (April 24); Chitishio (April 6 and 8); Chushul Dzong (May 24 and 25); Nagartse Dzong (April 17 and 19); Rinphung Dzong (April 20); Kyishong (April 8); Tsetang (March 31, April

15); Nyengo (March 20); Kongka Dzong (April 11); Tathang Gompa (April 4); Niemo (April 22 and 23); Nethang (March 25); Tsona Dzong (July 15 and 18); Lhasa (January 24, February 1, 7, 10, and 25, March 19). Eastern Tibet, Dy Chu (Przhevalsky, June); upper Hwang ho (March); Kung-ho-ku-chih (May). Northeastern Tibet, Dobo and near Dobo (January 14 and 22-24, August 23, November 6, December 8). Amdo, Ba Chu Valley (June 23).

SOUTHEASTERN PLATEAU (N): Lusha (June 16 and 18, September 21); Dzeng (April 8); Tsela Dzong (March 25); Ma Chu at Lingchung (May 26); Jyekundo (April 2); Rombatsa (September 7).

Specimens examined: 149, wing length as follows:

Southern and southeastern Tibet, 49 ♂, 76-84 (80.3); 42 ♀, 73-80 (76.1).

Zaidam and northeastern Tibet, 17 ♂, 72-80 (76.3); 11 ♀, 70-76 (73.6).

Passer rutilans

Cinnamon Sparrow

Eastern Palearctic or Sino-Himalayan (southern Sakhalin and Japan to northwestern Himalayas, south to Indo Chinese countries).

OUTER PLATEAU (N): Southern Tibet, Kharta Shika (August 18 and 31); Shigatse (April 27, May 6, 15, 19, and 20); Gyantse (April 8, 19, 22, 27-29, May 1-5 and 10, June 22, July 9); upper Chumbi Valley (April, May 19); Niemo (April 22); Penam Dzong (May 22); Kangmar (June 19); Tathang Gompa (April 4); Tsona Dzong (August 15); Rinphung Dzong (April 20); Lhasa (March 19, August 30).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (April 22); Lusha (June 16, September 16); Kyimdong (July 22); Langong (July 17); Loro Tö (October 27); Molo (May 22); Gyala (May 4 and 9); Tongkyuk Dzong (May 22); Kyikar (August 29); Dzeng (April 8); Pe (September 19); Tsela Dzong (May 30, August 7).

Specimens examined: 73, wing length, 43 ♂, 74-81 (78); 28 ♀, 69-78 (73.3).

Petronia petronia

Rock Sparrow

Eremian.

NORTHERN PLATEAU (N): Koko Nor (March, April). Zaidam, South Koko Nor Range (February); Burchan Buddha Range (May); Shang (March, December); Hatu Gol (June).

OUTER PLATEAU (N): Eastern Tibet, Camp 102 (June 14). Northeastern Tibet, near Hsi-ning (March); upper Hsi-ning ho (March 26); Dobo (May 28, October 27, November 8 and 21); near Dobo (May 28, August 4, October 31, November 8 and 21, December 11); Hsin-ch'eng (June 20); near Hsin-ch'eng

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(June 21); between Lao-hu-k'ou and Mantuse (May 17 and 30); Kimar (May 30). Amdo, Kuei-te (November 16).

SOUTHEASTERN PLATEAU (N): Dy Chu (March); Jyekundo (April 3 and 6).

Specimens examined: 66, wing length, 38 ♂, 95–105 (99.8); 21 ♀, 92–100 (95.8).

Montifringilla nivalis

Snow Finch

Southern Palearctic, discontinuous in range.

NORTHERN PLATEAU (N): Zaidam, Burchan Buddha Range (May and June).

OUTER PLATEAU (N): Southern Tibet, Diti (March 21).

SOUTHEASTERN PLATEAU (N): Tongchi Gompa (May 3).

Specimens examined: 32, wing length, 18 ♂, 118–126 (121.7); 14 ♀, 114–122 (118.4).

Other records: Breeds in northern Chang Tang according to Kozlov (1899b).

Montifringilla adamsi

Adams' Snow Finch

Tibetan.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May); south slope of the Humboldt Range (May). Zaidam, Naiji Gol (January); South Koko Nor Range (April); Burchan Buddha Range (May 30–June 9). Shurghan Ula (December).

OUTER PLATEAU (N): Ladak, Pashkyum (October 22); Mulbekh (April 23); Namika La (June 11 and 26); Bod Kharbu (April 28, June 4 and 13, July 15 and 16, August 2, October 2); Fotu La (May 8 and 30, June 27, July 13, August 2); Chispiyanzan (September 5); Lamayuru (June 13 and 16, July 14); Leh (May 9 and 11, June 30, July 4, September 5 and 24); Khardung Valley (July 21); Khardung La (July 17); Indus Valley (June 28); Digar (June 27); Phyang (June 29); Stak (August 18); Chorten Chen (August 18); Upshi (July 4); Shagrot (September 26 and 27); Nimu (July 17); Sakti (July 31, August 1); Singi La (June 21); Taga Laung La (August 20); Chushul (July 24); Tangtse (July 30); Muglib (July 29); Chakar Talao (July 29); Shyok River (no date); Dzongpolas (July 3). Zaskar, Abring (September 15); Kurgiakh (July 14 and 15). Rupshu, Tso Kar (June 28, July 1); Tozeri (October 3); Karzok Gompa (July 6 and 7); Puga (July 5); Nichungi Valley (September 9); Da (July 12). Spiti, Lagudarsi (September 5); Kibar (September 7 and 8). Western Tibet, Taklakot (September 5).

OUTER PLATEAU (N): Southern Tibet, Thong La (July 14); Tingri Dzong (June 24 and 25); Rebu (July 31); Khamba Dzong (March 5, November 25, October 24, December 8); Tuna (March 5); Gyangtse (January 22, February



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- 1 GRANDALA *Grandala coelicolor* female p. 298
- 2 GRANDALA *Grandala coelicolor* male p. 298
- 3 PRZHEVALSKY'S ROSE FINCH *Urocynchramus pylzowi* p. 337
- 4 SEVERTZOV'S TIT-WARBLER *Leptopoeite sophiae* p. 275
- 5 CRESTED TIT-WARBLER *Leptopoeite elegans* p. 275
- 6 RED-NECKED SNOW FINCH *Montifringilla ruficollis* p. 322
- 7 BLANFORD'S SNOW FINCH *Montifringilla blanfordi* p. 322
- 8 HUME'S GROUND JAY *Pseudopodoces humilis* p. 250

12, April 27, May 31, July 9); Nagartse Dzong (April 17 and 19); Pede (April 2-15); Tathang Gompa (April 1 and 15); Saugang (June 16); Tsona Dzong (July 18); Lhasa (March 2). Eastern Tibet, Tala Chu (July); Camp 102 (June 10); Camp 117 (July 1). Northeastern Tibet, between the Tatung Range and Kuo-mang Ssu (March); Sin-dse (June 20). Amdo, Ba Chu (June 22); Dzomo Valley (June 21).

SOUTHEASTERN PLATEAU (N): Sari Sumdo (April 23); Kundur Chu (May 26); Dza Chu, Yangtze Basin (May 17-26); Routoumdo (May 17); Getze Gompa (March 14); Jyekundo (April 2 and 17); near Chinto (April 17); Drechu Gompa (May 3).

Specimens examined: 240+, wing length, 88 ♂, 106-120 (113.9); 55 ♀, 100-118 (109.7).

Other records: Breeds also in northern Chang Tang.

Montifringilla taczanowskii

Taczanowski's Snow Finch

Tibetan.

NORTHERN PLATEAU (N): Koko Nor (February, March, April, July, September, October, November); valley of the Koko Nor (April 7-12); southeastern shore of the Koko Nor (September). Khara Nor (July 21).

OUTER PLATEAU (N): Western Tibet, Mount Kailas (September 14); Jerko La (September 18). Southern Tibet, Pomo Tso (September 10); Yamdrok Tso (November 14); Kala (July 8); Phari Dzong (January 27, April 7, May 27, June 28 and 29); Tuna (February 14 and 19, March 22); Pede (April 10); Gyantse (July 14); near Tsona Dzong (August 15). Eastern Tibet, Djau-counang (April 8); Omchangsanyigu (April 9); Sok Gompa (April 14); Tsurumun Chu (January). Northeastern Tibet, upper Tatung River (October).

SOUTHEASTERN PLATEAU (N): Ge Chu (February); Kundur Chu (May); Nojeling Gompa (February 21); Drechu Gompa (April 27 and 28); Kantse (August 10 and 12).

Specimens examined: 90, wing length, 42 ♂, 103-112 (108); 22 ♀, 101-109 (105.5).

Montifringilla davidiana

Père David's Snow Finch

Palaearctic (high central Asia).

NORTHERN PLATEAU (N): Koko Nor (September 5, 13, and 16).

Specimens examined: 3.

Montifringilla ruficollis
Red-necked Snow Finch

Tibetan.

NORTHERN PLATEAU (N): Chang Tang, Vallis Ventorum (December); Tengri Nor (March). Koko Nor (February, April, October, November). Zaidam, Toson Nor (January); Yamatiin (July and August); South Koko Nor Range (September); Gurab Angir Gol (August and September); Burchan Buddha Range (May 20–June 9).

OUTER PLATEAU (N): Southern Tibet, Tuna (February 5, 7, 13, and 23, March 16, June 21); Yamdrok Tso (November 14); Bam Tso (July 6, September 28); Pomo Tso (September 10); Phari Dzong (January 27); Tathang Gompa (April 7); Nagartse Dzong (April 17); Pede (April 2–9); Tsona Dzong (October 17). Eastern Tibet, Sok Gompa (April 14); Tang La (Przhevalsky, November and December); Camp 117 (June 29); Oring Nor (first half of July); Siang-Si-Pei Range (May); Tsurumun Chu (January). Northeastern Tibet, near sources of Tatung River (October); Yung-an-ch'eng (May 7); Bognu Khoza (May 10); Dangkar (end of March); Shara Hoto (July 28).

SOUTHEASTERN PLATEAU (N): Ge Chu (March 11 and 12); Dza Chu, Yangtze Basin (May); Ju Gompa (February 25, August 28); Jyekundo (April 4 and 12).

Specimens examined: 128, wing length, 56 ♂, 93–102 (96.8), and one 109; 46 ♀, 91–97 (93.8).

Other records: Breeds also in western Tibet.

Montifringilla blanfordi
Blanford's Snow Finch

Tibetan.

NORTHERN PLATEAU (N): Chang Tang, Kum Bulak (June 16 and 17); Kushku Maidan (September 7); Vallis Ventorum (December); Yeshil Köl (August); Mangtsa Tso (June 25); [extreme] northeastern Tibet, no locality (October); Shara Gol (July); Syrtyn Plain (July); foot of the Humboldt Range (June); Zaisan Saitu River (September). Koko Nor (April, September, October). Zaidam, Kurlyk (April); Shang (December); Burchan Buddha Range (May).

OUTER PLATEAU (N): Rupshu, More Plain (August 21); Tozeri (October 2 and 3); Tso Kar (June 28); Tso Kyun (July 10 and 11). Western Tibet, near Mount Kailas (September 14); Jerko La (September 18). Southern Tibet, Tingri Dzong (July 3); Tuna (February 3 and 22); Khamba Dzong (September 7, 15, and 27, December 7). Eastern Tibet, Chumar River (July 1); Camp 102 (June 10); Camp 117 (June 29).

Specimens examined: 140, wing length, 56 ♂, 92–102 (96.5); 35 ♀, 89–99 (95.3).

Family FRINGILLIDAE

Subfamily FRINGILLINAE

Fringilla montifringilla

Brambling

Northern Palearctic.

NORTHERN PLATEAU (N).

No specimens examined, but this species breeds in northern Chang Tang according to Kozlov (1899b, p. 276), and has been collected on migration in western Sinkiang and Kashmir at short distances from the borders of Tibet.

Subfamily CARDUELINAE

Serinus pusillus

Gold-fronted Serin

Southern Palearctic.

OUTER PLATEAU (N): Baltistan, Skardu (August 13); Shigar Nulla (August 21); Satpura (August 10); upper Tale Valley (August 24); Chalunka (September 2). Ladak, Dras (October 11, November 12); Shergol (June 23); Kargil (July 9); Bod Kharbu (April 26 and 27); Lamayuru (May 30); Shushot (no date); Leh (May 9, July 4); Khardung (September 13); Sakti (July 31–August 2); Himis (August 5); Tangtse (July 30); Khalsar (September 11); Deshkit (September 11); Panamik (June 11 and 14, July 15 and 16). Zaskar, Sarle (September 20 and 21); Mune Gompa (September 19); Bok (September 13); Reru (September 19); Kungi (September 6); Braqnak (September 2); Itchor (September 19). Rupshu, Rachogba (June 23). Western Tibet, Chabrang (October 1).

Specimens examined: 58, wing length, 15 ♂, 74–78 (77.6); 10 ♀, 73–78 (74.8).

Other records: This species occurs and breeds also in Spiti, from where it is reported by Stoliczka, Whistler, and Koelz.

Carduelis sinica

Oriental Greenfinch

Eastern Palearctic.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (May, July 3); Kung-ho-ku-chih (May). Northeastern Plateau, near Hsi-ning (March 1, August 8 and 13, first half of September, October 4); Dobo (April 22, May 5, June 10, September 6); Lao-hu-k'ou (May 5); Kuo-mang Ssu (April 29, May 17); Dangkar (August 24); T'ien-t'ang Ssu (June 5); Hsin-ch'eng (May 11); Myn-

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dan-scha (June 22); Nien-po (October 10). Amdo, Jahar Mountains (July).
Specimens examined: 26, wing length, 17 ♂, 80–85 (82.6); 7 ♀, 78–83 (80.7).

Carduelis ambigua Oustalet's Black-headed Greenfinch

Sino-Himalayan (Szechwan to southeastern Tibet, south to Burma, Yunnan, and northwestern Tonkin).

SOUTHEASTERN PLATEAU (N): Dzeng (April 6); Tsela Dzong (August 7); Lilung (May 26); Gacha (October 5); Kangka (September 28); Gyala (May 7 and 9); Pe (July 19); Trulung (January 11); Temo Gomba (September 10); Miling (December 11); Gya (January 20 and 25); Lusha (September 16, October 2).

Specimens examined: 28, wing length, 14 ♂, 78–88 (82.8); 9 ♀, 78–84 (80.2).

Carduelis spinoïdes Black-headed Greenfinch

Himalayas to Burma and Indochina, probably Sino-Himalayan in origin.

OUTER PLATEAU (N): Southern Tibet, Khasa (October 16, November 5); Kanglang (September 17); Nyalam Dzong (July 17); upper Chumbi Valley (July 7 and 23).

SOUTHEASTERN PLATEAU (N).

Specimens examined: 9.

Other records: This species has been collected on the Southeastern Plateau also, at Dre, in the valley of the Yigrong Chu, on July 2, 1913, by Colonel Bailey.

Carduelis thibetana Tibetan Siskin

Sino-Himalayan (Szechwan to central Himalayas, south to northern Burma, and northern Yunnan).

SOUTHEASTERN PLATEAU (N): Molo (May 21 and 22); Gyala (July 10 and 23); Lusha La (June 11).

Specimens examined: 8, wing length, 4 ♂, 68–71 (69.8); 4 ♀, 66–70 (67.3).

Carduelis carduelis Goldfinch

Palaearctic, east to western Himalayas and Mongolia.

OUTER PLATEAU (N): Baltistan, Shigar (August 20 and 21); Skardu (August 13). Ladak, Bod Kharbu (August 2); Rabila (July 28). Zaskar, Mune Gomba

(July 17); Hamiling (September 16); Phe (September 16). Spiti, Lara (September 15); Losar (September 2 and 3).

Specimens examined: 22, wing length, 6♂, 80–85 (81).

Other records: This species has been observed in western Tibet also by Ali (1946).

Acanthis flavirostris

Twite

Northwestern and central Palearctic, discontinuous in range.

NORTHERN PLATEAU (N): Northern Tibet, Ulaan Bulaq (June). Koko Nor (February, June 20); eastern Koko Nor (July 28). Zaidam, Naiji Gol (January); Jagharu Gol (February).

OUTER PLATEAU (N): Ladak, Mulbekh (August 7); Leh (July 1, September 4); Khardung (July 29, September 13 and 14); between Khardung and the Shyok River (June 16); Khardung Valley (July 21); Chimre (May 21); Tsultak (July 31); Ralma (June 20); Tangtse (May 26, July 6); Muglib (July 11); Man (July 9); Chagra (September 21); Tsaka (July 18); Chang Chenmo River (June 1 and 2); Gya (June 5, July 22, August 14); Pongunagu (July 24); Miru (September 25); Hemis Shukpa (February 16). Zaskar, Debring (August 16). Rupshu, upper Taga Laung Valley (August 4–9, 15, 20 and 21); Puga Valley (July 25); lower Puga Valley (September 9); Tso Morari (June 13); Tso Kar (June 28, August 19, September 28 and 29); Polokongka La (July 3 and 4); Tozeri (October 2 and 3); Muldem (August 23); Rachogba (June 23, October 6); More Plain (August 20); Da (July 12). Spiti, Losar (September 4); Kaja (September 13 and 14); Hansi (September 5); Rangring (September 10 and 11). Western Tibet, Trokpo Shar (September 15); Nilang (October 11).

OUTER PLATEAU (N): Southern Tibet, Cho La (June 18); Tingri Dzong (July 5 and 6); Khamba Dzong (April 4, October 9, November 4 and 19); Shigatse (April 27, May 3–6); Gyangtse (April 20–23, May 1–7, July 17 and 22, November 4, 19, and 25, December 5); Nagartse Dzong (April 19, July 20), "on the way" to Nagartse Dzong (April 13); Pede (April 9); Nyengo (March 20); Nethang (March 23); Chushul Dzong (March 25); Kongra Dzong (April 11); Tathan Gompa (March 29–April 1); Jangtang (March 29); Niemo (April 22); Yarlung-Potrang (March 26–28); Lhasa (January, February 2, 3, 10–13, 15, 20, and 26, March 13, August 15); Rinphung Dzong (April 20). Eastern Tibet, Bata Sumdo (April 20); Sari Sumdo (April 23); Sagotong Gompa (April 24); Camp 117 (July 1); Kung-ho-ku-chih (May). Northeastern Tibet, Myn-dan-scha (June 4 and 9); valley of the Tatung River (May 12); upper Hsi-ning ho (March 28); Dobo (November 15); near Dobo (November 15, December 17); near Tsi-tai (March 3); Hai-yen (June 16–19); Mantuse (June 5); Lao-hu-k'ou (December 16); Hsin-ch'eng (May 10); Kum-Bum (June 27).

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SOUTHEASTERN PLATEAU (N): Tre (October 16); Menton La (September); Camp 54 (February 18); Jyekundo (April 3, May 19).

Specimens examined: 254+, wing length, 93 ♂, 76–87 (80.7); 64 ♀, 73–82 (77.6).

Other records: This species breeds also in northern Chang Tang, and occurs also in Baltistan.

Acanthis cannabina

Linnet

Western Palearctic, east to Dzungaria.

OUTER PLATEAU (M or E): Baltistan, Shigar (January 24).

Specimen examined: 1.

Acanthis flammea

Redpoll

Northern Holarctic.

OUTER PLATEAU (E): Northeastern Tibet, Rangta Gol Gorge (December 29).

Specimen examined: 1.

Leucosticte nemoricola

Hodgson's Rosy Finch

Central Palearctic (high central Asia).

NORTHERN PLATEAU (N): Karakoram (June 26). Extreme northeastern Tibet (June). Zaidam, Burchan Buddha Range (May). Amnen Kor (June).

OUTER PLATEAU (N): Baltistan, Shigar Nulla (August 22); Deosai Plain (August 8); Tale La (August 23); above Satpura (August 10); Chalunka (September 2). Ladak, Machhoi (April 13); Matayan (July 7, September 5); Parkutse (July 17); Mulbekh (April 25); Chorten Chen (August 18); Chispianzan (September 5); Honupatta (July 19); Himis (August 6); Leh (July 8); Dzongpolas (July 7); Gya (June 4). Zaskar, Zulidok (June 29); Char (July 16); Kurgikh (July 14); Sarle (September 20 and 21); Tetha (September 28); Braqnak (September 1–4); Reru (September 19); Abring (September 15); Bok (September 14); Kungi La (September 6–8). Rupshu, Lachalung (June 24); Rachogba (June 23). Spiti, Kibar (September 8); Kaja (September 13); Losar (September 3). Western Tibet, Lipu Lekh (September 1).

OUTER PLATEAU (N): Southern Tibet, Nyalam Dzong (July 17 and 18); east of Mount Everest (September 15); upper Chumbi Valley (March 24, April 12–17, 27–29); Khamba Dzong (October 7); Gyantse (June 10); Chhushu (April 16). Eastern Tibet, Dy Chu (Przhevalsky, June); Ugutu Ula (April or

May). Northeastern Tibet, Tatung River (February); Dzai Dabaa (May 15); South Tatung Range above Kimar (June 13); Rangta Gol (September 16 and 24); Chertenton (February); pass near Durgu (May 18); Kuo-mang Ssu (February 27); Gui-Dui Sha (July 5). Amdo, below Kherab Nyera (June 24); north of the Dzomo La (June 21); Labrang (February 20).

SOUTHEASTERN PLATEAU (N): Lang La (October 17); Sang La (June 28); Nam La (September 5); Pemakochung (April 30); Gyala (May 9); Ma Pass (April 22); Bata Sumdo (April 19); Ucherapu (August 8); Re Chu (January, December); Hi Chu, Yangtze Basin (July); Jyekundo (May 6); Drechu Gompa (May 6); Dshedo Pass (September 1).

Specimens examined: 150, wing length, 77 ♂, 96–108 (101.6); 29 ♀, 92–102 (96.5).

Leucosticte brandti

Brandt's Rosy Finch

Central Palearctic (high central Asia).

NORTHERN PLATEAU (N): Chang Tang, Khapalung (June 14); upper Shaks-gam Valley (July 17); upper I Valley (August 28); Kushku Maidan (September 7 and 8); Karakoram Pass (August 4); Suget Karaul (June 27); lake east of the Mangtsa Tso (June 27). Zaisan Saitu River (December); extreme northeastern Tibet (June). Zaidam, South Koko Nor Range (October); Naiji Gol (January); Gurab Angir Gol (August); Kurlyk (October); western Zaidam (December); Burchan Buddha Range (May). Amnen Kor (June).

