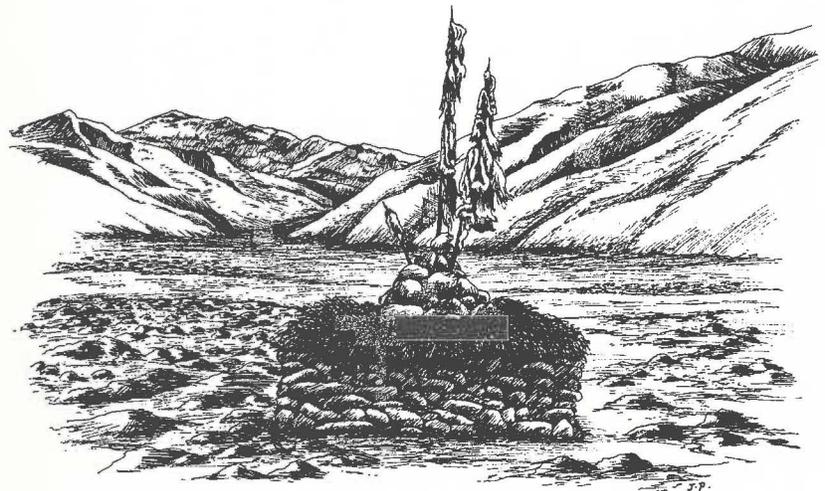


Path to the Mountains



The high altitudes are a special world. Born of the Pleistocene, at home among pulsating glaciers and wind-flayed rocks, the animals have survived and thrived, the harshness of the environment breeding a strength and resilience which the lowland animals often lack. At these heights, in this remote universe of stone and sky, the fauna and flora of the Pleistocene have endured while many species of lower realms have vanished in the uproar of the elements. Just as we become aware of this hidden splendor of the past, we are in danger of denying it to the future. As we reach for the stars we neglect the flowers at our feet. But the great age of mammals in the Himalaya need not be over unless we permit it to be. For epochs to come the peaks will still pierce the lonely vistas, but when the last snow



leopard has stalked among the crags and the last markhor has stood on a promontory, his ruff waving in the breeze, a spark of life will have gone, turning the mountains into stones of silence."

With these words of hope and despair I concluded my book *Mountain Monarchs*, a scientific treatise on the wild sheep and goats of the Himalaya. This book begins where that one ends. A research report can present only the facts of a study. During my three years in the Great Himalaya, Hindu Kush, Karakoram, and other nearby ranges I did indeed gather many facts about wildlife; however, as William Beebe stated, there is also a need of "softening facts with quiet meditation, leavening science with thoughts of the sheer joy of existence."

At first it is daunting to contemplate a project in the Himalaya, because the mountains are so immense. From Afghanistan in the west to China in the southeast, the main Himalayan system curves in one gigantic arc for nearly 2,000 miles to create a frozen barrier between the Indian subcontinent and the Tibetan Plateau. For convenience, geographers have divided this expanse of peaks into various ranges, and I visited many of them in northern Pakistan, India, and Nepal. Each range has a character of its own. The Pamirs, the Bam-i-dunya or Roof of the World, as the Persians called it, consist of broad valleys flanked by smooth glacier-worn mountains extending southward from Russia to Pakistan's border. The Hindu Kush in northeastern Pakistan is arid and almost treeless, a stark range belonging not to the Indian subcontinent but to the steppes of Central Asia. Farther east is the Karakoram, a mass of bristling peaks and twisting glaciers, the rawest, wildest range of them all. South of the Karakoram and lying within the big bend of the Indus River begins the Great Himalaya, which extends on eastward through India, Nepal, Bhutan, and India once more. Unlike the arid Hindu Kush and Karakoram, moisture-laden clouds reach the Great Himalaya during the annual monsoon that sweeps northward across India, with the result that the southern flanks are verdant with forest. The same period of geologic upheaval that created these great mountains also

shaped a series of lesser ones in the deserts of western Pakistan, where from a barren plateau protrude several low and haggard hill systems, the Kirthar, Salt, and others, which seldom exceed a height of 10,000 feet. I visited parts of all these ranges to search for wildlife and to study it, the maps on pages 2, 54, 77, and 206 showing my routes and research sites.

So little was known about Himalayan wildlife that I first needed to collect basic information on the distribution and status of species. At the same time I looked not only for suitable study areas where animals were still sufficiently abundant to make research worthwhile, but also for areas that would make good national parks or reserves. The first three chapters in this book describe such surveys in northern Pakistan where I met many animals, marmots and wolves and high-altitude birds. But none possessed me as did the snow leopard, a rare and elusive creature which lured me on, only seldom permitting a glimpse.

However, I was in the Himalaya on a scientific quest, not just to make wildlife surveys: I was there to study the world's greatest variety of sheep and goats, known by such obscure names as markhor, tahr, urial, argali, and bharal. These are little-known animals outside the fraternities of big-game hunters, and at first their names may be as confusing as the names of the many Himalayan peaks, glaciers, and rivers. Taxonomists have established the subfamily *Caprinae* and placed in it twenty-four species, among them the various sheep and goats. A table listing all species appears as an appendix, and the sketches on the endpapers illustrate the various members of the subfamily, but only a few concern us. Just as there are thimhorn and bighorn sheep in North America, so there are two species of sheep in the Himalaya, the small urial and large argali. Each is classified into several races, based on minor differences in horn shape and coat color; only the Marco Polo sheep, a type of argali, is well known. Unlike the stocky, cliff-dwelling North American sheep, those of South Asia are lithely built, almost antelopelike, and devoted to rolling terrain rather than to precipices. North America lacks true goats,

the Rocky Mountain goat being actually a goat-antelope, a primitive member of the subfamily *Caprinae*. By contrast, the Himalaya has three species of true goats, all of which I studied. The ibex inhabits the highest peaks, ranging upward to the limit of vegetation, its most distinctive feature being a series of knobs along the front of long scimitar-shaped horns. The other two species live at lower altitudes, usually below 12,000 feet. The wild goat also has scimitar horns, but with a sharp keel rather than knobs in front, and the markhor has uniquely spiraling horns. South Asia is the home of yet another type of goat, the tahr, with one species living in the Great Himalaya and another in South India. The Himalayan and Nilgiri tahr differ from true goats in that they have short, curved horns instead of long, sweeping ones. Finally there is the bharal or blue sheep of Tibet, an animal so intermediate between sheep and goat in its physical characteristics that taxonomists have had trouble classifying it.

