

In the Tsangpo Gorge. Crossing the torrent by means of a rope bridge. *See page 45.*

PIONEER SERIES

# PLANT HUNTING IN THE WILDS

*by*

CAPTAIN F. KINGDON-WARD

B.A., F.R.G.S.(Founder's Medal)

Author of

*The Mystery Rivers of Tibet*

*The Land of the Blue Poppy*

etc.

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# I. SEARCHING THE WORLD FOR FLOWERS

WHAT countries are there left where one can profitably search for new orchids? Some will answer Brazil, where the *Cattleyas* and *Odontoglossums* come from; others Assam on the opposite side of the world, famous for its *Dendrobiums* and *Cymbidiums*. But both these countries, and many others, seem to have been thoroughly combed for orchids during the last three-quarters of a century; and it is necessary to remember that only flowers of the finest water can hold their own with the marvellous hybrids—I had almost written tribrids in deference to the *Brassia-Laelio-Cattleya* group—exhibited at our shows.

Orchids, of course, are found in every country, and in every climate, hot or cold, so long as it is sufficiently moist. They are not found in deserts. But the most desirable grow only where it is both warm and moist, at any rate during half the year. As we are not now interested in botanical specimens, this consideration restricts our choice of field to the tropical rain forests or monsoon forests and the sub-tropical temperate forests, where orchids usually grow on trees.

The lure of the orchid has carried adventurous botanists into the wildest corners of the globe, but it is not only the orchid that the plant-hunter seeks when with a few natives he bolts into the blue,

and living hard, scours wild territories for unknown specimens. There are many other precious plants and flowers of great beauty which attract him, and in the discovery of which he is as enthusiastic as the explorer seeking new trails and new peoples. The trials of exploration in untrodden lands also beset him, and when looking for plants he may as likely as not unearth other subjects of great interest.

We all love flowers. We put them in our houses and wear them on our clothes. Births, marriages and deaths are occasions for floral displays ; and when one is sick, a bunch of flowers from a friend is more appreciated than a bottle of medicine. I doubt whether there is a country in the world where so many flowers can be seen as in England, or in such infinite variety. That is, of course, partly because we have no climate, we have just weather.

When you look round the countryside you see a great many trees, shrubs and wild flowers which are natives of this country. For instance, you see Dog Roses, and 'Travellers' Joy, Meadowsweet, Cowslips and Buttercups. You notice, too, the places where certain plants grow together under certain conditions : the bare windy chalk downs covered with crisp turf and strewn with stunted flowers at midsummer ; or the Broads, where tall flowers line the banks of the lodes, and wade knee-deep in the mahogany-coloured water ; or the woods, carpeted in spring with Anemones and

Primroses ; or the red Devon lanes spicy with the scent of Honeysuckle ; or the grey breezy fells of the north ; or the moors, hot with the liquid gold of Gorse. We all recognize these flowers because they grow wild in our own typical surroundings ; and I don't think we would exchange these gems of scenery for all the alleged glories of the tropics. The tropics are really somewhat disappointing. No tropical land is, as you might suppose, gorgeous with brilliant flowers. It is either closely cultivated, or rather bare looking, or it is swamped beneath a deadweight of impenetrable and sombre jungle, completely lacking the varied greens which give charm to an English sylvan scene ; and flowers in the jungle are hard to find.

Confining ourselves only to the temperate zone, there is plenty of land left in which to search for plants. The actual figures are roughly : north temperate zone, comprising Europe, the North African coast, four-fifths of Asia, Canada and the United States, and Northern Mexico, 26 million square miles ; south temperate zone, comprising the lower half of South America, South Africa, the southern half of Australia, and New Zealand,  $4\frac{1}{2}$  million square miles. Thus the temperate zone accounts for more than half of the  $57\frac{1}{2}$  million square miles of land surface on the globe. This huge territory contains all the greatest mountain ranges, and all the highest mountains in the world.

It is just these mountain ranges which possess



the greatest wealth of plants. If you want to see massed flowers cascading down the mountain side in rivers of molten colour ; if you want to wade through prismatic seas of flowers which foam and toss round your ankles and fade out in smoking flame on the misty horizon ; if you want to hear the wind and the rain zooming through forests roofed with flowers, do not go to the tropics, but come with me on a voyage of discovery and adventure to Tibet, or to the Chilian Andes, or to the New Zealand Alps, or to far Western China. Many of our most popular and familiar flowers come from these distant lands, where they have jolly weather such as we enjoy here.

The territory I know best and which I have explored in several expeditions, hunting for new flowers, is that immense reservoir of hardy plants which, including the Himalaya mountains, Southern Tibet, the North-East Frontier of India, and Western China, comprises the most stupendous elevated region in the world. Here, where great rivers batter their way along cracks in the earth's crust three miles deep, where the wind sobs and raves over the high passes, where the rain mist smokes over forest and moor, and snow blankets the landscape for months on end, you will see flowers growing in the most reckless profusion. For days on end you may tramp over carpets of flowers, Rhododendrons in incredible variety, yet no taller than heather in Scotland, though of every conceivable colour ; Primulas

glitter on the rocks like jewels, Poppies bounce like gorgeous bubbles in the breeze, Gentians, and hundreds of other flowers not so well known. It is not many years ago that I brought back from the wooded fells east of sacred Lhasa, the famous Tibetan Blue Poppy, *Meconopsis Baileyi*. On the same journey I secured the giant Cowslip Primula, which grows four feet high and clogs the swift mountain streams with its huge leaves. Numbers of our commonest and most beautiful trees and shrubs come from this part of Asia and from Japan, including Maples, Magnolias, Barberries, Buddleias, Rhododendrons, Viburnums, Clematis, the Maidenhair tree, and several remarkable Conifers.

It is impossible either to mention all the countries which have contributed to our wealth of flowers, or to say whence each plant has been derived. To mention a few of the commonest, which have been improved, or so they say, by breeding and crossing, until they no longer resemble their original wild parents : our Daffodils come from Asia Minor and the Mediterranean lands, whence also came our Pinks and Carnations ; Tulips come from Central Asia ; Irises from all over the Northern Hemisphere ; Crocuses from Southern Europe and North Africa ; Roses from India and China ; Chrysanthemums from China and Japan ; Tropaeolums, usually called Nasturtiums, Cosmos and Dahlias from Mexico. As for some of our most English of trees, the Horse-

chestnut is Persian, the Plane comes from the Near East, and our finest Firs come from Western North America. The Alps, the Caucasus, the Pyrenees, the Rockies, the Andes, and the Himalaya have given us all those plants you see growing on the rock garden at Kew and elsewhere ; and if you wonder why we English encourage these aliens in our midst, the answer is easy. England would be a poorer and duller place without them, especially in the winter.

But the plants didn't fly here. Men went overseas to find them and bring them home. There is ample scope for the future, and plant-hunting is a fascinating game. But no one ought to undertake it unless he loves it, and likes his own company, and can do without that of other people ; because all the populated parts of the world have been combed out, leaving only the trackless uninhabited and uninhabitable waste places to me and my like, and to the next generation of plant-hunters.

## II. GUESTS OF A TIBETAN POTENTATE

ON one of my earlier expeditions into the Eastern Himalayas, I made for Eastern Tibet by way of Burma and Yunnan in Western China, and into the wide belt of country called Kam, which is scored by deep gorges and rugged cliffs, and hills on which the wealth of flowering plants is hardly conceivable until seen. I and my companions crossed the mile broad Irrawaddy at Myitkyina, and headed towards the blue mountains which guard the China frontier. This was in April 1913. The mules, well laden with our gear, soon settled down to the steady two and a half miles an hour plod of Asian travel, and for three days we urged our way through the monsoon forests, then across wild rivers and over the China frontier.

Pushing our way steadily in a northerly direction we drew toward the eastern hills of Tibet. Incidents of an earlier expedition into the "Unknown Land" came to mind, and a remarkable experience which may be worth relating.

For five weeks we had been marching from the Burma frontier behind the imperturbable mules, and as we climbed a pass one fine morning the scene changed violently. Behind us lay rounded mountains, their crests furred with pine. Between them were cultivated valleys and villages. That was China. In front, a harsh wall of mountains stretched menacingly across the sky. Billows of

cloud surged over the crests, which were so lofty that they rose far above the dark forests which clung to the flank of the range. A snow peak like an iceberg showed above the tumbled uplands. It was Eastern Tibet. Admittance to the mysterious land of the Yellow Lama could only be gained by crossing that mighty barrier.

At the end of another four days' march, past the sacred lake of Yung-ning, we reached the top of the wall; and from the Stone Gate, which is like a bite out of the range, 15,000 feet above the sea, looked far down the valley to where a white spot glistened in the sunshine. It was the monastery of Mu-li.

Descending through endless forests of fir and larch and rhododendron, and finally of pine, we came down into the scorched valley, and crossed the stream. Then, skirting the base of the cliff, we climbed up and down, where powerful torrents gushed from under it with a voice like thunder.

Suddenly, with dramatic effect, the whole monastery burst into view at our feet. We were standing on a spur, looking down on to a confused mass of white buildings, a stone's-throw distant. There stood the palace, strong and grim as a prison, with its rows of sunk windows no larger than a ship's port-holes; the temple, draped with black curtains; and above, tier on tier, a rabbit warren of cells, where the monks dwell in darkness and solitary confinement.

No sooner did they catch sight of the sacred

buildings than my Tibetan muleteers snatched off their hats and began chanting long prayers in a curious sing-song voice. Then, having rattled them off to the end, they prostrated themselves and beat their heads on the ground abjectly. The bells were taken off the mules, or muffled, and in silence we went forward.

Thus we crossed the paved terrace, at the top of the ramparts, below which the mountain, patchily cultivated, slopes steeply to the river a thousand feet below.

The news of our approach, and the recommendation we carried from the Chief Lama of Yung-ning, had preceded us.

The King was in residence, and we were received with every mark of friendship. The path beyond the gateway was lined with silent monks; others stood on the palace roof; from out of each window looked a face. We crossed the terrace, past the tall prayer flags and the great white chorten, in dead silence. There was no jingle of mule bells, not even a dog barked. The red-robed monks stared in gloomy silence; but the looks were not hostile, only curious.