OUTER PLATEAU (N): Ladak, pass between Suru and Parkutse (July 8); Chorten Chen (August 18); Khalatse (January 9–15); Tsultak (September 16); Shagrot (September 25 and 26); Gya (July 6 and 22); upper Gya Valley (September 13); Polokongka La (July 4, September 11); Tsaka (July 18); Chushul (June 12, July 24 and 25, August 1); Muglib (July 29); Harong Valley (June 23); Tangtse (July 11 and 30, September 16); Khardung La (June 14, July 8 and 25, September 13); Chang La (July 9 and 11); Zingral (July 25); Saser La (July 22 and 25, August 1 and 12); Saser Brangsa (August 7); Chamshen-Jilga Valley (August 7); Kazuri La (July 25); Kataklik (July 1 and 5); Marsimik La (May 29, July 25); Gogra (July 18). Zaskar, Singi La (June 21); Kurgiakh (September 29 and 30); valley between Ringdom Gompa and the Pigdong La (June 27); Kungi La (September 7 and 9); Lakong (July 11). Rupshu, Debring (August 15); Puga (July 5); Tso Morari (June 13); Taga Laung La (July 30); Lachalung (June 25, August 22, October 4); Muldem (August 23). Western Tibet, Lipu Lekh (September 2); Rakas Tal (September 6); Polo La (October 4); Menza (September 17).

OUTER PLATEAU (N): Southern Tibet, Nyalam Dzong (July 16); east of Mount Everest (September 10 and 22); Nagartse Dzong (April 17 and 19,

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July 20); "on the way to" Nagartse Dzong (April 15); Tsetang (April 15); Pede (April 4-15); Bam Tso (July 6); Dza La (August 10); Karo La (September 14). Eastern Tibet, Koko Shili (October); Dy Chu (Przhevalsky, June); Camp 110 (June 18); Tsurumun Chu (January). Northeastern Tibet, Lo-khy-ku (August 17); Kuo-mang Ssu (March 22-25). Amdo, Kuei-te (July).

SOUTHEASTERN PLATEAU (N): Trakan La (August 10); Mekong-Yangtze Divide (March 15, September); Drechu Gompa (May 4).

Specimens examined: 230+, wing length, 124 ♂, 110-128 (119); 58 ♀, 109-120 (114).

Rhodopechys sanguinea

Crimson-winged Finch

Eremian.

OUTER PLATEAU (probably M): Ladak, Bod Kharbu (April 27).

Specimens examined: 2.

Rhodopechys mongolica

Mongolian Trumpeter Finch

Eremian.

NORTHERN PLATEAU (N): Koko Nor (February, October). Zaidam, Khotin Zan River (January); Zaidam, no locality (November).

OUTER PLATEAU (N): Baltistan, Shigar Valley (November 22). Ladak, Bod Kharbu (April 26); Namika La (April 26); Leh (May 14, September 4). Eastern Tibet, upper Hwang ho valley (May); Kung-ho-ku-chih (May). Northeastern Tibet, Dobo (May 27, June 10, October 31); near Dobo (June 10, October 20 and 31); Shan Chuang (July 24). Amdo, Kuei-te (November 29).

Specimens examined: 37, wing length, 22 ♂, 87-96 (92); 11 ♀, 85-92 (88.7).

Other records: This species breeds also in northern Chang Tang according to Kozlov (1899b).

Rhodopechys obsoleta

Desert Finch

High Central Asia, but probably Eremian in origin.

NORTHERN PLATEAU (N).

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March). Amdo, Kuei-te (November 23, December 8).

Specimens examined: 7.

Other records: Breeds also in northern Chang Tang according to Kozlov.

Carpodacus rubescens

Blanford's Rose Finch

Sino-Himalayan (Szechwan to central Himalayas, south to northern Yunnan).

SOUTHEASTERN PLATEAU (N): Doshong La (July 13); Tripe (July 26); Langong Chu valley near Molo (April 21); Molo (April 15 and 18, May 21); Gyala (July 10); Lusha La (September 17); Singo Samba (June 28); Showa (February 6).

Specimens examined: 14, wing length, 9 ♂, 78–87 (83).

Carpodacus nipalensis

Dark Rose Finch

Sino-Himalayan (Szechwan to northwestern Himalayas, south to northern Yunnan and northern Tonkin).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 28 and 29).

SOUTHEASTERN PLATEAU (N): Lung (October 19 and 23); Langong (July 17); Dongkar (August 24); near Dongkar (August 20); Lo La (May 16); Na La (September 2); Singo Samba (July 1).

Specimens examined: 11, wing length, 4 ♂, 90–95 (92); 7 ♀, 79–86 (82.5).

Carpodacus erythrinus

Common Rose Finch

Palaearctic.

NORTHERN PLATEAU (probably N): Chang Tang, Karakoram (June 5); Chumiktsaka Tso (September 13).

OUTER PLATEAU (N): Baltistan, Shigar Nulla (August 21); upper Tale Valley (August 23); Biagdangdo (September 4). Ladak, Zoji La (June 20); Dras (June 23); Matayan (August 15); Tasingam (June 19, August 6); Kirkitchu (June 24); Kharbu (July 20); Shimsa Kharbu (July 9); Namika La (June 26); Pituk (July 5, 8–10, August 10, 16–17, and 23); Leh (May 27, September 4); Khardung Ravine (July 21); Stak (August 8); Shushot (May 31, July 20); Ranbirpura (September 23); She (September 23); Upshi (June 27 and 28); Tangtse (July 30); Lake Pangong (September 21); junction of the Shyok and Nubra Rivers (July 16–19); Nubra Valley (July 20); Pokachu (July 22); Panamik (July 13–18); Nyungstet (July 4); Camp 31 (July 29); Lungnak Lunga River (August 21); Shyok River (July 15); Hundar (September 7 and 10); Spanpuk (September 8). Zaskar, Sanko (July 7 and 27); Yojok (September 26); Karpokhar (July 26); Ringdom Gompa (July 23); Kungi (July 12, September 5 and 6);

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north of Kungi nullah (September 5); Reru (September 19); Burdun Gompa (July 19); Lakong (July 11); Bok (July 23, September 14); Abring (July 22); Mune Gompa (July 19); Char (September 24–27); Sarle (September 20–22); Hamiling (September 13). Rupshu, Rachogba (June 23). Spiti, Lithang (September 16 and 17); Kuling (September 19); Kaja (September 12); Po (September 26); Kibar (September 10); Losar (September 2 and 4).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (May 7–9, 24–30); Sho Shika (August 8); Chaksam (July 30); Lhasa (September 21). Northeastern Tibet, Yüo-schüi-tsuän (July 13); Lao-hu-k'ou (June 23 and 24); near Lao-hu-k'ou (June 24); Dobo (May 28–31); Gui-Dui Sha (July 3); Myn-dan-scha (June 16); Rangta Gol Gorge near Desen-laka (July 18); Chertenton (June 9, 14, and 19, September). Amdo, Mujik Mountains (June); Ba Chu Valley (June 23).

SOUTHEASTERN PLATEAU (N): Chomo Dzong (August 12); Pe (July 7 and 19); Je (July 15); Dze Chu (September 18); Camp 135 (August 8); Jyekundo (August 8).

Specimens examined: 175, wing length 88 ♂, 80–92 (86.6); 30 ♀, 77–85 (82.7).

Carpodacus pulcherrimus

Beautiful Rose Finch

Mongolia to western Himalayas, probably Sino-Himalayan in origin.

NORTHERN PLATEAU (N): Koko Nor (no date); eastern Koko Nor (July 27). Zaidam, South Koko Nor Range (May); Ihe Gol (March).

OUTER PLATEAU (N): Southern Tibet, Kharta Valley (September 6); Lepo (April 5 and 6); Gyangtse (April 20, 21, and 27, May 1–3 and 7, July 1, 8, 17, and 26–29, November 14 and 25); Jora (April 20); Tro Shika (April 20); Rong Chu near Dongkar (August 19); Bod La (August 31); Tsetang (March 30 and 31); Tathang Gompa (April 4); Khambapadze (March 31); Saugang (June 15); Jangtang (March 26); Samye Gompa (March 21 and 22); Nethang (March 25); Kongka Dzong (April 11); Chushul Dzong (March 25); Yarlung-Potrang (March 27); Lhasa (January 14 and 20, February 18); Rinphung Dzong (April 20). Eastern Tibet, Dy Chu (Przhevalsky, July); Mzushu Rg'mchon (January); upper Hwang ho (March); Chasora River (April); Ugutu Ula (April); Kung-ho-ku-chih (May). Northeastern Tibet, Shan Chuang (July 12); Myn-dan-scha (April 3, June 9); Lao-hu-k'ou (January 8, February 5 and 21, April 29, June 22 and 24, October 13, December 1, 9, 10, 26, and 28); near Lao-hu-k'ou (January 7–11, February 10, 12, 15, and 21, May 1 and 6, November 25 and 28, December 6 and 30); Kuo-mang Ssu (February 10, May 18, December 6); Lassa (October 4 and 10); near Lassa (October 4); near Tsi-tai (March 5); Dsiling (June 24); Hsin-ch'eng (May 12); Rangta Gol Gorge (September 16

and 28); Chertenton (February, March 16). Amdo, Labrang (February 17).

SOUTHEASTERN PLATEAU (N): Chayul Dzong (April 22 and 23); Le La (May 8); Kyimdong (June 15); Lusha (June 16); Lung (April 28); Molo (June 24); Natrampa (April 26); Dzung (March 28, April 5 and 16); Lilung (December 9); Lilung Chu (October 4); Laoting (March 9); Ba La (June 27); Ngom Chu (November 9–12); Dza Chu, Mekong Basin (November 14–15); Chok Chu (September 12–13); Dze Chu (September 14–20); Re Chu (December); Bar Chu (September 16); Mekong–Yangtze Divide (August); Banajun (April); Chatou (May 10); Jyekundo (April 15); Lamdo (April 15); Camp 137 (August 11).

Specimens examined: 205, wing length, 101 ♂, 75–87 (80.9); 68 ♀, 73–84 (77.2).

Carpodacus eos

Stresemann's Rose Finch

Sino-Himalayan (Szechwan to southeastern Tibet, south to northernmost Yunnan).

OUTER PLATEAU (N): Amdo, Ragya Gumpa (May 20 and 26); Tagso Nang Canyon (June 2); Dzomo La (June); alpine meadows west of the Jupar Range (June 26).

SOUTHEASTERN PLATEAU (N): Beyü (February 5); Gartoh Gumpa (February 7); Kolondo (February 17); Buho (February 23); Ju Gumpa (no date); Sacha Sumdo (April 13 and 14); Lamdo (April 15); Gur La (May 24).

Specimens examined: 30, wing length, 21 ♂, 74–80 (77.4).

Carpodacus rhodochrous

Pink-browed Rose Finch

Western Himalayas east to Sikkim, probably Sino-Himalayan in origin.

OUTER PLATEAU (N).

No specimens examined: Ali (1946) observed one flock at Pala, western Tibet, north of the Lipu Lekh Pass on June 8, 1945, and this species was reported also by Stoliczka in 1868 from Spiti.

Carpodacus edwardsii

Large Rose Finch

Sino-Himalayan (Szechwan to central Himalayas, south to northern Yunnan).

SOUTHEASTERN PLATEAU (N): Bimbi La (June 4); Lo La (May 14, July 3); Budi Tsepo La (August 22); near Trulung (January 9 and 10); Migyitün (May

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28 and 31); Lung (October 18); Sangyü (January 14); Tongkyuk (December 25); Gya (January 21 and 22).

Specimens examined: 16, wing length, 6 ♂, 80–83 (82); 8 ♀, 76–80 (78.6).

Carpodacus synoicus

Sinai Rose Finch

Eremian with an extremely discontinuous range (Sinai, Jordan, Afghanistan, Sinkiang, and northeastern Tibet).

NORTHERN PLATEAU (N): Zaidam, Najji Gol (January); Hoting Zan River (January).

OUTER PLATEAU (N): Northeastern Tibet, Dobo (January 7, February 10, May 28, August 4, 11, 19, and 23, October 1, 10–12, 20, and 31, November 6, 8, and 21); near Dobo (January 7, February 10, August 19 and 23, September 1, October 1 and 20, November 6–8, 15, and 20–21, December 17); South Tatung Range (August 8); Chuang-tzu-kou (August 8). Amdo, Kuei-te (May 18, November 12 and 13).

Specimens examined: 62, wing length, 29 ♂, 88–95 (90.5); 18 ♀, 85–91 (87.5).

Other records: Breeds also in northern Chang Tang according to Kozlov.

Carpodacus trifasciatus

Three-banded Rose Finch

Sino-Himalayan (Szechwan to southeastern Tibet, south to northern Yunnan).

SOUTHEASTERN PLATEAU (N): Trulung (January 12, February 22, March 1); Yigrong Tso (February 8 and 12); Tse (December 14, 19, and 20); Laoting (March 8); Simbiteng (December 10); Gya (January 20 and 22); Shoka (December 12); Re Chu (February 26); Dza Chu, Yangtze Basin (November).

Specimens examined: 25, wing length, 18 ♂, 86–91 (88.8); 7 ♀, 84–90 (86.6).

Carpodacus thura

Mlle Thura's Rose Finch

Sino-Himalayan (Ningsia, Kansu, and Szechwan to northwestern Himalayas, south to northern Yunnan).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April, May); Dulaan Hiid (April, August); Ussu Etse Pass, Burchan Buddha Range (March).

OUTER PLATEAU (N): Southern Tibet, upper Chumbi Valley (April 3, 10, 21, 26, 27, and 30, May 11, July 19); Gotsa (January 24–26). Eastern Tibet, Ugutu Ula (April or May). Northeastern Tibet, Kuo-mang Ssu (January 3,

10, and 23, April 25, December 16); Wei-yuän-p'u (February 7); Lao-hu-k'ou (October 10, December 18); near Lao-hu-k'ou (January 3 and 11, December 7 and 27); Rangta Gol Gorge (March 20, May 17); Rangta Gol Gorge near Desen-laka (March 4, 12, and 13); Kimar (April 2, December 26); South Tatung Range (March); Chertenton (February 18, March 20). Amdo, Mujik Mountains (June); Jahar Mountains (June, November 6); Ba Chu Valley (June 23); Tagso Nang Canyon (June 2); near Ragya Gomba (May 30); Labrang (February 18, March 1).

SOUTHEASTERN PLATEAU (N): Le La (May 7 and 8); Taktsa (June 19); Kyimpu (May 9); Pasum La (August 22); Molo (April 5); Kap (April 24, May 5); Bimbi La (June 3 and 7); Doshong La (July 17); Kyimpu (May 9); De Chu (November); Bar Chu (October); Dza Chu, Yangtze Basin (April, November); Banajun (April 1); Rata (May 6); Chatou (May 10); Gur La (May 24); Beyü (February 4).

Specimens examined: 103, wing length, 54 ♂, 82-91 (86); 33 ♀, 79-88 (83.4).

Carpodacus rhodochlamys

Red-mantled Rose Finch

High central Asia (Mongolia to western Himalayas, Pamirs, northern Afghanistan, northern Baluchistan, Tian Shan, and Tarbagatai), but probably Sino-Himalayan in origin.

OUTER PLATEAU (N): Zaskar, Sarle (September 19-21); Itchor (September 19); Char (September 25); Burdun Gomba (July 19). Spiti, Mani (September 22); Po (September 26 and 27); Shichiling (September 25); Dankhar Gomba (September 25); Lidang (September 16).

Specimens examined: 20, chiefly immature birds and moulting adults.

Other records: This species has been collected also in Ladak and Baltistan on July 17 and 20.

Carpodacus rubicilloides

Streaked Great Rose Finch

Sino-Himalayan (western Nan Shan and Szechwan to northwestern Himalayas).

NORTHERN PLATEAU (N): Koko Nor (no date).

OUTER PLATEAU (N): Ladak, no locality (October 17); Pituk (September 21); Mashoo Nullah (August 31); Leh (May 7); She (September 22); Hemis Shukpa (February 20); Chushul River (July 31); Chushul (June 11, July 7, August 1); Lake Pangong (September 18 and 19); Kataklik (July 2 and 3); Sultan Chhushku (July 8). Rupshu, Puga (July 5); Puga Valley (July 25); upper Puga valley (September 10); Karzok Gomba (July 7); Da (July 12).

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Spiti, Mani (September 22). Western Tibet, Menza (September 16). Southern Tibet, Nyalam Dzong (July 16); Tingri Dzong (April 16); Kharta Shika (August 9, 11, and 14); Chushar (June 18); Shigatse (April 27, May 5 and 6); Rinphung Dzong (April 20); Gyangtse (March 17, April 23 and 25, May 3 and 31, July 18, September 24, November 14, December 5); Kongka Dzong (April 9 and 11); Chhushu (April 16); Yarlung-Potrang (March 26 and 28); Tsetang (November 5); Sakang (March 6); Khamba Dzong (September 2); Kyishong (April 8); Jangtang (March 29); Niemo (April 22); Samye Gumpa (March 21); Kalashar (July 21); Tsona Dzong (August 11); Lhasa (January 3, 9, 14, 18, 25, and 30, February 9-13, 19, and 22-24, March 15).

OUTER PLATEAU (N): Eastern Tibet, Tandi (April 12); upper Hwang ho (March); Dy Chu (Przhevalsky, June); Chasora River (April). Northeastern Tibet, Lao-hu-k'ou (January 1, February 12 and 15); near Lao-hu-k'ou (February 12 and 15, November 25 and 27, December 7, 13, and 16); Hung-hosiae (November 16 and 20); Kuo-mang Ssu (January 3, December 2); Buguk Gol (November 20); Dzai Dabaa (April 25, May 15); Rangta Gol Gorge near Desen-laka (March 10); Desen-laka (January 15-20, March 9 and 12, July 23); near Kimar (May 18). Amdo, Kuei-te (June 28, November 10, December 16).

SOUTHEASTERN PLATEAU (N): Lunang (December 10); Yigrong Tso (February 14); Goner Chu (August); Enyr Chu (August); Re Chu (January); Hi Chu, Yangtze Basin (July); Dza Chu, Yangtze Basin (April, November); Ge Chu (February 16); Banajun (April 14-17); Gartoh Gumpa (February 7); Camp 54 (February 18); Camp 137 (August 11); Jyekundo (May 19).

Specimens examined: 275+, wing length, 109 ♂, 103-121 (110); 96 ♀, 96-115 (104.7).

Carpodacus rubicilla

Great Rose Finch

Caucasus to Mongolia and southeastern Tibet; origin doubtful but probably Sino-Himalayan.

NORTHERN PLATEAU (N): Northern Tibet, Blagodatny (May, June). Zaidam, Ghaz (January, November); Naiji Gol (January, September); Hatu Gol (June, July); Bayan Gol (March); Jagharu Gol (February, March); Onota Gol (August); Shang (March, December); Yamatiin (July); Ichigan Gol (June eastern Zaidam (April, May); Zaidam, no locality (January, May, August, September, November). Amnen Kor (April). Tsa-han Obotu Pass (January).

OUTER PLATEAU (N): Baltistan, Nubra Valley (July 18). Ladak, Chorten Chen (August 19); Khalatse (January 9, December 8); Upshi (July 4); Fotu La (June 13); Chushul (August 1); Tangtse (July 10 and 11); near Tangtse (May 26); Lake Pangong (June 7 and 9, October 9); Mcrak (July 2); Muglib (June 21); Phobrang (June 6); Chang Chenmo River (May 31, June 2); Unmaru

(July 8); Kharu (July 10); Saser Pass (August 12). Zaskar, Lakong (July 11); Kurgiakh (July 15, September 30); Kungi La (September 6 and 7); valley between Ringdom Gompa and the Pigdong La (June 27); Char (September 26); Phuktal Gompa (September 26); Lakong (October 1); Sarle (September 21). Rupshu, Debring (June 24); Puga (July 5); upper Taga Laung Valley (August 15-18); Lachalung (June 24, August 22); Rachogba (June 23); Gya (August 3); Shagrot (September 26 and 27); Khanlagyal (August 22). Spiti, Lagudarsi (September 5 and 7); Hansi (September 4 and 5); Lithang (September 17); Losar (September 4). Western Tibet, Lipu Lekh Pass (September 2); Dunkar (September 28). Southern Tibet, Nyalam Dzong (July 16); Chushar (June 18); Tuna (March 5); Khamba Dzong (September 6, October 31, November 23); Karo La (September 15); Kangmar (March 5 and 6). Eastern Tibet, Tandi (April 12); Camp 101 (June 9); Camp 117 (June 22 or 23); Camp 132 (July 22).

SOUTHEASTERN PLATEAU (N): Kiche Kha (May 1); Jyekundo (June 9, August 4); Lanyipa (April 13); Lamdo (June 8); Camp 119 (July 3); Camp 128 (July 17).

Specimens examined: 167, wing length, 75 ♂, 115-128 (120); 43 ♀, 111-121 (114.7).

Other records: This species breeds also in northern Chang Tang and at Lhasa.

Carpodacus puniceus Red-breasted Rose Finch

Sino-Himalayan (Szechwan to northwestern Himalayas, Pamirs, Tian Shan).

NORTHERN PLATEAU (N): Zaidam, Burchan Buddha Range (August). Amnen Kor (June 17-24).

OUTER PLATEAU (N): Baltistan, Shigar Nullah (August 22). Ladak, Suru Valley (July 17); Zingral (July 8); Khardung La (July 13 and 14); below the Saser Pass (July 31). Zaskar, Pensi La (July 23); Bok (July 22, September 13); Ringdom Gompa (July 23); Lakong (July 10). Southern Tibet, upper Kharta Valley (September 6 and 8); east of Mount Everest (September 16 and 18); Lapche Gompa (July 25); Karo La (September 15). Eastern Tibet, Kon Chun Chu (June). Northeastern Tibet, La-chi Shan-k'ou (July 4); Gadjur Mountains, South Tatung Range (May); South Tatung Range (March); Mantuse (May 21); Kimar (July 17 and 20). Amdo, Jahar Mountains (June, July).

SOUTHEASTERN PLATEAU (N): Bimbi La (June 3, September 9); Le La (July 5, October 2); Na La (September 2); Trakan La (August 10).

Specimens examined: 50, wing length, 29 ♂, 112-129 (120); 10 ♀, 108-120 (113.5).

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Other records: This species has been collected also in Spiti, has been reported from several localities in western Tibet, and occurs also in the hills above Lhasa.

Kozłowia roborowskii Roborovsky's Rose Finch

Tibetan.

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (June); Burchan Buddha Range (June 25, August 13). Amnen Kor (June 19-23).

OUTER PLATEAU (N): Eastern Tibet, Camp 110 (June 19); Camp 117 (June 30).

Specimens examined: 27, wing length, 18 ♂, 121-130 (125.3); 9 ♀, 113-125 (120.4).

Loxia curvirostra Crossbill

Holarctic.

OUTER PLATEAU (N): Eastern Tibet, Ugutu Ula (April or May). Northeastern Tibet, Kuo-mang Ssu (January 1, 9, 17, and 23, February 2, April 24 and 25, May 2, December 2 and 4); Lao-hu-k'ou (June 24); near Lao-hu-k'ou (January 11, 20-23, February 2, May 2 and 5, June 24, December 2); Lassa (October 16). Amdo, Labrang (February 21).