Any scientific endeavor needs focal points beyond the desire to gather knowledge, and the Asian sheep and goats present fascinating biological problems. The wild goat is the progenitor of domestic goat and the urial of domestic sheep, yet no one had tried to find out whether the wild and domestic forms differ in behavior, whether 12,000 years of domestication modified what evolution created in several million years. Is the bharal a sheep or goat? A study of its ecology and behavior might provide an answer.

With such questions in mind I made several trips to the Himalaya between 1969 and 1975. The project began in the autumn of 1969 with a study of Nilgiri tahr in the highlands of southern India. I was in Pakistan for several months late in 1970, and in Nepal during the spring of 1972. In mid-1972 I moved with my family to Pakistan and remained there until mid-1974 except when I visited Nepal from October to December, 1973. Afterward I made two more trips to Pakistan, in late 1974 and early 1975. My search for wildlife in Pakistan often led me into terrain where few or no foreigners had been since the British withdrew from the subcontinent over thirty years before. Nepal, which remained essentially closed to the outside

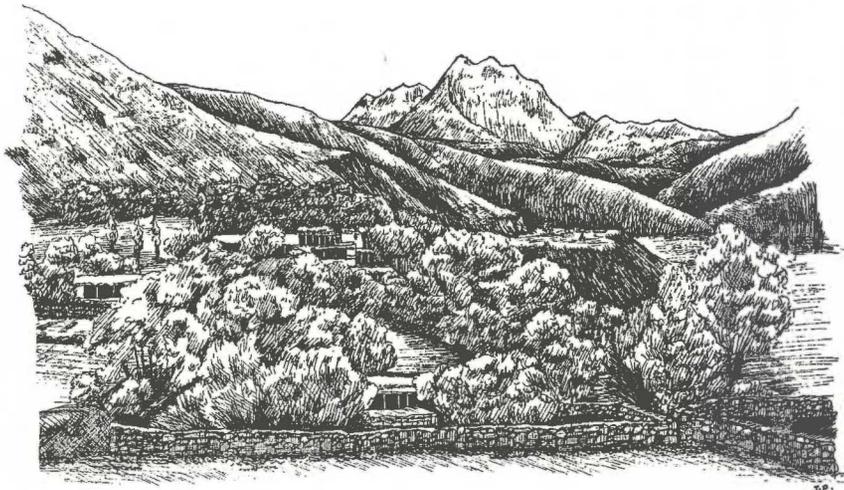
world until 1950, still contains little-known valleys where one senses a nostalgia for that heroic past when explorers penetrated the wilderness. A large part of this book describes my journeys—the mountains, the people, the daily routine of travel. Each journey presented problems: some were political, for the Himalaya borders such sensitive areas as Tibet, Sinkiang, and Russia; others were logistic, for recalcitrant porters, reluctant baggage animals, and washed-out trails are an integral part of any mountain journey; and still others were climatic, whether fierce heat in the desert mountains or piercing winter winds on the Tibetan Plateau. It is somehow anachronistic in this age of high-speed travel to plod behind a string of porters or lead bulky yaks over a glacier trail—it seems like a late expression of the romantic era, of Henry Stanley, Richard Burton, and Sven Hedin. I did not always enjoy these modes of travel, yet, in writing about my trips, these are the parts I dwell on with quiet longing, for one tends to complain of discomfort and relish hardship: the more difficult a journey, the greater the satisfaction in having completed it.

I wrote part of this book while on a new project in the dense forests and vast swamps of the Mato Grosso in Brazil. Life pervades that area, it intrudes, it smothers one like a crowd on a city street. There are thousands of species of plants and animals, each trying to survive, each defending itself and its niche against competitors with thorns, spines, claws, toxins, and poisonous stings. The human intruder, too, is forced to enter this struggle, constantly combating encroaching vegetation and insects just to maintain his tenuous foothold. Such an existence promotes little reflection. By contrast, mountains and deserts, with their spare life at the limit of existence, make one restless and disconsolate; one becomes an explorer in an intellectual realm as well as in a physical one, and the following pages include some of my lonely thoughts born of windswept mountain passes.

One October day, I ambled up the Dachigam Valley in Kashmir. The mulberry, walnut, and willow trees had already turned yellow with the first frost, and Himalayan black bear searched among fallen leaves for the last acorns; early winter snows covered the alpine

meadows and would soon claim the valley as well. From the slope above, near a stand of pine and fir, I heard a mournful yet insistent sound, at first soft, then growing louder, until it filled the whole valley, *eeoouuuu*, before dying away. And from upvalley came one answer, *eeeoouuuu*. The Kashmir stag, a subspecies of red deer, were in rut. However, where once the mountains echoed to their wild bugling, only a few lonesome sounds now broke the stillness, only a few stags had descended from the high summer pastures in search of hinds. The rest were dead, shot by the many hunters in these hills. At most a few hundred deer survive in the Vale of Kashmir, their only home, yet as recently as 1947 there were over 4,000, the animals having been brought to the verge of extinction because no one cared. There are many species similarly threatened, all in need of someone concerned enough to fight for their needs. The fact that a living being can vanish from this earth solely because of man's improvidence and neglect is appalling, and the utter finality of it touches the consciousness of far too few. I have met many species without a future, and each time had the forlorn hope that somehow I might be able to extend their existence for at least a few years. Pen and camera are weapons against oblivion, they can create an awareness for that which may soon be lost forever, and if this book has a main purpose, it is to induce others to care for the dying mountain world of the Himalaya.

The Snow Leopard



When the snow clouds retreated, the gray slopes and jagged cliffs were gone, as were the livestock trails and raw stumps of felled oak. Several inches of fresh snow softened all contours. Hunched against December's cold, I scanned the slope, looking for the snow leopard which was somewhere a thousand feet above near a goat it had killed the previous day. But only cold prowled the slopes. Slowly I climbed upward, kicking steps into the snow and angling toward a spur of rock from which to survey the valley. Soon scree gave way to a chaos of boulders and rocky outcrops, the slopes motionless and silent as if devoid of life.