Scarcely were the mules unloaded than a deputation arrived from the Grand Lama. The visitor was a man of medium height, with a pale ascetic face and keen features. His honest laugh was a welcome contrast to the wry looks of the small fry. Never a scowl did we encounter during five months spent at Mu-li; the coldest look ever

bestowed on us was a blank stare of surprise after the Grand Lama himself had departed and we remained behind.

The Men-kung, or Prime Minister, for such our distinguished visitor proved to be, signed to a knot of retainers in the background who came forward leading a fat sheep and carrying trays full of *tsamba*—rice, tea, eggs, and butter—everything edible found in the monastery.

Then the Men-kung—he was dressed only in a red robe, braided with silver thread, his feet encased in long leather boots with upturned toes—turned to me, still smiling, and spoke thus: “The King is sick, or he would himself have come to see you. Please come to the monastery and visit him. Perhaps—who knows?—you may be able to cure him; for the men of the outside countries are clever. We welcome you to our country, and will make you as comfortable as we can. But we are poor folk, we have little enough to give you.” He pointed to the provisions with a shrug: “Nevertheless, the King and I send you these small gifts.”

I thanked the Men-kung for his hospitality and for the generous supplies he had sent, sufficient to keep me, or rather my servants, for a fortnight; and presently he withdrew, smiling. Then I unpacked my boxes, and looked round my quarters. Two rooms, each eight or nine feet square, had been put at my disposal. It was very dark, one small window admitting a feeble shaft of light.

The dirt and dust were indescribable. The luggage was all put in one room, and one of my men also slept there. The other room was study, dining-room and bath-room combined. There did not appear to be sufficient room to sleep here, and the place was infested with rats; so I had my tent pitched on the hillside below, and always slept there while we were at Mu-li. A third room in the cobbler's house was used as a kitchen, three of my men also sleeping there, while my remaining followers, two in number, shared the cobbler's own room.

I now extracted from my boxes some presents I had brought with me for an occasion such as this, and sent Cuthbert (which name I had bestowed on my Chinese servant Loi) across to the monastery with them. Alarm clocks, electric torches, candles, soap, and some groceries proved acceptable, and thus was our footing established at Mu-li.

On the following day we called on the sick King.

Entering by a wide gateway, we passed through the Royal stables under the walls of the monastery, and found ourselves in a paved courtyard. On three sides rose the high walls of the palace, coralling a flake of blue sky; and across the courtyard in deep shadow was a broad wooden stairway, which led to the gallery. Just at that moment a drum began to boom; its thick warning voice reverberated through the building,



then died away again ; it was succeeded by the baying of dogs.

At the head of the stairs we were once more welcomed by the Men-kung, who conducted us down a corridor where robed monks walked noiselessly to and fro, and stood suddenly motionless, their heads bowed on their breasts, as the pontiff and his noble guest passed. Unaccustomed to the darkness, I groped my way forward in the wake of our guide ; but at that moment, someone drew aside a curtain, and we were ushered into a small room, which proved to be the Men-kung's private apartment.

I was invited to seat myself, and an order was given for tea. The words whispered in the hot gloom of the monastery, with the sun-drenched light streaming through the narrow windows, sounded sinister ; yet the effect was momentary. There was nothing to fear ; these simple folk, for all their ruthless ritual, were kind at heart.

Next minute a bare-footed monk glided in, and from the brass kettle he held, a stream of clay-coloured tea frothed into the silver-lined wooded bowls which had been set before us. It had been churned in one of those tall brass-bound cylinders, used in every Tibetan household, emulsified with yak butter and salted to taste.

Scarcely had I sipped my salted tea, smothering a grimace as I did so, than another monk entered and signed to us to follow him. We arose,



The famous Blue Poppy of Burma and China. *See page 9.*



therefore, and were conducted down a corridor. A curtain was flung aside, and someone gripped my hand in the darkness. "Enter," whispered a voice in my ear, and I passed through a cordon of bowed monks, who stood mute as images, to find myself in a lofty room. On the threshold I paused, unable to distinguish things. Then, as my eyes grew accustomed to the one shaft of light which beat through a window opposite and gradually diffused itself all round, I perceived a tall bulky figure enveloped in a loose red robe who, supported by a Lama on either side, stood regarding me gravely. Even as I advanced, bowing, the figure swayed and sank down again amongst the cushions, and the attendant Lamas drew a blanket over him.

The Grand Lama of Mu-li reclined on a dais near the solitary window which pierced the wall; at his feet stood a group of Lamas, including the Men-kung and the Ts'ang-tzu, who is the master of the keys. I sat down on a chair beside the sick King, and immediately attendants brought buttered tea and plates of dried fruit; bare-footed servants, robed in grey, flitted to and fro, and a number of trapa (that is, apprentices who have just entered upon a monastic life) stood round the doorway, peeping over each other's shoulders. Now and then one of the Lamas, bending almost double, would humbly address the King.

Presently, I noticed that everyone was looking in my direction, and I became conscious of the

fact, as though waking suddenly from a dream, that the little Moso interpreter was speaking. With hands clasped before him, the body bowed, he spoke to the King in low tones. Everyone glanced at me again. The time had come to act. "I will examine the King," I said, drawing my chair up to the edge of the dais, while the onlookers crowded round.

I took his rough hand in mine and felt his pulse ; it was slow but steady. I tapped his chest, and resisted a strong temptation to tell him to cough, and say "ninety-nine." I looked at his tongue, and at the whites of his eyes and at his dirty neck, but no inspiration came to illuminate my ignorance. To gain time while I cudgelled my brain I asked for symptoms, but they made me no happier. At that moment I would have given worlds to know what was the matter with the old man, yet I must say something. I felt that the high Lamas were hanging on my words ; I did not want them to hang me. The King, propped up amongst pillows, peered at me through half-closed lids.

"The King wishes to know what ails him. Can you cure him ?"

In a moment I made up my mind. "There is nothing the matter," I said softly. "To-morrow I will send you some medicine." The Lamas glanced at the interpreter questioningly, and the Men-kung, drawing a rosary from the folds of his loose robe, began to mutter, "*O-mani. . .*"

“Do you know what disease he is suffering from?” whispered the interpreter eagerly.

“Yes,” I replied boldly. (Had he not given me a sheep?)

“What is it called?” asked someone suspiciously, leaning forward. For the fraction of a minute I hesitated. What a tactless question!

Then loftily, “We do not have that disease in our country.”

Happily no one took advantage of the frightful breach I had opened in my defence, and I stood up hastily to go.

“I will send some medicine to the Rimpo-che; he will be better in a few days.”

The King made as if to rise, beckoning to two of his lieutenants, but as he sank back again, exhausted with the mere effort, I signed to him not to move, saying in the Lhasa dialect (which he understood), “Please remain seated on your mat.” (The sort of remark Alice might have made to the Cheshire cat.) Then I withdrew, bowing.

A fortnight passed before I saw the Grand Lama again. The time was spent scaling the cliffs behind the monastery. Finally, we conquered them and camped far up an emerald green valley, and climbed mountains on which the snow still lingered, though it was mid-June by this time. Up we went through the forest, where the Rhododendrons were foaming into flower, up beyond the timber line where the grey screes glowed with

dwarf blue Poppies and many-coloured Primulas, up, up, till the icy spires rose into view all round us. How the wind sang through the passes! The ranges were pitted with deep sapphire-blue lakelets, left behind by the glaciers which had withdrawn ages ago, and we camped in their tracks among moraines and lakes.

When we returned to Mu-li, I went straight to the monastery, and was conducted to the King's apartment with the same ceremony as before. I had no misgiving. Had I not sent the King half a bottle of pills, to be taken three times a day after meals? I forget what they were, but they were quite harmless. A child might have taken them, and the Grand Lama was—well, no child.

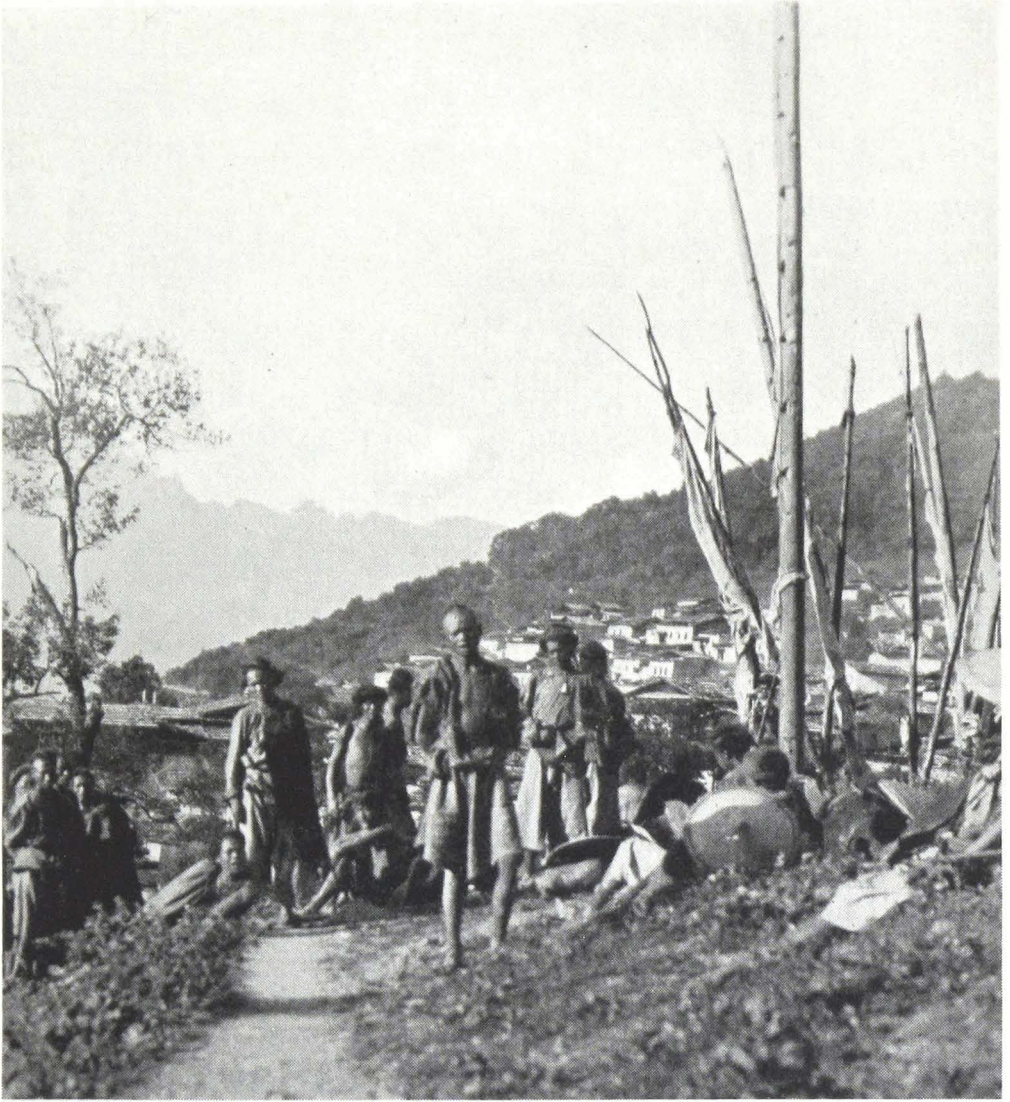
The King, robed now in a gown of imperial yellow silk, stood up alone in the centre of the dais to receive me, smiling as I entered; his bold massive figure and shorn angular head were silhouetted sharply against the high light. His little almond eyes gleamed in the heavy bronzed face.