SOUTHEASTERN PLATEAU (N): Tsela Dzong (June 4); Simbiteng (May 27); Kyimpu (October 4-8); Tse (December 17); Pe (September 18); near Pe (August 27); Gya (January 21 and 26, February 10); Sen Chu (March); Bar Chu (October); Hi Chu, Yalung Basin (March); Dza Chu, Mekong Basin (first half of November); Dze Chu (September); Nom Chu (March).

Specimens examined: 91, wing lengths as follows:

Tibetan populations, 40 ♂, 82-94 (89); 20 ♀, 82-91 (86.1).

Migrants (northeastern Tibet, January 11, 20, 23, April 24, December 2), 4 ♂, 99-104 (101.5); 4 ♀, 91-98 (95).

Uragus sibiricus Long-tailed Rose Finch

Eastern Palearctic.

SOUTHEASTERN PLATEAU (M OR E): Sotong (February 9).

Specimen examined: 1.

Note: This species breeds east of the Yangtze in western Szechwan, and possibly breeds also in extreme southeastern Tibet.

Urocynchramus pylzowi

Przhevalsky's Rose Finch

Sino-Himalayan (Szechwan to eastern Tibet).

NORTHERN PLATEAU (N): Koko Nor (February, March, October). Zaidam, South Koko Nor Range (April, August, September).

OUTER PLATEAU (N): Eastern Tibet, Siang-Si-Pei Range (April and May). Northeastern Tibet, valley of the Tatung River (May 12); Shan Chuang (July 12); near Lassa (December 4); Kimar (April 2). Amdo, Jahar Mountains (June); Dzomo La (June).

SOUTHEASTERN PLATEAU (N): Dza Chu, Yangtze Basin (first third of May); Miri La (March); Rabi Chu (April); Camp 77 (April 16); 10 miles west of Ju Gopa (February 23); Camp 140 (September 1).

Specimens examined: 53, wing length, 36 ♂, 71-81 (76.2); 9 ♀, 70-76 (73).

Propyrrhula subhimalacha

Red-headed Finch

Sino-Himalayan (Szechwan to central Himalayas, south to northern Yunnan).

SOUTHEASTERN PLATEAU (N): Bimbi La (June 3, September 13, October 13); Sur La (August 17); Taktsa (June 19); Kyimpu (May 10).

Specimens examined: 7, wing length, 7 ♂, 95-100 (97.7).

Pyrrhoplectes epauletta

Gold-headed Finch

Sino-Himalayan (Szechwan to western Himalayas, south to northern Yunnan).

SOUTHEASTERN PLATEAU (N): Tsakchugong (February 23); Lo La (May 14, July 3, October 10); Migyitün (June 1).

Specimens examined: 7.

Pyrrhula nipalensis

Brown Bullfinch

Sino-Himalayan (Szechwan to northwestern Himalayas, south to southeastern China, Indo Chinese countries, Malay Peninsula, also Formosa).

SOUTHEASTERN PLATEAU (N): Tsakchugong (February 2).

Specimens examined: 4.

Pyrrhula erythrocephala

Red-headed Bullfinch

Sino-Himalayan (southeastern Tibet to northwestern Himalayas).

OUTER PLATEAU (N): Southern Tibet, Dejen Gompa (June 7); Kharta Shika (August 17); Kama Valley (August 25); Choksum (June 8); upper Chumbi Valley (May 1, 12, and 20-22, June 2 and 5).

Specimens examined: 14, wing length, 7 ♂, 79-83 (80.1); 7 ♀, 76-81 (78.3).

Pyrrhula erythaca

Beavan's Bullfinch

Sino-Himalayan (Hopeh and southern Shensi to eastern Himalayas, south to northern Burma and northern Yunnan, also Formosa).

OUTER PLATEAU (N): Northeastern Tibet, Desen-laka (January 9, February 8); near Desen-laka (July 17); Chertenton (March 6 and 12, May 17).

SOUTHEASTERN PLATEAU (N): Below Migyitün (May 26 and 28); Migyitün (May 23 and 28); Tse (December 15); Chunyima (September 5); Trulung (January 10, February 19); Natrampa (April 26, May 1); Tongkyuk (December 28); Satang (February 6); Bimbi La (June 5, September 9); Kyikar (September 7); Pe (July 18); Kyimpu (October 7); Molo (June 23 and 24); between Yarap and Migyitün (May 21); Gyala (July 22); Yigrong Tso (January 16, February 12); Gya (January 17, 21-30); Gartoh Gompa (February 7).

Specimens examined: 54, wing length, 33 ♂, 81-88 (84.3); 20 ♀, 80-86 (82.9).

Mycerobas affinis

Allied Grosbeak

Sino-Himalayan (Szechwan to northwestern Himalayas, south to northern Burma and northern Yunnan).

SOUTHEASTERN PLATEAU (N): Sang La (June 28); Sengdam (May 5); Singo Samba (May 16); north of the Lo La (July 14); Migyitün (June 1); Tsakchugong (February 25).

Specimens examined: 10, wing length, 6 ♂, 126-130 (127.5).

Mycerobas melanozanthos

Spotted-wing Grosbeak

Sino-Himalayan (Szechwan to northwestern Himalayas, south to northern Burma and northern Yunnan).

OUTER PLATEAU (N).

SOUTHEASTERN PLATEAU (N): Tongkyuk (September 4).

Specimen examined: 1.

Other records: Ludlow (1937) states that he met with this species in southern Tibet on the Outer Plateau, near Lhakang Dzong in the Hamo Chu Valley; but he was not able to collect it although he found one dead bird.

Mycerobas carnipes
White-winged Grosbeak

Sino-Himalayan (Szechwan and Ningsia to northwestern Himalayas, Tian Shan, northern Afghanistan, and northern Iran).

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (April); Dulaan Hiid (April 18 and 19).

OUTER PLATEAU (N): Baltistan, Braldu Valley (November 30). Western Tibet, Sonam (October 7). Southern Tibet, Tang Mar (June 24); Relde (June 25); Limi (October 26); Sakyatang (June 22); upper Chumbi Valley (March 7, April 22 and 29, May 3, June 25); Gotsa (January 25); Chu Nallah (December 15); Kap (April 24). Eastern Tibet, Dy Chu (Przhevalsky, July); Mzushu Rg'mchon (January); Ugutu Ula (April or May). Northeastern Tibet, Lao-hu-k'ou (May 5); Kimar (May 28, June 12); Chertenton (February 12). Amdo, Haowa Valley (May 26 and 31); north of Ragya Gomba (May 31); Jahar Mountains (November 5); Chi (March 3).

SOUTHEASTERN PLATEAU (N): Tse (December 18); Laoting (March 6 and 7); Langong (July 16); Tsemachi (June 13); Tumbatse (July 1); Tripe (September 13); Pasum La (August 22); Lagya Pass (June 19); Tioungou (April 17); Kumtatchio (May 7); Dze Chu (September 14-19); Bar Chu (end of October); Banajun (April); Gartoh Gomba (February 7).

Specimens examined: 81, wing length, 39 ♂, 117-130 (122.5); 35 ♀, 111-126 (118.9).

Emberiza leucocephala
Pine Bunting

Palaearctic.

NORTHERN PLATEAU (N): Northern Tibet, Shara Gol (June); north slope of the Humboldt Range (June). Zaidam, South Koko Nor Range (end of August). Jagharu Gol (March).

OUTER PLATEAU (N): Northeastern Tibet, upper Hsi-ning ho (June 16 and 22); upper Hsi-ning ho near Hai-yen (June 19); Hai-yen (June 16); Lao-hu-k'ou (March 4, April 25, May 12, November 24, December 16); near Lao-hu-k'ou (January 8 and 17); between Lao-hu-k'ou and Hsin-ch'eng (May 12); Ma Li Ku (August 11). Amdo, Mujik Mountains (June).

Specimens examined: 22, wing length, 16 ♂, 95-100 (98.3); 4 ♀, 91-94 (92).

Emberiza cia
Rock Bunting

Eremian, Morocco to Manchuria.

NORTHERN PLATEAU (N): Zaidam, South Koko Nor Range (February, May); Gurab Angir Gol (September); Dulaan Hiid (August).

OUTER PLATEAU (N): Baltistan, Kapalu (August 27 and 28); Tale Valley (August 24); Shigar Nullah (August 22); Chalunka (September 2); Prahnu (August 31). Ladak, Dras (August 11); Matayan (April 14, May 25); Kargil (July 15); between Kargil and Mulbekh (August 4); Suru (July 7); Bod Kharbu (July 7, September 1); Hiniskut (October 7); Umbih Valley (September 28); Khalatse (March 28, April 29). Zaskar, Tongul (July 26); Mune Gompa (July 17); Char (July 16, September 24-27); Tetha (July 15, September 28); valley between Ringdom Gompa and the Pigdong La (June 27); Pensi La (September 13); Itchor (September 19); Sarle (September 20 and 21); Padam (September 17); Ringdom Gompa (September 11); Burdun Gompa (September 18); Kungi La (September 6). Spiti, Po (September 26 and 27); Mani (September 22 and 23); Lara (September 15); Dankhar Gompa (September 25); Hurling (October 1). Western Tibet, Lipu Lekh Pass (September 1); Poling (October 2); Tolingmath (September 28 and 29).

OUTER PLATEAU (N): Southern Tibet, Kharta Shika (August 11-14); Teng (July 8); Lhakhang Dzong (September 1); Gyangtse (May 4 and 31, July 2); Sakang (July 10); Chhushu (April 16); Yarlung-Potrang (March 16); Rinphung Dzong (April 20); Lhasa (February 22). Eastern Tibet, Dy Chu (Przhevalsky, June); upper Hwang ho (March); Mzushu Rg'mchon (January); Tsurumun Chu (April); Chasora River (May). Northeastern Tibet, South Tatung Range (August 7); Lao-hu-k'ou (January 1, November 24, December 3); near Lao-hu-k'ou (May 6, December 13 and 19); near Dobo (October 10, November 8); Kuo-mang Ssu (February 10); Hai-yen (June 17); T'ien-t'ang Ssu (January 1); Rangta Gol Gorge (January 1); Desen-laka (July 27); Chertenton (February, June 19). Amdo, Mujik ho (July 17); Ragya Gompa (May 20).

SOUTHEASTERN PLATEAU (N): Charme (September 29); Gyala (May 6); Tongkyuk (January 3, September 3); Chayul Dzong (April 22); Sang (June 26); Tse (October 10); Gya (January 23, July 2); Yigrong Tso (February 2); Trön (April 25); Lunang (December 20); Molo (June 23); Kyimpu (October 8); Lilung (May 25); Showa (February 4); Bata Sumdo (April 19); Rata (May 6); Bar Chu (September); Dze Chu (September); Dza Chu, Mckong Basin (August and September); Gartoh Gompa (February 7); Jyckundo (April 4, August 8); Camp 139 (August 8).

Specimens examined: 159. All the specimens (64) from Baltistan, Ladak, Zaskar, Spiti, and western Tibet (listed above in the first paragraph under

Outer Plateau) are "*stracheyi*", a form of the nominate *cia* group of populations; all the other specimens (95) are populations of the *godlewskii* group. The latter differs from the nominate *cia* populations by having the crown and face streaked with chestnut rather than black. Wing length, *godlewskii*, 62 ♂, 80-96 (88); 19 ♀, 76-92 (83.6); "*stracheyi*", 21 ♂, 85-92 (88); 9 ♀, 79-90 (83).

Emberiza cioides

Long-tailed Bunting

Central and eastern Palearctic.

OUTER PLATEAU (N): Eastern Tibet, upper Hwang ho (March, May); Tsurumun Chu (April or May). Northeastern Tibet, Ma Li Ku (August 10); Dobo (January 7 and 11, February 4, October 1 and 4, November 8); near Dobo (March 12, August 4, September 1, October 12, November 6, December 17); Hsin-ch'eng (June 20). Amdo, Kuei-te (November 4 and 5, December 18).

Specimens examined: 21, wing length, 9 ♂, 80-87 (83); 10 ♀, 76-82 (79.2).

Emberiza buchanani

Grey-necked Bunting

Eremian, Transcaucasia to Mongolia.

OUTER PLATEAU (M): Ladak, Unmaru (September 6). Zaskar, Padam (September 17).

Specimens examined: 2.

Emberiza stewarti

White-capped Bunting

Eremian, Tian Shan to western Himalayas.

OUTER PLATEAU (N): Baltistan, Skardu (August 12-15); Shigar (August 19-21).

Specimens examined: 8.

Other records: Bailey (1915, p. 75) states that he collected a clutch of the eggs of this species on July 1, 1913, at Tangme, Pome, southeastern Tibet, but the parent bird was not collected and this record may be invalid.

Emberiza hortulana

Ortolan Bunting

Western Palearctic, east to Mongolia.

NORTHERN PLATEAU (N).

No specimens examined: Kozlov (1899a) states he found this species breeding in the southern Zaidam between Kurlyk and Dulaan Hiid.

Emberiza rustica
Rustic Bunting

Northern Palearctic.

NORTHERN PLATEAU (probably M): Zaidam, no locality (September).
Specimen examined: 1.

Emberiza aureola
Yellow-breasted Bunting

Northern Palearctic.

SOUTHEASTERN PLATEAU (M): Gyala (May 1).

Specimen examined: 1, "shot out of a very large flock" by Ludlow.

Emberiza rutila
Chestnut Bunting

Eastern Palearctic.

OUTER PLATEAU (E).

No specimens examined: Osmaston (1925) states "a single specimen of this bunting was seen by the Tso Kar Lake [Rupshu] at 15,000 feet on 10 June. . . . It was shot, and proved to be a female. . . its occurrence in Ladakh is interesting."

Emberiza koslowi
Kozlov's Bunting

Tibetan.

SOUTHEASTERN PLATEAU (N): Re Chu (January); Enyr Chu (August);
Menton La (September); Jyekundo (April 26); Camp 90 (May 16).

Specimens examined: 8, wing length, 5 ♂, 94-99 (97); 3 ♀, 90-94 (92).

Emberiza bruniceps
Red-headed Bunting

Central Palearctic.

Superspecies: *E. melanocephala*, southeastern Europe to Iran.

OUTER PLATEAU (M): Rupshu, More Plain (August 20). Spiti, Shichiling
(September 24).

SOUTHEASTERN PLATEAU (M OR E): Yarap (September 16).

Specimens examined: 3.

Emberiza spodocephala

Black-faced Bunting

Eastern Palearctic.

OUTER PLATEAU (N): Northeastern Tibet, Hsin-ch'eng (May 10 and 11, June 3 and 4). Amdo, Kuei-te (May).

Specimens examined: 13, wing length, 11 ♂, 70-78 (74.5); 2 ♀, 71, 73.

Emberiza pallasi

Pallas' Reed Bunting

Northern, central, and eastern Palearctic.

NORTHERN PLATEAU (N).

OUTER PLATEAU (M).

No specimens examined: Przhevalsky states that this species breeds in the reedy marshes of the Zaidam on the Northern Plateau; on the Outer Plateau, Bianki (1916) reports one specimen taken at "Gui Dui" [now Kuei-te] on the Hwang ho in Amdo.

Emberiza schoeniclus

Reed Bunting

Palearctic.

NORTHERN PLATEAU (N): Zaidam, Ghaz (November); Kurlyk (November); Zaidam, no locality (February, April or May, October, December).

OUTER PLATEAU (N): Amdo, Kuei-te (November 23).

Specimens examined: 9, wing length, 5 ♂, 87-92 (90); 2 ♀, 81, 83.

Calcarius lapponicus

Lapland Bunting

Holarctic (circumpolar).

OUTER PLATEAU or SOUTHEASTERN PLATEAU (E, or perhaps rare M).

No specimens examined: Bianki (1907, p. xlvii) lists this species as occurring rarely in winter in the "Mupino-Khamensis" subregion; it has been collected during the winter in the Ala Shan, north of northeastern Tibet, and very near the latter by Beick on April 7 in western Kansu near the border of Tsinghai at about 37° 35' by 102° 20'.

Hypothetical List

All the Tibetan records of the 15 species listed below require confirmation. They are all sight records only, to the best of my knowledge, with the exception of the records of *Larus saundersi* and *Coturnix coromandelica*. Osmaston

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(1925, p. 710) says he heard the latter calling on August 6 in the valley of the Suru River in Ladak, and adds that this species "certainly" breeds there on the basis of this evidence, but he apparently did not even see it, and no one else has ever reported this bird from Ladak or any other Tibetan territory. Moreover, this species inhabits the plains of India and the highest record for it is 7000 feet [2133 m.] according to Ripley (1961). I believe therefore that the record of *Coturnix coromandelica* is extremely doubtful.

The record of *Larus saundersi* consists of a photograph of an alleged breeding colony of this species discovered very recently on the shores of the western Koko Nor, but I have some doubt about the identity of the birds shown and also about the authenticity of the locality. My efforts to trace this record to its source have failed, but, if it proves to be valid, it seems to constitute the first breeding record anywhere for this species which is assumed to breed on inland waters in China and Inner Mongolia.

Most of the other species on this hypothetical list are known from single sight records only, but there are several records for *Falco peregrinus* which is reported, however, by persons who did not distinguish between this species and its close relative *Falco pelegrinoides*. The latter has been collected in northwestern Tibet, but it seems that no Tibetan specimen of *Falco peregrinus* was ever taken. I do not believe it is legitimate to place this falcon, or the other species, on the Tibetan list without confirmation because the possibility of misidentification is too strong in their case. I do believe, however, that *Falco peregrinus* and the species designated by an asterisk (*) are quite likely to occur in Tibet, and this is almost certain for about half of them.

* <i>Gyps fulvus</i>	Griffon Vulture
<i>Falco jugger</i>	Laggar Falcon
* <i>Falco peregrinus</i>	Peregrine Falcon
<i>Falco naumanni</i>	Lesser Kestrel
<i>Coturnix coromandelica</i>	Rain Quail
<i>Larus saundersi</i>	Saunders's Gull
* <i>Streptopelia turtur</i>	Turtle Dove
* <i>Apus affinis</i>	House Swift
<i>Coracias benghalensis</i>	Indian Roller
* <i>Phylloscopus nitidus</i>	Green Warbler
* <i>Enicurus scouleri</i>	Little Forktail
* <i>Yuhina diademata</i>	White-collared Yuhina
* <i>Aegithalos leucogenys</i>	White-checked Long-tailed Tit
* <i>Carpodacus vinaceus</i>	Vinaceous Rose Finch
* <i>Carpodacus rhodopepla</i>	Spotted Rose Finch

Gazetteer

This gazetteer consists of about 2000 entries for localities where birds have been collected or observed in Tibet. It includes also most of the places mentioned in the text. Some of these are not in Tibet, however, and, in their case, the name of the country or region in which they are located is added in parentheses—such as Charchan (Sinkiang). Parentheses are used also for some variants, to make clear that more than one locality of the same name is involved, and to indicate whether or not the locality appears on the International Map of the World.

This map, which is at the scale of 1:1,000,000, is the basis of this gazetteer. All the co-ordinates are given from this map with one exception, whether or not the locality or geographical feature concerned appears on the appropriate sheet of this map. The number of the sheet is stated and is not enclosed in parentheses when the locality will be found on that sheet, such as NH-46, but a locality designated as (NH-46) is not shown on the map and about half of the localities in this gazetteer are in this category. North (N) and East (E) are omitted as unnecessary because all the co-ordinates are north of the equator and east of Greenwich.

The exception mentioned above concerns the northeastern corner of sheet NI-47, between the 34th and 36th parallels and the 100th and 102nd meridians, because Rock (1956) has shown that the map is incorrect in this section. The co-ordinates given here for this region are therefore based on the maps of Rock, rather than on the International Map.

A large number of entries under the letter C consist only of the number of a camp where specimens were collected. These camps were established by J. A. Sillem in Ladak in 1929–1930 along the Karakoram Trade Route, and by Schäfer in eastern Tibet in 1935. All the camps of Sillem are identified with his name, but not those of Schäfer which are much more numerous, unless the camps of the two men have the same number. In some cases, these camps were established at a place with a name, and, whenever possible, I have substituted this name in the text for the number of the camp, giving a cross reference in the gazetteer.

Substitution was made also in cases of localities where the name which appears on the map is different from that employed by a collector. For in-

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stance, Walter Beick collected many specimens in northeastern Tibet at a locality situated on the Hsi-ning ho about 24 kilometres west of Hsi-ning. These birds were labelled Heitsuitse and this name is used in the report on Beick's collection published by Stresemann and others (1937-1938). However, this locality is actually called To-pa on the map of the region which was used personally by Beick and which I have seen, and To-pa has been modified on the International Map to Dobo, which I use rather than Heitsuitse. The use of different names may have been legitimate on the part of collectors, but my reason for adopting the one which appears on the map is to promote identification of the locality. But I did not change names arbitrarily, and, in all instances, give a cross reference in the gazetteer.

The co-ordinates given for rivers or mountain ranges normally refer to localities where specimens seem to have been collected or observed, but, in the case of some rivers, it may refer to their mouths or to the junction with another important river.

This gazetteer is based on the International Map of the World as stated above, with the single exception noted, but in preparing it I have made use of whatever information I could find, published or not. Some information was found in the gazetteers published by the United States Board on Geographic Names,¹ and on a variety of maps of different scale. Some of these were standard maps, but others were mere sketches of itineraries which are very useful but do not pretend to show exact locations. Information was also obtained from texts, rather than maps, and I also had to reconstruct some itineraries from dates on specimens when no other information was available.

Two unpublished gazetteers of Tibet were also made available to me through the courtesy of the Royal Geographical Society of London and Frank Ludlow. The first is a general gazetteer, and the second was prepared for the use of the Department of Botany of the British Museum (Natural History) to account for the localities in southern Tibet where Ludlow and his companion Sherriff collected plants as well as birds.

The spellings of place names or of geographical features in Tibet are not standardized and present many difficulties. The main languages involved are Tibetan, Mongolian, Chinese, and Turkic which are all very difficult for Europeans, and, sometimes, two or even three names in different languages have

¹ Gazetteer No. 5, August, 1955, which includes Tibet, and Gazetteer No. 22, June, 1956, for China, which was revised and enlarged and republished in September, 1968. But important discrepancies exist between these gazetteers and the International Map. For instance, Lan-chou in Kansu, which is far from obscure as it is a city of well over one million population, is said to be situated at 10341 in these gazetteers, but on sheet NJ-48 of the International Map it is situated at 10351, a difference of about 15 kilometres. This sheet was published in September 1961 by the Army Map Service of the United States who also published the gazetteers named. In case of discrepancies, I followed the map.

been used for the same locality on some maps, Chinese names which replaced many Tibetan and Mongolian names, especially in the east, are perhaps the most troublesome because they were often completely changed later for administrative or other reasons. Their romanization is not easy and, moreover, the cumbersome system of romanizing them with hyphens is no longer used on the most modern maps. I could not follow this desirable reform to my regret because the names are still hyphenated on the International Map that I used as my standard.

