

QUETTA and Baluchistan

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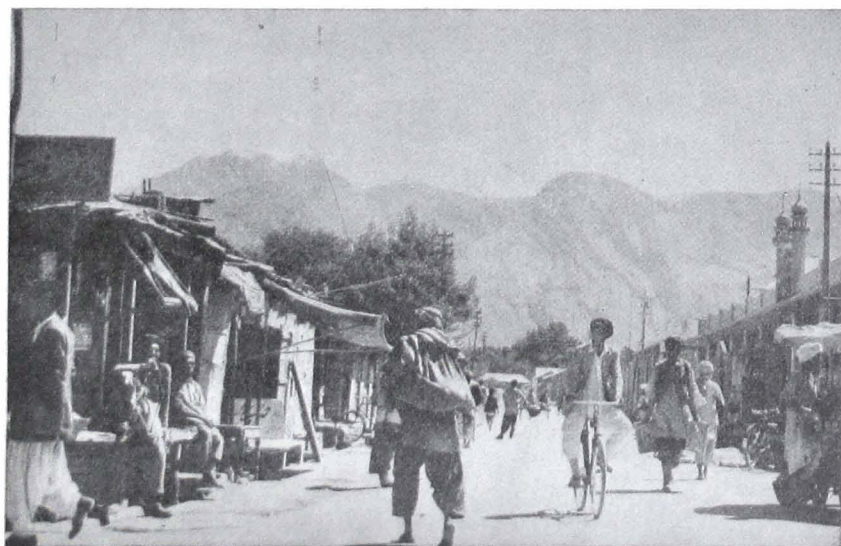
T

O visit Baluchistan is to have a glimpse into another world, a strange world of tumbled rocks and sandy river beds, what someone has called "a dry and withered country" made by the shrinkage or wrinkling of the earth's crust, the result of volcanic action, with here and there an oasis of which the town of Quetta is the largest and most beautiful. There is a local saying to the effect that it is a country in which the rivers have no water, the forests no trees and the land no people, for Baluchistan was one of the largest provinces of the undivided India with the least number of people. In "Othello" Shakes-

peare has a description that reminds one of these parts, in which he speaks of

"Caverns vast and deserts idle,
Rough quarries, rocks and hills
Whose heads touch heaven."

Baluchistan is divided into two parts by the railway. To the north are the mountains of the Sulaiman range and to the south a plateau that gradually descends to the plains of Sindh. Between these two parts a wedge-shaped desert goes deep into the hills and ascends to the central uplands, at one end of which is the town of Quetta, lying at the feet of a chain of mountains



*A suburban street of Quetta,
where town and country meet.*

with three great peaks, between ten and eleven thousand feet high, that look down on its avenues and gardens and houses: Takatu to the north, Chiltan on the south-west, and Murdar to the south. The plain of Quetta has been formed by the action of rivers, the chief of which is the Lora.

The train follows the desert into the heart of the hills, goes through the Bolan Pass and enters the valley, puffing and snorting in its long steep climb. The desert has been described as "a deadly monotony of dust coloured scenery". Where there are rocks, they too are the dusty colour of the surrounding earth; where there is a little water in a river it is gray like the sand of the river bed, and hardly to be distinguished from it.

The most interesting part of the journey is through the Bolan Pass, about sixty miles in length. The average ascent is

by the Brahuis Shal Kot. Modern Quetta was built in 1876 after a new treaty of alliance had been signed with the Khan of Kalat. Sir Robert Sandeman made the Residency that year, and the following year he was made the Political Agent, a post that he filled until his death in 1892. He died at Bela and his tomb is still to be seen there. The Staff College, for which military Quetta is so famous, was opened in 1907.

But the country, of course, has been known for a very long time. The Pishin valley of Baluchistan is referred to in the Avesta, and Makran, the dates of which have long been famous, is mentioned by Herodotus. Legends relate that Cyrus the Persian lost an army in these deserts but no details are available until the time of Alexander the Great who returned to Persia from India in 325 B.C. traversing Makran, while one



Jimmah Avenue, the main shopping centre of Quetta, is a far cry from the surrounding country of bleak and barren hills.

ninety feet in the mile and the train needs three engines, two to push and one to pull it. At times the walls of the hills seem to close in to make a huge room and the train goes through tunnel after tunnel in the rocks. The Bolan River flows through the pass. It is sometimes flooded and angry but often a mere stream of slate-coloured water in the sandy rock-strewn river bed, dodging under the road and the railway tracks, carrying red bridges, still taking bites out of the hillside and otherwise behaving like an untamed mountain torrent. From the end of the pass it is about twenty five miles across the valley to Quetta.

QUETTA AND BALUCHISTAN IN HISTORY

Quetta is a comparatively modern city built on the site of an old fort called by the Afghans Kwatta meaning a fort and

of his admirals sailed along the coast to the Persian Gulf and kept an account of his voyage in which many places can be recognized. One of Alexander's generals who was in charge of the invalids and elephants of the army marched through Quetta and rejoined Alexander later on. A Greek historian named Arrian studied the original accounts written by some of Alexander's officers, and wrote a book about his campaigns, in which he has described the desert of Baluchistan, and the great difficulty they had in getting supplies. After Alexander's death, Baluchistan was a part of the kingdom of Bactria. It is mentioned by the Persians, and Bahram Gor, the mighty hunter, is said to have made an expedition to this country and "to have brought back with him some thousands of dancers who were the ancestors of the gypsies". Then Baluchistan

became part of the Persian empire. It began to be invaded by the Arabs in the seventh century, formed part of the Mughal Empire, and was subject to Kandahar in the time of Nadir Shah. The greatest local ruler was Nasir Khan of Kalat who died in 1795.