Then I saw the snow leopard, a hundred and fifty feet away, peering at me from the spur, her body so well molded into the contours

of the boulders that she seemed a part of them. Her smoky-gray coat sprinkled with black rosettes perfectly complemented the rocks and snowy wastes, and her pale eyes conveyed an image of immense solitude. As we watched each other the clouds descended once more, entombing us and bringing more snow. Perhaps sensing that I meant her no harm, she sat up. Though snow soon capped her head and shoulders, she remained, silent and still, seemingly impervious to the elements. Wisps of clouds swirled around, transforming her into a ghost creature, part myth and part reality. Balanced precariously on a ledge and bitterly cold, I too stayed, unwilling to disrupt the moment. One often has empathy with animals, but rarely and unexpectedly one attains a state beyond the subjective and fleetingly almost seems to become what one beholds; here, in this snowbound valley of the Hindu Kush, I briefly achieved such intimacy. Then the snow fell more thickly, and, dreamlike, the cat slipped away as if she had never been.

Having visited many of the earth's wild places, I am well aware that a wilderness that has lost its large predators, whether wolf, snow leopard, or other, lacks an essential ingredient. I can feel the difference; there is less vitality, less natural tension. But my meeting with the snow leopard went beyond this. It occurred in 1970 during my first visit to the Chitral region of northern Pakistan, and over the next four years when I spent a total of about six months there, the snow leopard represented not just a rare and beautiful cat whose habits I wanted to study, but also the symbol of a search for something intangible that seemed forever elusive.

Some 4,500 square miles in size, Chitral encompasses the drainage of the Kunar River in the northwestern corner of Pakistan bordering Afghanistan. Until 1969 the area was a semiautonomous state presided over by a royal family whose ruler was called the mehtar. After Pakistan's independence in 1947, the royal family progressively lost power until, just before my visit, the government incorporated Chitral into the Northwest Frontier Province. With this decline, many members of the royal family abandoned their

mountains for such cities as Peshawar and Rawalpindi, and correspondingly neglected their properties, including the private hunting preserves. With restraints removed, villagers killed wildlife, and by the time I arrived only tiny remnants persisted where once animals had roamed by the hundreds. However, a few preserves had been at least casually maintained. One of these was the Chitral Gol, a valley belonging to the mehtar, just west of Chitral town. The finest remaining herd of markhor goat in northern Pakistan was said to inhabit this valley, and snow leopard were known to frequent it too. It seemed like an ideal place to begin my research in the northern mountains, and, after obtaining permission from the royal family, I spent the first of several months there.

The Chitral Gol is about thirty square miles in size, all of it consisting of rugged mountains up to 17,600 feet. One stream drains the area, and perched on a bank above its turbulent waters is a partially collapsed hut of earth and rough timbers that once provided royal hunters with shelter; it became my home during this first visit. There was nothing suggestive of charm and comfort in the hut, nor, for that matter, in the valley as a whole. Nothing had prepared me for such winter bleakness as in the Hindu Kush. Usually an area looks desolate only until one sees the details, but here even they seemed forsaken. The area lies beyond the monsoon's influence, and its vegetation belongs to the steppes of Central Asia rather than to the Indian subcontinent. Southern Chitral, including the Chitral Gol, does have forest, stands of spruce and fir and evergreen oak, but somehow the trees have the stark look usually associated with desert or arctic wastes. One's main impression is of barren slopes, subdued in hue, surmounted by peaks flinging themselves up into the realm of perpetual snow. The ground is almost bare, consisting of crumbly shale which gleams gunmetal-gray in the wintry sun. Except for an occasional tuft of grass or a timid forb, there is only sagebrush, but the pale-leafed plants are stunted and submerged into the landscape.

A path led from the hut through patches of conifers upward until trees gave way to alpine meadows. My eyes passed over these bare

slopes to the crest of the ridge where cloud shadows wandered; on our left was a colossal limestone cliff, its upper ramparts sprinkled with snow. Pukhan, our guide, was in the lead. An angular, gap-toothed fellow with a perpetually seeping nose which he wiped on the sleeve of a faded tweed overcoat, he was one of several game guards in the preserve. Following him was Zahid Beg Mirza, the curator of Lahore's Punjab University Museum, whose interest in wildlife had brought us together. I plodded along in the rear, stopping occasionally to watch birds, using the halt as much to rest as to identify the species. Here at 8,000 feet, few birds remain during winter. Crested black tits flitted among fir trees, nutcrackers hurried by, and once a black-throated jay investigated me from a low bough.

Pukhan had loped ahead and now waved to us, excitedly pointing to the limestone cliff. At first I saw nothing, but finally spotted several markhor, faint brownish dots lost in the immensity of rock. Hastily fastening my spotting scope to its tripod, I watched the goats I had traveled so far to see; the long, slow process of gathering data had begun. There were sixteen markhor, including two males, five females, and nine young. Twinning was obviously common and the survival rate of young seemed good. Scattered over the cliff, the animals foraged on plants that had somehow found a foothold in cracks and bits of level ground. Though stocky in build, the goats were incredibly agile, traversing ledges so precarious that footholds seemed more imaginary than real. The single adult male caught my attention. A magnificent animal, at 150 to 200 pounds about twice as heavy as the nondescript females, he was beautifully adorned with long spiraling horns and a white, flowing neck ruff. Poets may praise the deer and nightingale; I celebrate the wild goat. A markhor male standing on a promontory, ruff shining in the sun, is a far different goat from the small, disheveled, smelly beast that domestication has produced. The male's black tail was folded up over his rump, a characteristic of rutting goats. I looked forward to the rut, for at no time of the year are hoofed animals more active and is social organization more distinctive than during the mating season. We watched

the goats for an hour, until they filed out of sight behind a spur, and then we continued our trek up the slope.