He waved me to a chair, laughing and chatting to the Prime Minister. A sumptuous repast was set before me.

Then the King asked permission to examine my watch, camera, gun, camp furniture, and everything that was mine. He broke the Tenth Commandment fluently. He wanted them all, laughing like a child as each article was handed to him







Approaching Mu-li, South-eastern Tibet. Soldiers and coolies on the pathway leading to the Monastery. *See page 12.*

and its use explained. One by one he toyed with these things, pressing hidden springs, opening and shutting, and ever repeating to himself what he had been told. He chuckled with glee at my tea-infuser, solar topee, an enamelled iron cup and saucer, alarm clock, electric torch, and a tin of biscuits, all of which, with sundries, passed into his possession and found an abiding home in the monastery of Mu-li. Future travellers who visit his museum will perhaps recognise my exhibits; and he has others. That the figures do not work concerns him not at all. He possesses a perfectly good Kodak (bought off an enterprising Chinese pedlar)—but no films; one perfectly good lamp—but no oil; three perfectly good guns—but no cartridges. And so it will be. My topee will adorn a wall; my clocks will tick for a span on some dusty shelf, and then remain silent for ever. The torches will be exhausted by experiment—but the King will prize them none the less on that account. The child mind desires things. Does the inanimate object work? Good! Is it paralysed for ever? Good still! The child mind supplies it with new properties, never imagined by its inventor.

And then I went away again across the Li-tang river, and tried to teach Squeekybugs to be a little gentleman. Squeeky was a Tibetan poodle which the King had given me as a companion—a thorough little gutter dog, but amiable. The Prime Minister one day found me defleaing him

with Keating's powder and a boot-brush, and requested me to give him a packet of the magic powder. I demurred. "It won't deflea all the dogs in the monastery," I protested. But the Prime Minister assured me he wanted it for private purposes ; so I gave him a packet.

In the kingdom of Mu-li are three principal monasteries, those of Kong, Wa-ri-chen and Mu-li itself. This last is, perhaps, the most important, as it is the largest, though Kong claims distinction from the fact that the King's family comes from that neighbourhood.

The hierarchy, which wields power both secular and religious, resides a year at each monastery in turn, moving in rotation from one to the other ; in practice, however, rather more than a year is spent at Kong, the King passing a portion of the time in the bosom of his own family. The King of Mu-li (who is also Grand Lama) has had hereditary rank conferred upon him and his heirs for ever. But since the Grand Lama may not marry, the King can have no heirs, and the mantle must descend upon a collateral branch of the family. And since the title of King is hereditary, the new Grand Lama cannot be a re-incarnation of the deceased pontiff. This is awkward. An important monastery without a re-incarnation would soon lose its prestige, so to obviate the difficulty a local re-incarnation is adopted. This Ho-fu is kept as a sort of mascot, and ranks next to the King himself ; the present Ho-fu, at the time

of my visit, was a lad of some twelve to fourteen years.

We continued our explorations in the district, but one day we were recalled by messenger, for preparations were being made for the departure of the King. The start was fixed for the third of the seventh moon. For a week beforehand strangers from all directions came tramping into Mu-li. There gathered white-gowned Mosos from the south, sturdy Hsifan from the depths of Sho-lo, ragged Mantzu, and Lisus from across the Li-tang river. But the women came dressed in their finest clothes, tricked out with barbarous jewellery. Scores of ponies and mules were assembled. At night the steep slope below the ramparts twinkled with camp-fires, where these hardy mountaineers, wrapped in their cloaks, slept under the stars. The terrace, usually abandoned to curs of low degree, who spread themselves out to dry on the cobbles, now presented a scene of unusual animation. All was bustle and movement. Booted men tramped to and fro, bringing out loads of stores which they tied on to the waiting pack-mules. Inside the monastery, store-room doors gaped wide open, and burly monks toiled at packing supplies into raw-hide bags. Other men, squatting cross-legged on the floor, busied themselves with the monastery accounts, which they tallied by means of seeds, shells, vertebræ, and other tokens. They looked as if they were playing chequers—arithmetic was not their long suit.

As each caravan was loaded, it marched off. This went on for three days. The last day was dedicated to prayer. The monastery was early humming with life. Already the terrace was packed with eager crowds, for on this day the Grand Lama would issue forth from his palace, and all were anxious to gaze for an instant on the holy man. Only the Grand Lama himself, with his immediate retinue and bodyguard, and a few dozen pack-mules belonging to the Royal stables, remained.

It was but a few steps from the palace to the temple. A file of solemn-looking monks, magnificent in crested helmets of gamboge-coloured felt, headed the procession. The leader bore a strange wand of office, which he used as a walking-stick, and moved with the pompous dignity of a drum-major. In the midst of his peers walked the Primate himself, and a troop of bishops brought up the rear. They all looked rather self-conscious, like children caught "dressing up."

Suddenly, the hush which had heralded the approach of the procession was split by a rude crash of syncopated music. Service had begun. Anyone who has ever attended divine service in a Tibetan temple must have received a mild shock. An atmosphere of cheap mystery pervades it. Volition is hypnotised, intellect is bludgeoned, only emotion remains scatheless. The smell of hot butter from the open lamps, the sour reek of crowded and unwashed humanity, the peevish wail

of conch shells recklessly blown, the dull thudding on flaccid drums, and the clash of cymbals, daze one. So, too, does the opaque dimness—not the luminous gloom of a cathedral—blunt the keen edge of imagination. Scores of tiny butter-lamps, each a point of light, are quenched in the pregnant darkness as they struggle to pierce the gloom and unite. The great wooden pillars, supporting the roof, tower up into Stygian darkness; painted banners, half unseen, hang from the gallery. Yet by day the temple looks a poor place—rather squalid inside, but with a certain garish splendour.

Service over, the Royal party retired to the palace, but only for a few minutes. Almost immediately several mounted men issued from the courtyard, acting as advance guard. They pranced up to the fringe of the crowd, and with menacing gestures cleared a passage.

“Back, scullions! Way for the King!” they cried.

The shabby people fell back meekly. At that moment there was a jingle of bells, and the head of the procession appeared. Mounted Lamas, their knees drawn up to their short stirrups, led the way. Followed the King himself, seated in a gorgeous palanquin upholstered in imperial yellow silk, and borne by six trotting coolies. The rest of the Court, Lamas and Officers of State, mounted on ponies wonderfully caparisoned in silver and red, with blue Lhasa rugs thrown over their high saddles, brought up the rear. They looked fine in

their long robes, with sleeveless surcoat, top boots, and tasselled silk hats.

The little cavalcade wheeled once swiftly round the palace, and, as they turned the corner, the whole crowd made a wild rush across the terrace to catch a last glimpse of them. Then they swept down the rampart, and began to climb up towards the north hill, which overlooks the Li-tang river, where the final episode of this day of prayer was to be enacted.

Where the Li-tang river, after flowing south for a hundred and fifty miles, begins to swing in to the east, a jagged wedge of slate crops out forming the northern rim of the bowl in which nestles the monastery. A similar wedge-shaped mass flings an arm out to embrace the monastery from the south. The northern spur, leaning heavily on the cliff behind, runs level for perhaps a hundred yards before plunging down to the river gorge. Its slope is packed with scrub oak, forming a dense screen ; I, therefore, climbed leisurely up under cover of the wood, intending to reach the far end of the ridge, where it joined the cliff, and view the proceedings unobserved. I could plainly hear the thud of drums, the clash of cymbals, calling the attention of the heedless gods to the performance of the mortals below. Vast columns of smoke, calculated to choke them, spouted from a row of stone hearths. The turquoise sky was smudged. Distorted figures moved to and fro in the murk. I kept well under cover, reluctant to reveal myself ;

for this was a ceremony to which those not of the faith would, I thought, hardly be welcome, however friendly the King might be in social intercourse. Herein I did scant justice to the complacent philosophy of Buddhism, even in its most grotesque parodies. No religion is more tolerant, more free from the least taint of fanaticism, more completely indifferent to the beliefs of others—so long as those others do not try to ram their opinions down ignorant throats. Then they become dangerous.