Much of the confusion goes back to the start of exploration. Some explorers tried conscientiously to obtain correct names, but they were a small minority and did not always meet with co-operation. For instance, Roborovsky, who tried, says "I cannot vouch for the accuracy of my names, learned from the Tanguts, for it is quite possible that many of the Tanguts deliberately misrepresented things," as translated and quoted by Rock (1956). There is also the problem of correct phonetic transcription compounded by transliteration—say from a Mongolian dialect into Russian, and from the latter into German, and from this into English or French.

Some purists use names which, no doubt, are the most correct form, but their advocacy adds much to the confusion. For instance, Rock, quoted above, uses "rGyud-par Range", for the Jupar Range (or Shan) which appears on the map, and "Am-nye Ma-chhen" rather than the traditional Amne Machin for this mountain range. It seems also that the correct spelling of the well known town of Shigatse is actually "gZhis-ka-rtse" according to Snellgrove (1967), not "Jih-k'a-tse" recommended officially by the United States Board on Geographic Names, nor "Gji-ka-rtze" or "Zhikatse", which appear in an authoritative atlas of China published in the United States.

I made no attempt to disentangle all the names or to achieve a standard spelling as this seemed too hopeless. Generally speaking, traditional forms were used by me in the text, even though they may differ somewhat from the version on the map, but many variants are mentioned and cross indexed in the gazetteer. I had to use the spelling of collectors for localities that are not mapped because I had no choice, but probably some of these names are incorrect. In defence of the use of traditional names, I can mention that volume 2 of the official atlas of the Republic of China published in Taiwan in 1964 uses the traditional Shigatse which is quite satisfactory to me. I am aware, of course, that phonetic spelling can cause errors in identification, but not if there is general agreement on a traditional form.

A short glossary of generic terms is given overleaf as it is especially useful in the case of Tibet.

TIBET AND ITS BIRDS

Bulaq or *Bulak* – spring

Chu – river

Dabaa or *Dawan* – mountain pass

Darya – river

Do – confluence of streams

Druka – ferry

Dzong – fort or seat of an official

Gobi – desert

Gol – river

Gompa – monastery

Hai – lake

Hiid – monastery

ho – river

Hötöl – mountain pass

Jilga – valley or ravine

Karaul – fort or watch station

Köl or *Kul* – lake

Kou – stream or river

La – mountain pass

Lungba – district

Maidan or *Marg* – meadow or flat

Nor or *Nuur* – lake

Nulla or *Nullah* – ravine

Po – river

Ri – mountain peak

Sai – ravine or stream bed

Shan – mountain or mountain range

Shan-k'ou – mountain pass

Shui – river

Ssu – monastery

Su – river

Sumdo – river junction

Tagh – mountain or mountain range

Tang – plain

Tso – lake

Ula or *Uula* – mountain or mountain range

Yailak – grazing ground

Zaidam or *Tsaydam* – salt marsh

A

Abadan	see Abadon	
Abadon	3508 7629	NI-43
Abring	3342 7635	NI-43
Açar	ca. 3050 9815	(NH-47)
Achchan	3719 8527	NJ-45
Achchik Köl	3700 8800	NJ-45
Achik Köl Tagh	3745 8745	NJ-45
Agham	3418 7750	NI-43
Aghil Range	3610 7630	NJ-43
Aio	3146 9403	NH-46
Akato Tagh	3820 8930	NJ-45
Akgiam	see Agham	
Aksai Chin	3510 7950	NI-44
Ak Su River	3645 8405	NJ-45
Alak Nor	3533 9720	NI-47
Alak Norin Gol	3534 9735	NI-47
Altin Tagh	3900 9200	NJ-46
Alyk Nor	see Alak Nor	
Alyk Norin Gol	see Alak Norin Gol	
Amu Surgu	see La-chi Shan	
Amdo Plateau	3500 10100	(NI-47)
Amne Garding	3505 10133	(NI-47)
Amne Machin Shan	3430 9930	NI-47
Amnen Kor Range	3520 9800	(NI-47)
Amo Chu	2729 8855	NG-45
Ankartha Glacier	ca. 3502 7744	(NI-43)
Ankhang Camp Ground, Rupshu, probably Mankhang Camping Ground, <i>q.v.</i>		
Ankir Shah	ca. 3502 7740	(NI-43)
Ara Gol	3633 10050	NJ-47

Aranu	3453 7728	NI-43
Arka Tagh	3625 8725	NJ-45
Arna-Süing	ca. 3703 10215	(NJ-48)
Arun River	2751 8726	NG-45
Astin Tagh	3800 8700	NJ-45
Ata Kang La	2908 9653	NH-47
Ata Kung La	see Ata Kang La	
At Atkan Su	3740 9030	NJ-46
Atschan Darja	see Achchan	

B

Ba Chu, Amdo	3529 10025	(NI-47)
Ba Chu, Yangtze Basin	3300 9645	NI-47
Baga Gorgi River	see Chasora River	
Bagan Gol	see Bayan Gol (Przhevalsky)	
Baga Tsaydam Nuur	3735 9520	NJ-46
Baga Ulaan Gol	3715 9955	NJ-47
Baga Ulan River	see Baga Ulaan Gol	
Baga Zaidamin Nor	see Baga Tsaydam Nuur	
Bagicha	3455 7611	NI-43
Bagu	see Basgo	
Baim (or Bain) Gol	see Bayan Gol (Kozlov and Roborovsky, <i>a</i>)	
Ba La	3011 9406	NH-46
Balakchi	see Bilakchi	
Balekun Gomi	see Kung-ho-ku-chih	
Balekun Mountains	ca. 3618 10102	(NJ-47)
Balti Brangsa	3538 7754	NI-43
Baltistan, a region	3500 7530	(NI-43)

Balwa	ca. 2800	8600	(NG-45)	Braqnak	ca. 3418	7644	(NI-43)
Bamba	<i>see</i> Bumba			Buchain Gol	<i>see</i> Buhaiin Gol		
Bamburtsik	ca. 3542	9742	(NI-47)	Buckhan Boda Shan	<i>see</i> Burchan Buddha Ula		
Bamburtsik Pass	3542	9742	NI-47	Budi Tsepo La	ca. 2927	9457	(NH-46)
Bam La	2929	9848	NH-47	Buguk Gol	3633	10147	NJ-47
Bam Tso	2806	8918	NH-45	Buhaiin Gol	3657	9945	NJ-47
Bamutang	<i>see</i> Bam La			Buho	ca. 3235	9805	(NI-47)
Bana Dzhun	<i>see</i> Banajun			Bukalik Tagh	3543	9400	(NI-46)
Banajun	3159	9929	NH-47	Bumba	3648	10122	(NJ-47)
Baragaon (Punjab)	3121	7724	NH-43	Bum Chin Da	3310	9618	(NI-47)
Bara Lacha La	3243	7725	NI-43	Bung	2834	9249	(NH-46)
Bar Chu	3130	9645	NH-47	Burben Tso	3145	9025	(NH-46)
Barkha	<i>see</i> Porkha			Burchan Buddha Ula	3545	9730	NI-47
Barkha Plain	<i>see</i> Porkha			called Burchan Buddha Range throughout the text			
Barun Tszasaka	<i>see</i> Baruun			Burdun Gompa	3324	7655	NI-43
Baruun	3612	9722	NJ-47	Burkan Budda	<i>see</i> Burchan Buddha Ula		
Baschkul Mountains	<i>see</i> Balekun Mountains			Burtsa	3505	7806	NI-44
Basgo	3413	7717	NI-43	Burtsa Gamma	<i>see</i> Burtsa		
Basgu	<i>see</i> Basgo			Burun-Sassak	<i>see</i> Baruun		
Bashkun Mountains	<i>see</i> Balekun Mountains			Burzil Pass	3454	7505	NI-43
Batang	3001	9901	NH-47	By Chu	3342	9610	(NI-47)
Bata Sumdo	3142	9457	NH-46				
Bayan	3645	10111	(NJ-47)				
Bayan Gol (Kozlov and Roborovsky, a) in Hanan Tsagaan region	ca. 3630	9700	NJ-47				
Bayan Gol (Kozlov and Roborovsky, b) near Kurlyk Nor	ca. 3714	9650	NJ-47				
Bayan Gol (Przhevalsky)	ca. 3628	9710	NJ-47				
Bayan Kara Ula	3447	9540	NI-46				
Bayenhot	<i>see</i> Tsu-hu						
Bazgo	<i>see</i> Basgo						
Be Chuan ho	<i>see</i> Buguk Gol						
Benchin Gompa	3256	9650	NI-47				
Be-tschuan ho	<i>see</i> Buguk Gol						
Beyü	3114	9849	NH-47				
Bham Tso	<i>see</i> Bam Tso						
Bhot Kharbu	<i>see</i> Bod Kharbu						
Bhotkol Pass	ca. 3403	7545	(NI-43)				
Biagdangdo	3448	7702	NI-43				
Bilakchi	3620	7806	NJ-44				
Bilüü Hada Dabaa	3753	10040	NJ-47				
Bimbi La	2847	9329	NH-46				
Biokdang	<i>see</i> Biagdangdo						
Blagodatny	ca. 3923	9505	(NJ-46)				
Bod Kharbu	3422	7634	NI-43				
Bod La	2802	9115	(NH-46)				
Boga Garan River	<i>see</i> Baga Gorgi River						
Boga Kirchi River	<i>see</i> Baga Gorgi River						
Bognu Khoza	ca. 3735	10130	(NJ-47)				
Bogo La	3128	8004	NH-44				
Bok	ca. 3350	7622	(NI-43)				
Boldan Gompa	ca. 2800	8600	(NG-45)				
Bolongo [Mountain]	ca. 3222	9644	(NI-47)				
Borhan Bhoda	<i>see</i> Burchan Buddha Ula						
Borhan Bhota	<i>see</i> Burchan Buddha Ula						
Boron Bulik	ca. 3922	9700	(NJ-47)				
Boshu Khoza	<i>see</i> Bognu Khoza						
Boyu	3022	9425	NH-46				
Bragnag	<i>see</i> Braqnak						
Braldu Valley	3540	7528	NI-43				
				Camp 23 (Sillem)	<i>see</i> Lha-yul		
				Camp 31 (Sillem)	ca. 3505	7718	(NI-43)
				Camp 46	<i>see</i> Beyü		
				Camp 47	<i>see</i> Gartoh Gompa		
				Camp 49	<i>see</i> Sotong		
				Camp 50 (Sillem)	<i>see</i> Lungnak Lunga River		
				Camp 52	<i>see</i> Dege Gönchen		
				Camp 53	<i>see</i> Kasungdo		
				Camp 54 (Sillem)	ca. 3540	7816	(NI-44)
				Camp 54 (Schäfer)	ca. 3204	9812	(NI-47)
				Camp 55 (Sillem)	ca. 3535	7824	(NI-44)
				Camp 55 (Schäfer)	<i>see</i> Marong		
				Camp 56	<i>see</i> Göze Gompa		
				Camp 57	<i>see</i> Nojeling Gompa		
				Camp 59	<i>see</i> Buho		
				Camp 60	<i>see</i> Da Dzi		
				Camp 61	<i>see</i> Ju Gompa		
				Camp 62 (Sillem)	<i>see</i> Chumiktsaka Tso		
				Camp 62 (Schäfer)	<i>see</i> Waterh		
				Camp 63	<i>see</i> Getze Gompa		
				Camp 68	<i>see</i> Ju Gompa		
				Camp 69, "10 miles west of Ju Gompa" <i>q.v.</i>			
				Camp 70	<i>see</i> Jungor Gompa		
				Camp 72	<i>see</i> Jyekundo		
				Camp 73	<i>see</i> Lanyipa		
				Camp 74	<i>see</i> Sacha Sumdo		
				Camp 75	<i>see</i> T'sin Da		
				Camp 76	<i>see</i> Lamdo		
				Camp 77	ca. 3320	9658	(NI-47)
				Camp 78	ca. 3323	9705	(NI-47)
				Camp 79	<i>see</i> Drechu Gompa		
				Camp 80	ca. 3325	9715	(NI-47)
				Camp 90	ca. 3205	9645	(NI-47)
				Camp 91	ca. 3225	9650	(NI-47)
				Camp 101	ca. 3335	9718	(NI-47)
				Camp 102	ca. 3340	9715	(NI-47)
				Camp 103	ca. 3345	9710	(NI-47)

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Camp 104	ca. 3350	9710	(NI-47)	Chani-khai	ca. 3437	7556	(NI-43)
Camp 108	ca. 3430	9650	(NI-47)	Chan Ku	ca. 3635	10200	(NJ-47)
Camp 110	ca. 3450	9645	(NI-47)	Chan Tsai Ikhe	ca. 3918	9432	(NJ-46)
Camp 112	ca. 3500	9640	(NI-47)	Chao-chia-wan	3633	10240	NJ-48
Camp 114	ca. 3530	9630	(NI-47)	Char	3315	7708	NI-43
Camp 117	ca. 3510	9525	(NI-46)	Chara Nor	see Khara Nor		
Camp 119	ca. 3445	9455	(NI-46)	Charasa	3440	7734	NI-43
Camp 120	ca. 3443	9440	(NI-46)	Charchan (Sinkiang)	3808	8532	NJ-45
Camp 121	ca. 3446	9430	(NI-46)	Charchan Bazar	see Charchan		
Camp 128	ca. 3435	9530	(NI-46)	Charchan Darya	3741	8646	NJ-45
Camp 131	ca. 3400	9600	(NI-46)	Char Chu	2826	9304	NH-46
Camp 132	ca. 3355	9610	(NI-47)	Chargyn Gol	see Hargi Gol		
Camp 133	ca. 3335	9630	(NI-47)	Charme, a region	2830	9230	(NH-46)
Camp 134 (Sillem)	see Sultan	Chhushku		Charme	2826	9304	NH-46
Camp 135	ca. 3306	9702	(NI-47)	Chasha	see Chushar		
Camp 136	ca. 3308	9708	(NI-47)	Chasora River	3542	9958	NI-47
Camp 137	ca. 3313	9740	(NI-47)	Chatou	ca. 3116	9659	(NH-47)
Camp 138 (Sillem)	see Kataklik			Ch'a-tsan-mu Shan-k'ou	3354	9827	NI-47
Camp 139	ca. 3250	9830	(NI-47)	Chatu Gol	see Hatu Gol		
Camp 140	ca. 3240	9840	(NI-47)	Chayul Chu	2820	9300	NH-46
Camp 141	ca. 3235	9845	(NI-47)	Chayul Dzong	2818	9249	NH-46
Camp 142	ca. 3230	9848	(NI-47)	Cheiben Sun	see Kuo-mang Ssu		
Camp 143	ca. 3222	9851	(NI-47)	Cheibsen	see Kuo-mang Ssu		
Camp 144 (Sillem)	see Sultan	Chhushku		Chema Chembo	3001	9500	(NH-46)
Camp 144 (Schäfer)	ca. 3222	9900	(NI-47)	Chera	see Chira		
Camp 145	see Dzogchen	Gompa		Chertenton	ca. 3700	10224	(NJ-48)
Carla	see Kalashar			Cherterton	see Chertenton		
Chabirga	see Habirga	Hetse		Chertinton	see Chertenton		
Chabrang	3128	7940	NH-44	Chesang La	ca. 2845	9053	(NH-46)
Chabubrun Pass	3421	9658	NI-47	Chesung	see Choksum		
Cha Chzhi	ca. 3648	10143	(NJ-47)	Chhumersila	see Chumersela		
Chadaban Pass	see Dzai	Dabaa		Chhushu	2921	9039	(NH-46)
Chagar Talao	see Chakar	Talao		Chi (Kozlov), probably	Chih-ch'i-t'ang, q.v.		
Chaglyk	ca. 3905	9115	(NJ-46)	Chiamdo	see Chamdo		
Cha-gomi	ca. 3607	10125	(NJ-47)	Chianang	2845	9400	(NH-46)
Chagra	3405	7828	(NI-44)	Ch'iang-t'ung-shan	3637	10239	NJ-48
Chai-tami	see Cha-gomi			Chickchar	see Chikchar	Gompa	
Chajoshilga	3524	7754	(NI-43)	Chih-ch'i-t'ang	3521	10205	NI-48
Chakar Talao	ca. 3400	7823	(NI-44)	Chikchar Gompa	2842	9322	NH-46
Chakdin Koto Gol	3552	9826	NI-47	Chiliscambo	see Chaliskambo		
Chaksam	2921	9044	(NH-46)	Chimen Tagh	3750	8900	NJ-45
Cha La	2842	9300	NH-46	Chimen Tagh	3835	8935	(NJ-45)
Chaliskambo	3436	7603	(NI-43)	Chimouraree Lake	see Tso	Morari	
Chaliskot	ca. 3404	7614	(NI-43)	Chimray	see Chimre		
Chalunka	3449	7656	NI-43	Chimre	3357	7748	NI-43
Chamba, probably Shamshah	Kharbu	q.v.		Chinkar My	3229	9759	NI-47
Cham Chu	ca. 3200	9600	(NI-47)	Chinto	3323	9703	NI-47
Chamdo	3109	9715	NH-47	Chipchang	see Chispiyanzan		
Chamen Tagh	see Chimen	Tagh		Chip Chap River	3518	7745	NI-43
Chamna	2925	9426	(NH-46)	Chipchiang	see Chispiyanzan		
Chamshen-Jilga Valley				Chira	2914	9128	(NH-46)
	ca. 3504	7746	(NI-43)	Chispiyanzan	3419	7641	(NI-43)
Chamu-dug La	ca. 3328	9624	(NI-47)	Chitishio	2916	9110	NH-46
Chanchengmo	see Chang	Chenmo		Chiu Gompa	3047	8122	NH-44
		River		Chobsen	see Kuo-mang	Ssu	
Chandarkot	see Chumda	Kut		Chodzung	2818	8653	NH-45
Chandra River	3223	7737	NI-43	Chö Dzong Chu	2944	9608	NH-47
Chandratal	3228	7737	(NI-43)	Chödzung	see Chodzung		
Chang Chenmo River	3415	7846	NI-44	Chog La	2757	8716	NG-45
Changdong	2819	8602	(NH-45)	Chobizen	see Kuo-mang	Ssu	
Chang La	3403	7758	NI-43	Chok Chu	ca. 3230	9620	(NI-47)
Changla	see Chang	La		Choksum	2805	8600	NH-45
Changrong	see Changtrong			Cho La (Ludlow and			
Chang Tang (Bailey)	see Changdong			Sherriff)	2802	9147	(NH-46)
Changtash Lake	3503	7757	(NI-43)	Cho La (Wollaston)	ca. 2819	8759	(NH-45)
Changtrong	2910	9331	NH-46	Chomo Dzong	2939	9416	NH-46

Choni (Kansu) 3435 10332 (NI-48)
 Choni La 3226 9650 NI-47
 Chono-Bulan 3637 10032 (NJ-47)
 Chono-Shakhalur 3636 10032 (NJ-47)
 Chorbat La 3445 7636 NI-43
 Chorden Gompa *ca.* 3200 9900 (NI-47)
 Chorten Chen *ca.* 3405 7735 (NI-43)
 Chortentan *see* Chertenton
 Chota Deosai Range 3455 7515 (NI-43)
 Chota Deosai Valley 3448 7518 (NI-43)
 Choupow 3104 9800 NH-47
 Chuanche River *see* Hwang ho
 Chuang-tzu-kou 3631 10246 NJ-48
 Chudi Chu 2849 9400 (NH-46)
 Chu-erh-men Chu *see* Tsurumun Chu
 Chukor 2927 9421 (NH-46)
 Chulungphu 2805 8719 (NH-45)
 Chulunka *see* Chalunka
 Chumar River 3440 9500 NI-46
 Chumatang 3322 7821 NI-44
 Chumathang *see* Chumatang
 Chumbi River *see* Tromo Chu
 Chumbi Valley *ca.* 2730 8900 (NG-45)
 Chumda Kut 3500 7520 (NI-43)
 Chumdayang *see* Chumdo Khyang
 Chumdo 3004 9539 NH-46
 Chumdo Khyang 2852 9203 NH-46
 Chumersela 3053 8057 NH-44
 Chumig-kiarsa *see* Chumikgiarsa
 Chumikgiarsa 3257 7736 (NI-43)
 Chumiktsaka Tso 3556 7837 NI-44
 Chumit Thang, probably Chumiktsaka Tso
 Chumo Tso *ca.* 3318 7800 (NI-44)
 Chu Nallah *ca.* 2850 8938 (NH-45)
 Chungpo Tengchen (or Denchin) 3133 9536 NH-46
 Chunkor Gompa *see* Chinkar My
 Chuse Lake *see* Tso Kar
 Chunyima 2948 9449 (NH-46)
 Chupa La *ca.* 3325 7750 (NI-43)
 Chupalong 2949 9857 NH-47
 Churmin River *see* Tsurumun Chu
 Churtven River, error for Churmin River
 Churtyr River, error for Churmin River
 Churung Chu 2945 9510 (NH-46)
 Chusangka 2910 8957 (NH-45)
 Chusha *see* Chushar
 Chushar 2820 8755 (NH-45)
 Chushul 3336 7840 NI-44
 Chushul Dzong 2923 9043 NH-46
 Chushul River 3340 7842 (NI-44)
 Chusinka *see* Chusangka
 Chus La *see* Cho La (Wollaston)
 Chusul *see* Chushul Dzong
 Chzhan Chu *ca.* 3246 9626 (NI-47)
 Chzha-ya-chen *ca.* 3629 10133 (NJ-47)
 Chzherku Gompa *ca.* 3203 9640 (NI-47)
 Chzhonni La *see* Choni La
 Clumo Tso *see* Chumo Tso
 Cuchot *see* Shushot