Near the base of the cliff, just above where sheer rock gives way to scree, I could see a cave. When Pukhan saw me examine it through binoculars, he told Zahid something in Urdu, and Zahid, as my interpreter, relayed the information that black bear used the place as a winter den. The Asiatic black bear has a wide distribution from Iran eastward to Indochina and Russia, including the forests of the Himalaya. Distinguished by its long black hair and a white blaze on its chest, and weighing between 150 and 300 pounds, it is a powerful beast whose short temper the villagers justly fear. Bears were unfortunately rare in the Chitral Gol—no more than one or two visited the valley judging by spoor—and I never saw them there. Although the cave tempted me, it was not until a subsequent summer trip that I had an opportunity to explore it without fear of arousing a dozing bear. Carrying a lantern and rope and followed by a reluctant Pukhan, I clambered into the cave. There were two chambers, the largest nearly 40 feet long and 30 feet high. Old bear droppings littered the floor, peculiar droppings resembling dried coal tar laced with grass. A few also contained walnut shells and markhor hair, the latter probably scavenged from a dead animal. This small sample of droppings gave no idea of the actual range of foods eaten by these bears. I have examined autumn droppings in the Dachigam Sanctuary of Kashmir and found acorn, walnut, hackberry, grape, maize, rosehip, apricot, apple, wasps, and feathers, to list a few items. At one end of the cavern was a tunnel just large enough for me to squirm through. Leaving Pukhan at the entrance, I entered, my lantern piercing a darkness that had never seen light before. The tunnel slanted down, then up, and after about 30 feet opened into a chamber some 15 feet wide. The place was disappointingly empty: no bones, no nest material, nothing but smoothly worn bedding sites where generations of bears had slept.

We labored up toward the head of the valley. Oak had ceased to grow at 8,500 feet and now at 10,500 the conifers almost gave out.

Mountains should be climbed at one's own speed, step by step, only the present occupying the mind. As he trudges along leaning into the slope, a climber's view tends to be limited to the ground at his feet, and I did not like what I saw, for the terrain was riddled with livestock trails and droppings of domestic sheep and goats were everywhere. The vegetation had been devastated by domestic herds which forage here in summer; all grass was gone and so were most forbs. Only those plants that could somehow deter the voracious mouths managed to survive, among these being small pincushions of *Astragalus* and *Acantholimon* whose long spines, like those of porcupines, protect the splendid but unpluckable leaves and flowers. Almost no wildlife existed in this wasteland: once a black-naped hare skittered off, and later a rattling *kak-kak* revealed a small covey of chukor partridges.

Reaching the crest, we looked down a ravine toward the main Chitral Valley and the rampart of peaks beyond. Scattered far below were tiny fields wherever chance had made the ground fairly level. So much terrain, yet so little of it can sustain life! On a patch of snow were tracks of a large cat. I measured them: about 4 inches long and 3 wide. Only snow leopard or perhaps lynx could have made these prints, and full of anticipation, I hurried along, looking for other spoor. Soon I came upon a scrape in the soil, two parallel grooves made by a cat raking its hindfeet on the ground. This, I knew, was a means by which large cats such as leopard, lion, and tiger mark their range, leaving a sign of their presence. A snow leopard had patrolled the ridge, and during the long descent toward our hut my mind was occupied with devising a means of arranging an encounter with the cat.

Snow leopard are creatures of high altitudes in the mountains of Central Asia. Their range extends from the Hindu Kush in Afghanistan eastward along the Himalaya and across Tibet, and northeastward over the Pamirs, Tien Shan, and Altai to the Sayan Mountains near Lake Baikal. A rare, shy inhabitant of remote habitats up to an altitude of 18,000 feet, the snow leopard had never been studied in

the wild. Although the naturalist Peter Pallas carefully distinguished snow leopard from common leopard in 1779, accounts nearly two hundred years later still said little more about the cat's habits than that it moves seasonally up and down the mountains following such favored prey as ibex and bharal. Not even zoos provided much information. In 1970 a total of ninety-six snow leopard were in zoos but of these only twenty had been bred in captivity, a dismal record. It was known that the gestation period is 96 to 105 days, that there are usually two to three cubs in a litter, that the eyes of young open after about a week, and that the first teeth erupt at about three weeks. But the snow leopard's life remained unwritten.

At dusk we reached our hut, weary but exhilarated with so many new sights and impressions. Sher Panah lit a fire and soon brought us strong sweet tea. Sher, like many Chitrali men, was short, angular, long-faced, and slightly bowlegged. His usual job was cooking for the staff of the royal household, but as I discovered later, his culinary talents were held in such regard that there was general rejoicing whenever he accompanied me on a trip, as he later did on all my journeys through Chitral. He took care of camp, and knowing my needs and idiosyncrasies, made certain that our travel went more or less smoothly. In remote areas, among villages which may not have seen a foreigner for many years, it is essential to be accompanied by a local person not only to allay suspicions, but also to act as interpreter. Most people in the mountains speak only their local language, whether it be Khowari and Bashgali in Chitral, Burushaski in Hunza, or Kohistani in parts of Dir and Swat, to name only a few, and to ask even a simple question could be tedious. If, for instance, I wanted to know how many markhor were in a particular valley, I might ask Zahid in English, while he, in turn, inquired of Sher in Urdu, who then queried the guide in Khowari. A lively discussion lasting several minutes would ensue until a monosyllabic reply filtered back to me.

No dictionaries are readily available for local languages, but Eric Newby in his amusing travelogue, *A Short Walk in the Hindu Kush*, mentions a Bashgali-English phrase book:

Notes on the Bashgali (Kafir) Language, by Colonel J. Davidson of the Indian Staff Corps, Calcutta, 1901, had been assembled by the author after a two-year sojourn in Chitral with the assistance of two Kafirs of the Bashgali tribe and consisted of a grammar of the language and a collection of sentences.

Conversations around the turn of the century must have been heroic in this area if the phrase book is an indication.

"I saw a corpse in the field this morning."

"How long have you had a goitre?"

"Thy father fell into the river."

"I have nine fingers; you have ten."

"I have an intention to kill you."

"A gust of wind came and took away all my clothes."

"A lammergeier came down from the sky and took off my cock."

Not all these phrases were of use to me.

Crowding the fire for warmth and light, Zahid and I wrote our notes while Sher prepared dinner in a nearby lean-to. Eventually he brought pieces of boiled goat and *juwari*, a flat, thick, unleavened bread the size and weight of a discus. In these mountains it is best to eat the local cuisine as much as possible, rather than a poor imitation of the Western one. Dinner signified the end of our day, for as night cold gripped the valleys, a sleeping bag provided the only cozy haven. By eight o'clock we were in bed.