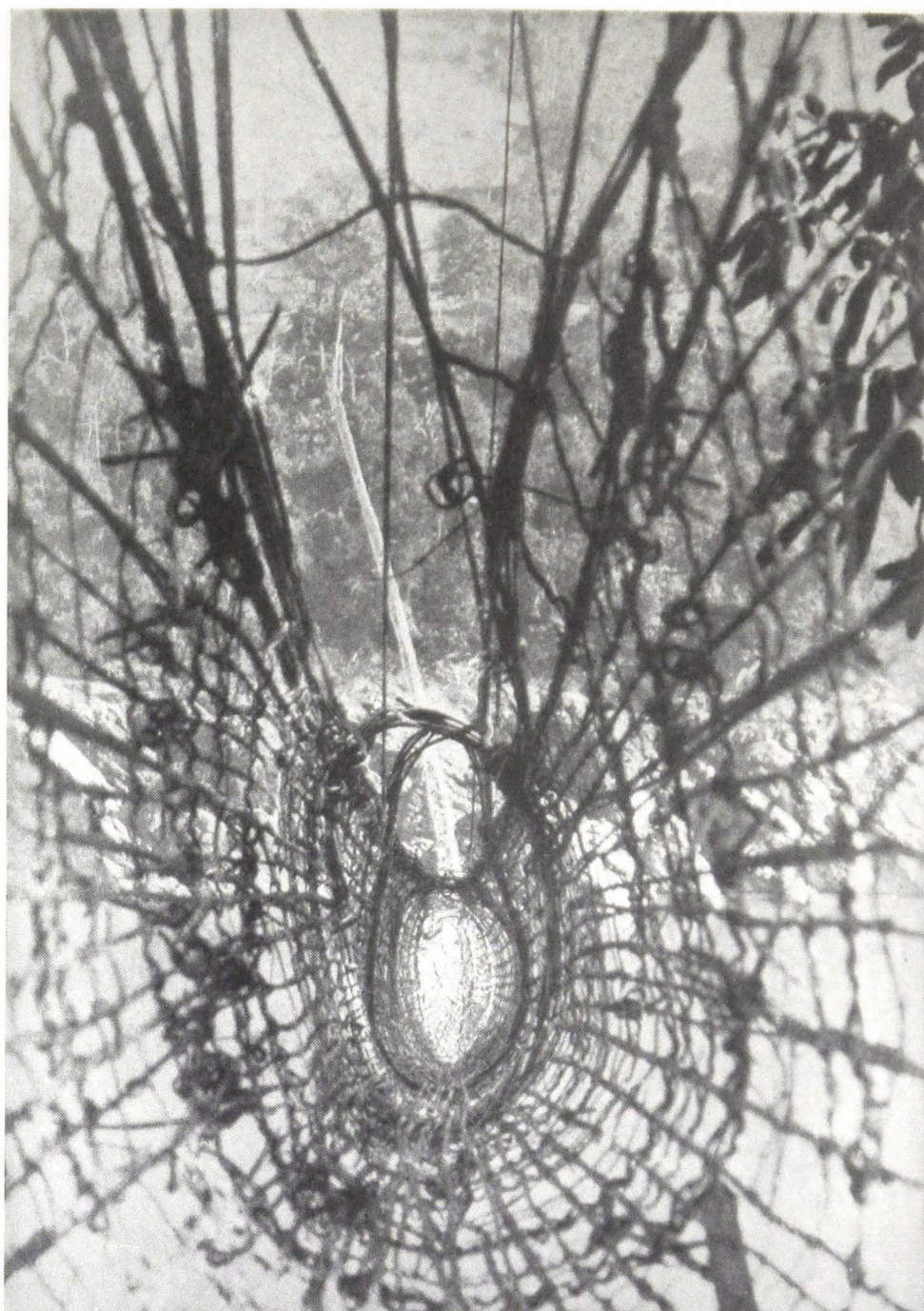
While cautiously moving from cover on to the naked ridge, at the end farthest from the ceremony, I suddenly encountered a knot of caitiffs who had been cast into outer darkness. Further attempts at concealment being useless, therefore, I came out into the open, and was welcomed as a fellow-creature by these grooms. At the other end of the ridge a white and blue striped awning had been spread over a rustic bower made of twisted branches in which sat the Grand Lama and the Ho-fu, or re-incarnation. Outside, seated on the hard slate, were the band; there was also a monk with a conch shell, who, from time to time, stood up and blew lustily if monotonously—for it emitted only one note. Below the ridge, on the far side, in a grassy dell surrounded by flowering shrubs, another striped awning had been spread. Here the ponies were tethered. These things I perceived dimly through a screen of fragrant smoke.



Creeping stealthily forward along the ridge to obtain a better view, I suddenly encountered the Men-kung, who popped out from behind a smoking pyre before I could retreat. He was in his most jovial mood. "Come along," said he, seizing me playfully by the arm; and I felt as guilty as Hucklebury Finn about to be presented to the widow.

We walked along the narrow ridge, past the belching chimneys (monks were piling on more conifer branches) to the bower in which were seated the archpriests of Mu-li Buddhism—the bulky King and the small Ho-fu; even the Men-kung himself was not allowed inside that holy of holies. The chosen sat on a stone ledge, covered with brushwood and rich carpets, before an altar decorated with butter images and lights. The poor little Ho-fu looked utterly bored. He was playing with a beetle he had found, and gazing piteously out at the woods. However, he brightened up considerably on my arrival, regarding it as a legitimate diversion. But the Grand Lama, between pauses in the music, chattered prayers with praiseworthy zeal. As I passed close by the holy nest, he espied me; and, ignoring for a moment the butter images, he bowed, smiled, and spread out his hands in token of welcome. Then he returned to his prayers.

Thus was I initiated into the brotherhood. On a leafy seat at the back of the holy bower, rugs were spread, and we sat down to a most delightful



Looking through a Tubular Cane (Rattan) Native Bridge over the Dihang River, Abor Hills, Assam Frontier. The bridge is tied to trees on each side, and hangs 50 feet above the river, is 800 feet long, and the tube diameter is 3 to 4 feet.



*al fresco* meal. *Tsamba* was brought on large round copper trays, tea poured from a silver pot—the utensils, like the food, were the best in the monastery—and a plate of rosy apples was set beside me. The interpreter chatted to me and played with Squeekybugs, who loved the smell of a Lama.

Meanwhile, the discordant band continued to offend the ear. However, prayers ended at last, and the suppliants, emerging from their nest, mingled with the crowd on the ridge, where the fires were still smouldering.

We now proceeded down the steep flank by a slanting path to the awning below, and, all religious rites having been duly observed, I was invited to sit with the Grand Lama and answer his questions. A meal, cooked Chinese fashion, was set before me, and the interpreter amused himself by feeding Squeekybugs on *tsamba* balls. Squeeky's mother was present during the interview, but failed to recognise her offspring in his exalted state; she growled continuously and nearly bit his head off when he suggested a romp. At last I rose and took my departure.

The Grand Lama, though no longer a young man, had no scruples on the subject of early rising. Next day I was awakened by the deep voice of the trumpets, and presently came a sharp challenging blast from the King's buglers. I sprang up and looked at my watch. Five o'clock and still dark outside. A curtain of clammy mist veiled the

valley, so that the air was filled with impalpable rain, which clung to every blade of grass, every twig and leaf ; even the monastery, 200 yards distant, was invisible. Gradually, the pale light of dawn crept into the valley till cliffs and mountains loomed up vaguely through the chill mist. Suddenly, while the world wept softly at the pending departure of the good King, three maroons fired on the terrace announced the start.

All the chimneys of the palace spouted furiously, and thick clouds of smoke blanketed the flabby air. The red-robed priests, who were being left behind, were massing at the top of the rampart, where the path from the terrace slanted down towards the distant river ; opposite them stood the outside village folk, mute with awe.

Presently the head of the procession began to descend the slope till a double file of horsemen reached from the palace to the foot of the rampart. Some carried banners, others wooden signboards fastened to posts ; but the majority were warriors in iron helmets and leather jerkins. They were armed with swords and gas-pipe guns ; a few carried lances. One bacchanalian gallant, wrapped negligently in fierce-looking leopard skins and mounted on a spirited pony, cantered up and down the line shouting orders and cursing fluently ; his office appeared to be that of marshal. A bodyguard of fifty wicked-looking Mantzu braves on foot surrounded the King's palanquin. Behind came flag-bearers and the band. The

Men-kung in gorgeous robes and with a tasselled silk hat on his head, and a troop of horse, comprising the Ministers of State, closed the imposing cavalcade.

As they passed my tent, the Men-kung and his friends bowed, smiled, and spread out their hands in token of farewell. "Please go slow," I replied colloquially.

I, too, left Mu-li immediately and continued my plant-hunting in which I had rich rewards, and once again I returned to England to sort out the spoils, some of which now go to grace English gardens.

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### III. FIRST THROUGH THE TSANGPO GORGES

IN 1923, having obtained permission for myself and Lord Cawdor to visit Tibet for the purpose of collecting plants, we selected as the scene of our operations the south-east corner where most of the big rivers which rise in Tibet squeeze their way through the mountains to the sea. Of the botany of this region, at the extreme eastern end of the Himalaya, practically nothing was known.

At its eastern end the Himalayan range, after sagging down to lower levels, turns north-eastwards and suddenly rises up in the great spire of Namcha Barwa, which is sliced off abruptly on the east side, forming a gable end overlooking the Plain of Assam.

Separated by the parallel mountain chains are several big rivers which, rising in the cold heart of Tibet, set out complacently enough eastwards across Asia. Their sources are hundreds of miles apart and their mouths open on different seas. But all must first escape from the plateau, and all escape through one narrow gateway, which is a breach in the Himalayan axis—the Achilles heel in that otherwise impenetrable mountain defence which rings Tibet like a wall. Here they are caught and squeezed between two of the mightiest uplifts in the world. The width of this gap, from the dislocated end of the Himalaya, where the

Namcha Barwa overlooks Assam, to the eastern foot of the Yunnan Plateau, is some 200 miles.

It would appear at first sight that the easiest way into this country behind the wall of the Himalaya would be through the breach, following the river corridors we have described, since it might seem easier to pass through a mountain range than to climb over it. But it is not so. The gorges are deep and narrow, filled with forest, and the rivers quite unnavigable. Moreover, the river gorges are separated from one another by knife-edge ranges.

On entering China from Burma and travelling north-eastwards over the Yunnan Plateau on previous occasions I have turned the river-gap to the east, crossed the great rain-screen, and reached the forest from that side. But the way is long and arduous, and the great gorge of the Tsangpo—our ultimate goal—so remote and inaccessible, that never had I reached it, though I had penetrated all the other river gorges in the endeavour.

Not till we crossed the Sikkim Himalaya, thus turning the river-gap to the west, then travelling eastwards across the Tibetan Plateau, were we able to reach the western side of the gap, and see the Tsangpo as it burst round the broken end of the Assam Himalaya.

We left Pe on the 31st October, and marched by a high path to the cultivated terrace on which stands Kyikar. The river had fallen 20 feet, and was fretting shrilly over the skeleton moraines



as it galloped into the gorge. Our friend the headman provided us with the best butter and bannocks we had tasted for a long time, as well as with his own excellent brew of beer.