The country was first known to the West when an English traveller named Pottinger came that way. The first Englishman to leave his name in the country was General Jacob for whom Jacobabad is named. He died there in 1858 at the age of forty six of brain-fever brought on by the heat and overwork. The next was Sir Robert Sandeman who was Political Agent during 1877-1892, for whom Fort Sandeman is named.

FANTASTIC LANDSCAPE

There is a very interesting account of some later travels in these regions by an English woman named Edith Fraser Benn. She calls it "An Overland Trek from India by side-saddle camel and rail from Baluchistan to Europe", published in 1909. Among the things she mentions are what she calls "the subterranean streams flowing from the midst of the hills", called "karezes". She says that the holes that are dug at intervals to open the underground waters to the air are like rows of ant-heaps. Some of these are over 200 feet in depth. We

noticed a long line of these holes when we crossed the valley on our way to Ziarat. The lady speaks of "the lonely strength and everlastingness of the hills", and as she travels over the uplands she sees "tiny dust devils dancing and twirling rapidly". I have a vivid picture of these same little eddies of dust on the horizon as we came across the valley towards Quetta as if some wayward spirit were daring us to follow it across miles and miles of the deserted uplands until we should arrive at our desired haven.

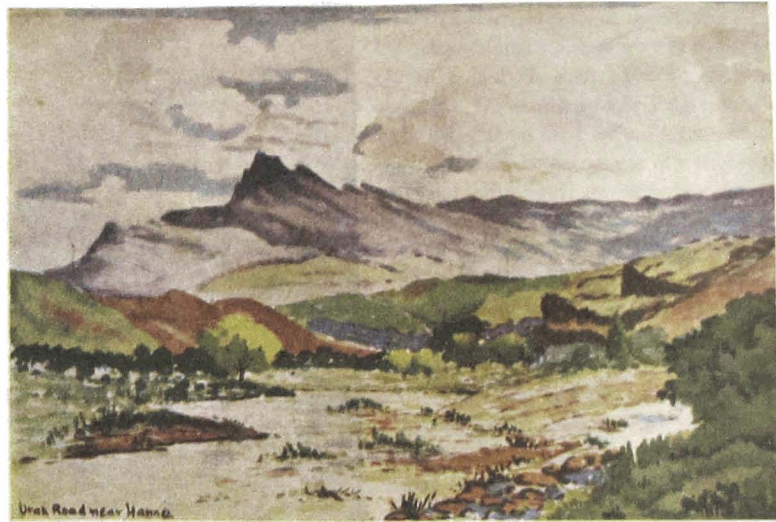
The drama of the secluded town of Quetta takes place in front of a back drop of bare hills. When there are big, white clouds after a local rain, the shadows chase each other up and down the crevices and folds of the hills and make lovely patterns of the dry rocks and naked earth; when the sky is clear and cloudless, all the colour seems to be drained out of the flat surface. Wherever you are in Quetta, the hills look down on you, impersonal, dignified and watchful.

The most memorable part of the Quetta scenery is the avenues and the gardens. Many people think that the most beautiful avenue in all West Pakistan is the chenar-bordered avenue of Residency Road. The heavy trunks of the trees are gray and white. The white branches form the arches of cloisters that are completely roofed in green. The cool tunnel

View from the Residency Garden, Ziarat.



1. (Right) *Urak Road near Hanna Stream.*
2. (Below) *This dry and sunny country is dotted with fruitful oases and orchards whose produce floods the markets.*
3. *Lush green spots around Quetta confront the visitor with visionary beauty, all so unexpected.*



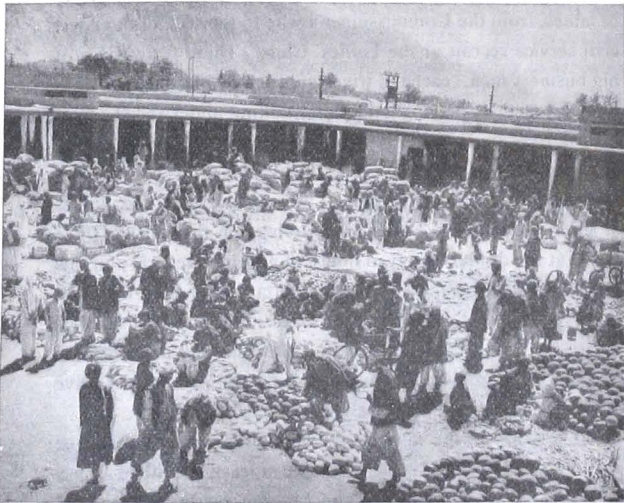
extends for a mile or two, the colours in the ceiling graduating from pale gold to the deepest green. Other streets are flanked by ash trees. There is no great variety in the trees but some are old and interesting. An old willow tree near the house where we were living had a black hollow so large that it might have been the home of the witch who rides her broom-stick in the night of the full moon. The twisted arms of the tree

made a fantastic picture in the moonlight.