Zahid and I soon settled into a daily research routine. He took Pukhan to look for markhor near the hut, while I wandered down-valley each dawn. At first the route passed through a gorge so narrow that the stream filled its floor, and the trail had to trace ledges, surmount ice-glazed boulders, and cross the torrent on single trembling logs. Sun seldom penetrated this gloomy defile and even the birds had a somber plumage. Occasionally a whistling thrush, blue-black and with a yellow bill, skulked among the willows. A few wall creepers, so inconspicuously gray that I seldom saw them, haunted

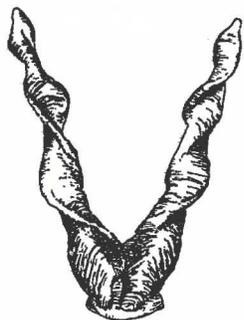
the shadows; when flushed they bobbed off like butterflies, revealing crimson wings. Where the slopes retreated, the trail climbed high above the stream. Often only a foot or so wide, it presented a marvelously sporting proposition, especially when slippery with snow and ice. With so little vegetation to hold the soil, constant avalanches of scree eliminated sections of the path and an occasional lone pebble or boulder hurtled down with remarkable velocity. But from this trail I could observe markhor easily on the opposite side of the narrow valley. Even the falling rocks conferred a benefit: markhor may dislodge stones as they walk and it was this clatter that sometimes made me aware that the goats were nearby.

Most hoofed animals must forage some eight to twelve hours daily, and consequently markhor are usually on the move all day with only a lessening of activity between 10:30 A.M. and 1:30 P.M. while they rest and chew cud. The markhor's range seemed to have little food, and I was curious about how the animals might obtain an adequate diet, one enabling them to survive the stresses of winter. A grazer and browser like a markhor would seem to have ample food available, even in a place like the Chitral Gol where livestock has devastated the slopes. But not only must food be available, it must also be nutritious enough to sustain life. Animals prefer the young, growing parts of plants to dormant or dead ones because the former contain more protein and have fewer indigestible fibers. Furthermore, availability does not necessarily mean palatability. Some plants are too prickly to chew, and others, such as sagebrush, juniper, and mint, contain aromatic chemicals that are toxic, capable of causing death if an animal eats more than its system can degrade in a given time. Although markhor ate a variety of plants, including a sourdock and the foliage of *Pistacia* trees, their main food was the leathery leaves of evergreen oak. With a fat content of 4 percent and a protein content of 9 percent, these leaves were relatively nutritious. Markhor nibbled leaves off low-hanging branches, often standing bolt upright, but not satisfied with that, they also leaped up into the trees, bounding

like monkeys from branch to branch in search of tender leaves. It was startling and incongruous to look 15 to 20 feet up into the crown of an oak and see several of the goats there, calmly munching. However, oak leaves were not a preferred food. When two years later there was a huge acorn crop, markhor almost disdained leaves to eat mast. In a severe winter, when snow covers their forage and the nutritional value of leaves is low, markhor may find it difficult to survive. Those animals that have stored fat while on the high summer pastures can draw on reserves until spring brings a new flush of green. But young of the year use much of their extra energy to grow, entering the winter quite lean, and many apparently succumb to the stresses of that season, judging by the population statistics I collected during my daily rounds. An average of 1.3 young accompanied each adult female in November, when about six months old. A year later only about 0.5 per adult female remained, a drop of nearly 60 percent.

I usually wandered downstream as far as Merin, not far from where the river joins the main Chitral valley. The royal family had a large bungalow at Merin, but one by one the heavy log and earth roofs had collapsed until only two rooms remained usable. I often stayed here after heavy snows in late December made the trail into the upper valley too dangerous to use. Several stony fields were at Merin and large herds of domestic goats; wood collectors from town made daily visits, and herdsman lopped branches off the oaks to feed their livestock. Although their habitat was being destroyed, the markhor themselves were not molested while I worked in the valley. Years ago so many markhor lived here that herds with 100 or more animals were common. Now average herd size is 9, and the largest I saw numbered 35. After meeting certain markhor repeatedly in the same area, I soon learned that the Chitral Gol population was divided into six loosely organized herds each of which favored a specific part of the valley. Some adult males were exceptions in that they roamed widely both alone and in small groups.

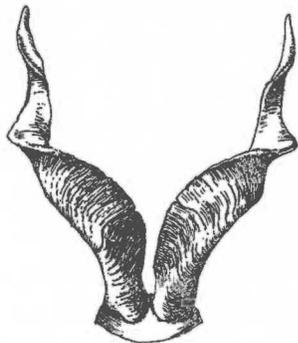
MARKHOR



Straight-horned



Astor



Kashmir

Based on a detailed knowledge of the population, I estimated only 100 to 125 markhor in the valley. And this is the best reserve for the species in existence.*

The markhor as a species is restricted mainly to Pakistan, but small populations also exist in eastern Afghanistan, in adjoining parts of Russia, and along the western rim of the Vale of Kashmir. It is essentially a goat of low altitudes, requiring only cliffs in areas with little precipitation, deep snow being especially avoided. Although they may ascend to 13,000 feet and above in summer, they prefer altitudes of 7,500 or below for the winter. Markhor differ somewhat in appearance from area to area. West of the Indus, between the town of Quetta in Baluchistan and the northern edge of the Indus Plain, are the straight-horned markhor, also known as Sulaiman or Kabul markhor, depending on the area. Its straight horns are twisted like corkscrews. By contrast the Astor markhor

* The Chitral Gol was opened to trophy hunting in 1977, a sad action by a country which has otherwise made progress in wildlife conservation.

along the upper Indus and its tributaries has widely flaring horns with at most one-and-a-half twists, and the so-called Kashmir markhor of Swat, Dir, Chitral, and neighboring Afghanistan has only moderately flaring horns, but with as many as three complete twists.

Having recently completed a study on lions in the Serengeti National Park of Tanzania, where one is nearly always within sight of wildlife, I found these mountains depressingly continent. After hours of hiking I would encounter a small markhor herd or two, and with luck something else, perhaps a yellow-throated marten. On the trails were the tidy, spindle-shaped droppings of red fox, but one rarely met one of these nocturnal predators. At least the droppings revealed what the foxes ate—yellow-necked field mice, Turkestan rats, rosehips, *Pistacia* and other seeds, and around human habitations, scraps of goat skin and maize. The reserve is much too small and prey too sparse to support resident large predators, and only at intervals did wolves or snow leopard pass through.