Next day we reached our first camp below the Nam La, and ascended to the upper camp at 14,000 feet, on 2nd November. What an odd contrast to the Doshong La, only 5 miles to the south! All the streams had dried up, and there was only just enough snow near our camp to provide us with water! On the other hand the cold was intense, the sheltered thermometer showing 28° of frost on the night of 5th November.

On 7th November we descended to the lower camp; we could indeed easily have reached Kyikar. Seed collecting was virtually over. It only remained to pack the specimens before starting out to explore the gorge. Four days were spent in clearing up this work, and making final preparations for the plunge into the unknown; and on 12th November we moved a few miles down the river to Lungpe, reaching Gyala on the 13th.

All our heavy baggage—boxes, tents, camp equipment and so on—had to be left behind at Gyala, in charge of Sunny Jim, and six weeks elapsed before we rejoined the main body.

November 16th dawned brightly, after 10° of frost. Final preparations were soon made, and at 10.30 we started on the journey, our party including our servants Tom, Dick and Walrus, twenty-

three porters, a sheep and two dogs. Just outside the village someone had set light to a heap of juniper branches, and the coolies now stood round, passionately repeating long prayers to the spirits, that they might guard them from the dangers of the gorge ; then each cast into the flames a pinch of *tsamba*, to seal his vow.

Immediately afterwards we began to climb the steep pine-clad flank of the cliff. On turning a shoulder we found ourselves in dense Rhododendron forest, which was already covered with snow. The species were : pink "Barbatum," pink "Thomsoni," a "Grande," a "Cinnabarinum" or "Triflorum," and the sticky "Strigillosum."

Then, descending a thousand feet, the composite Rhododendron forest gave place first to "Grande" forest, some of the trees being 40 feet high and 4 feet in girth near the ground ; and still lower to bamboo forest. Here we made our second bivouac, on a slope so steep that the men had to build platforms to sleep on.

Next day we descended to the river bank, marching through forest as usual, and camping under a rock at the foot of a cliff. It was a fine place for a shelter, and we slept comfortably, though our roof was quite wasted, as no rain fell.

The river here is a tossing sea of waves, the bed being choked with boulders. A little lower down a glacier enters the river at an altitude of 8730 feet. Five glacier streams, from Sengdam Pu and Gyala Peri, flow into a large basin-shaped

valley, from which one stream emerges, and, flowing on down a steep narrow gully, reaches the river.

Presently we descended into the river-bed for the first time, but the going was not easy; at the base of the forest was a stone breakwater made of smooth blocks as big as houses, and jammed amongst these like broken matches were huge tree-trunks bristling with splinters. After climbing up and down over these obstacles for some time, our ears filled with the roar of the river, we camped under a rock in the forest; we had been marching seven hours, but had only done about 10 miles.

On 20th November, after a fine night, followed by a heavy dew in the early morning which drenched the forest, we scrambled down the cliff and got our third boiling-point reading in the river-bed since leaving Gyala. The altitude was 8506 feet. Our day's march lay partly in the river-bed, partly in the forest. Early in the afternoon the river suddenly swung due south, and through a window in the jungle we looked out and saw the northern glaciers of Namcha Barwa, coldly menacing, relentlessly pushing on as though to engulf the forest; but as a matter of fact they are withdrawing their forces. Next minute we came out on to cultivation. Nothing could have come as a greater surprise. The great river was plunging down, down, boring ever more deeply into the bowels of the earth. The snow-

peaks enclosed us in a ring of ice. Dense jungle surged over the cliffs, filled the glens, and marched boldly up to battle with the snow. And in the midst of all this strife, in a quiet bay in the mountains, round which the maelstrom of river, forest and ice fought dumbly for dominion, was one poor, little, badly cultivated field !

Ascending by a path to a terrace, we saw perched on a knoll, in the midst of a great swamp, the little wooden monastery of Pemakochung ; and here the Walrus invited us to stop in the temple. The famous Lama Kinthup visited Pemakochung in 1881, when trying to trace the course of the Tsangpo, but was unable to proceed farther. He reported the Tsangpo to be two chains distant from the monastery, and said that about two miles off it falls over a cliff called Sinji-Chogyal from a height of about 150 feet, and that there is a big lake at the foot of the falls where rainbows are always seen.

The Falls of the Brahmaputra have for fifty years been the great romance of geography. Everything, even tradition in Tibet itself, pointed to their existence. The Tsangpo near Lhasa flows at an altitude of 12,000 feet above sea-level : the Dihang issues from the Abor Hills at an altitude of 1000 feet more or less. One hundred and fifty miles east of Lhasa the Tsangpo, still a big calm river, disappears into the mountains, and after following a course which could only be guessed, reappears in Assam. It has

bored its way clean through the mightiest mountain range in the world, and in doing so has descended the enormous height of 11,000 feet! What more natural than to suppose that somewhere in the depths of that unknown gorge was hidden a great waterfall!

The belief in the falls persisted long after the identity of the Tsangpo with the Dihang had been established beyond reasonable doubt; indeed, it grew up after, and largely in consequence of, that discovery. For if the Tsangpo were, as was formerly believed, either the Irrawaddy or the Salween, its course would be so long that there would be no necessity to postulate a waterfall in order to bring it down to the plains at the right point. Moreover, it was largely owing to Kinthup's exploration, combined with that of another famous pundit, Kischen Singh, that the final identity of the Tsangpo with the Dihang was established; and Kinthup, as we have seen, reported a waterfall 150 feet high.

We remained at Pemakochung on 21st November, in order to rest the porters. Cawdor descended to the river to see Kinthup's fall and get a boiling-point, while I went up the mountain on a botanical excursion. After picking my way across a bog, making from one nodal thicket to another in no little alarm lest I should disappear in the morass, I reached a dismal swamp, fenced with a network of *Rhododendron* and other trees. Thence I ascended the steep, rocky bed of a torrent

above which, on the grassy slope, grew a dwarf Iris, with a long, narrow, almost cylindrical capsule—possibly one of the “*Ensata*” group. I collected seed of this (K.W. 6289). Mounting the earth-ridge I soon began to meet with *Rhododendrons* in great variety, nearly all of which yielded seed. However, I soon found I had chosen an impossible route. The face became almost sheer, and had it been bare of vegetation, it would have been inaccessible. But it was not bare. It was clothed with a tangle of *Rhododendrons*, so hard-stemmed and growing so thickly that it was possible to haul oneself up, practically walking on top of them.

Returning to the monastery after a hard day’s exploration and by no means dissatisfied with the result, I packed my seeds, and we made preparations for continuing the journey. Our forces had now to be reorganized.

For several miles we marched through swamps and dense forest where the undergrowth grew six feet high: crossed the Talung glacier torrent by an awkward tree-trunk, and the Sanglung glacier torrent by a dangerous-looking log, and after little more than four hours’ march camped under a boulder in the river-bed, at the foot of an enormous spur.

The course of the river is very tortuous here. Below Kinthup’s fall it makes a U-bend to the south round a sugar-loaf peak, which caps the end of a spur from the north; it then skids round the

Sanglung cliff and plunges away towards the north-east, interrupted by occasional violent jerks to north and south.

This day we saw for the first time the beautiful silver-green Weeping-pine (K.W. 6315).

Difficult as it was to cut our way through the forest, however, we realized that without the forest we would not be able to get along at all. On either side of the river the cliffs are either sheer, or very steeply sloping, and then worn smooth. There is rarely a cove to which one can descend, except where a stream breaks through; and the litter of huge boulders in the river-bed makes progress there well-nigh impossible.

At one time we found ourselves on a narrow rock-ledge just above the river; bunches and festoons of *Rhododendron virgatum*, *R. vaccinioides*, and other species hung above our heads, and billowing masses of *R. Maddeni* lined the edge of the cliff below. We were smothered in *Rhododendrons*. As for the trees, there were Oaks and Holly, *Tsuga*, Juniper and Weeping-pine, Tree-of-heaven and a great many others.

After a short march we came to a cliff and had to descend to the river-bed. It looked awkward. To make matters worse, several of the women sat down and began to cry. The pioneer party, or public works department as we called them, made light of the difficulty, of course, and soon found a way down; Cawdor, Tom and I, having taken off our boots, followed, and the frightened women

were pushed and pulled along by willing helpers, who carried their loads down for them.

We found ourselves in a small cove, hemmed in by river and cliffs. About a quarter of a mile ahead a big stream—the Churung Chu—enters the Tsangpo, and the river slews round again, flowing north. Thus we had no sooner descended to this cove than we had to climb out of it again.

During the next four days we made very slow progress, averaging no more than three miles a day. The difficulties were immense.

The river continued to advance by jerks in a general north-east direction, with fierce rapids which ate hungrily into the core of the mountains. Already we seemed to be far below the level of the ground, going down, down, into the interior of the earth; and as though to emphasize the fact, the temperature grew steadily warmer. And the gorge was growing ever narrower, the gradient steeper, till the power behind the maddened river was terrific.

On the 26th we reached another glacier torrent—the Shegar Chu—derived from the mighty Sanglung peak, now due south of us, and so close that its icy breath sometimes chilled us to the bone.

Finally, we reached a flat-topped cliff covered with Weeping-pines and Juniper trees.

Parting the bushes on the edge of the cliff, we peered over and saw the river 1000 feet below; we could have dropped a stone straight into it!



In the course of a march such as ours one can get quite a good general idea of the flora, but only a very poor idea of its infinite variety ; for the flora of the Tsangpo gorge covers the whole gamut, from the tropics to the Arctic.

November 29th was our last day in the upper gorge, for by evening we had come up against a cliff beyond which it was impossible to advance. We were by no means certain when we started that we could reach the foot of this cliff where the river doubled back on itself, flowing towards the west, for an immense landslide had spoilt the scenery, and we had some difficulty in crossing an arm of the river, and even in getting along at all. Eventually we surmounted all obstacles, and hacking our way through dense scrub which presented an almost impregnable front on the steep slope, camped in the river-bed again, having covered two miles in six hours. The altitude was 7098 feet.

We camped amongst the boulders, as I have said, close beside the thundering river. A quarter of a mile ahead a blank cliff, striped by two silver threads of water, towered a thousand feet into the air.