Some of the gardens were lovely when we were there. The fruit blossoms were over but it was a time of roses. In the Residency gardens, the gardens of the Staff College, the Mission Hospital, the Bank and many private gardens there were thousands of roses in bloom. What they call Baluchistan roses and some say are native to the place, grow in long hedges and bloom profusely, red roses with yellow on the under side of the petals and a brilliant yellow rose, single petalled, unbelievably bright. There were pale pink roses, many petalled, that were also said to be indigenous and many varieties had been introduced from other places. In one garden there was a wall of yellow banksia roses in full bloom with the pink fronds of tamarisk trees breaking the sheet of pale gold. The drawing rooms of the town were scented with large pink, white, yellow, cream and red roses, perfect shapes, richly coloured. The annuals were gay, the honeysuckle was in bloom, the broom was just beginning to show its gold.

MEMORIALS OF THE EARTHQUAKE

The name Quetta brings back to many people the horrors of the year when an earthquake practically destroyed the town. The Cantonments were not so much affected. Many geologists believe that Northern Asia forms a great block which floats on the lava beneath and is supposed to be pushing southward, which is the reason for the uplift of the mountains which at one period were underneath the sea. This pressure continues to build up and when it becomes too great something has to give way and an earthquake occurs. Quetta seems to be at one corner of this block that is pressing southward, hence it is a place where earthquakes are common, but none of them so dreadful as the earthquake of 1935. What was left of the local hospitals could not cope with the numbers of the injured and



Shy girls in a Quetta village flee the camera.

Quetta boys are bold and stand their ground.



many had to travel as far as Lahore and Karachi to be tended. In rebuilding the city great care has been taken to make the houses safe for an earthquake region. The new bungalows are small, light in construction, reminding one of army huts. The yellow brick that one finds in walls and some buildings is a very pleasing colour. Their pretty *surahis* are made of the same yellow clay. It is a softer colour than the red of the Punjab bricks. Some nearby villages have never been rebuilt and the ruins are like memorials on the plain. In the Cantonment the houses still look substantial and some are even two storeyed. The new college for women has some nice buildings

and it should be a good looking plant when it is completed.

THE SOCIAL LIFE

The days that we spent in Quetta were very varied and we met all kinds of people, busy with their rounds of duties in many parts of the town. I was looking up former women students of mine who had married men in many walks of life. We stayed with a P.W.D. officer and met engineers and those who talked about building roads and bridges in the most difficult places among the hills and the distant valleys. We met a group of ladies, from the Commissioner's wife to the wife of the latest civil service recruit at the Ladies' Club. There were wives of big business men, eachers, wives of all kinds of officials, drinking tea together, playing games and talking under the shade of the big trees on the club house lawn. After a time, the Commissioner's wife began to talk of social service schemes in which APWA was interested. Later we were in the homes of some of the ladies of the Staff College on the hillside. We called at the double-storeyed house of a retired general and saw something of the military side of Quetta life, at least from the point of view of the army service wives. We met civil servants who were in for a few days from Kalat and had an invitation to visit Fort Sandeman, but unfortunately we did not have time for many visits outside the city.

The wife of the Civil Surgeon invited up to coffee one morning and we saw, from the outside at least, the life of a busy hospital. We had friends in the Mission Hospital where the name of Dr. Holland has become famous and heard about their work. One day we had a picnic lunch with a church group. The whole congregation was out because the Bishop had come on a visit from Karachi. We had dinner with a judge and heard something of his work and contacted the Forest Officer

who arranged for our trip to Ziarat. We visited the women's college and one of the schools on a day when they were holding the school sports. One day we had a picnic beside the stream that flows from Urak, near a Dak Bungalow with a shady garden and a stone bridge. The water supply of the town comes down from a dam and an artificial lake called Hanna, beyond this bridge. The lake is large, the slopes around it smooth and rounded and when we were there, trees were being planted on the shore. It was pleasant to follow the stream up to the Urak Dak Bungalow and the men of the party climbed up, following the stream for two miles or so, finding new plants and flowers.

THE COUNTRY AROUND QUETTA

Several large areas outside of Quetta have been enclosed in order to see the improvement in the vegetation when it is protected from grazing animals. One day we went out to visit the Maslakh range near Sultan with American I.C.A. advisors. The Conservator of Forests and the Divisional Forest Officer were also with us. We spent the greater part of the day on "the range", starting from Quetta in the morning in jeep station wagons, covering miles of road between the backdrop of hills and the gap in the far hills that led to rolling ground that had been fenced in. The road had been dug out by a bulldozer and went up and down and around and down again in the folds of the rounded hillocks. We were excited by the flowers. Thorny hassocks and pillows were covered with pink and white and yellow blossoms. Poppies grew in clumps. They told us that a while before there were acres of red poppies. Now the larger patches of colour were yellow daisies. Here and there we found something new and more rare. The procession of cars would stop and we scrambled around trying to see who could discover a different flower. There was hardly a tree in sight and the road went on and on. Finally we came to the sandy remains of a stream in which there were a few wild pistachio trees and here we decided to eat our lunch, for, in spite of the cool air, the sun was strong. Behind us were high

hills, around us banks on which all sorts of interesting things were growing. The yellow bramble bushes were in bud and in a week they would be a glorious sight. There were bright red poppies at our feet. We continued our long ride after lunch, not meeting a living thing until we were back on the highway again except for a glimpse that we got of a frightened hare and a leisurely land tortoise that almost got run over as it was trying to cross the road. One of the jeeps broke down and had to be left in all that waste to be collected later that evening. We thought it would not be pleasant to be alone in the wilderness, sixty miles from home, and no one in sight.