In fact I met wolves there just once. Although it was only 2:40 P.M. the sun had already vanished behind a ridge. The whole valley had the pallor of ice, and the huge limestone cliff was imprisoned by clouds. Shivering, I pressed into a rocky niche so as not to disturb a herd of nine markhor feeding nearby. Suddenly two wolves raced into view, side by side, along the contours of the slope. Startled, all markhor bolted for a cliff about two hundred feet away, all, that is, except one young which mindlessly veered alone up the slope. But the wolves did not see it. The smaller of the two wolves came to within thirty feet of a markhor before halting at a precipice; the other wolf, a handsome buff and gray male, pursued another markhor onto a cliff and was almost close enough to grab it when his foot slipped on an icy ledge and he wisely gave up the quest. The two wolves joined, angled up the slope, and vanished. While all other markhor remained irresolutely on the cliff, a young male headed alone up the mountainside, crossing the wolves' trail. Had the wolves tarried nearby they might well have caught him. Having first seen the

panicked youngster and now the needlessly bold male, it did not surprise me to learn later that predators kill a disproportionately large number of males and young.

Although these various encounters with animals fascinated me, it was the snow leopard that became my private quest. Sometimes in the mornings I found the fresh tracks of one which I then followed with the hope of at least seeing a shadow vanishing among the rocks. But the views were so wide that even a distant cat could easily detect my approach and retreat. Following an old set of tracks at leisure was often more enjoyable than tensely tracing a fresh one. Once I traveled for five hours along a fir-covered ridge while deducing a snow leopard's doings from its spoor. It was piercingly cold at 10,000 feet, not a breath of wind, nor a cloud. To the north snow peaks speared the sky. I first found the pugmarks among tracks of black-naped hares, meandering as if the snow leopard was searching for one of these animals. Then the tracks of the cat headed straight to a huge fir, and in the needles beneath it made a scrape—a calling card. After plodding steadily through the snow for a while, the snow leopard halted at a fox dropping, probably sniffing it. A few minutes later it left the crest to detour to another fir, which it circled, perhaps looking for the scent marks of other cats. Farther on, beneath two sentinel firs, it deposited its own mark, another scrape. Although usually solitary, snow leopard nevertheless are members of a community. By leaving signs of its presence—scrapes, feces, and urine mixed with scent—each snow leopard in an area learns not only that someone else has been at a particular spot, but also probably who it was, about how long ago it was there, and in the case of a female, whether she was in heat. It is no coincidence that snow leopard leave their calling cards on prominent locations such as at solitary trees, on hilltops, and on mountain spurs. The tracks I was following veered off the crest, then down the slope, and soon after that, where the snow gave out, I lost them. With wildlife depleted and livestock carefully guarded near the villages in winter, snow leopard must travel far for a meal. I followed tracks for a total of twenty-six miles in Pakistan

and Nepal and in that distance saw sign of only one hunting attempt, a successful stalk of a bharal or blue sheep. As with most large cats, hunts end in failure more often than not. C. H. Stockley, in his book *Stalking in the Himalayas and Northern India*, relates how he once watched as “a snow leopard suddenly raced across the hollow in which they [ibex] were feeding and made an attempt on a buck, which started away just in time. The leopard's outstretched claws raked a great lump of hair from the ibex's coat as it wheeled away. . . .” The extent of a snow leopard's travel remains unknown, but it must be considerable in areas where prey is scarce. Once we waited a month for snow leopard in the Golen Gol, another Chitrali valley, and only once did a cat travel through.

Hunting accounts written in the late nineteenth and early twentieth centuries rarely mention snow leopard because the authors seldom met one of the cats, even after months and years in the mountains, which is not too surprising, for only those animals that remained elusive survived. In Kashmir they were legally treated as vermin until 1968. For example, in the course of many Himalayan trips, the naturalist A. Ward sighted five solitary snow leopard and a group of three—and he shot five of the eight. I could not depend on luck alone to meet a snow leopard. Having observed and photographed tigers in central India by tying out domestic buffalo as bait, I decided to try the same technique here. I sent Sher to purchase three goats and these I tethered where I had seen snow leopard spoor, feeding the animals oak leaves and water as needed. Each morning I checked them, full of anticipation, and each morning three lively goats greeted me with cheerful bleats. Snow leopard are known to hunt by day as well as by night. For instance, the Indian mountaineer Hari Dang saw them stalk bharal three times, tahr once, and snowcock once, all in daytime. This being so, I built a small blind of juniper boughs near one of my baits and spent many hours there quietly waiting. My presence did not disrupt the rhythm of life in the valley. Flocks of yellow-billed choughs floated on updrafts along the cliffs just above me, their effortless motion producing a kind of transitory art as they

traced wind patterns in the sky. Sometimes a markhor herd moved into view. The rut had begun, and the dominant male in each herd remained close to any female in heat, holding himself erect, trying to impress her with his beauty and other males with his power. Sometimes he enhanced his presence by spraying urine over himself, dousing his chest and face; his beard possibly acts as a sachet. A female may respond to a male's persistent attention by running away, but the male follows and the two race over slopes and among trees.

Mountains usually give me a sense of space, but in the Chitral Gol the views were always blocked by slopes and peaks, hemming me in except at night. Tucked into my sleeping bag, with the mountains dissolved into formless darkness, I gazed at the clouds drifting by until I was almost dizzy from hurtling through space and only the scent of juniper and the whispering stream far below reminded me of my mountain perch. No snow leopard passed my blind while I was there. But two days after I discontinued the vigil, one detoured to my blind and even entered it before continuing up the slope without touching the nearby bait. Two weeks of effort had produced no result.