The river came up against this cliff with terrific force, turned sharp to the left, and was lost to view. We scrambled over the boulders, crossed a belt of trees and a torrent, and made for the foot of the cliff in order to see what became of the river ; but even before we got there our ears were

filled with a loud roaring noise. As we turned the corner, and before we could see straight down the river again, we caught sight of a great cloud of spray, which hung over the rocks within half a mile of where we stood. "The falls at last," I thought! But it wasn't—not *the* falls. A fall, certainly, perhaps 40 feet high, and a fine sight with rainbows coming and going in the spray-cloud. But a thirty- or forty-foot fall, even on the Tsangpo, cannot be called *the* falls, meaning the falls of romance, those "Falls of the Brahmaputra" which have been the goal of so many explorers.

At last we reached the crest of the long Sanglung spur, and could look over into the gorge of the river on either hand. Far away a patch of emerald green, looking no bigger than a pocket-handkerchief spread out to dry, shone on a chequered slope; it was a cultivated field.

We marched north-westwards along the crest of the spur for a mile, through forests of giant *Abies* and tree *Rhododendrons*, whose leaves hung stiffly down in the snow. We were now 3714 feet above the river, or 10,812 feet above sea-level; crossing the ridge, called the Shengchen La, we began to descend steeply.

The descent down the east flank of the Sanglung spur, at first northwards along the face, and finally north-eastwards along the crest of a minor spur, took us nearly five hours; but there was a track all the way. Passing through Conifer forest into Oak forest, we soon got down into

jungle, and a wealth of new trees. There were big Bamboos, giant Araliaceæ with huge palm-like leaves, queer Orchids—such as *Cirrhopetalum emarginatum*—in flower on the moss-clad tree-trunks, and many other things. And then suddenly the abrupt descent ceased, and we came gently down into cultivated fields, and saw clusters of wooden huts in the distance. We had descended about 5000 feet from the top of the spur, though we were still a good thousand feet above the river.

Now we were in a new world. How surprising it was to see fields and houses. Nay, the surprising thing was that we were in the world at all! While we had been following the river as it gnawed its way through the Himalaya, wedged between those magnificent snow mountains, nothing seemed more unlikely than that we should ever reach civilization again. Every day the scene grew more savage; the mountains higher and steeper; the river more fast and furious. Had we finally emerged on to a raw lunar landscape, it would scarcely have surprised us, but for one thing. As the river, rushing like a lost soul between the hot hell in the heart of the Himalaya, and the cold hell on the wind-swept peaks which guard the gorge, grew more dynamic as the scenery grew harsher, and the thunder of the water more minatory, the touch of Nature came marvellously to the rescue. Everywhere, by cliff and rock and scree, by torn scar and ragged rent,

wherever vegetation could get and keep a grip, trees grew ; and so, from the grinding boulders in the river-bed to the grating glaciers above, the gorge was filled with forest to the very brim. Ten thousand feet of forest coloured those cold grey rocks of tortured gneiss ; and when the summer rain weeps softly over the scene of riot a million trees will flame into flower and strew their beauty over the ruin.

We descended to the Tsangpo, crossing by a rope bridge some 4 miles below the confluence, which was hidden round the corner. The river rushes furiously between sugar-white cliffs of mica-schist and is only 50 yards wide. There are three ropes of twisted bamboo, and the patient is hauled across in the usual way, within 6 feet of the waves. High-water mark is 30 or 40 feet above winter level, however ; and in the summer this rope has to be removed and raised to a considerable height ; the river is then wider also.

Meanwhile we took a boiling-point reading in the river-bed, and were elated to find that it read  $204^{\circ}$  F. At the point where we left the river, just above the rainbow fall, it was  $200^{\circ}$  F. ; and the difference in height calculated from this was 2240 feet. That is to say, the river descended 2240 feet in a distance which probably did not exceed 20 miles. If the gradient was steady, this would give an average fall of 112 feet a mile ; but it seemed more likely that rapids and falls would alternate with quieter reaches. In any

case, for a river of this size to descend 112 feet a mile was amazing, though Alpine streams, of course, often have a much steeper gradient ; and there was plenty of room for a big waterfall of 100 feet or so. Thus we were all excitement, and determined to see that part of the river which had been hidden from us.

After crossing the river, we found ourselves on the long narrow spur which juts down from the north, and climbing to the summit on a long slant, reached the little Kampa village of Tsachugang, and were installed in the temple.

The view from this point, 2000 feet above the river, almost took our breath away. When at last one can take one's eyes off that glittering array of snow-peaks, and the rivers crashing and grinding their way through the core, two other points stand out gablewise amongst the rafters of the world's roof. Opposite us, and facing the confluence, is a huge cliff, where the Sanglung spur, which we crossed from the rainbow fall to Payi, is sliced clean off ; and a little farther east, another arm of the spur, which separates Payi from Gompo Ne, ends abruptly in a high pyramidal cliff, overlooking the rope bridge by which we crossed the river. Both spurs are heavily wooded above, but the cliffs below are bare.

We walked upstream to the confluence, but found less turmoil here than we had expected, partly because the water was low. The Po-Tsangpo rushes in at a rather acute angle, and

there is a sudden drop in the bed of the Kongbo Tsangpo at this point. The scene is a lively one, though there is not that terrific impact of opposing waters we had imagined. The altitude by boiling-point is 5247 feet ; hence the river drops no less than 388 feet in the 4 miles between this point and the rope bridge, or nearly 100 feet a mile.

The water of the Po-Tsangpo was amazingly blue, but that of the far bigger Kongpo Tsangpo was grey with mud, and quickly swallowed up the blue streak caused by the former.

Then followed a gruelling climb by a muddy snow-clad track to a notch in the ridge above, till we stood on the summit panting while great wads of snow dropped on us from the trees. We had reached our goal ; and far, far below, we could see the Tsangpo for quite 2 miles white with foam.

There had been a tremendous wash-out on the other side of the ridge, and half the face of the mountain had peeled away, leaving a ragged sore. The descent down this open wound for 2000 feet was frightful.

That night when we lay down to sleep, over 2000 feet above the river, we were greatly agitated as to what the morrow would bring forth, for we had decided to go down and see for ourselves whether there were big falls or not ; the men said there was a fall of 40 or 50 feet, but their testimony was not sufficiently reliable.

The descent down the bed of the stream was

unpleasant. We could see nothing of the river, but we had not gone far when we began to hear it. The noise was terrific.

On our left was an almost sheer cliff, but to the right (we faced south) the slopes were not quite so steep and were heavily timbered; where the burn entered, there was even a stretch of beach strewn with boulders the size of houses. It was immediately below the burn that something happened to the river, but we could see nothing—only hear the thunder of water.

At last we got down on to the beach, and all was revealed. At this point the bed of the river, which is jammed with boulders, suddenly begins to fall very steeply. A high wall of rock juts diagonally across from the opposite cliff, and the loaded water has blown a hole 15 feet wide clean through the middle of it. Now all the water poured through the breach, but in flood an immense volume falls over the ledge, dropping down 30 or 40 feet. Immediately below this point the boulder beach comes to an end at the foot of the cliff; and what happened next we could only guess, for the river, after hurling itself through the gap, rushes headlong into a gorge so deep and narrow that one could hardly see any sky overhead; then it disappeared. We now set to work to scale the cliff; and after felling a small tree and constructing a ladder, we mounted 100 feet, hauling ourselves up through the bushes. From our vantage-point we could see some dis-

tance down the gorge, and this was what we saw :

Below the whirlpool created by the first fall the river flowed smoothly for about 100 yards, and was a dark jade-green colour ; here it was not more than 30 yards wide, and must have been incredibly deep. Flowing more swiftly, it suddenly poured over another ledge, falling in a sleek wave about 40 feet. Scarcely had the river regained its tranquilly green colour, than it boiled over once more, and was lost to view round the corner. However, we could see it to within a mile probably of the cliff where we had found the Madonna Rhododendron in flower ; and though we crawled a little farther along the cliff, till the vegetation came to an end vertically above the fall, we could see no farther.

We are, therefore, unable to believe that there is any likelihood of a greater fall in the remaining 5 miles which we did not see. Moreover, there is a legend current amongst the Tibetans, and said to be recorded in certain sacred books kept in the monastery at Pemakochung, that between the rainbow fall and the confluence there are no less than seventy-five of these falls, each presided over by a spirit—whether benevolent or malicious is not stated. Supposing that to be more or less true, and supposing each fall or rapid to be only 20 feet high, the difference of height is easily accounted for.

The Mönbas told us that this was the biggest



fall ; and as the river dropped about 100 feet in a quarter of a mile, we had no reason to disbelieve them. We had now discovered the narrowest and most profound depths of the gorge, where the river, only 30 yards in width, descends in falls and rapids over 130 feet a mile ; and that was something.

After four days of mist and rain, 16th December turned out fine again. We crossed the burn called Ne Chu and climbed the opposite spur, whence we had a magnificent view over the tops of the snow-powdered Tsuga-trees to the glaciers and seracs of Gyala Peri ; there is a small glacier lake at the head of the glen. Presently, from a platform on the ridge, we had an even finer view of the Tsangpo gorge, with Sanglung beyond. By the time we reached Sengchen Gompa, just above the village, the peaks were obscured, but a couple of hours later they cleared and we were able to get our position and fix two prominent landmarks above the river.