ON THE WAY TO ZIARAT

Another two days were spent in going to Ziarat and back. Again we crossed the great plain in a jeep and this time we took the road to Chaman and Kandahar. They told us tales of smugglers who have their head-quarters in Chaman on the Afghan border. There is a village conveniently located, half in Pakistan and half in Afghanistan, some of the houses even, half in one country and half in the other. But strong steps have been taken now to control this "industry". When we left the Chaman road and took the upper road to the hills, we noticed the hills across the valley and saw layers of bared rock strata like the bones of pre-historic monsters and then we came to "the mountains of the moon" as we dubbed them, rounded hillocks of gray shale and mud on which no single green leaf was to be seen. After they were left behind, the poppies danced again by the roadside and bushes of yellow daisies made a coloured border for the gray road.

The loveliest sight on the way was the hillsides of eremurus blossoms, tall spikes of lemon yellow growing in such profusion in some places that when the breeze rippled over the hillside it looked one colour of very pale gold. Higher up the valley there were white eremurus blossoms tipped with pink buds. We followed the river for miles, the road very gradually rising from Quetta's 5,500 feet to 8,000 feet at Ziarat. To those who know the Murree hills it does not seem like a hill road at all



A hedge of roses native to the place—a common adornment of country lanes outside Quetta.

though it winds around the banks of the river and the lower hills with plenty of curves and turnings. Nowhere do you see the cliff falling thousands of feet to the river, nowhere do you get the sensation of a steep climb up to the higher hills, hair-pin bends and dangerous corners. The nearest that this road comes to being a mountain road is when it goes through the little rocky gorge that guards the entrance to the Ziarat valley. There are very few trees along the way. Down beside the river are signs of cultivation, wheat fields, orchards of fruit trees where we saw quince trees in bloom and a few mulberry trees by the roadside near a village.

LOVELY ZIARAT

Ziarat itself is situated in a stony valley through which the sandy river continues its way. There are more trees, almost all of them junipers, growing far apart, out of the stones. The junipers remind one of untidy fir trees. They are broad at the base and grow to a fair size. It was still spring time when we arrived and the wild almond bushes were in bloom, a delicate pink cloud of blossom. Among the juniper trees there are houses that cling to the hillsides. We stayed in the Rest House and found it large and comfortable. It was not as cold at night as we had feared and during the day it was hot in the sun and cool in the shade.

A little captured stream of water has made a few lovely gardens, the most beautiful of which is the Residency garden with its carpet of soft grass the like of which I have seen nowhere else in Pakistan. In one corner were tiny English daisies with very pink buds. Across the path was a forsythia bush in full bloom. In the middle of the lawn there was an apple tree with white blossoms and pink buds and everywhere there were beds of tulips, hyacinths, even daffodils and a poet's eye narcissus. At one end of the lawn from under the boughs of an old willow tree dressed in spring green there was a view of the gap in the hills from which we had entered the valley, through which the river bends and the gray winding bed of the river between its steep banks could be seen. The hills looked white in the sun, spotted with dark trees. We saw a few wild cherry bushes on our walk when we visited the empty swimming pool and were told that there was a polo ground over the top of the hill. We did not have time to do much exploring. Ziarat is a very quiet place, the population is sparse as the trees, an excellent place in which to write a book!

EXPLORING QUETTA STREETS

Back in Quetta we went shopping. There is one wide street now called Jinnah Road with a fine row of shops on each side. The bazaars were interesting, and we shopped in the covered market for fruit and vegetables. We had heard much about the orchards and vineyards of the country, of fine grapes, apples, pears, pomegranates, figs and melons. Unfortunately, none of this fruit was ready in the spring of the year and all that was obtainable was imported from the Punjab. But we

saw some fine orchards. The valley must be a beautiful sight earlier in the year when all the fruit trees are flowering. I was disappointed not to find more of the colourful embroidery that one associates with the town. A good deal seems to be done in the home and for home consumption and some is made to order. We admired the embroidered waistcoats of the big men striding along through the bazaar, the gay clothes of the children. The Hazara children are particularly pleasing to look at with their fair skin, pink complexions, Mongolian features and bright eyes. Up Toghi Road we saw a merry-go-round with a group of children having a happy time while the scarred old hills looked on dispassionately. There were camels to take the children for rides also, a novelty perhaps for town dwellers.

THE SONS OF THE SOIL

The nomad women usually wear black but it, too, is gay with red embroidery and they often have a long red *chaddar* falling to their heels or wrapped around the child they are carrying. I have never before seen such a brilliant red as the colour of some of the new *chaddars* we saw.