D

Da *ca.* 3250 7845 (NI-44)
 Daba 3116 7958 NH-44

Dabasan Gobi *ca.* 3640 9912 (NJ-47)
 Dabassun Gobi *see* Dabasan Gobi
 Dachso Canyon *see* Tagso Nang Canyon
 Da Chuan, not located
 but near 3918 9530 (NJ-46)
 Da Dzi (or Da Dsi) 3242 9802 NI-47
 Dagoni *see* Doghani
 Dalai Dabassu *see* Dalay Dabasan Nor
 Dalai Nor *see* Dalay Dabasan Nor
 Dalay Dabasan Nor 3640 9905 NJ-47
 Dam *ca.* 3038 9106 (NH-46)
 Dangar *see* Dangkar
 Danger ho *see* Dangkar ho
 Danger-tin *see* Dangkar
 Dangkar 3642 10115 NJ-47
 Dangkar ho 3641 10115 NJ-47
 Dan ho *see* Tan Huang ho
 Dani La 3234 9655 NI-47
 Dankhar Gompa 3206 7813 NI-44
 Dao-tan-cho *see* Tao-t'ang ho
 Daring Do *ca.* 3305 9633 (NI-47)
 Darlyn *ca.* 3520 10229 (NI-48)
 Darm *see* Dam
 Dasch Kul *see* Dashi Köl
 Daschi Kul *see* Dashi Köl
 Dashi Köl 3633 8425 NJ-45
 Dasho Kul *see* Dashi Köl
 Dasho 2915 9130 (NH-46)
 Datsan Sume *see* Bayan
 Daulat Beg Oldi 3524 7757 NI-43
 Dayul Chu 2900 9820 NH-47
 Debring, Rupshu 3328 7748 NI-43
 Debring, Zaskar *ca.* 3400 7635 (NI-43)
 De Chu *ca.* 3128 9710 (NH-47)
 Dege Göncen 3149 9840 NH-47
 Deib Chu *ca.* 3445 9930 (NI-47)
 Dejen Gompa *ca.* 2800 8600 (NH-45)
 Dem 3003 9515 NH-46
 Denchin (or Chungpo Tengchen) 3133 9536 NH-46
 Den Chu 3210 9930 NI-47
 Denka *see* Tengko
 Deosai Plain 3500 7530 NI-43 (1943 ed.)
 Depsang Plains 3517 7800 NI-44
 Derge *see* Dege Göncen
 Desen-laka *ca.* 3703 10218 (NJ-48)
 De-sen-te-dse *see* Desen-laka
 Deshkit 3433 7735 NI-43
 Deskit *see* Deshkit
 Deyang 2928 9448 (NH-46)
 Deyang La 2922 9452 (NH-46)
 Deyang Valley *see* Dreyang Nang
 Dhota *see* Dota
 Dib La *ca.* 2740 9140 (NG-46)
 Dichi *see* Diti
 Di Chu *see* Dy Chu
 Digar *ca.* 3418 7750 (NI-43)
 Digoma *see* Dima
 Dijar *see* Digar
 Dima *ca.* 2810 8600 (NH-45)
 Dima *see* Dima
 Ding Ma *see* Dima
 Ding Tso 3046 8135 (NH-44)
 Din-yuan-ing *see* Bayenhot
 Diraphuk Gompa 3106 8119 NH-44
 Diti 3100 9148 NH-46

TIBET AND ITS BIRDS

Djala	<i>see</i> Doja La		
Djaucounang	<i>ca.</i> 3146	9227	(NH-46)
Dobo	3641	10130	NJ-47
Dochen (Bailey, 1937)	<i>ca.</i> 2758	8559	(NG-45)
Dochen (Bailey, 1928, Hislop)	2808	8918	NH-45
Doghani	3515	7612	NI-43
Doja La	3123	9625	NH-47
Dokang	<i>ca.</i> 2843	9744	(NH-47)
Dokong	<i>see</i> Dokang		
Dolma La	3106	8121	NH-44
Domel	<i>ca.</i> 3456	7525	(NI-43)
Dongchag Tso	3145	9025	NH-46
Dongkar	2808	9151	NH-46
Dongkar Dzong	<i>see</i> Dongkar		
Dongpo Gompa	3109	8008	NH-44
Dongtse	2852	8930	(NH-45)
Doni La	<i>see</i> Dani La		
Donkyr	<i>see</i> Dangkar		
Donkyr ho	<i>see</i> Dangkar ho		
Donore	3405	7554	(NI-43)
Dopo Yoma	<i>see</i> Topo Koma		
Doring Do	<i>see</i> Daring Do		
Doshong La	2929	9502	NH-46
Dota	2741	8905	(NG-45)
Dras	3426	7545	NI-43
Dras River	3437	7607	NI-43
Dre	3012	9500	(NH-46)
Dre Chu (upper Yangtze)	3440	9500	NI-46
Drechu Gompa	<i>see</i> Tongchi Gompa		
Drepung Gompa	2940	9102	NH-46
Dreyang Nang	3455	10032	(NI-47)
Drowa Gompa	2850	9731	NH-47
Druk La	2847	9244	NH-46
Drukla Chu	2949	9345	NH-46
Drukla Gompa	3003	9343	NH-46
Dsagan Obotu	<i>see</i> Tsa-han Obotu		
Dschu-lin-kou Gorge	<i>ca.</i> 3644	10245	(NJ-48)
Dshachan-fidsa	<i>ca.</i> 3530	9935	(NI-47)
Dshachar Mountains	<i>see</i> Jahar Mountains		
Dshaja-tschen	<i>see</i> Chzha-ya-chen		
Dshedo Pass	<i>ca.</i> 3238	9855	(NI-47)
Dsiling	<i>ca.</i> 3658	10210	(NJ-48)
Dsurge-Daban Mountains	<i>ca.</i> 3550	10000	(NI-47)
Dsurge Gol	3550	10000	(NI-47)
Duchmé	<i>ca.</i> 3116	9610	(NH-47)
Duhang	<i>ca.</i> 3405	7828	(NI-44)
Dulaan Gol	3658	9835	NJ-47
Dulaan Hiid	3700	9835	NJ-47
Dulang ho	<i>see</i> Dulaan Gol		
Dulan Kit	<i>see</i> Dulaan Hiid		
Dulin Gol	<i>see</i> Dulaan Gol		
Dulon Kit	<i>see</i> Dulaan Hiid		
Dumburre Range	<i>see</i> Dungebura Range		
Dumle	<i>ca.</i> 3220	7801	(NI-44)
Dumpu	<i>see</i> Dongbo Gompa		
Dungebura Pass	3435	9314	NI-46
Dungebura Range	<i>ca.</i> 3435	9314	NI-46
Dung-dji-kou	<i>ca.</i> 3704	10204	(NJ-48)
Dunkar	3141	7953	NH-44
Durgu, Ladak	3406	7807	(NI-44)
Durgu, Tsinghai	<i>ca.</i> 3658	10212	(NJ-48)
Dutchem	<i>ca.</i> 3323	7850	(NI-44)
Dy Chu (Przhevalsky, 1884)	<i>ca.</i> 3345	9555	(NI-46)
Dy Chu (Kozlov, 1901)	<i>ca.</i> 3229	9759	(NI-47)
Dza Ba Chu	<i>see</i> Ja Ja Chu		
Dza Chu (upper Mekong)	3214	9620	NI-47
Dza Chu (upper Yalung)	3300	9835	(NI-47)
Dza Chu (Yangtze Basin)	<i>ca.</i> 3305	9633	(NI-47)
Dza Dza Chu	<i>see</i> Ja Ja Chu		
Dzag	<i>see</i> Gashuun Dzag		
Dzagastayn Hötöl	3645	9937	NJ-47
Dzahar Mountains	<i>see</i> Jahar Mountains		
Dzai Dabaa	3716	10150	NJ-47
Dzairmak Dawan	3839	9711	NJ-47
D'zala	<i>ca.</i> 3253	7730	(NI-43)
Dza La	2758	9212	(NG-46)
Dzama	2956	9507	(NH-46)
Dzangar	<i>see</i> Tsang-gar		
Dzaza Chu	<i>see</i> Ja Ja Chu		
Dze Chu	3215	9640	NI-47
Dzeng	2929	9429	NH-46
Dzhabu-Rabu	<i>ca.</i> 3421	9658	(NI-47)
Dzha Dzhe, not located, probably Chao-chia- wan, <i>q.v.</i>			
Dzhagin Gol	<i>see</i> Saghun Gol		
Dzha-Gyn Gol	<i>see</i> Saghun Gol		
Dzhahar Djungen, not located, probably Jahar Mountains, <i>q.v.</i>			
Dzhaik	<i>see</i> Chzha-ya-chen		
Dzhakhan Fidza	<i>see</i> Dshachan-fidsa		
Dzhana Chu	<i>ca.</i> 3200	9900	(NI-47)
Dzharin Nor	<i>see</i> Tsaring Nor		
Dzhaya Chen	<i>see</i> Tsan Chhu		
Dzhi Chu	<i>see</i> Je Chu		
Dzhong-Chen Gompa	<i>see</i> Dzogchen Gompa		
Dzhonni La	<i>ca.</i> 3220	9630	(NI-47)
Dzin Chu	3130	9930	NH-47
Dzogchen Gompa	3207	9854	NI-47
Dzo La	2915	9705	NH-47
Dzomo La	3509	10032	(NI-47)
Dzomo Nang Valley north of the Dzomo La	3513	10031	(NI-47)
Dzomo Nang Valley south of the Dzomo La	3504	10034	(NI-47)
Dzongpolas	3450	7709	(NI-43)
Dzukha	<i>see</i> Gashuun Dzag		
Dzukhin Khutul	<i>see</i> Tsu-neng Hötöl		
Dzukhin Sala	<i>see</i> Tsu-neng Hötöl		

E

Edsin Gol	<i>see</i> Etsin Gol		
Egrai Gol	<i>see</i> Jagharu Gol		
Egrai Gol, confluence with Alak Norin Gol, <i>q.v.</i>			
Egrai Gol, confluence with Kakhti Gol equals confluence of Jagharu Gol with Chakdin Koto Gol, <i>q.v.</i>			
Egrai Gol near Shan'rdi	<i>see</i> Shang		
Enta	<i>see</i> Ngemda		
Entok Gompa	<i>see</i> En-t'o-k'o Gompa		
En-t'o-k'o Gompa	3216	9917	NI-47
Enyr Chu	<i>ca.</i> 3220	9630	(NI-47)
Etsin Gol (Inner Mongolia)	4100	10000	(NK-47)

F

Fota La	see Fotu La		
Fotu La	3418	7644	NJ-43

G

Gacha	2907	9342	(NH-46)
Gadjur Mountains	ca. 3800	10000	(NJ-47)
Gajung	ca. 3120	9710	(NH-47)
Galinka	2731	8856	(NG-45)
Gam Chu	3306	9625	(NI-47)
Ganjil	see Khanlagyal		
Ganga Chu	3047	8121	(NH-44)
Gansy	see Gantsa		
Ganthong	see Gotsa		
Gantsa	3740	9149	NJ-46
Gara La	see Guru La		
Garteng	3116	9217	NH-46
Gartoh Gompa	ca. 3120	9855	(NH-47)
Gartok	3144	8022	NH-44
Gartu Tuka	see Gurde Druka		
Gashun Nor	see Uzun Shor Köl		
Gashuun Dzag	3640	9403	NJ-46
Gass	see Ghaz Kul		
Gatong "Kloster" [Gompa]	see Horbo		
Gatung Nor	see Uzun Shor Köl		
Gauthong	see Gotsa		
Gautsa	see Gotsa		
Gazha Gou	ca. 3613	10133	(NJ-47)
Ge Chu	3208	9648	NJ-47
Gemoshisa	ca. 3047	8048	(NH-44)
Genyentanchuka	3151	9252	NH-46
Gera	see Gora		
Gesching (or Geschung)	see Kyishong (Schäfer)		
Getze Gompa	ca. 3312	9815	(NI-47)
Gharnak	ca. 3328	7735	(NI-43)
Ghaz Kul	3805	9045	NJ-46
Ghia	see Gya		
Giamda Chu	3000	9308	NH-46
Giamda Dzong	3001	9308	NH-46
Gian	3302	7735	(NI-43)
Gochen Gorge	3453	10048	(NI-47)
Go Chu	ca. 3200	9738	(NI-47)
Gogra	3417	7853	(NI-44)
Gokar La	2930	9130	NH-46
Gokra	see Gogra		
Gol	3515	7552	NJ-43
Goma Hanu	3438	7640	NJ-43
Gomi	see Kung-ho-ku-chih		
Gompo Ne	2952	9508	NH-46
Gon Chu	ca. 3200	9850	(NI-47)
Goner Chu	3300	9645	(NI-47)
Gongbar Dzong	see Kongka Dzong		
Gongkar Dzong	see Kongka Dzong		
Gon La	3200	9850	(NI-47)
Gontsa	see Gotsa		
Gora	2942	9856	NH-47
Orban Angir Gol	see Gurab Angir Gol		
Gor Chu	ca. 3247	9658	(NI-47)
Gortyne	see Garteng		
Goshub Gorge	3454	10049	(NI-47)
Gosul Gompa	3041	8122	NH-44
Gotsa	2735	8903	NG-45

Göze Gompa	3217	9820	NI-47
Grantung	3429	7605	NI-43
Gratou	ca. 3115	9553	(NH-46)
Guennidautchouka	see Genyentanchuka		
Gui-de-tin	see Kuei-te		
Gui-Dui	see Kuei-te		
Gui-Dui Sha	ca. 3627	10140	(NJ-47)
Gulab-bagh, a garden in Leh,	q.v.		
Gulgun Shah	3617	7815	(NJ-44)
Guling	see Kuling		
Gulma Tongas	see Gulmatungo		
Gulmatungo	3405	7610	NI-43
Gumanssy	see Kuo-mang Ssu		
Gumbaz Mazar	ca. 3524	7757	(NI-43)
Gumbum (or Gum-Bum)	see Kum Bum		
Gunting (or Guntung)	see Grantung		
Gurab Angir Gol	3743	9728	NJ-47
Gurde Druka	3209	9622	NI-47
Gurka La	see Gokar La		
Gur La	3241	9658	NI-47
Gurla La	3034	8117	NH-44
Gurla Mandhata Range	3026	8118	NH-44
Guru	2806	8915	NH-45
Guru La	ca. 2806	8915	(NH-45)
Gya, Ladak	3339	7743	NI-43
Gya, Pome	3011	9504	NH-46
Gya Chu	2957	9154	(NH-46)
Gya River, Ladak	3347	7746	(NI-43)
Gyadzong	see Gya, Pome		
Gyagar Lake	see Kiagar Tso		
Gyala	2942	9455	NH-46
Gyala Peri	2950	9458	NH-46
Gyama Tangdze, probably Gulmatungo,	q.v.		
Gyamda Chu	see Giamda Chu		
Gyandro	2824	9249	(NH-46)
Gyangka (or Gyanka)	see Gyangkar Nangpa		
Gyangkar Nangpa	2823	8745	NH-45
Gyangtse (or Gyantse)	2856	8935	NH-45
Gyanyima Chhakra	ca. 3046	8048	(NH-44)
Gyanyima Mandi	ca. 3049	8047	(NH-44)
Gyanyima Tso	3050	8046	NH-44
Gyupar Range	see Jupar Shan		

H

Habirga Hetse	3725	9626	NJ-47
Hai-yen	3652	10102	NJ-47
Hami (Sinkiang)	4247	9332	NK-46
Hamiling	3340	7637	NI-43
Hamo Chu Valley	ca. 2804	9104	(NH-46)
Hanan Tsagaan	3630	9700	NJ-47
Hangru	3419	7655	(NI-43)
Hankar	3349	7732	NI-43
Hanle	3248	7900	NI-44
Hansi	3227	7750	NI-43
Hanupatta	see Honupatta		
Hanu-Yogma	see Goma Hanu		
Haowa Valley	3458	10027	(NI-47)
Haramosh	ca. 3535	7515	(NI-43)
Hara Nuur, Koko Nor	3700	10037	NJ-47
Hara Nuur, Zaidam	3820	9742	NJ-47
Hargi	3715	10035	NJ-47
Hargi Gol	3708	10035	NJ-47

TIBET AND ITS BIRDS

Harkang River	<i>see</i> Harkong River		
Harkong River	3025	8105	(NH-44)
Harong Valley	<i>ca.</i> 3355	7817	(NI-44)
Hatu	3608	9726	(NJ-47)
Hatu Gol	<i>ca.</i> 3608	9726	NJ-47
He Chu	2913	9850	(NH-47)
Hei ho	3805	10000	(NJ-47)
Heitsuitse	<i>see</i> Dobo		
Hemis	<i>see</i> Himis		
Hemis-Shuggpachan	<i>see</i> Hemis Shukpa		
Hemis Shukpa	3418	7705	(NI-43)
Hi Chu			
(Yalung Basin)	<i>ca.</i> 3202	9855	(NI-47)
Hi Chu			
(Yangtze Basin)	<i>ca.</i> 3328	9618	(NI-47)
Himis	3355	7743	(NI-43)
Hiniskut	3418	7642	(NI-43)
Hondar	<i>see</i> Hundar		
Honog Pass	3612	9454	NJ-46
Honupatta	3410	7650	NI-43
Horbo	3125	9900	NH-47
Horpa Tso	3433	8101	NI-44
Hoting Zan River	<i>see</i> At Atkan Su		
Howa Valley	<i>see</i> Haowa Valley		
Hram Tso	<i>see</i> Bam Tso		
Hrombo Tso	<i>see</i> Rkhombo-mtso		
Hsi-ku (Kansu)	3332	10440	NI-48
Hsin-ch'eng	3653	10142	NJ-47
Hsi-ning	3632	10147	NJ-47
Hsi-ning ho	3640	10135	NJ-47
Hsün-hua	3553	10231	NI-48
Hua-lung	3607	10220	NJ-48
Hu-chu	<i>see</i> Wei-yuān-p'u		
Humboldt Range	<i>ca.</i> 3910	9515	NJ-46
Hundar	3435	7729	NI-43
Hung-ho-siae	<i>ca.</i> 3657	10140	(NJ-47)
Hurling (or Huling)	3205	7832	NI-44
Hwang ho	3608	10322	NJ-48
at junction with Tatung River			

I

Ichar	<i>see</i> Itchor		
Ichigan Gol	3802	9440	NJ-46
I Chu	<i>see</i> Hi Chu		
Ihe Gol	3610	9730	NJ-47
Ihe Tsaydam Nor	3752	9514	NJ-46
Ikhe Gol	<i>see</i> Ihe Gol		
Ikhe Zaidamin Nor	<i>see</i> Ihe Tsaydam Nor		
Ilchang	<i>see</i> Yelchang		
Irgitsyk (or Irgitzyk)	<i>ca.</i> 3637	9740	(NJ-47)
Irrawaddy River	2847	9750	(NH-47)
at its source at Lagya Pass			
Iskardoh	<i>see</i> Skardu		
Itchor	3318	7701	(NI-43)
Itschagyn			
(or Itschegyn) Gol	<i>see</i> Ichigan Gol		
I Valley	3547	7615	(NI-43)

J

Jagan Gol	<i>see</i> Yagan Gol		
Jagharu Gol	3552	9826	NI-47
Jahar Mountains	3536	10121	NI-47

Ja Ja Chu	3538	10130	(NI-47)
Jamatyn-Umru	<i>see</i> Yamatiin		
Jamila	<i>ca.</i> 2802	8600	(NH-45)
Jangtang	2919	9154	(NH-46)
Jarsha	3201	9623	NI-47
Jaschik Kul	<i>see</i> Yeshil Köl		
Je	3002	9402	NH-46
Je Chu	3140	9636	NH-47
Jelep La	<i>ca.</i> 2819	8759	(NH-45)
Jerko La	3123	8037	NH-44
Jirogha Pass	3524	9806	NI-47
Jiu Gompa	<i>see</i> Chiu Gompa		
Jora	2813	9225	(NH-46)
Ju Gompa	3259	9806	NI-47
Jumila	<i>see</i> Jamila		
Jumtum, probably Chumatang, <i>q. v.</i>			
Ju-nan-tschen	<i>see</i> Yunanchen		
Jungkar Gompa	2902	9318	NH-46
Jungor Gompa	3311	9711	NI-47
Jupar Range (Shan)	3540	10010	NI-47
Jupar Tshargen	3542	10011	(NI-47)
Jupar Valley	3530	10030	(NI-47)
Jye Chu	3234	9620	NI-47
Jyekundo	3301	9644	NI-47

K

Kahze	<i>see</i> Kaja		
Kailas Range	3115	8120	NH-44
Kaja	3213	7805	NI-44
Kakhti Gol	<i>see</i> Chakdin Koto Gol		
Kaksang La	3325	7832	NI-44
Kakstet	3347	7838	NI-44
Kala	<i>see</i> Kalashar		
Kalashar	2816	8921	NH-45
Kala Tso	2815	8916	NH-45
Kalda, not located, but			
on Tso Morari	<i>ca.</i> 3252	7817	(NI-44)
Kalsi	<i>see</i> Khalatse		
Kam	equals southeastern Tibet (undefined)		
Kama Valley	2752	8726	(NG-45)
Kamchang	2905	9329	NH-46
Kampapazzi	<i>see</i> Khambapadze		
Kampuk	<i>see</i> Spanpuk		
Kan-chia-p'u	3645	10203	NJ-48
Kan-dja-pu	<i>see</i> Kan-chia-p'u		
Kangka	2921	9420	(NH-46)
Kangla, error for Kangka			
Kanglang	<i>ca.</i> 2755	8555	(NG-45)
Kangma	<i>see</i> Kangmar		
Kangmar	2834	8941	NH-45
Kanhlgyal	3306	7744	(NI-43)
Kanji	<i>see</i> Kungi		
Kansogo	<i>see</i> Kantse		
Kantse	3138	10003	NH-47
Kanzam La	3223	7738	NI-43
Kap	2818	9255	(NH-46)
Kapalu	<i>ca.</i> 3526	7544	(NI-43)
Karagayn Gol	3628	9820	(NJ-47)
Karagayn Uula	3630	9825	NJ-47
Kara-gomi	<i>see</i> Cha-gomi		
Kara Kash River	3622	7802	NJ-44
Karakoram Brangsa	<i>ca.</i> 3538	7754	(NI-43)
Karakoram Pass	3530	7751	NI-43