#### IV. RISKY HUNTING FOR THE RARE FLOWER

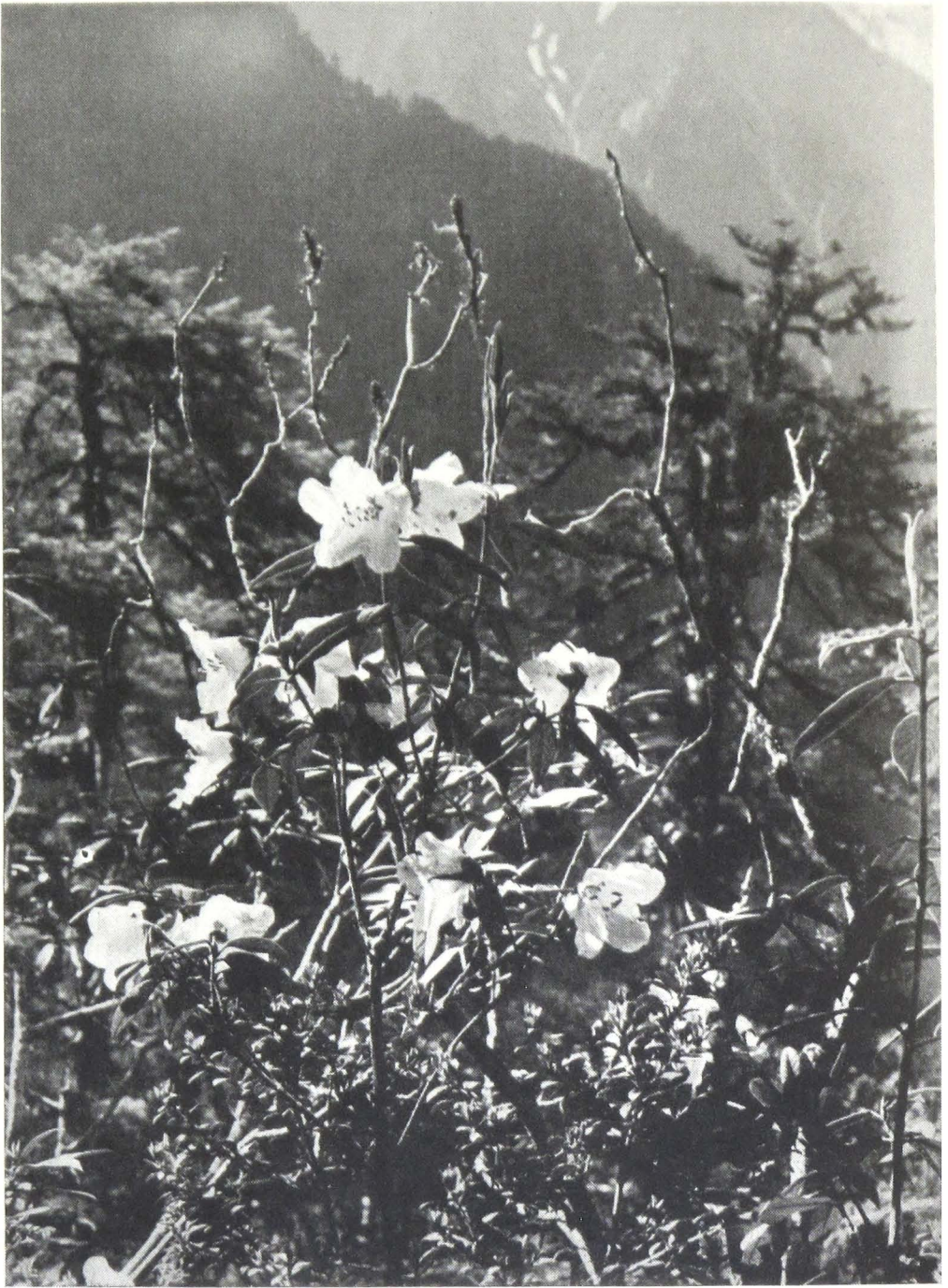
THOUGH it was impossible to resist the desire to go exploring in the virgin fields of the Mishmi Hills, I sadly miscalculated the difficulties. A bold mountain range shuts off Assam from Eastern Tibet. The southern slopes of these mountains are washed by the monsoons, and the area is a wild exotic garden with a powerful attraction for the plant-hunter. The many obstacles have a great advantage in one way, for they are instrumental in keeping the region unspoilt. The so-called "inner line" of the Sadiya Frontier Tract marks the limit of direct administration amongst the hill-tribes. The actual frontier lies a considerable distance beyond, and the interior country is unadministered. Sanction to travel in this territory is only very rarely granted by the Government and is, indeed, rarely sought, for the tribal area of the Assam frontier is not a pleasant place for travel, the scanty population and consequent lack of supplies, the precipitous nature of the country, which is covered with a cloak of impenetrable forest, and the hostile climate render life almost unbearable, at certain seasons nearly impossible. When, in 1928, my companion and I obtained the consent of Government to cross the "inner line," we joyfully seized the opportunity to spend a season in the forests of the Assam-Tibet frontier, for there is a grim satisfaction in

daring an unknown country with prospects of discoveries.

We soon found that the natives were to be one of our main worries. The Mishmi of the Lohit valley is an unclean and lazy child of nature, a swashbuckler, perverse and morose. For three-quarters of the year he lurks in his native hill forests; for the remaining three months lack of food—so acute that even his chronic recourse to opium is not proof against the pangs of hunger—forces him to descend to the plains and support himself by labouring for the Indian *kaiyar*. Dependent on this unstable element for our transport, progress was painfully slow. The native track was fit only for a goat—or a botanist; and the first marches up the Delei valley, a tributary of the Lohit, were the hardest of all. For two long days we clambered over beds of boulders which the skidding river had jettisoned, or hauled ourselves up the smooth cliffs by creepers, and clung desperately to the slippery ledges till we could descend once more into the river-bed by crazy bamboo ladders. Pushing through gorges and over lofty spurs we found ourselves, six weeks after leaving Sadiya, under the horseshoe of white peaks which rise 15,000 to 17,000 feet above sea-level.

We now realized that the Delei river is only a small stream which has carved out a gorge for itself on the flank of a buttress supporting the main range. Thus the valley, instead of opening





A bush *Rhododendron* with snow-white fragrant flowers. It grows in the rain forests of the Mishmi Hills at an altitude of 10,000 feet; often perched high up on some gigantic tree. *See page 56.*

out at its head into an ice-worn cirque, as at one time seemed possible, is choked with dense forest to its source.

When we were well into the hills the Mishmis turned suspicious and sour. They tried to persuade us to retire. For some reason they meant to prevent further advance, even going to the length of threatening to barricade the path with sharpened stakes of bamboo—on which our own coolies might impale themselves—if we did not retire. Not only did they refuse to help us, they would not sell us food, or guide us. The situation was awkward. But some villages were more friendly than others, and ignoring the bad tempered ones, and having obtained sufficient provisions, we went on slowly up the valley till the snowy mountains at its head came into view. It was a sight to gladden our weary hearts, and rejoicing, we tried to hasten forward to the goal now in sight. The Mishmis took us over the river by a rope bridge made of twisted strips of bamboo, under which one was suspended by means of a large cane ring ; by hauling vigorously with one's arms, and pushing with one's feet, it was possible to ride safely across, though progress was far from comfortable.

Then having deposited us bag and baggage on a narrow ledge of rock, high above the river, these miserable natives announced that they intended to leave us here stranded. It was the last straw which roused a reluctant temper in me ;

viciously I threatened reprisals. "Forward or back," I said, and when they still refused I added, "If you won't take us back to your village, at least you shall not return there." Suiting action to my words, I went down to the river and cut the rope bridge! Bitter recrimination followed this act, but in the end the Mishmis had to repair the rope, and take us back to their village.

It was a fortnight later, peace having been patched up, that we made a fresh start, following a hunter's path straight up the mountains to a camp in the rain forest at 10,000 feet. Amongst a wilderness of Rhododendrons we sat here for six weeks in the rain mist, during which time we struggled up the ridge, through dripping forests and tangled thickets, to the Alpine region. The world lay at our feet. The violent beauty of those crowded mountains, mantled with forest, lashed and stung by the rain, took one's breath away. All the jewels of Ophir in flower form—starry constellations, dangling bells, tall pagoda-like towers—were spread out round us. We could scarcely turn from the glory of it to proceed with the work we had come all the way to do. The end of the journey did not see the end of our troubles. Many things were to go wrong yet: hunger, when fresh supplies did not arrive for us; the threat of thirst when a break came in the rains, and we could not find a spring up on our lonely ridge; and a fortnight's storm at the end of

autumn when it should have been fine! But never did we forget that wonderful day when, first of all white men, we stood on the Alpine summit in the heart of the Mishmi Hills, and gazed into the valley 10,000 feet below, and at the ruffled seas of dwarf Rhododendron, spangled with Primulas, at our feet, and the leagues of snow beyond—a glory indescribable.

We camped in the rain forest at the end of May, and prepared to explore the Alps for plants. Above the last cultivation the rain forest begins. At 9000 feet this passes into Rhododendron-Conifer forest, which at 11,000 feet in turn gives way to solid forests of Silver Fir. At 12,000 feet tree growth ceases, to be replaced by Rhododendron scrub and Alpine meadow, above which is only bare rock and barren scree; it is in this Alpine region that the chief interest for the botanist lies.

Throughout April and May the rain forest is a blaze of Rhododendrons of all colours. Here grow the big-leafed trees, which often form more than half of the forest. They bloom while yet the silken leafbuds of deciduous trees are putting forth infant leaves, and the chubby catkins of *Corylopsis* are dangling from unfledged twigs. It is the loveliest season of the year. Even the vivid livery of autumn cannot vie with the woodland colours induced by a bleak spring. When the shrill greens and yellows of the Maple, Birch and Oak have broken out, the Rhododendrons froth



up in domes of scarlet amongst the sombre arrogance of the fir-trees.

With the first rush of the warm monsoon rain the snows of the Alps begin to melt fast, and promptly the spearheads of innumerable Alpine plants pierce the black glutinous earth; a frill of blossom creeps along the raw edges of the cliff.

Many Rhododendrons were discovered here, amongst them being a fine form of the well-known *R. Griffithianum*, with enormous white funnel-shaped flowers, and leaves a foot long. Another tree species has large trusses of bell flowers, coloured a dusky Tyrian purple, with a hurricane of darker commas printed over it in the form of a Prince-of-Wales feathers. Much smaller is a wiry shrub with tight heads of bright crocus yellow flowers, and dark green-pitted wash-leather leaves—*R. mishmiense*. A fourth species, *R. aureum*, is covered with knobs of butter-yellow flowers peeping from amongst the metallic-looking grey-green foliage. These are but a few of the two dozen early flowering kinds whose blossoms played hide-and-seek with us in the dark forest. Later, in May, a gale of colour swept along the ridges as the bush Rhododendron seethed into bloom. One of the commonest had leaves which were bright cinnamon beneath, and bulging trusses of flowers banded pink and white outside splashed purple within (*R. iscenticum*). Much less common was an allied species distinguished

by its great leaves with bristly stalks and brick-red flowers; still rarer was a near cousin with flowers of vivid cherry-carmine.