People spoke of Baluchis, of Brahuis and of Hazaras. The Baloch people are said to be of Arab extraction intermixed with Dravidian and Persian stock. Early in the history of Baluchistan, Arab tribes came to trade, to settle, or as nomads and many of the present population claim to be their descendants. Some of these Arabs were builders and engineers and remains of their irrigation works can still be seen. Evidently there was much more cultivation possible at that time. The word Baluch is said to mean a nomad or wanderer. To see these handsome men in their large untidy turbans, great heavy shoes and strikingly embroidered waistcoats striding through the bazaar is to have a glimpse into another civilization. The Brahuis, according to one authority, are Ba-rohi, "hill men", in a language derived from Sanskrit and they are said to be far older inhabitants of the land than the Baloch who give it its name. The Baloch language is said to be the oldest of all the Persian languages, derived from the language of the Avesta of the Parsees. The Brahuis are a shepherd people divided into clans and their chief is the Khan of Kalat. Many of them live in Arab-like tents made of black goat's hair formed by two blankets, one to give shelter from the sun and the other to keep out the wind. They have a saying, "do lakri, ek tapri," two sticks, one blanket, which has come to be a sort of proverb of their simple needs.

Places beyond Quetta, Fort Sandeman, Kalat, Nushki, Chaman, are still only fascinating names to us. Our time was all too short. All I can imagine is the long road to be travelled before one arrives anywhere at all, over miles and miles of it, across the plain, over the hills, beyond the range and through the valley. There is no over-crowding in that part of the world.

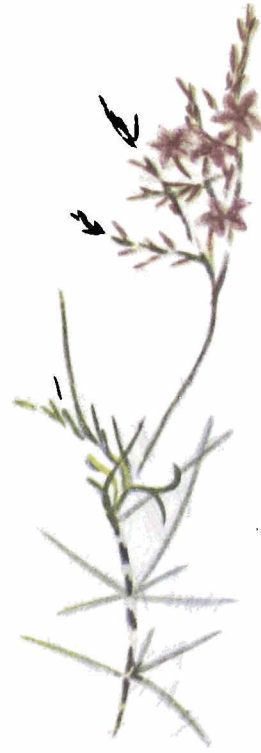
—Hladia Porter Stewart

THE FLORA OF BALUCHISTAN

Dr. R. R. Stewart,
Gordon College, Rawalpindi.

WHEN "The Flora of British India" was completed more than 60 years ago, the plants of Baluchistan were little known and few of them are included in that useful work. This is unfortunate as there is no large collection of named Baluchi plants in this country and there is no publication which is of much help to either layman or botanist in naming the plants which he finds. The result is that when it is important to find out the name of many Baluchi plants they must be sent to some expert in Britain or on the Continent. The best collections of Baluchistan plants are in Calcutta, Dehra Dun and London.

Most, if not all, of the plants of this area are known to science but no one in this country has mastered the flora or has built up a comprehensive collection of dried specimens. The largest collection is in the Gordon College, Rawalpindi, but much of the material stored there is still unnamed. We hope to remedy this defect with the aid of the British Museum. Last year it became important to learn the names of the grasses of Sind and Baluchistan because the Pakistani and American AID scientists are trying to improve the grazing in these arid regions. Nurseries have been established where promising local and foreign grasses are being cultivated and tested. Seeds have been sowed broadcast in various places and plants from the nurseries are being tried in protected places on the range. Extensive collections of grasses were made by Drs.



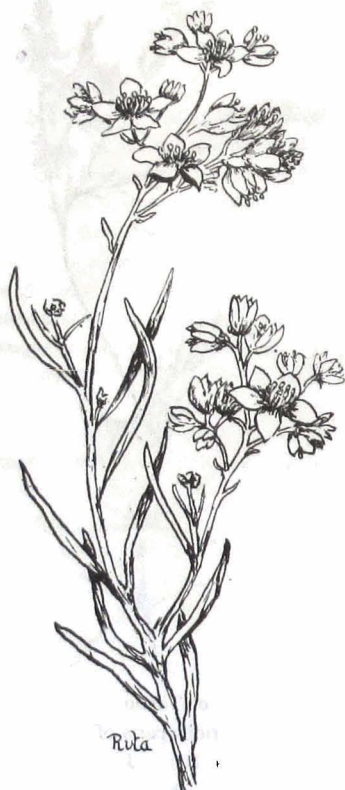
Norris and Dick-Peddie of Tando Jam, with the assistance of forestry officers in various parts of the region. These collections were studied in Tando Jam and Rawalpindi and I have sent those grasses which we could not name here to Dr. N. L. Bor at the Royal Botanic Gardens at Kew in England. He is the authority on the grasses of this part of the world. As a result of this work several grasses which were not known to grow in West Pakistan have been discovered and we now know pretty well what the native grasses are.

IMPROVING GRAZING GROUNDS

It should be mentioned here that much promising work on 'Range Management' is now going on in Baluchistan under the guidance of Mr. Loy Connelley who has had much experience in the arid regions of the Western part of the U.S.A. Vast areas have been overgrazed for generations by various nomadic tribes. As an experimental measure several large areas have been fenced and already the useful forage plants have begun to recover. Overgrazing makes it possible for useless or poisonous plants to flourish and kills off the palatable species. If some way could be worked out by which the extensive areas available could be fenced and grazed in rotation, the useful plants would not be eaten down to the roots and the forage available would be greatly increased, adding wealth to the country. Prevention of overgrazing and the erosion which accompanies it is of primary importance to the country.