- Karakoram Range 3525 7725 NI-43
 Kara Nor *see* Hara Nuur and Qara Nor
- Kara Sai 3648 8347 NJ-44
 Karatag Lake *see* Qara Tagh
 Karbos 3449 7541 NI-43
 Karbu *see* Bod Kharbu
 Karghin Gol *see* Hargi Gol
 Kargil 3434 7607 NI-43
 Karkiche *see* Kirkitchu
 Karki Chu *see* Kirkitchu
 Karma Valley *see* Kama Valley
 Karmali River 3016 8110 NH-44
 Karo La 2854 9011 NH-46
 Karpokhar 3415 7558 (NI-43)
 Karsa *see* Khalsar
 Karsha *see* Kursha Gompa
 Karzok Gompa 3258 7815 NI-44
 Karzong *see* Khardung
 Kasatipat *see* Khasa
 Kashmir Jilga *ca.* 3614 7735,
 or *ca.* 3609 7745 (NJ-43)
 Kashong La 2820 9308 (NH-46)
 Kasungdo 3156 9809 NH-47
 Kataklik 3454 7806 NI-44
 Kawak Pass 3606 7824 NJ-44
 Kawak River or Valley 3615 7827 NJ-44
 Kaze *see* Kaja
 Kele *ca.* 3252 7817 (NI-44)
 Kerab Pass *see* Kherab Nyera
 Ketchaka *see* Kiche Kha
 Khalan *ca.* 3526 7544 (NI-43)
 Khalatse 3420 7654 NI-43
 Khalsar 3430 7742 NI-43
 Kham (or Khams) equals southeastern Tibet (undefined)
- Kham, Ladak, error for Kharu
 Khamba Dzong 2817 8831 NH-45
 Khambapadze 2913 9033 (NH-46)
 Khamu, error for Hatu
 Khangma *see* Kangmar
 Khanlagyal 3306 7744 (NI-43)
 Khapalu 3509 7620 NI-43
 Khapalung 3608 7745 NJ-43
 Khar 3202 7804 NI-44
 Khara Nor *see* Hara Nuur and Qara Nor
- Kharbu 3433 7558 NI-43
 (1940 ed.)
- Kharchar *see* Khalsar
 Khardong *see* Khardung
 Khardung 3424 7741 NI-43
 Khardung La 3416 7740 NI-43
 Kharigin Gol *see* Hargi Gol
 Kharkho *ca.* 3049 8047 (NH-44)
 Kharlung *ca.* 3255 7817 NI-44
 Kharta *see* Kharta Shika
 Kharta Chu 2804 8715 (NH-45)
 Khartaksho 3457 7613 (NI-43)
 Kharta Shika 2805 8719 NH-45
 Kharta Valley 2805 8719 (NH-45)
 Kharu 3440 7716 NI-43
 Khasa 2759 8559 (NG-45)
 Khata 2954 9541 NH-46
 Khatu *see* Hatu Gol
 Khatu Canyon *see* Hatu Gol
- Khatu-Lantsi *ca.* 3627 10015 (NJ-47)
 Kherab Nyera 3532 10030 (NI-47)
 Khiangshisa 3249 7804 NI-44
 Khi Chu *see* Hi Chu
 Khirma Barun Tszasaka *see* Baruun
 Khirma-Barun-Zazak *see* Baruun
 Khomu-Daban Shi-ku *see* Lha La
 Khotin Zan River *see* At Atkan Su
 Khufang *ca.* 3609 7745 (NJ-43)
see Kongtsuka
 Khum-reu-ting *see* Kongtsuka
 Khun-chzha-ê-lo *see* Khun dzha ye lo
 Khun dzha ye lo *ca.* 3630 10228 (NJ-48)
 Khurgan Pass 3854 9010 NJ-46
 Kiagar Tso 3306 7818 NI-44
 Kiangchu *see* Gian
 Kiato 3226 7754 (NI-43)
 Kibar 3220 7801 NI-44
 Kiche Kha 3112 9604 (NH-47)
 Ki Gompa 3218 7801 NI-44
 Kimar *ca.* 3703 10214 (NJ-48)
 Kimi 3456 7726 NI-43
 Kiomo 3226 7750 (NI-43)
 Kioto *see* Kiato
 Kiprak *see* Kyetrak
 Kirkitchu 3426 7604 (NI-43)
 Kishong *see* Kyishong
 Kisu La *ca.* 3406 7845 (NI-44)
 Kitai (Sinkiang) 4401 8928 NL-45
see Kizil Kaktay
 Kiuziuk Kaktay *see* Kiziljilga
 Kizil Kaktay *ca.* 3732 8720 (NJ-45)
see Qizil Langar
 Kizil Langar *see* Qizil Langar
 Kodari 2757 8657 (NG-45)
 Kokodom Pass 3555 9457 NI-46
 Koko Nor 3700 10000 NJ-47
 Kokoshili Pass 3505 9335 NI-46
 Kokoshili Range 3505 9335 NI-46
 Kolondo, probably Kasungdo, *q.v.*
 Koman-dse *see* Kuo-mang Ssu
 Kon Chun Chu *ca.* 3350 9600 (NI-46)
 Kongbo, a province 2930 9400 (NH-46)
 Kongbo-nga La 2901 9312 (NH-46)
 Kongka *see* Kongka Dzong
 Kongka Dzong 2917 9047 NH-46
 Kongra Dze *see* Kongka Dzong
 Kong-se-ka *see* Kongtsuka
 Kongtsuka 2936 9854 NH-47
 Korzog *see* Karzok Gompa
 Kotajilga 3429 7851 NI-44
see Kotajilga
 Kuei-te 3605 10118 NJ-47
see Khufang
 Kufelang *see* Tsho-nyi Island
 Kuisu Island *see* Koko Nor
 Kuku Nor *see* Kokoshili
 Kuku Shili 3915 9505 (NJ-46)
 Kuku Usu River 3203 7806 (NI-44)
 Kuling 2944 9458 (NH-46)
 Kumang *ca.* 3555 7815 (NI-44)
 Kum Bulak 3630 10138 NJ-47
 Kum Bum *see* Kongtsuka
 Kum-Reuting *ca.* 3105 9644 (NH-47)
 Kumtatchio *see* Kundur Chu
 Kundir Tschu *ca.* 3250 9830 (NI-47)
 Kundur Chu *see* Kung-ho-ku-chih
 Kung-ho 3608 10050 NJ-47
 Kung-ho-ku-chih

TIBET AND ITS BIRDS

Kungi	ca. 3407	7632	(NI-43)	Langong	2846	9348	(NH-46)
Kungla	3407	7632	NI-43	Langong Chu	ca. 2900	9352	(NH-46)
Kungma	3340	7830	(NI-44)	Langpe	2938	9455	(NH-46)
Kungtsuka	see Kongsuka			Langs-tang-schüi	see Rangta Pass		
Kun Lun	3600	7930	NJ-44	Lanyipa	ca. 3307	9643	(NI-47)
Kuo-mang Ssu	3703	10149	NJ-47	Lao-hu-k'ou			
Kurban Angir Gol	see Gurab Angir Gol			(or Laohukou)	ca. 3704	10204	(NJ-48)
Kurbu	see Bod Kharbu			Laoting	see Layoting		
Kurgiakh	3305	7714	NI-43	Lao-ya-ch'eng	3627	10244	NJ-48
Kurki Chu	see Kirkitchu			Lapche Gompa	2807	8613	NH-45
Kurlik	see Kurlyk			Lapchikang	see Lapche Gompa		
Kurlyk	3717	9658	(NJ-47)	Laphu Chu Valley	ca. 2903	9310	(NH-46)
Kurlyk Nor	3717	9650	NJ-47	Laptang	2758	8559	(NG-45)
Kursha Gompa	3332	7654	NI-43	Lapu	2842	9322	(NH-46)
Kushku Maidan	ca. 3550	7835	(NI-44)	Lara	3210	7808	NI-44
Kuti Pokri	ca. 2811	8558	(NH-45)	Lari	see Lori		
Kyakhka (Transbaicalia)	5025	10628	—	Laru	3014	9311	NH-46
Kya La	2905	9841	NH-47	Lasor	2905	9225	(NH-46)
Kyangma	ca. 3051	8126	(NH-44)	Lassa	3645	10126	(NJ-47)
Kyangsisa	see Kiangshisa			Latzekare Pass	3214	9835	NI-47
Kyetrak	2814	8634	NH-45	Lau-hu-kou	see Lao-hu-k'ou		
Kyi Chu	2957	9154	NH-46	Layoting	3000	9455	(NH-46)
Kyikar	2937	9456	(NH-46)	La Za ho	ca. 3644	10112	(NJ-47)
Kyimdong	2859	9327	NH-46	Le	2750	9150	NG-46
Kyimpu	2825	9301	(NH-46)	Leh	3410	7736	NI-43
Kyishong	2836	8718	NH-45	Lejandak	3055	8110	NH-44
Kyishong (Schäfer)	ca. 2913	8955	(NH-45)	Lekh Pass	see Lipu Lekh Pass		
				Le La	2827	9256	(NH-46)
				Lenda	2909	9247	(NH-46)
				Lepitu Kang	see Lapche Gompa		
				Lepo	2753	9152	(NG-46)
				Lhachen La	3038	9106	NH-46
				Lha Chu	ca. 3053	8115	(NH-44)
				Lha Gorge	3643	10100	(NJ-47)
				Lhagyari	2906	9210	NH-46
				Lhakang Dzong	2805	9104	NH-46
				Lha La	3643	10058	NJ-47
				Lhasa	2940	9107	NH-46
				Lha-yul	ca. 3505	7717	(NI-43)
				Lho La Chu Valley	ca. 2854	9353	(NH-46)
				Lhuntse Dzong	2825	9228	NH-46
				Liancha Siana Pass	see La-chi Shan-k'ou		
				Liang-chou (Kansu)	3758	10250	NJ-48
				Lidang	see Lithang		
				Likiang Range (Yunnan)	2715	10000	(NG-47)
				Likir Gompa	3418	7713	(NI-43)
				Lilung	2908	9354	(NH-46)
				Lilung Chu	ca. 2908	9354	(NH-46)
				Lingchung	3046	9823	NH-47
				Linshet	3356	7653	(NI-43)
				Lipu Lekh Pass	3014	8102	NH-44
				Lisum	3006	9430	(NH-46)
				Lithang	3208	7809	(NI-44)
				Li-Za ho	see La Za ho		
				Ljandsha Sjana	see La-chi Shan-k'ou		
				Lobachen	see Lao-ya-ch'eng		
				Lo Chu	3204	9922	(NI-47)
				Lo Ja Shan	ca. 3655	10143	(NJ-47)
				Lo-khy-ku	see La-kou-yin		
				Lokmo	3001	9445	(NH-46)
				Lo La	2858	9358	(NH-46)
				Loma	2900	9725	NH-47
				Lopa	3000	9407	NH-46
				Lop Nor (Sinkiang)	3925	8815	(NJ-45)
				Lori	3205	7825	NI-44
				Loro Karpo Chu	2811	9214	(NH-46)

L

Labrang	3520	10229	(NI-48)
Lachalung	3305	7737	NI-43
Lachalung Sumdo	3304	7737	NI-43
La-chi Shan	3623	10145	NJ-47
La-chi Shan-k'ou	3623	10134	NJ-47
Lachuruk	ca. 3444	7712	(NI-43)
Ladak Range	3416	7740	NI-43
Ladarse	see Lagudarsi		
Ladjir Pass	see Ma Pass		
La Drasa	see Lagudarsi		
Lagong	3107	9654	NH-47
Lagudarsi	3236	7756	(NI-43)
Lagypa	see Lagya Pass		
Lagya Pass	2847	9752	NH-47
Lahar	ca. 3426	7546	(NI-43)
Lake Lighten	3500	8100	NI-44
Lakhti Pass	see Chang La		
Lakong	3255	7710	NI-43
La-kou-yin	3645	10130	(NJ-47)
Laliku Gorge	see Lha La		
Lal Pir	ca. 3509	7536	(NI-43)
Lamaguru, Ladak	see Lamayuru		
Lamagoos Pass	see Lamagus Pass		
Lama Guru, Rupshu	3252	7744	NI-43
Lamagus Pass	3426	7545	(NI-43)
Lamayeroo	see Lamayuru		
Lama Yuroo, Rupshu	see Lama Guru		
Lamayuru, Ladak	3418	7647	NI-43
Lamda	3111	9659	NH-47
Lamdo	3318	9651	NI-47
Lamé	see Lagong		
Lamlung Pass	3314	9844	NI-47
Lan-chou (Kansu)	3602	10351	NJ-48
Landjoung	see Lingchung		
Lang La	2858	9345	NH-46

Loroto	2811	9214	NH-46	Mau-pe-schyng	see Muu Bayshin
Losar	3226	7745	NI-43	Mayum La	3034 8227 NH-44
Lotsun	3428	7616	NI-43	Mdzhugdi La	ca. 3450 9920 (NI-47)
Lovachen	see Lao-ya-ch'eng			Meaton La, error for Menton La	
Lubong	2958	9506	(NH-46)	Mekong River	2800 9855 NH-47
Luckung	see Lukung			Me La	2757 9141 NG-46
Lukang	see Lukung			Menga, error for Menza	
Lukung	3400	7824	NI-44	Menkong	2833 9816 NH-47
Lunang	2944	9447	NH-46	Menton (or Mento) La	3245 9559 (NI-46)
Lung	2821	9309	(NH-46)	Menza	3110 8050 NH-44
Lungkar	3406	7831	(NI-44)	Merak	3348 7835 NI-44
Lungnak Lunga River	3525	7805	NI-44	Meroo	ca. 3345 7745 (NI-43)
Lungnak Lungpa	see Lungnak Lunga			Mgeri La	see Miri La
	River			Michi	2838 9742 (NH-47)
Lungser	see Lungkar			Migto	2932 9630 NH-47
Lun-tok-ndo	ca. 3130	9720	(NH-47)	Migyitün Gompa	2840 9333 NH-46
Lusha	2927	9435	(NH-46)	Mikim	see Mikin
Lusha La	2918	9437	NH-46	Mikin	3203 7803 (NI-44)
Lussar	ca. 3630	10138	(NJ-47)	Miling	2912 9404 (NH-46)
Luti (or Luto)	2916	9406	(NH-46)	Min-dan-sha	ca. 3625 10140 (NJ-47)
				Minimang	3417 7528 (NI-43)
				Mira La	2932 9407 NH-46
				Miri La	3202 9855 (NI-47)
				Mirpal Tso	3327 7837 (NI-44)
				Miru	3345 7746 (NI-43)
				Misser (or Missar)	see Menza
				Mo-baishin	see Muu Bayshin
				Mochur Nira Pass	see Mokhur Nyera
				Mokhur Nyera	3500 10026 (NI-47)
				Mo La	2830 9230 (NH-46)
				Molo	2857 9353 (NH-46)
				Mongothong Camp	see Mongotong
				Mongotong	2948 9829 NH-47
				Mönyul, a province	2750 9150 (NG-46)
				More Plain	3315 7750 (NI-43)
				Moscovsky Range	3740 8800 (NJ-45)
				on Przhevalsky's map, and probably equals Achik Köl Tagh	
				Moshi Chusya	ca. 3605 10118 (NJ-47)
				Moulbekh	see Mulbekh
				Mount Everest	2758 8657 NG-45
				Mount Kailas	3104 8120 NH-44
				Muchzhik-Litu	see Mujik ho
				Mud, probably equals Nima Mud (Nyoma Rap, q.v.)	
				Mudshik-Che	see Mujik ho
				Mudshik Mountains	ca. 3545 10130 (NI-47)
				Mudzhik Mountains	as above
				Mudzhik River	see Mujik ho
				Mug	2809 9059 (NH-46)
				Muglib	3402 7817 NI-44
				Mujik ho	3545 10130 NI-47
				Mulbekh	3423 7622 NI-43
				Muldem	3258 7736 NI-43
				Mu-lu-ku-tse	see Hai-yen
				Mume	see Mune Gompa
				Mune Gompa	3321 7657 (NI-43)
				Murgo	3503 7757 NI-43
				Murui Ussu, equals Dre	Chu or upper Yangtze
				Mutchou	see Ma Chu
				Muu Bayshin	3702 10135 NJ-47
				Muzlük "Mountains" [Tagh]	3720 8645 NJ-45
				Myn-dan-scha	see Min-dan-sha
				Mzushu Rg'mchon	ca. 3445 9930 (NI-47)

M

Machhoi	3418	7532	NI-43
Ma Chu	3046	9823	(NH-47)
Magmug Chu	3345	9823	NI-47
Mago, a province	2730	9230	(NG-46)
Maimokémar	see Mamoikeumar		
Mainjini	ca. 3427	7604	(NI-43)
Makhai Plain	3805	9420	(NJ-46)
Ma Li Ku	ca. 3635	10158	(NJ-47)
Mamoikeumar	3157	9306	NH-46
Man	3352	7831	NI-44
Manasarowar Lake	3036	8125	NH-44
Manass (Sinkiang)	4420	8614	NL-45
Mandalik	3738	8630	NJ-45
Mane	3202	7815	NI-44
Mang	see Man		
Mangisa Tso	see Mangtsa Tso		
Mangtsa Tso	3430	8027	NI-44
Mani, error for Mane, q.v.			
Mankhang Camping			
Ground	3302	7850	NI-44
Manlun Pass	3436	9930	(NI-47)
Mantuse	ca. 3658	10210	(NJ-48)
Manupatta	see Honupatta		
Ma Pass	3139	9508	NH-46
Mapcha Chhungo	ca. 3034	8055	(NH-44)
Mapityn Kunde	see Tsa-han Kundu		
Mapityn River	see Tsa-han Obotu		
	River		
Marcha	3500	7632	NI-43
Marco Polo Range	3540	9400	(NI-46)
Markham Dzong	2941	9833	NH-47
Marong	3213	9815	NI-47
Marsalang	3353	7745	NI-43
Marsalung	see Marsalang		
Marsimik La	see Marsimik La		
Marshalong	see Marsalang		
Marsimik La	3406	7837	NI-44
Marung	see Marong		
Mashoo Nullah	3359	7740	(NI-43)
Mataian	see Matayan		
Matayan	3423	7536	NI-43
Matiyal	3442	7545	NI-43

TIBET AND ITS BIRDS

N

Nagartse Dzong	2859	9025	NH-46	Nirgum La	ca. 3325	7750	(NI-43)
Nagsun Pass	3234	9917	NI-47	Niri Sumdo	3334	7714	NI-43
Naidjin (or Naidshin)				Niti Pass	3058	7952	NH-44
Gol	<i>see</i> Naiji Gol			Niya (Sinkiang)	3705	8240	NJ-44
Naiji Gol	3630	9452	NJ-46	Niya Bazar	<i>see</i> Niya		
Na La	2840	9336	(NH-46)	Niyan Bo Siyan	<i>see</i> Nien-po		
Nalisun Pass	3225	9920	NI-47	Njan-bo-sjan	<i>see</i> Nien-po		
Na-lung-kou Gorge	ca. 3657	10228	(NJ-48)	N'ko-gun River	3310	9618	(NI-47)
Na-lung-kou-k'ou	3715	10214	NJ-48	Nobra Valley	<i>see</i> Nubra Valley		
Nambu Gompa	<i>see</i> Namphu Gompa			Noh	3338	7950	NI-44
Nambu La	<i>see</i> Namphu La			Nojeling Gompa	3223	9810	NI-47
Namcha Barwa	2938	9504	NH-46	Nokyu	3140	8026	NH-44
Nam Chu	<i>see</i> Nom Chu			Nola	ca. 3422	7634	(NI-43)
Namika La	ca. 3423	7629	(NI-43)	Nom Chu	ca. 3202	9813	(NI-47)
Nam La	2935	9504	(NH-46)	Nomochun Gol	<i>see</i> Nomokon Gol		
Namphu Gompa	2959	9427	NH-46	Nomokhun Gol	<i>see</i> Nomokon Gol		
Namphu La	2958	9419	NH-46	Nomokon Gol	3608	9727	NJ-47
Namtso	<i>see</i> Tengri Nor			Nomokon Pass	3543	9733	NI-47
Nanda	3007	9332	(NH-46)	Nomu Chu	<i>see</i> Ngom Chu		
Nangartse Dzong	<i>see</i> Nagartse Dzong			North Tatung Range	3740	10100	(NJ-47)
Nang Dzong	2903	9312	NH-46	No settlement, but	3234'0"	8242'20"	NI-44
Nan Shan	3845	9900	NJ-47	No settlement, but	3309'10"	8242'20"	NI-44
Nansu-Chzha	ca. 3545	10200	(NI-47)	No settlement, but	3420'45"	8206'30"	NI-44
Nari, a province	3100	8030	(NH-44)	Nubra River	3435	7735	NI-43
Natrampa	2821	9306	(NH-46)	Nubra Valley	3450	7730	NI-43
Natsan Chu	3345	9823	(NI-47)	Nungsted	<i>see</i> Nyungstet		
Na-tun	3253	9855	NI-47	Nunkhu Phu Chu			
Na-tun (or Natun)				Valley	ca. 3020	9410	(NH-46)
Chu	3251	9856	(NI-47)	Nunkhu Phu La	ca. 3008	9421	(NH-46)
Nazan Tschu	<i>see</i> Natsan Chu			Nurla	3419	7658	NI-43
Nda-mi	3520	10235	(NI-48)	Nurle	<i>see</i> Nurla		
Nebok La	3409	7800	(NI-44)	Nyala La	2808	9213	NH-46
Nedong Dzong	2914	9147	NH-46	Nyalam Dzong	2811	8558	NH-45
Neksig	3515	10100	NI-47	Nyamjang Chu	2808	9151	NH-46
Netang	<i>see</i> Nethang			Nyanam	<i>see</i> Nyalam Dzong		
Nethang	ca. 2935	9059	(NH-46)	Nyandi Gompa	<i>see</i> Nyanri Gompa		
Nethang Valley	2935	9059	(NH-46)	Nyanglu	2945	9303	NH-46
Netong Valley	<i>see</i> Nethang Valley			Nyanri Gompa	3102	8105	NH-44
Ngagong Chu	2944	9608	NH-47	Nyarlu	2941	9409	(NH-46)
Nganglaring Tso	3135	8300	NH-44	Nye, Tsangpo Valley	2901	9317	(NH-46)
Ngan Tso	2930	9645	NH-47	Nyenchen Tanglha			
Ngayeze	ca. 3036	8121	(NH-44)	Range	3040	9100	NH-46
Ngemda	3105	9644	NH-47	Nyengo	2924	9134	NH-46
Ngom Chu	3109	9717	NH-47	Nyentsungu	3153	9207	NH-46
N'gomu Chu	<i>see</i> Ngom Chu			Nyenyam	<i>see</i> Nyalam Dzong		
Ngori	ca. 3318	7753	(NI-43)	Nyigutam	3111	9210	NH-46
Nichungi Valley, not				Nyima La	2938	9452	NH-46
located but probably				Nyimo Chomo Range	2925	9630	NH-47
Nechung Lungpa				Nyoma Rap	3311	7838	NI-44
River near	3315	7827	(NI-44)	Nyug La	2840	9413	NH-46
Niemo	ca. 2925	8900	(NH-45)	Nyuksang	2945	9500	(NH-46)
Nien-pai	<i>see</i> Nien-po			Nyungstet	ca. 3458	7723	(NI-43)
Nien-po	3630	10228	NJ-48				
Nicugga	<i>see</i> Nyengo						
Nigou	<i>see</i> Nyigutam						
Nikyu	<i>see</i> Nokyu						
Nilang	3105	7900	(NH-44)				
Nimala Chu	ca. 3506	10101	(NI-47)				
Nima Mud, probably	<i>equals</i> Nyoma Rap, <i>q.v.</i>						
Nima Rap	<i>see</i> Nyoma Rap						
Nimoo	<i>see</i> Nimu						
Nimu	3412	7720	NI-43				
Ningri	3121	8040	(NH-44)				
Nin-yan-pu	ca. 3637	10152	(NJ-47)				

O

O-dja	ca. 2940	9115	(NH-46)
Odontala Plain	3455	9705	(NI-47)
Oldingthang	<i>see</i> Olthingthang		
Olthingthang	3445	7611	NI-43
Omchangsan'yigu	3147	9241	NH-46
Omchang-sourkou	<i>see</i> Omchangsan'yigu		
Onota Gol	3625	9551	NJ-46
Ooti Plain	<i>see</i> Uti Plain		
Oregin Gol	<i>see</i> Onota Gol		
Oring Nor	3455	9800	NI-47