Then one morning, as I approached Merin, Pukhan hurried toward me, waving his arms and pointing with his stick. "*Burdum!*" he called, using the Chitrali word for snow leopard as he held up two fingers to indicate that there were two of the cats. A goat was dead. Peering through the scope I saw my first snow leopard. She reclined on a promontory with a small cub beside her, a tiny black and white puff of fur. She watched as several jungle crows descended to the kill, the tip of her long tail flicking, and then stalked to the goat to protect it from these scavengers as well as from the Himalayan griffon vultures that circled overhead. The cub soon retreated into a rocky cleft, but its mother remained in the open. After a few hours I decided to find out how close an approach she would permit. Casually I meandered up the slope, alternately sitting and drawing closer in a seemingly purposeless manner until at 250 feet I halted. Crouched on a boulder, she stared at me with frosty eyes. I left her then, but

returned several hours later with another goat. As I approached she slid backward off her rock. Molding herself to the contours of boulders and shrubs, she became almost invisible as she glided uphill to an enormous rock behind which she halted to watch me, only the top of her head visible. I left the goat tied to a sapling. And exhilarated by her casual acceptance of me, I ran down the mountain and up the valley to Kasawere to pick up my sleeping bag, then back to Merin to spend the night, needing only one-and-a-half hours for a trip that normally required over four.

At dawn I took my scope and began watching the snow leopard from the valley floor. The cub was clambering among rocks about 15 feet from its mother when suddenly, as if needing reassurance, it bounded over to her to touch its forehead against her cheek. It ate from the goat carcass for forty minutes, then returned to its mother and rubbed cheeks with her in greeting, licked the top of her head, and vanished from sight into its rocky cleft. I guessed that the cub was about four months old, probably born in August and conceived in May, though according to the local people, snow leopard usually court in March or April. Two weeks pass before a newborn cub can walk and not until four weeks of age does it venture from its den, judging by zoo observations. With cubs being relatively immobile for the first two months of life, a female needs secluded haunts and easily available food to raise a litter successfully. Pukhan told me that this female had been seen with two cubs a few weeks earlier. Somehow she had lost one. Nevertheless, it was remarkable that even one survived. With wildlife so scarce, snow leopard must depend increasingly on domestic sheep and goats. Droppings revealed just how important livestock was to the cats in this area: 45 percent contained livestock remains. Slow to kill and eat, the cat with its prey is soon discovered by a herdsman who either chases it away or shoots it. In winter, desperate for food, snow leopard may skulk around village huts to snatch unwary dogs or claw their way into livestock sheds. Cornered by irate villagers, the timid snow leopard may then be beaten to death with staves and axes. Although a snow leopard is

as large as a regular leopard—a female at the Bronx Zoo weighed seventy pounds, a male eighty-seven pounds—and potentially dangerous, no record exists of one having become a man-eater.

I decided to spend the night near the leopardess and her cub, and in the fading light unrolled my sleeping bag on a level ledge 150 feet from her. As soon as I was settled she returned to her kill. Here in this unpeopled night world, the mountains were hers, the eternal desolation of rock and snow investing her with an archaic permanence. Soon darkness engulfed us, and then there was only the sound of wind sweeping along icy mountain flanks and occasionally the grating of tooth on bone.

The moon surmounted the ridge, turning the slopes to muted silver, but the kill remained deep in shadow. Still later it began to snow, moist flakes that soaked through my bedding. When the rocks finally emerged from darkness, I rolled up my sodden belongings. In the fog and swirling snow I could just see the snow leopard, dry and protected in the shelter of an overhang. I had learned nothing new that night, but the hours of silence, the celestial beauty of the mountains in the moonlight, and, above all, the knowledge of having been a part of the snow leopard's world filled me with quiet ecstasy.

Within three days the snow leopard became remarkably tolerant of my presence, permitting me to approach to within 120 feet before retreating. However, the cub seldom showed itself. The female spent much of each day near her kill to protect it from scavenging birds. In addition to crows, griffon vultures, and an occasional golden eagle, the kill had attracted five lammergeier (bearded vultures)—two adults and three juveniles—which banked past the cliffs on eight-foot wing spans as they surveyed the kill site with ruby eyes. Lammergeier are known to carry bones high up into the air, then drop them onto rocks so as to obtain marrow from the shattered fragments. Almost daily I presented the snow leopard with a fresh goat, enticing her to remain in the area. Usually she killed it after dark, but late one afternoon I witnessed the event.

After watching the goat intently for forty-five minutes, she slowly

moved down the slope, body pressed to the ground, carefully placing each paw until she reached a boulder just above her prey. There she hesitated, then suddenly leaped to the ground behind the goat. The startled animal whirled around with lowered horns, and equally surprised, the snow leopard reared back, swiping the air once with her paw. But when the goat turned to flee, she lunged and with one smooth motion clamped her teeth into its throat while grabbing its shoulders with her massive forepaws. Slowly the goat sank to its knees. A light tap from her fopped it on its side. Crouching or sitting, she continued to grip its throat until after eight minutes all movement ceased.

Abruptly, one night the snow leopard and her cub departed. I traced their tracks uphill through a stand of conifers to some precipices and then paused. Should I follow or leave them in peace? Deciding on the latter, I reluctantly turned back down the slope. For one week they had provided me with a unique experience, and I longed for the day when I might renew our acquaintance.

It was now December 21. My survey of wildlife in the Chitral Gol was finished. Zahid had returned to Lahore some days ago, and it was time for me to go too. Loaded with heavy packs, Pukhan, Sher, and I left for Chitral town the following morning. The trail angled up the slope to the crest of a ridge where we stopped to rest. Under our feet, far below, was the town, another world with buildings and terraced fields. Across the valley rose peaks, jagged and hard, and to the north, filling the head of the valley, was Tirich Mir, at 25,290 feet the highest peak in the Hindu Kush. It alone had distinction in these anonymous mountains; it alone possessed the mind and lingered in memory. "Clouds hang heavy upon Tirich Mir like sorrow upon a man," goes a Chitrali saying. But even when it wore such a shroud of clouds, one's eyes still searched for the mountain as if only it provided permanence in an ever-changing world.