WEALTH OF PLANTS IN DESERT

When I told some of my friends that I was going to Baluchistan to make a plant collection they said that it was hardly worth-while as there is little there but rocks and desert. I was not disturbed or discouraged because I knew pretty well what to expect, for many years ago Mr. I. H. Burkill published a



catalogue of the plants which had been found in the region by previous collectors. He lists more than 1,200 species and several hundreds of these have been sent here to Rawalpindi at various times for naming. Even in deserts there is usually a short season when the desert is green and a good many species can be found, many of them short-lived annuals. In the Quetta area at 5,500' the best season is from the middle of April to the middle of May. At higher elevations the season is later. In Ziarat at 8,000', we found that it was early spring and that irises, violets, tulips, wild almonds, and many other early herbs and shrubs were in full bloom, while they were in fruit in Quetta. On May 2, when we arrived in Quetta, there was still snow in the crevices on the southern slopes of Chiltan (11,000') which had disappeared by the 10th.

POISONOUS PLANTS

Desert plants are often of great beauty and even the thorniest bushes, which have little to recommend them most of the year, may be covered with bloom for a few weeks. Many thorny perennials take the form of a porcupine or hedgehog and are shaped like larger or smaller hassocks or pin cushions. Some species seem to take these shapes naturally and others are shaped by the grazing animals.

It would be interesting to know how animals find out which plants are poisonous and should be left severely alone. Older animals must teach the younger ones which ones to avoid. In the Himalayas, for example, there is a poisonous grass, *Stipa Sibirica* which local animals avoid, but horses

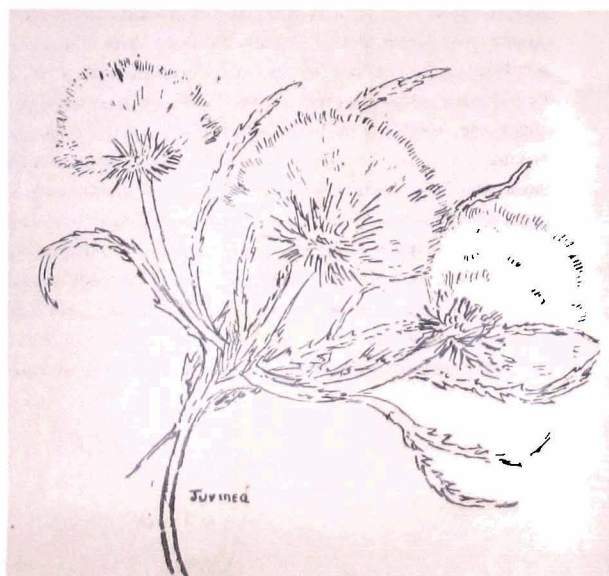
brought up from the plains often eat and die. Daphne, oleander, ak, harmal, euphorbias, buttercups, irises, daturas, melica and many other plants which are poisonous are found not only in Baluchistan but in most of the mountainous parts of West Pakistan.

MANY FRUITFUL OASES

Although the greater part of Baluchistan is desert with an average annual rainfall of just under nine inches, there are many degrees of aridity and there are larger or smaller oases where crops do well. Temperate fruits flourish above 5,000' and the fruits of Kalat, Quetta, Chaman and a few other places are famous for their quality and flavour. The possibility of increasing the production and sale of fresh, dried and canned fruits is very great, not only here but in the Kurram Valley, Swat and in Hazara. A great jam industry and a great canning industry can be developed which can save foreign exchange by making imports unnecessary and in addition there should be a good demand from India and the Near East. For some reason grapes, apricots, peaches, plums, melons etc. from dry, sunny areas have a finer flavour than those grown in cooler, cloudier regions. In addition to the fruits already mentioned cherries, apples, quinces, almonds, pomegranates and figs do well. I was told that the pine seeds and the pistachio nuts which reach the plains by rail from Quetta originate in Afghanistan. *Pinus gerardiana*, the pine with edible seeds, grows in abundance in the mountains of northern Baluchistan and is an important article of diet there.

OUTSIDERS AMONG TREES

The beautiful shade trees of Quetta are introductions. The commonest roadside trees are an introduced ash, the 'chinar' or Oriental Plane tree, and willows. Residency Road, formerly Lytton Road, is one of the finest in the whole of Pakistan with rows of magnificent *chinars* like those in Kashmir. As in other desert lands, there are not many kinds of native trees. Above 7,000', except for willows and tamarisks along occasional streams, the juniper is the only common tree.



Occasionally there is a native ash, *Fraxinus Xanthoxyloides* which is also found in drier parts of the Himalayas. The juniper covers vast areas but there is not enough moisture to enable it to grow rapidly; trees are rarely close together and they do not furnish much shade. Mature trees are usually not very tall though they are thick at the base. The soil is rich enough to support tree growth and in the Residency Garden at Ziarat, where there is enough water, there are fine lawns and large willow, walnut and horse chestnut trees. On the wide, open plains where wormwood is the commonest plant and most shrubby plants are thorny and two feet or less in height, there is a wild pistachio tree in some stream beds which furnishes some shade and the nuts are the favourite food of the wild partridges. There are areas where the wild olive is abundant but I did not notice any near Quetta.