Oring Nor *see* Oring Nor
 Oshi Chu 3207 9855 (NI-47)

P

Pachakshiri, a province 2840 9420 (NH-46)
 Padam 3328 7651 NI-43
 Pakoksar *see* Photaksar
 Pa La 2846 9342 (NH-46)
 Pala *ca.* 3014 8106 (NH-44)
 Palti Tso (or Yamdrok Tso) 2850 9040 NH-46
 Pamgal *see* Pamzal Marg
 Pamsal *see* Pamzal Marg
 Pamzal Marg 3416 7845 (NI-44)
 Pan *ca.* 2905 8916 (NH-45)
 Panamik 3446 7733 NI-43
 Pandras 3423 7542 (NI-43)
 Pang 3007 9331 (NH-46)
 Pangkar *see* Pungkar
 Pangong Tso 3358 7825 NI-44
 Panikar *see* Karpokhar
 Panzil La 3452 7508 (NI-43)
 Parang La 3227 7803 NI-44
 Par Chu 3130 8032 (NH-44)
 Parkachen *see* Parkutse
 Parkachik *see* Parkutse
 Parkaryan 3406 7559 NI-43
 Parkutse 3406 7600 NI-43
 Parkutta 3508 7557 NI-43
 Pashgam *see* Pashkyum
 Pashkyum 3430 7612 NI-43
 Paskyum *see* Pashkyum
 Pasquim *see* Pashkyum
 Pasum La *see* Trasum Kye La
 Pasum Tso 3001 9400 NH-46
 Patoksar *see* Photaksar
 Payenrung Valley *see* Hua-lung
 Payoundou *ca.* 3138 9504 (NH-46)
 Pe 2932 9453 NH-46
 Pede Dzong 2910 9025 (NH-46)
 Pedi *see* Pede Dzong
 Pei-ta-t'ung 3726 10140 NJ-47
 Peldo 3302 7816 NI-44
 Pelung Yoma *ca.* 3100 8122 (NH-44)
 Pemakö, a province 2930 9530 (NH-46)
 Pemakochung 2945 9504 NH-46
 Penam Chu 3002 9402 (NH-46)
 Penam Dzong 2911 8912 NH-45
 Pendjama, not located, but probably *ca.* 3130 9648 (NH-47)
 Pennang *see* Penam Dzong
 Pensi La 3350 7622 NI-43
 Pero La 2932 9500 (NH-46)
 Peteng (Tsangpo Valley) 2912 9404 (NH-46)
 Phari Dzong 2743 8909 NG-45
 Pharkachan *see* Parkaryan
 Phe 3337 7642 NI-43
 Phobrang 3404 7826 NI-44
 Photaksar 3404 7651 (NI-43)
 Phu Chu 2805 8600 (NH-45)
 Phuktal Gompa 3316 7711 NI-43
 Phung Chu 2800 8724 NH-45
 Phuse La 2813 8633 (NH-45)
 Phyang *ca.* 3408 7732 (NI-43)

Pigdong La *ca.* 3400 7623 (NI-43)
 Pin River 3206 7811 (NI-44)
 Pitok *see* Pituk
 Pituk 3408 7732 NI-43
 Po 3203 7820 NI-44
 Poda 2918 9705 (NH-47)
 Podrang *see* Potrang
 Podzo Sumdo 2842 9328 NH-46
 Pokachu, not located, but near junction of the Shyok and Nubra Rivers
 Pö La 2756 9156 (NG-46)
 Polakonka Pass *see* Polokongka La
 Poling 3119 7927 NH-44
 Polokongka Pass 3315 7812 NI-44
 Polo La *ca.* 3116 7917 (NH-44)
 Pololonka La *see* Polokongka Pass
 Polur (Sinkiang) 3612 8129 NJ-44
 Pomatune *ca.* 2930 9849 (NH-47)
 Pome, a province 3015 9500 (NH-46)
 Pomo Chang Thang Tso *see* Pomo Tso
 Pomo Tso 2835 9030 NH-46
 Pongo Nagu *see* Pongunagu
 Pongunagu 3323 7758 NI-43
 Pooling *see* Poling
 Popache 3449 7735 (NI-43)
 Popoche *see* Popache
 Popte La *see* Popti La
 Popti La 2750 8719 (NG-45)
 Porkha 3052 8118 NH-44
 Portash 3615 7822 NJ-44
 Potö Chu 2954 9540 NH-46
 Potrang 2907 9150 NH-46
 Po Tsangpo 2952 9508 NH-46
 Potü, a district 3004 9539 (NH-46)
 Po Yigrong *see* Yigrong Chu
 Prahnu 3457 7644 NI-43
 Pramu *see* Prahnu
 Przhevalsk (Kirghizia) 4230 7823 NK-44
 Przhevsky Range *see* Arka Tagh
 Puga 3313 7820 NI-44
 Puga Valley 3314 7822 (NI-44)
 Pugo *ca.* 2922 9706 (NH-47)
 Pu La 2852 9220 (NH-46)
 Pulö 3525 7755 (NI-43)
 Puna, error for Puga
 Pungkar 3017 9331 NH-46
 Purana Khasa *ca.* 2759 8559 (NG-45)
 Purig, a district 3406 7600 (NI-43)
 Puse La *see* Phuse La
 Putrang La 2903 9219 NH-46

Q

Qara Nor 3518 9930 NI-47
 Qara Tagh 3546 7820 NI-44
 Qara Tagh La 3543 7819 NI-44
 Qiziljilga 3520 7852 NI-44
 Qizil Koran Range 3555 7820 NI-44
 Qizil Langar 3513 7759 NI-43
 Qizil Tagh (Sinkiang) 4140 8815 NK-45

R

Rabdang 2906 9251 (NH-46)
 Rabi Chu *ca.* 3238 9909 (NI-47)

TIBET AND ITS BIRDS

Rabila	3428	7616	(NI-43)	Rudok	3327	7939	NI-44
Rachogba	3300	7735	NI-43	Rugong	ca. 3016	8110	(NH-44)
Rachogba-Sarchu	3258	7736	(NI-43)	Rug Rug			see Muglib
Radja			see Ragya Gompa	Rungdom			see Ringdom Gompa
Ragoonka	3023	9417	NH-46	Rungdom Plains "be-			
Ragya Gompa	3456	10031	(NI-47)	low Zuido" equals			
Rakal Tal			see Rakas Tal	Ringdom Plains be-			
Rakas Tal	3037	8115	NH-44	low Zulidok	ca. 3402	7620	(NI-43)
Ra La	2848	9251	(NH-46)	Rupshu, a region	3300	7800	(NI-43)
Ralma	3315	7854	(NI-44)	Russian Range (of the			
Ralung	2849	9003	NH-46	Astin Tagh)	3700	8500	(NJ-45)
Ram-da	ca. 3230	9650	(NI-47)	Russki Mountains			see Russian Range
Ranbirpura	3402	7740	NI-43				
Ranen Gompa	3554	10135	(NI-47)				
Ranen-Zhyatson	ca. 3554	10135	(NI-47)				
Ranga	3521	7533	(NI-43)				
Rangchta Gorge			see Rangta Gol				
Rangchta Pass			see Rangta Pass				
Rangdom-Gompa			see Ringdom Gompa				
Rangrik			see Rangring				
Rangring	3215	7802	(NI-44)				
Rangta Gol	ca. 3703	10220	(NJ-48)	Sacha Sumdo	ca. 3311	9648	(NI-47)
Rangtang	2919	9154	(NH-46)	Sa-chou (Kansu)	4005	9445	(NK-46)
Rangta Pass	ca. 3702	10214	(NJ-48)	Safaranga			see Surparagha
Rangung	ca. 3025	8107	(NH-44)	Saghun Gol	3440	9732	NI-47
Rata	ca. 3115	9637	(NH-47)	Sagotong Gompa	3138	9524	NH-46
Rebu	2817	8702	(NH-45)	Sahti Pass			see Chang La
Re Chu (Kozlov)	ca. 3130	9725	(NH-47)	Saisan Saitu			see Zaisan Saitu
Red Basin (Szechwan)	3000	10500	(NH-48)	Saisan Ssoitu			see Zaisan Saitu
Relde	2756	8602	(NG-45)	Sai-t'u-la			see Shakhidulla
Reru	3320	7657	NI-43	Sakang	2843	8940	(NH-45)
Reting Gompa	3020	9129	NH-46	Sakatut Canyon			see Sakhutu Canyon
Revenny Range			see Ugutu Ula	Sakhutu Canyon	3458	10027	(NI-47)
Rham Tso			see Bam Tso	Saki-thung			see Sakyetang
Rhombo-mzo			see Rkhombo-mtso	Sakti	3401	7752	(NI-43)
Richthofen Range	3818	10030	NJ-47	Sakti Pass			see Chang La
Rima	2826	9702	NH-47	Sakutu Canyon or			
Rimdi	3408	7838	NI-44	Ravine			see Sakhutu Canyon
Rimpung			see Rinphung Dzong	Sakyetang	2758	8714	(NG-45)
Ringdom			see Ringdom Gompa	Salween River	2945	9730	NH-47
Ringdom Gompa	3403	7622	NI-43	Samoda	2823	8933	(NH-45)
Ringdom Swamp	ca. 3403	7622	(NI-43)	Samuda			see Samoda
Rinphung Dzong	2917	8954	NH-45	Samye Gompa	2917	9134	NH-46
Rircha Gompa			see Ragya Gompa	Samzea			see Samye Gompa
Risho	2910	9331	(NH-46)	Sandi Dala	ca. 2758	8559	(NG-45)
Ritter Range	3820	9600	NJ-47	San-dzhu-chin	ca. 3702	10147	(NJ-47)
Riuchi			see Riwoche	Sang	2930	9439	NH-46
Rivière des Singes	3330	8942	NI-45	Sangacho Dzong	2909	9713	NH-47
Riwoche	3123	9632	NH-47	Sanga Chöling, or Sanga			
Rkatchun Dzhu	ca. 3514	10100	(NI-47)	Choling Gompa	2833	9300	NH-46
Rkhombo-mtso	3310	9618	(NI-47)	Sangge	2859	8932	NH-45
Rocham Dzong	ca. 3108	9640	(NH-47)	Sang La, Kongbo	2935	9443	(NH-46)
Rogchin	3322	7755	(NI-43)	Sang La, Mönyul	2809	9158	(NH-46)
Rombatsa	ca. 3140	9945	(NH-47)	Sangu			see Sanko
Ronam	ca. 3019	8108	(NH-44)	Sangyü	3009	9502	(NH-46)
Ron Chu	ca. 3128	9650	(NH-47)	Sanju Pass (Sinkiang)	3643	7815	NJ-44
Rondu	3535	7510	NI-43	Sanka	ca. 3155	9938	(NH-47)
Rong	2916	9203	NH-46	Sanko	3417	7557	NI-43
Rongbuk Gompa	2813	8650	NH-45	Sanku			see Sanko
Rongchakar			see Rong	San Dzhu Chin	ca. 3702	10147	(NJ-47)
Rong Chu, Kongbo				San Sangri La	3455	7511	(NI-43)
(Ludlow)	ca. 2940	9447	(NH-46)	San-tkhan	ca. 3642	10115	(NJ-47)
Rong Chu, Pome	3001	9504	(NH-46)	Saog Rongwo	3526	10022	(NI-47)
Routchi			see Riwoche	Sarik Tuz River	3630	8330	NJ-44
Routoumdo	ca. 3123	9728	(NH-47)	Sari Sumdo	3142	9515	NH-46
Rudock			see Rudok	Sarkouatoum			see Sagotong Gompa
				Sarlag Uula	3655	9753	NJ-47
				Sarle	ca. 3315	7708	(NI-43)
				Sarlyk Ula			see Sarlag Uula
				Saser Brangsa	3504	7746	NI-43
				Saser Pass	3502	7744	NI-43

S

Saspula	<i>see</i> Saspul Gompa				
Saspul Gompa	3415	7709		NH-43	
Sasu Ma, not located, but near Labrang, <i>q.v.</i>	<i>ca.</i>	3520	10229		(NI-48)
Satang	2959	9519		(NH-46)	
Sati (or Satti)	3432	7743		(NI-43)	
Satpura	3512	7537		NI-43	
Satsau yuan tse	<i>see</i> Chan Tsai Ikhe				
Saugang	2843	8939		(NH-45)	
Sayu Mountain	<i>ca.</i>	3520	10229		(NI-48)
Sazi La	<i>see</i> Bogo La				
Schala-choto	<i>see</i> Shara Hoto				
Schandri	<i>see</i> Shang				
Scharagol-dshin	<i>see</i> Shara Gol				
Schin-tschen	<i>see</i> Hsin-ch'eng				
Schuga River	<i>see</i> Shurghan Gol				
Sdongpar	<i>see</i> Dzongpolas				
Sekang	<i>ca.</i>	3031	8113		(NH-44)
Selipuk Gompa	3130	8245		NH-44	
Sen Chu	3229	9757		(NI-47)	
Sengdam	2945	9457		(NH-46)	
Senge Dzong	2817	9054		NH-46	
Senge Dzong, Tsangpo Gorge	2947	9503		(NH-46)	
Seni Gompa	3331	7649		(NI-43)	
Senke La	3219	9757		NI-47	
Sepo La	<i>see</i> Serpo La				
Sera Gompa	2941	9105		(NH-46)	
Serchen Gorge	<i>see</i> Serchen Nang River				
Serchen Nang River	3453	10041		(NI-47)	
Serchu	<i>see</i> Seshu Gompa				
Ser Chu	<i>see</i> Serg Chu (Hwang ho Basin)				
Ser Chu (Yalung Basin)	3159	9929		(NH-47)	
Serésoumdo	<i>see</i> Sari Sumdo				
Serg Chu (Hwang ho Basin)	3410	9831		NI-47	
Sérine	<i>see</i> Tserine				
Serpo La	2808	8836		(NH-45)	
Sertyn	<i>see</i> Syrtyn Plain				
Seshu	<i>see</i> Ju Gompa				
Seshu Gompa	<i>see</i> Ju Gompa				
Shagrot	3335	7745		(NI-43)	
Shahidulla	<i>see</i> Shakhidulla				
Shakhar, Purig, probably Shama Kurpo, <i>q.v.</i>					
Shakhidulla (or Sai-t'u-la)	3623	7801		(NJ-44)	
Shakrot	<i>see</i> Shagrot				
Shaksgam River	3620	7615		NJ-43	
Shala	3729	10011		NJ-47	
Shala Khoto	<i>see</i> Shara Hoto				
Shala River	3453	10053		(NI-47)	
Shama Kurpo	3404	7616		(NI-43)	
Shambhutara	<i>ca.</i>	3115	8025		(NH-44)
Shamshah Kharbu	3430	7558		(NI-43)	
Shang	3601	9754		NJ-47	
Shan'rdi	<i>see</i> Shang				
Shanyg	<i>ca.</i>	3530	10125		(NI-47)
Sha Pass	<i>see</i> Dzai Dabaa				
Shara Gol (Kozlov)	<i>ca.</i>	3910	9550		NJ-46
Shara Hoto	3630	10114		NJ-47	
Shara-Khotul	<i>see</i> Shara Hoto				
Shargol	<i>see</i> Shergol				
Sharin Gol (Przhevalsky), equals Tatung River near Chertenton, <i>q.v.</i>					
Sharlatsugkong	3102	8106		NH-44	
She	3405	7739		(NI-43)	
Shelekhookar	<i>ca.</i>	3040	8049		(NH-44)
Shelgo	<i>ca.</i>	3211	7806		(NI-44)
Sherchzhi	<i>ca.</i>	3220	9645		(NI-47)
Shergol	3424	7618		NI-43	
Sherug Gompa	<i>see</i> Jungor Gompa				
Sheshkari	3441	7720		(NI-43)	
Sheshu Gompa	3309	9753		NI-47	
Shichiling	<i>ca.</i>	3204	7814		(NI-44)
Shidang	<i>ca.</i>	3205	7808		(NI-44)
Shigar	3526	7544		NI-43	
Shigar Nulla	<i>ca.</i>	3526	7545		(NI-43)
Shigar River (affluent of Indus)	3520	7538		NI-43	
Shigar River (Shigo- Shigar River)	3438	7552		NI-43	
Shigar Valley	3526	7544		NI-43	
Shigatse	2917	8853		NH-45	
Shigo River (Shigo- Shigar River)	3438	7551		NI-43	
Shiku River "near Sin- ing" probably Hsi- ning ho at Hsi-ning	3642	10147		(NJ-47)	
Shimsa Kharbu	3433	7558		(NI-43)	
Shin Chen	<i>see</i> Hsin-ch'eng				
Shingdat	<i>ca.</i>	3318	7817		(NI-44)
Shingdzam, probably Shinggang	2959	9044		(NH-46)	
Shingo La	3255	7707		NI-43	
Shirshir Pass	<i>see</i> Sir Sir La				
Shoaka	<i>see</i> Showa				
Shoga Dzong	<i>see</i> Sho Kha Dzong				
Shoka	2915	9410		NH-46	
Sho Kha Dzong	2958	9348		NH-46	
Sho-pa River	<i>ca.</i>	3130	9715		(NH-47)
Sho Shika	2838	9238		(NH-46)	
Showa	2955	9524		NH-46	
Shuga Mountain	<i>see</i> Shurghan Ula				
Shugden Gompa	2925	9651		NH-47	
Shui-mo	3635	10145		NJ-47	
Shunhoa	<i>see</i> Hsiün-hua				
Shurghan Gol	<i>ca.</i>	3543	9605		NI-47
Shurghan Ula	3535	9645		NI-47	
Shuruk, not located, but probably Sheshkari, <i>q.v.</i>					
Shushal	<i>see</i> Chushul				
Shushal River	<i>see</i> Chushul River				
Shushot	3403	7739		NI-43	
Shyok-Nubra Confluence	3435	7735		NI-43	
Shyok River (at junction with Nubra River)	3435	7735		NI-43	
Siang-Si-Pei Range	3538	10015		NI-47	
Sian Si Bei Range	<i>see</i> Siang-Si-Pei Range				
Sikho Shan	3603	10125		(NJ-47)	
Sikho-Tan	<i>see</i> Sikho Shan				
Simbiteng	2911	9356		(NH-46)	
Sin-dse	<i>ca.</i>	3646	10110		(NJ-47)
Singhi Dzong	<i>see</i> Senge Dzong				
Singhi La	<i>see</i> Singi La				
Singi La	3358	7654		NI-43	
Singo Samba	2850	9355		NH-46	
Sining	<i>see</i> Hsi-ning				
Sining ho	<i>see</i> Hsi-ning ho				
Sin-tien-pu	<i>see</i> Hsin-ch'eng				
Sir Sir La	3406	7648		NI-43	

TIBET AND ITS BIRDS

- Skardo *see* Skardu
 Skardu 3518 7537 NI-43
 Skiangpoche 3501 7735 (NI-43)
 Snimu *see* Nimu
 Snurla *see* Nurla
 So *see* Sok Gompa
 Sobhe La 3007 9454 NH-46
 Sobu 3408 7737 (NI-43)
 Sodpur *see* Satpura
 Sogon Gompa 3335 9625 NI-47
 Soji La *see* Zoji La
 Sok Gompa 3150 9344 NH-46
 Sok Pass *ca.* 3150 9344 (NH-46)
 Sokpo La 2841 9257 (NH-46)
 Soma Gompa *see* Süme Gompa
 Sömpu, a region 2825 9210 (NH-46)
 Sonam *ca.* 3110 7910 (NH-44)
 Son Chu 3520 10229 (NI-48)
 Sotong *ca.* 3130 9853 (NH-47)
 Sources of the Hwang
 ho (in region visited
 by Przhevalsky) *ca.* 3500 9700 (NI-47)
 South Koko Nor Range
 (as crossed by Kozlov) 3700 9835 (NJ-47)
 South Tatung Range 3650 10230 (NJ-48)
 Soutu *see* Suti
 Sowgon *see* Sakang
 Spangmik 3355 7827 NI-44
 Spanpuk 3437 7726 (NI-43)
 Spiti, a region and valley 3210 7810 (NI-44)
 Spituk *see* Pituk
 Ssan-dshu-tschun *see* San Dzhu Chin
 Stak 3405 7735 NI-43
 Subansiri River 2830 9345 NH-46
 Su-baschi Pass 3555 8128 (NI-44)
 Suget Dawan 3610 7800 NJ-44
 Suget Karaul 3622 7802 NJ-44
 Suget Pass *see* Suget Dawan
 Suget River *ca.* 3620 7800 (NJ-44)
 Sugri-kou *ca.* 3703 10218 (NJ-48)
 Sukte, error for Sakti, *q.v.*
 Su La 2949 9524 NH-46
 Su La Range 2955 9515 (NH-46)
 Sulei ho *see* Su-lo ho
 Su-lo ho 3857 9735 NJ-47
 Sultan Chhushku 3459 7801 NI-44
 Su Lungba *ca.* 2954 9527 (NH-46)
 Sumbatse 2854 9333 NH-46
 Sumdo 3502 7842 NI-44
 Sum Dzong 2944 9608 NH-47
 Süme Gompa 3645 10109 NJ-47
 Sun Chagin Gol 3735 9530 (NJ-46)
 Sun Dzhin Gol *see* Sun Chagin Gol
 Sungir Nor 3905 9600 (NJ-47)
 Sung-pan (Szechwan) 3247 10332 NI-48
 Sungy Nur *see* Sungir Nor
 Sun Kosi River 2800 8600 NG-45
 Sunku *see* Sanko
 Sunni *see* Surmo
 Sunno *see* Surmo
 Sürhey Nor 3655 9815 NJ-47
 Sur La 2846 9311 (NH-46)
 Surman Gompa 3217 9637 NI-47
 Surman Namdzhi Dzeba *see* Surman Gompa
 Surmo 3510 7625 (NI-43)
 Surnge River 3142 8257 NH-44
- Suroo *see* Suru
 Surparagha 3521 7540 (NI-43)
 Suru 3407 7557 NI-43
 Suru River 3436 7607 NI-43
 Su-schu *see* Sheshu Gompa
 Sushal *see* Chushul
 Suti 3140 9428 NH-46
 Sutlej River 3051 8114 NH-44
 Syachen Chu *ca.* 3510 10100 (NI-47)
 Syrtyn Plain 3900 9500 NJ-46
 Syrtyn Territory *see* Syrtyn Plain
- T
- Tabo 3205 7823 NI-44
 Tacha-lung *see* Tsa-lung Ssu
 Tachang *see* Tathang Gompa
 Tachéling *see* Trashiling
 Tagalang La *see* Taga Laung La
 Taga Laung La 3330 7747 (NI-43)
 Taga Laung Valley *ca.* 3330 7747 (NI-43)
 Taghar *see* Tiggur
 Taglang Camp *ca.* 3330 7745 (NI-43)
 Tagso River 3502 10025 (NI-47)
 Tagso Nang Canyon *ca.* 3502 10025 (NI-47)
 Ta-ho-pa River *see* Chasora River
 Ta-hsüeh Shan 3925 9635 NJ-47
 Takalung Valley *see* Taga Laung Valley
 Takar La 2839 9306 (NH-46)
 Takche 3101 8156 NH-44
 Takhlahote *see* Taklakot
 Takhum *see* Tokung
 Taklakot 3016 8110 NH-44
 Taklang La *see* Taga Laung La
 Takpo, a province 2900 9300 (NH-46)
 Taksay 3449 7731 (NI-43)
 Taksumba *ca.* 3318 7753 (NI-43)
 Taktsa 2858 9335 (NH-46)
 Tala Chu *ca.* 3436 9527 (NI-46)
 Tale La 3525 7527 (NI-43)
 Tale Valley 3525 7607 (NI-43)
 Talu 3019 9446 NH-46
 Talung 2848 9027 (NH-46)
 Tam Karaul (Sinkiang) 3652 7814 NJ-44
 Tamnyen 2927 9438 (NH-46)
 Tamnyen La 2918 9445 (NH-46)
 Tandi *ca.* 3155 9330 (NH-46)
 Tang 2943 9402 (NH-46)
 Tangar *see* Dangkar
 Tangdong 3000 9507 (NH-46)
 Tang La (Bailey or
 Ludlow) 2750 8911 (NH-45)
 Tang La (Kozlov) *ca.* 3130 9700 (NH-47)
 Tang La (Przhevalsky) 3247 9224 NI-46
 Tang La Range (Przhe-
 valsky) at the Tang
 La 3247 9224 NI-46
 Tanglha Range (Przhe-
 valsky) *see* Tang La (Przhe-
 valsky)
 Tang Mar *ca.* 2758 8600 (NH-45)
 Tangme 3007 9508 (NH-46)
 Tangola *see* Tongul
 Tangra Tso 3100 8620 NH-45
 Tangtse 3402 7812 NI-44