As we rested, the mehtar, H. H. Saif-ul-Maluke, came hiking up the trail with an entourage of nine. Home on a school holiday, he was en route to his preserve. A pleasant young man of about nineteen,

he was growing his first moustache and stroked it surreptitiously as we chatted about wildlife. His round face held genetic memories of Mongol hordes, of the horsemen of Genghis Khan, but there was a softness in his eyes and a laxness in his temper, as if his blood had forgotten its past. He had never ruled this small mountain state. Early in the 1950s, his father had died in a plane crash and his uncle, Prince Asad-ur-Rehman, took over as regent. Prince Asad was weak, lacking commitment and a firm hand, and little effort was made to improve the conditions of his desperately poor subjects. As family properties began to crumble, Asad withdrew from the turbulence and problems of this world to prepare for the next. Finally the government deposed the family and took over full administration of the state. After wishing the mehtar a pleasant journey, we descended the barren slope toward town, a slope which within living memory had been forested.

Chitral town is essentially a bazaar, a row of shops lining nearly a mile of unpaved road which is muddy in winter and dusty in summer. Each shop consists of an open-fronted shack with wares lining the walls while the proprietor hunkers in the center. Most shops specialize in such items as bolts of cloth, aluminum pots, dried apricots and walnuts, or cigarettes. Some feature a few tinned foods, very ancient and rusty, and others sell rough chunks of salt resembling cloudy quartz. Goats, stripped of their hides, hang head-down in butcher shops, and draped over poles like grotesque pieces of cloth are their fat-lined mesenteries. Shoemakers fashion sandals out of old tires. In winter the proprietors hunch over reticent wood fires burning in kerosene tins. With brown mantles called *chogas* drawn tightly around their shoulders against the chill, they spit dejectedly into the road. Chitral is a town of idle males, Muslim dogma having banished women to the seclusion of their homes. Men stand around in huddles or sip milk tea in restaurants, loitering the hours away. Once Chitrali men dressed in handsome clothes made of brown felt cloth, but most now wore seedy, ill-fitting jackets and overcoats donated by foreign charitable organizations. Only the fact that every-



one wore a *bakhhol*, the flat, curled-up felt cap that is the badge of every mountain man, prevented an aura of complete dereliction.

Like many peoples whose lives follow a fixed and dreary pattern, Chitrali men are inveterate gossips. I was a new zoological phenomenon and rumors about me were rife. The vacuous gaze of idlers followed me as I walked through town and my doings were invariably reported to the local political agent. It was said that I could hypnotize snow leopard and pick them up in my arms. And, more vexing, it was said that I was here to establish a missile base. In a part of the world which has a phobia about spies, the latter rumor could affect my work. In India someone had whispered to a government official that I might be a CIA agent with the result that I was denied further research permits. Although this is a well-known technique of Indians to eliminate foreigners for ignoble personal reasons, I was afraid that these baseless rumors about me in Chitral might have a similar effect. Fortunately, they did not.

Downslope from the bazaar, past some government barracks and past fields that served as the town latrine, was the so-called royal palace. Perched on a bank above the Kunar River, the palace was

but a small fortress built of timber and earth, with squat, rather sinister towers and high walls. From outside it had an abandoned look; inside, past a high iron-plated gate, was a courtyard with rusting cannons and crumbling battlements. Staircases in the buildings were treacherous, broken and dark, and the hallways and rooms were hollow with plaster flaking off the walls, little more than repositories for dusty trophy heads of Marco Polo sheep and markhor. Ancient retainers, as decayed as the fortress, scuttled down its passages. Only the banquet hall had a semblance of former glory. Of moderate size, with gold-painted woodwork, the room displayed various photographs: of previous mehtars, all bearded and corpulent; of family portraits, showing only the males; of troops arranged in neat formations; of confident British political agents who had held the real power in this area since the 1890s. The neglect of the palace was depressing; I felt a sadness, a sense of irretrievable loss over an era that had already vanished into history, yet persisted into the present, unwanted, unmourned, hundreds of years of history ending in a pathetic ruin.

I once asked Prince Asad how long his family had ruled Chitral. "I am not certain," he replied vaguely and softly with a dreamy smile. "We have no written history. The family probably started here with one of the sons of Babur's brothers in the 1500s." Descended on his father's side from the great Turkish conqueror Timur and on his mother's side from Genghis Khan's second son Chaghatai, Babur rose to power in Samarkand and Kabul and in 1526 became the first Moghul emperor after defeating the ruler of Delhi. However, Prince Asad's family did not attain power in Chitral until late in the seventeenth century and then it was shared with the Khushwaqt family of northeastern Chitral.

The recent history of Chitral is one of intrigue, murder, and treachery. In 1892 the death of Aman-ul-Mulk plunged Chitral into anarchy. In his fascinating book, *Twenty Years in the Himalaya*, Charles Bruce notes: "On his death there were only two serious claimants for his throne, his eldest legitimate son, Nizam-ul-Mulk, a hand-

some and weak man and considered immoral even by Chitrali standards, and his younger brother, Afzal-ul-Mulk, by no means a bad person at all, although his instincts were ferocious, almost tigerish." He demonstrated the latter on his father's death by killing several of his brothers and forcing Nizam to flee. His uncle Sher Afzal thereupon invaded from Badakshan, which adjoins Chitral in Afganistan, and surprised Afzal in the Chitral fort. Afzal was killed. The British, who had by that time established themselves in the neighboring Gilgit Agency, backed Nizam, and they sent a small military mission to place him on the throne. But knowing British prejudices, this military presence bothered the local nobles, for each felt that he would, in Bruce's words, "no longer be able to sell his subjects as slaves in the open market with impunity." While this was happening, Drosh, a town about twenty miles downstream from the palace, was taken over by Umra Khan of Jandol and his Pathans from the southwest. Then in 1894 Nizam was murdered by his brother Amir-ul-Mulk and the nobles revolted against the British. About a third of the British force of 150 was destroyed and the rest retreated into Chitral fort. For forty-six days during March and April of 1895, the soldiers remained under siege. A column of troops from Gilgit and another from Peshawar, which fought its way northward through truculent tribal territories that had never before been penetrated by the British, relieved the fort and installed a new ruler, Shuja-ul-Mulk.

The British now had the power, the rulers the privileges, and the life of the villagers went on much as before. Ten percent of the annual harvest still had to be paid as tax to the ruler. But now there was peace. With remarkable prescience, Sir Aurel Stein, the greatest of the scientist-explorers in this part of the world, predicted problems after a visit to Chitral in 1906:

The very *pax britannica* must earlier or late raise grave economic problems; for the population, no longer checked by slave-selling and feudal fighting, is bound to increase rapidly, while the reserve