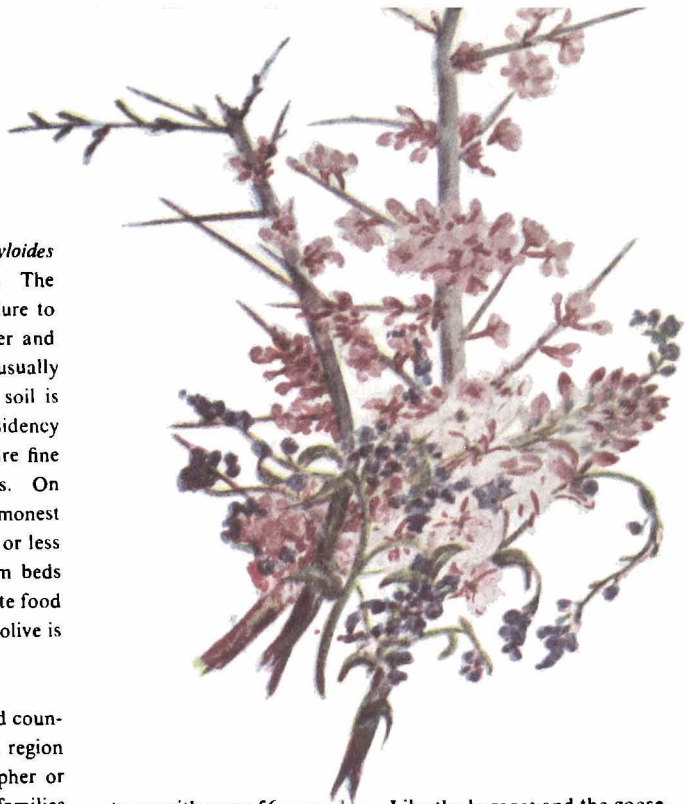
PLANT LIFE WELL REPRESENTED

Certain families of plants are able to flourish in arid countries and the study of a catalogue of the plants of a region reveals a great deal about the flora to a plant geographer or systematic botanist. In Baluchistan the three largest families are nearly equal in the total number of species in the flora and make up about a third of the whole. In Baluchistan, according to the latest estimate, there are 138 members of the Compositae, the family to which the daisy, chrysanthemum, sunflower, dahlia and many other garden plants belong. There are 136 legumes i.e., members of the pea family, and 128 grasses, not counting the grass-like sedges. Although grasses are only third in number of species, it is probable if a census of individual plants could be taken it would be found that grasses are much more abundant than the other two leading families. From the economic point of view the grasses and the members of the pea family are very important while the composites have little value. Many of them are prickly thistles while others are short-lived annuals.

IMPORTANT PLANT FAMILIES OF THE LOCALITY

The next family in point of size is the mustard family. This family is easily recognized by the fact that there are four petals and they are not equidistant but are arranged in pairs like ends of the letter x. Most of the family are short-lived spring annuals with white, pink or yellow flowers. Many are weeds of cultivation like the well-known shepherds' purse. Although the individuals may be small they may be abundant enough to colour the desert when they are in their prime. The most striking species is a *Crambe* with large rhubarb like basal leaves and a very large branching inflorescence with numerous white flowers. We found it common in the Urak gorge. The well-known water cress with peppery, pungent leaves which is much used as a relish in Europe belongs to this family. It is found in slowly moving water and in springs. As far as I know none of this group is poisonous.

The labiate or mint family comes next in order of impor-



tance with some 56 examples. Like the borages and the goosefoots this group is often important in arid regions. It is easily recognized by square stems, opposite leaves and whorls of sessile two lipped flowers either in leaf axils or in terminal inflorescences. The leaves are frequently strongly scented. 'Podina' and 'naazbu' are examples of cultivated plants belonging to this family. Two genera of mints with handsome flowers are well represented, *Salvia* and *Eremostachys*. Thyme, which is frequently cultivated in the West for its scent and taste, is common.

SPRING COMES LATE TO ZIARAT

Some 75 miles from Quetta is the little Hill Station of Ziarat in the juniper zone at 8,000'. We drove up in a jeep on May 7th to find that, although the desert annuals growing at the level of Quetta were beginning to dry and go to seed in the drier places, it was still cold in Ziarat and only the first spring flowers were in bloom. Along the road there were still places where the red desert poppies and the blue lily, *Ixiolirion*, were in bloom but most of them were in early fruit. Two erect liliaceous plants with fine spikes of flowers were the most conspicuous plants which were in bloom at this season. They covered whole mountain sides, in some areas growing separately or mixed. There are two species of *Eremurus*, one white with pink veins and the other lemon-yellow. Most of these plants bear spikes which are from 18 inches to 2 feet tall. Below Ziarat the irises and tulips were in fruit but here the blue iris was at its best and there were two kinds of tulip, one lemon-yellow and the other orange-red and yellow. The thorny wild almond was abundant with pale-pink petals and a red calyx. Barberries were beginning to grow yellow with bloom and the oriental gooseberry was beginning to put out fresh leaves and flowers. A small yellow flowered lily called *Gagea* was

common under the junipers along with a blue and white violet. A number of interesting peas belonging to the genus *Astragalus* are also among the first to flower. This genus has far more species in Baluchistan than any other, 46 in all. Some are very thorny, dwarf shrubs while others are small spring annuals. The flowers are usually pink, purple or yellow.