Tan-huang ho	3927 9502	NJ-46	Tikse	3404 7739	NI-43
Tankse	<i>see</i> Tangtse		<i>see</i> Tikse		
Tanski	<i>see</i> Tangtse		Tildan Gompa	<i>ca.</i> 2819 8602	(NH-45)
Tan La (Przhevsky)	<i>see</i> Tang La (Przhevsky)		Timpa	2933 9451	NH-46
Tan La Range (Przhevsky)	<i>see</i> Tang La Range (Przhevsky)		Tincagha	<i>ca.</i> 3120 9715	(NH-47)
Tao River	3418 10357	NI-48	Tingkye Dzong	2819 8805	NH-45
Tao-t'ang ho	3630 10100	NJ-47	Tingri Dzong	2835 8638	NH-45
Tara	<i>ca.</i> 3013 9838	(NH-47)	Tinki Dzong	<i>see</i> Tingkye Dzong	
Tarchan	<i>see</i> Tarchen		Tioungue	<i>ca.</i> 3141 9423	(NH-46)
Tarchen	3058 8119	NH-44	Tirit	<i>see</i> Tiggur	
Targo Tsangpo	3047 8622	(NH-45)	Tirthapuri Gompa	3107 8048	NH-44
Tarkalung	<i>ca.</i> 3446 7710	(NI-43)	Tiul	<i>see</i> Tiengul	
Tarkuti	<i>see</i> Parkutta		Tog	<i>see</i> Stak	
Tasam	2810 8627	NH-45	Tog Nulla	near Stak, <i>q.v.</i>	
Tasgam	3428 7555	NI-43	Togra	<i>see</i> Gogra	
Tashgam	<i>see</i> Tasgam		Tokung	3342 7838	NI-44
Tashu Lomba	<i>see</i> Duchmé		Tolingmath	3128 7948	NH-44
Tasueh Shan	<i>see</i> Ta-hsüeh Shan		Tolti	3502 7605	NI-43
Tathang Gompa	2913 9121	NH-46	Tolung La	<i>see</i> Tulung La	
Tatséroué	<i>ca.</i> 3050 9125	(NH-46)	Tömörtiin Uula	3645 9820	NJ-47
Tatsienlu (Szechwan)	3005 10204	(NH-48)	Tongchi Gompa	3325 9703	NI-47
Tatung	<i>see</i> Pei-ta-t'ung		Tongkyuk	2958 9454	NH-46
Tatung Range	<i>ca.</i> 3715 10122	(NJ-47)	Tongkyuk Dzong	<i>see</i> Tongkyuk	
Tatung River	3622 10252	NJ-48	Tongul	3403 7556	NI-43
Tatzang	<i>see</i> Tasam		Ton La Range, error for Tang La Range	<i>see</i> Tolingmath	
Tchangka	<i>see</i> Markham Dzong		Tooling	<i>see</i> Tolingmath	
Tcheuneu	<i>ca.</i> 2947 9829	(NH-47)	Topo Koma	3236 7731	NI-43
Tchoka, not located, but probably Yuchuka, <i>q.v.</i>			Toson (or Toson) Nor	3710 9655	NJ-47
Tchoung	<i>ca.</i> 3110 9600	(NH-47)	Tossun Nor	3518 9855	NI-47
Tchoupalang	<i>see</i> Chupalong		Totukh Nira Pass	<i>see</i> Thothug Nyera	
Tchoupou	<i>see</i> Choupow		Towa Dzong	2823 9049	NH-46
Tchumbotindzi	<i>see</i> Chungpo Tengchen (or Denchin)		Toyo	<i>ca.</i> 3018 8108	(NH-44)
Tega-ting	<i>ca.</i> 2937 9853	NH-47	Tozeri	<i>ca.</i> 3307 7747	(NI-43)
Tegur	<i>see</i> Tiggur		Trakan La	2843 9245	(NH-46)
Tel Dun Gompa	<i>see</i> Tildan Gompa		Traktse	<i>ca.</i> 3223 7737	(NI-43)
Temo Gompa	2930 9430	(NH-46)	Trantse Sumdo	<i>ca.</i> 3345 7725	(NI-43)
Temo La	2937 9438	NH-46	Trashi Gompa	3310 9447	NI-46
Teng	2808 8721	(NH-45)	Trashingling	3136 9528	(NH-46)
Tengko	3229 9801	NI-47	Trasum Kye La	3027 9325	NH-46
Tengri Nor	3030 9025	NH-46	Tre	2803 9204	NH-46
Terong	3519 7715	(NI-43)	Trigu Tso	2840 9145	NH-46
Terong Valley	3515 7715	(NI-43)	Trimo	2757 9152	NG-46
Tetha	3310 7710	NI-43	Tripe	2937 9456	(NH-46)
Tetung Gol	<i>see</i> Tatung River		Trokpo Shar	3107 8055	NH-44
Thaknak	<i>see</i> Gharnak		Tromda	2905 9255	NH-46
Thalam Buti Valley	3501 7735	(NI-43)	Tromo Chu	2729 8855	(NG-45)
Thaliskot	<i>see</i> Chaliskot		Trön	2821 9301	(NH-46)
Thamalung	<i>see</i> Tathang Gompa		Tro Shika	2816 9234	(NH-46)
Thang	2802 9202	(NH-46)	Trulung	3003 9503	(NH-46)
Tharcha	<i>ca.</i> 3225 7740	(NI-43)	Tsagaan Gol	3623 9800	NJ-47
Thasang La	3328 7759	(NI-43)	Tsagaan Nor	3702 9847	NJ-47
The-dju	<i>ca.</i> 3309 9742	(NI-47)	Tsagaan Uula	3642 9848	NJ-47
Thong La	2828 8617	NH-45	Tsagan Obotu	<i>see</i> Tsa-han Obotu	
Thothug Nyera	3533 10022	(NI-47)	Tsa-han Kundu	3542 9847	NI-47
Thounyo	<i>ca.</i> 3112 9604	(NH-47)	Tsa-han Obotu	3527 9850	(NI-47)
Thug-ji	<i>see</i> Thugue		Tsa-han Obotu Pass	3527 9853	NI-47
Thugue	3320 7810	NI-44	Tsaka	3323 7848	(NI-44)
Thung La	<i>see</i> Thong La		Tsaka La	3323 7850	NI-44
Tiengul	3323 7656	(NI-43)	Tsakchugong	2953 9509	(NH-46)
T'ien-t'ang Ssu	3658 10230	NJ-48	Tsakjung Lake (or Tso)	<i>ca.</i> 3330 7849	(NI-44)
Tien-tang-tse	<i>see</i> T'ien-t'ang Ssu		Tsak La	<i>see</i> Tsaka La	
Tiggur	3438 7737	NI-43	Tsakzhun Tso	<i>see</i> Tsakjung Tso	
Tiksay	<i>see</i> Tikse		Tsaliko	<i>ca.</i> 3403 7556	(NI-43)
			Tsa-lung Ssu	3654 10233	NJ-48
			Tsan Chhu	3618 10133	NJ-47

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Tsan Da River	ca. 3305	9635	(NI-47)
Tsan Djung Nur Gol	ca. 2915	9135	(NH-46)
Tsang, a province	2900	8900	(NH-45)
Tsangar Gompa	3454	10048	(NI-47)
Tsang Chok La	3120	7914	NH-44
Tsang Cho La	see Tsang Chok La		
Tsang-gar	3455	10046	(NI-47)
Tsangpo Gorge (at Gyala)	2942	9455	NH-46
Tsangpo and Po Tsangpo confluence	2952	9508	NH-46
Tsangpo River	2920	9045	NH-46, south of Lhasa
Tsangpo-Salween Divide east of the Trasum			
Kye La	3030	9500	(NH-46)
Tsaparang	see Chabrang		
Tsapfa	ca. 3538	10130	(NI-47)
Tsara La	ca. 3130	9700	(NH-47)
Tsargi Khada	ca. 3640	10110	(NJ-47)
Tsari, a province	2840	9330	(NH-46)
Tsari Chu	2841	9327	NH-46
Tsaring Nor	3445	9730	NI-47
Tsari Sama	2843	9350	(NH-46)
Tsasa Gol	3644	9800	NJ-47
Tsatang	3125	9223	NH-46
Tsatim River	ca. 3135	9615	(NH-47)
Tsav-dya-tszai	see Shui-mo		
Tschadda Tschol	see Chitishio		
Tscha-dshi	see Cha Chzhi		
Tschamen Tagh	see Chimen Tagh		
Tschan-chusa	see Tsan Chhu		
Tschau-tou	see Chertenton		
Tscheiben	see Kuo-mang Ssu		
Tschertynton	see Chertenton		
Tschuddu-schol	see Chhushu		
Tschumar	see Chumar River		
Tschunkor Gompa	see Chinkar My		
Tschurmyn River	see Tsurumun Chu		
Tse	2924	9422	(NH-46)
Tsechen Gompa	2856	8934	(NH-45)
Tsechu	see Tshe Chu		
Tsela Dzong	2925	9422	NH-46
Tse La, Mago	2740	9229	NG-46
Tse La, Takpo	2842	9352	NH-46
Tsemachi	2850	9330	NH-46
Tsema La	2829	9806	NH-47
Tsera	3003	9513	(NH-46)
Tseri	see Tsurri		
Tserine	ca. 3114	9758	(NH-47)
Tsetang	2916	9146	(NH-46)
Tseti Tso	ca. 3044	8120	(NH-44)
Tshe Chu	3453	10130	(NI-47)
Tshomoriri Lake	see Tso Morari		
Tsho-nyi Island	3652	10010	NJ-47
Tsima La	see Tsema La		
T'sin Da	ca. 3314	9653	(NI-47)
Tsin-gan-syan, probably	Ch'iang-t'ung-shan, q.v.		
Tsinling Shan (Shensi)	3355	10750	(NI-48)
Tsi-tai	ca. 3702	10203	(NJ-48)
Tso Clumo	see Tso Kar		
Tso Kar	3318	7800	NI-44
Tsokr Chumo Lake	see Tso Kar		
Tso Kyun	3259	7835	NI-44
Tso Morari	3248	7819	NI-44
Tsona Dzong	2800	9157	NG-46

Tsonghai	2956	9840	NH-47
Tsongka	see Tsong La		
Tsong La	2840	9747	NH-47
Tsukhang	2743	9155	(NG-46)
Tsultak	3405	7800	(NI-43)
Tsu-neng Hötöl	3734	9711	NJ-47
Tsurri	3528	7525	(NI-43)
Tsurumun Chu	3529	10007	NI-47
Tsutsung Dutsa Sang	see Tathang Gompa		
Tszagosten Kotul	see Dzagastayn Hötöl		
Tszanda River	ca. 3300	9640	(NI-47)
Tulung La	2750	9210	NG-46
Tumbatse	2940	9447	NH-46
Tum La	2903	9413	(NH-46)
Tuna	2758	8913	NG-45
Tungkar Gompa	see Jungkar Gompa		
Tunhwang (Kansa)	4010	9450	NK-45
Tunjun La	3052	8000	NH-44
Tuo-lo-kou Gorge	ca. 3646	10245	(NJ-48)
Türgenii Nor	3640	9742	NJ-47
Tussia Pass	ca. 3500	7735	(NI-43)
Tutujalak	see Tut Yailak		
Tut Yailak	3459	7735	NI-43
Tutyalak	see Tut Yailak		
Tzu-hu (or Ting-yüan- ying)	3855	10541	NJ-48

U

Ü, a province	2900	9100	(NH-46)
Ucherapu	ca. 3328	9624	(NI-47)
Uchu-sy	ca. 3651	10203	(NJ-48)
Udmaro	see Unmaru		
Ugu	3354	7745	NI-43
Ugutü Ula	3528	9950	NI-47
Ui-iu	see Shara Hoto		
Ulaan Bulaq	3858	9549	NJ-46
Ulaan Gol	3753	9810	NJ-47
Ulan Bulak	see Ulaan Bulaq		
Ulan Bulak Gol	see Ulaan Bulaq		
Ulan Usu River	see Ulaan Gol		
Ulkhun Bamburchitu	see Bamburtsik		
Ulugh Köl (or Kul)	3541	8136	NI-44
Umbih	ca. 3407	7725	(NI-43)
Umbih Valley, near Umbih, q.v.			
Umbik	see Umbih		
Umlah Nallah	3414	7625	(NI-43)
Umlung	3454	7732	NI-43
Umu River	ca. 3535	9950	(NI-47)
Unmaru	3442	7717	NI-43
Unygyn Gol	see Onota Gol		
Upshi	3349	7748	NI-43
Urto	3638	10023	(NJ-48)
Ussu Etse Pass	3552	9753	NI-47
Usu Uche Pass	see Ussu Etse Pass		
Uti	3248	7828	NI-44
Uti Plain	3246	7830	(NI-44)
Uzun-iu Kul	see Uzun Shor Köl		
Uzun Shor Köl	3825	9000	NJ-46

V

Vallis Ventorum	ca. 3830	8950	(NJ-45)
Vei ho	ca. 3700	10205	(NJ-48)

Wei-yuan-sian *see* Wei-yuān-p'u
 Vychzha-chuan *ca.* 3645 10200 (NJ-48)

W

Wahab Jilga *ca.* 3550 7800 (NI-44)
 Wakka Nallah River 3435 7608 NI-43
 Wardwan River
 (Kashmir) 3404 7535 (NI-43)
 Waro La 3501 10032 (NI-47)
 Waro Valley 3501 10030 (NI-47)
 Wa-ru La *see* Waro La
 Wa-ru Valley *see* Waro Valley
 Waterh *ca.* 3306 9815 (NI-47)
 Wei-juān-pu *see* Wei-yuān-p'u
 Wei-yuān (or Pei-ta-
 r'ung) 3726 10140 NJ-47
 Wei-yuān-p'u (or
 Hu-chu) 3651 10203 NJ-48
 Woti La, and Valley 3502 10034 (NI-47)
 Wu-wei *see* Liang-chou

Y

Yagan Gol 3848 9702 (NJ-47)
 Yakalo 2904 9833 NH-47
 Yalung-Paodsang *see* Yarlungtö and
 Potrang
 Yalung River 3300 9835 NI-47
 Yamatiin 3840 9653 NJ-47
 Yamatin Tract *see* Yamatiin
 Yamatin Umru *see* Yamatiin
 Yamdok Basin *see* Yamdrok Tso
 Yam Dok Tso *see* Yamdrok Tso
 Yamdrok Tso 2850 9040 NH-46
 Yan-chan-tsza-gou *see* Chuang-tzu-kou
 Yan-dze Gompa *ca.* 3152 9910 (NH-47)
 Yangtze-Mekong Divide 3140 9750 (NH-47)
 Yangtze River, at
 Batang 3001 9901 NH-47
 Yarap 2843 9321 (NH-46)
 Yar Chun (or Yar
 Chiun) *see* Jarsha
 Yarkand River, at a
 point 60 km. north
 of Karakoram Pass 3600 7735 NI-43
 Yarlang Chu 2916 9145 NH-46
 Yarlin Gol, near Chertenton, *q.v.*
 Yarlungtö 2902 9152 NH-46
 Yashil *see* Yeshil Köl
 Yatung 2729 8955 NG-45

Yelchang 3358 7657 (NI-43)
 Yenching *see* Yentsing (= Yakalo)
 Yentsing *see* Yakalo
 Yeshil Köl 3652 8729 NJ-45
 Yeshil Tso 3500 8135 NI-44
 Yigrong Chu 3017 9452 NH-46
 Yigrong Tso 3012 9500 NH-46
 Yogma *ca.* 3350 7806 (NI-44)
 Yogma La 3350 7806 NI-44
 Yoijok 3410 7557 (NI-43)
 Yokima *see* Yogma
 Yu Chu (Kozlov, 1901) 3136 9725 NH-47
 Yu Chu (Kozlov, 1900)
 probably equals Jye
 Chu *ca.* 3217 9637 NI-47
 Yuchuka 3137 9725 NH-47
 Yugindo 3303 9848 NI-47
 Yugu *see* Ugu
 Yuljuk *see* Yoijok
 Yunanchen *see* Yung-an-ch'eng
 Yung-an-ch'eng 3738 10116 NJ-47
 Yungi Chunak *ca.* 3445 9920 (NI-47)
 Yungi Chunik Ravine *see* Yungi Chunak
 Yunling Shan (Yunnan) 2700 9900 (NG-47)
 Yüo-schüi-tsuän *ca.* 3625 10142 (NJ-47)

Z

Zaidam 3700 9400 NJ-46
 Zaidamin Nor,
 either Baga Tsaydam
 Nor 3735 9520 NJ-46
 or Ihe Tsaydam Nor 3752 9514 NJ-46
 Zaisa Gol *see* Tsaisa Gol
 Zaisan Saitu River *ca.* 3802 8930 (NJ-45)
 Zangatang *see* Jangtang
 Zaskar, a region 3350 7700 (NI-43)
 Zaskar Range 3345 7700 NI-43
 Zaysan (Kazakhstan) 4727 8450 —
 Zayul Chu 2850 9731 NH-47
 Zdongpolao *see* Dzongpolas
 Zdongpolas *see* Dzongpolas
 Zhasha La 2846 9739 NH-47
 Zhe-fi *ca.* 3552 10135 (NJ-47)
 Zingral 3402 7755 NI-43
 Zoji La 3416 7528 NI-43
 Zsanda Tschu *see* Tsan Da River
 Zuildo *see* Zulidok
 Zulidok 3402 7620 (NI-43)
 Zunthulphuk 3100 8122 NH-44
 Zurle *ca.* 3255 7817 (NI-44)

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APPENDIX

Working list of 242 Sino-Himalayan species for Chapter Three

<i>Tetrastes sewerzowi</i>	<i>Dendrocopos darjellensis</i>
<i>Lerwa lerwa</i>	<i>Dendrocopos cathpharius</i>
<i>Tetraophasis obscurus</i>	<i>Dendrocopos hyperythrus</i>
<i>Tetraophasis széchenyii</i>	<i>Anthus roseatus</i>
<i>Tetraogallus himalayensis</i>	<i>Anthus sylvanus</i>
<i>Tetraogallus tibetanus</i>	<i>Lanius tephronotus</i>
<i>Perdix hodgsoniae</i>	<i>Lanius schach</i>
<i>Arborophila torqueola</i>	<i>Perisoreus internigrans</i>
<i>Ithaginis cruentus</i>	<i>Urocissa flavirostris</i>
<i>Tragopan melanocephalus</i>	<i>Urocissa erythrorhyncha</i>
<i>Tragopan satyra</i>	<i>Corvus torquatus</i>
<i>Tragopan blythii</i>	<i>Coracina melaschistos</i>
<i>Tragopan temminckii</i>	<i>Pericrocotus ethologus</i>
<i>Pucrasia macrolopha</i>	<i>Chloropsis hardwickii</i>
<i>Lophophorus impejanus</i>	<i>Spizixos semitorques</i>
<i>Lophophorus sclateri</i>	<i>Prunella himalayana</i>
<i>Lophophorus lhuysii</i>	<i>Prunella rubeculoides</i>
<i>Lophura leucomelana</i>	<i>Prunella strophiatea</i>
<i>Crossoptilon crossoptilon</i>	<i>Prunella immaculata</i>
<i>Crossoptilon auritum</i>	<i>Oligura castaneo-coronata</i>
<i>Chrysolophus pictus</i>	<i>Cettia montanus</i>
<i>Chrysolophus amherstiae</i>	<i>Cettia major</i>
<i>Catreus wallichii</i>	<i>Cettia flavolivaceus</i>
<i>Gallinago nemoricola</i>	<i>Cettia acanthizoides</i>
<i>Ibidorhyncha struthersii</i>	<i>Cettia brunnifrons</i>
<i>Larus brunnicephalus</i>	<i>Bradypterus thoracicus</i>
<i>Columba leuconota</i>	<i>Bradypterus luteoventris</i>
<i>Columba rupestris</i>	<i>Acrocephalus orinus</i>
<i>Columba hodgsonii</i>	<i>Sylvia althaea</i>
<i>Streptopelia tranquebarica</i>	<i>Phylloscopus tytleri</i>
<i>Psittacula derbiana</i>	<i>Phylloscopus affinis</i>
<i>Cuculus sparverioïdes</i>	<i>Phylloscopus subaffinis</i>
<i>Dendrocopos himalayensis</i>	<i>Phylloscopus fuscatus</i>

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<i>Phylloscopus griseolus</i>	<i>Turdus unicolor</i>
<i>Phylloscopus armandii</i>	<i>Turdus albocinctus</i>
<i>Phylloscopus pulcher</i>	<i>Turdus rubrocanus</i>
<i>Phylloscopus maculipennis</i>	<i>Turdus kessleri</i>
<i>Phylloscopus magnirostris</i>	<i>Turdus mupinensis</i>
<i>Phylloscopus reguloides</i>	<i>Zoothera mollissima</i>
<i>Seicercus burkii</i>	<i>Zoothera dixoni</i>
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