The sixth family is that of the borages to which the forget-me-not and the garden anchusa belong. Many examples are hairy or prickly-haired spring annuals. One peculiarity of the family is that the fruits consist of four small nutlets which are often very hard and roughened in many ways with prickly out-growths called 'glochidia' which readily stick in the hair of grazing animals. *Arnebia griffithii*, sometimes called the Prophets' Flower has handsome sweet smelling yellow flowers with a dark spot on each petal which fades with age. The *Heliotropiums*, *Arnebias* and *Onosmas* are the finest of the family. These first six families account for about one half of the entire flora.

The seventh family, that of the 'goose foots', has, as a rule, inconspicuous flowers but although only one species of *Kochia*, the 'fire bush' gets into our flower gardens, yet we all know the garden beet and spinach. Many of the wild members of this family make good greens when cooked and many of them are grazed by camels and other desert animals. Most members of the family, because of their dense sap, are able to absorb water even though there may be a good deal of various salts in the ground. It is often called an order of 'halophytes', i.e., salt plants. Thirty six representatives of the family have been listed from Baluchistan.

Next comes the 'umbel' or carrot family with 33 species. This family is easily recognized by the type of inflorescence which is rare elsewhere. The carrot is a familiar example. The flowers are usually white or yellow and they are almost always small and numerous with stalks coming off from a common source. Simple umbels are rare. Usually there are umbels of umbels. The fruits are small and dry, splitting into two when ripe. Many of them are used for flavouring, for example, 'soe', 'zira', 'saunf', 'dhanya' and 'hing'. The seeds are commonly furnished with a recognizable scent as well as flavour. Five species of *Ferula*, the genus which furnishes 'asafoetida' are found in this area.

"PINK" FAMILY PRETTY BUT HAS NO VALUE

The 'pink' family has 33 representatives. The carnation and 'Sweet William' belong here. A few have pretty flowers but the group is of very little economic importance for grazing or anything else. The lily family with 31 and the rose family with 29 species are much more important. Many handsome flowers are from the lily family. I have already mentioned *Eremurus*, *Tulipa*, *Ixiolirion* and *Gagea*. Hyacinths, onions and *Fritillarias* belong to the same family. The rose family furnishes most of the valuable temperate fruits, including the

plums, cherries, apricots, apples, pears, peaches, quinces and almonds. Baluchistan is rich in roses, both wild and cultivated. Quetta gardens are full of rose blooms in April and May. Many climb high in the trees and others are used for hedges. Three types of single roses are abundant, a white, a yellow and one with the back of the petals yellow and the inside red. I never saw these two before and wonder where they originated. No one seemed to know whether they are native or not. The hawthorn also belongs to the rose family. It is wild and also cultivated in this area.

It would be tedious to go on giving the names of the families of plants found in the country. Only eleven of the 97 families represented have been mentioned in this little paper. Because of the desert character of most of the flora there are not many vines and there are few parasites. Water plants are poorly represented and so are the groups of plants which require a good deal of water such as sedges, rushes, cat tails, mosses and ferns. The only ferns I saw were the common maidenhair and an *Equisetum* (horsetail). Only one orchid, *Epipogon aphyllum*, and two palms grow wild. The date-palm and the 'chatai' palm grow chiefly below 4,000'. Mangroves are found on the Makran coast.

UNFORGOTTEN PIONEERS

I do not suppose that our present list is at all complete for the whole country has not been visited by botanists but much more work has been done than is realized. There are plant lists in the nine District Gazetteers which have been brought together by I. H. Burkill in 1909 in his working List which has recently been republished without additions. The first botanist to do any collecting was William Griffith, Superintendent of the Botanic Garden at Calcutta who in 1839 accompanied the army which marched to Kandahar. Dr. J. E. Stocks, for whom many plants are named, collected in 1848 and in 1850 and he may have made a third trip. Between 1877 and 1880 Drs. Duke and Hamilton did a great deal of collecting and their plants were sent to Calcutta. Three other capable botanists have also collected in parts of this area whose results have been combined in Burkill. These are firstly Dr. J. E. T. Aitchison who was with the Afghan Delimitation Commission of 1884-85; secondly Mr. J. H. Lace who was Deputy Conservator of Forests from 1884-88 and later was head of the Forestry School at Dehra Dun and, lastly, Mr. J. F. Duthie who was Director of the Botanical Department of Northern India and later went to Dehra Dun. He collected in 1888 and later sent his collector Harsukh.

Since 1947 there is new interest in the plants of this interesting land and the Forestry Research Institute at Abbottabad has twice sent workers who have brought back specimens for their collections, — Dr. I. I. Chaudhri and Dr. A. H. Khan. The Baluchistan Forestry Department as well as the workers in Abbottabad are much interested in surveying the region.