Many epiphytic *Rhododendrons*, small straggling shrubs with large flowers, pink, white or yellow, perched aloft in the tree-tops, were common in the Conifer forest. High up on a moss-bound Fir hangs a milk-white cloud of *R. bullatum*, whence from time to time there flutters down a fragrant corolla, like a broken butterfly; and clasped in the fork of another tree is a small bush studded with button flowers which gleam pale golden amongst the silver-plated leaves—*R. megeratum*.

In the forest the rich brown soil absorbs the monsoon water like a sponge, yielding it up again in springs which gush from the steep flanks of the ridge; and the scuppers of the mountain, where myriads of sandflies fog the air, are choked with rare woodland *Primulas*: the lovely *P. Normaniana* with heads of crimson flowers; and the drooping golden drops of *P. polonensis* grow here.

It is above the last stunted and broken trees, in the Alpine region itself, that the real floral treasure of the Mishmi Hills is revealed. Here, in a harsh desolation, the dwarf scarlet *Rhododendrons* smoulder in the smoking mist, after having cowered fathoms deep for seven months of the year beneath a snow quilt, untroubled by the howling wind which spins off the surface in spirals of powdered glass. These dwarf *Rhodo-*

dendrons are the most wonderful of all Alpines. Whenever a rare shaft of sunshine drives through the huddled clouds the flowers gleam and glitter like jewels. A breeze buffets its way awkwardly up the ridge, and the tossing clots of flowers lift and sink on aromatic seas of sage-green leaves. Gamboge Primulas are also here by the thousand, poking their heads up through the snow which quickly disappears, leaving the whole sodden turf slope transformed into a field of cloth of gold. Other flowers include powder-blue Primulas, like Grape Hyacinths (*P. apocrita*), scented dwarf Irises, and nodding red Lilies (*Namocharis*).

Second in interest only to the discovery of new plants is the discovery of known species in new places; and it was with a thrill of delight that we found in the Mishmi Hills several Alpines hitherto known only from Sikkim 500 miles to the west, *e.g.*, *Meconopsis paniculata* and *Bryocarpum himalayicum*. This fact alone very definitely suggests that the great Himalayan range does not end abruptly at the knee-bend of the Brahmaputra, as it appears to do, but that its axis is prolonged eastwards towards China.

By mid-July the Alpine flowers are over, flogged to pulp by the pitiless rain. Less than three months of the season remain. There comes a break in the monsoon, when a powerful sun smites the drenched and shivering forest, and a

sour odour of decay hangs over the steaming earth. Loathsome-looking toadstools manifest themselves everywhere. But the lull is brief, and the short season ends as it began, in hurricanes of rain. Then in October come biting winds from the plateau and blasting snowstorms which bury the Alpine plants for seven months. The winds race and dance over their graves ; only amazingly blue Gentians, last of all Alpine flowers, glare bleakly from the rocks, and ripen their seeds in cold storage.

But much was to happen before we could collect seed of all the flowers. The Mishmis revolted again, and refused to carry for us. At the end of October, when the hills lay sleeping under a deep mantle of snow, and the ruthless wind tore in vain at the frozen bushes, we must needs fight our way through wind and snow to gather seed of the most beautiful Alpines. Again I struggled up the ridge for the last time, with two faithful natives, and sleeping in a cave, spent a week collecting seed of all the finest plants we had discovered. Then with our booty we marched out of that inhospitable valley. November found us at the British outpost on the Indian frontier whence we had started eight months before. We had had a hard time, but it was worth it. Seed of fifty different Rhododendrons, several of them new, was secured, besides seed of many other plants, and a number of Orchids ; and almost all of them are growing well. And when in years to come

these glories of the Mishmi Hills flourish in English gardens, we shall, for our part, feel that the months of struggle and weary fight against unexpected difficulties and opposition of sour tribesmen, have not been without reward.



A big Hedychium with flowers of vermillion and bright yellow. It is fragrant, and is found amongst high grass in sub-tropical valleys in the Mishmi Hills, at 4000 feet.



## V. RAFTING THROUGH INDO-CHINA

IN 1928, while I was exploring in the Mishmi Hills, Assam, I was asked to join the Kelly-Roosevelt Expedition. Early in November I was back in Sadiya, and at the end of the month I started off again, this time for the Abor Hills, intending to work round the Assam frontier on the north bank of the Brahmaputra. Arrived at Pasighat, our outpost on the Dihang river, I found a telegram awaiting me from Kermit Roosevelt, and when I reached Calcutta the general idea of the proposed expedition was unfolded to me. The Roosevelt detachment, consisting of the two Roosevelt brothers, Mr Suydam Cutting the New York millionaire, and Mr H. Stevens the zoologist—an all-star caste—were making for Western China, by the Bhamo-Talifu route, to hunt the Giant Panda.

The Giant Panda, or parti-coloured bear, is almost a myth; and yet not quite, for it has at least a name, *Aeluropus melanoleucus*. Occasionally swarthy loose-limbed natives will show you the skin of a strange beast, as large as a brown bear, in the little Tibetan town of Tatsienlu. Yet though many white men, including the late General Pereira, have hunted the Giant Panda, none had ever seen one; and for sixty years it has remained a puzzle in a skin, perhaps in an ass's skin. It was left to the Roosevelts, these mighty hunters, to clear up the mystery.



In the spring the Roosevelts would move southwards into French Indo-China, following the Mekong river. Meanwhile another detachment of zoologists, under the leadership of Mr Harold J. Coolidge, son of another ex-President of the United States, had sailed for Hanoi, and would enter French Indo-China by Tongking. The two parties converging hoped to meet in the spring, somewhere in Laos, where I should pick them up. And so in early spring I was on my way across the Shan States by motor-car.

The motor road continues for 70 miles beyond Taunggyi, a steep, narrow, stony road, slinking through the craggy hills. On the second day the road became a mere dirt track, wide enough and good enough in the dry weather, but impassable for motors during the rainy season. We bumped along in a cloud of dust, shedding spare parts, and halting frequently for running repairs, or to fill the vacuum tank. On the third day we threaded our way through the cone-shaped hills for 2000 feet to the Salween river. The intense heat of the gorge was like the blast from a furnace, and the river ran like quicksilver between the dun-coloured banks. Hundreds of mules were being ferried over, but the crossing did not take long. In the rainy season, however, the water rises 80 feet, and the rafts are swept a mile downstream as they struggle across in the grip of the angry current.

We were still 100 miles from Kengtung, with two high ranges of hills to cross. Here is no motor road, nor even a cart road, only a good mule road—in the dry weather. Nevertheless more than one lorry had gone through to Kengtung; and I was lucky enough to find a driver who was anxious to risk his neck, for a large fee, not payable in advance; he agreed to risk mine also, and we started in the afternoon.

The road climbed out of the Salween valley through a slit in the walls of hills. It had been blasted out of the cliff on a slant, and it overhung the torrent, being separated from the edge of the precipice by a low coping. The heavy lorry swayed and bumped on the uneven rock ledge, now rasping the cliff, now almost over the coping, until at last, on the steepest part, it stopped dead. And just then, from beyond the bend, we heard the unmistakable purr of a lorry coming down from Kengtung! I rushed forward and stopped it just in time; and the two lorries faced each other on that steep and lonely ledge, with the torrent thundering below and the grey cliffs tossing back the echoes.

We stripped both lorries and took stock of the position. By great good luck, close beside the upper one a cliff jutted out over the torrent, and the coping ceased. With much difficulty the lorry was worked into this bay, and hung suspended as it seemed between the ribbon of blue sky above and the foaming water below. Every

minute I expected to see it topple over the edge, but it clung there while we scraped past and up the hill out of the defile, where we could turn round.

When we got back to where the luggage had been piled, the sun had long set ; and in the hot glutinous darkness, shot through and through with the glimmer of dancing fire-flies, we crawled down the slanting rock road to the Salween ferry, where we passed another night. The person least moved by all this was my own lorry-driver, although the driver of the other lorry had whispered to him lurid tales of the road.

Next morning we started again with a lighter load, and climbed up through the ravine without difficulty. In front of us, draped with forest trees, the first range of hills rose stiffly against the sea-blue of the sky, and we began the long ascent to over 6000 feet. At the end of five hours, having done twenty-nine miles, we halted to cool the engine. The afternoon climb was slow, and it was late when the lorry crossed the pass. Disaster almost overtook us on the descent, for taking a bend too fast, the lorry would not come round, and in a twinkling we were on the edge of the precipice. The driver with great presence of mind took his foot off the accelerator and stamped on everything else, and the heavy lorry slid to a halt ; then the path broke under the weight of the off-front wheel, and a shower of stones rattled down on to the tree-tops far below,

while the lorry remained balanced on the edge of eternity.

But the driver was game. He was an appallingly bad driver, but he never lost his head. Now he and his two assistants emptied the lorry once more, and we tried to get it back on the track. Hour after hour we worked cutting logs in the jungle, fetching stones, pushing and pulling. The stars came out and twinkled between the twisted trunks of the trees; far across the next valley we saw a glowing scimitar moon sink home into a scabbard of cloud. At last, by building up the broken road, we backed the lorry and straightened it up. After that we proceeded more cautiously, feeling our way down the long hillside to the valley, where we arrived at 10 p.m., having done forty miles in twelve hours.

Next day's road was easier, and we snored through the bleaching forest at a steady pace. *Bauhinia variegata*, leafless, but in full bloom, was like a warm fragrant snowstorm, and long festoons of amethyst orchids (*Dendrobium* sp.) trailed from the trees. On each wing stood a scout, whose duty it was to watch round the corners and to leap off and remove branches of fallen trees, or to help turn the front wheels at a critical point, or chock them on a hill when the engine stopped unexpectedly. Several times we came upon mule caravans plodding along and stampeded the animals, or on jungle men who scurried away like frightened rabbits. But villages were few. The

whole country was a tossing sea of peaks and ridges, covered with scrub forest or with grass. The hot sun smote us hard at midday, and we were glad to stop in the shade for an hour or two, and from the crest of a range look out across the wild jungle of mountains with the road losing itself in a haze of blossom below.

On the third day we crossed the last range and descended to the plain of Kengtung, where we saw rice-fields and men and buffaloes and houses again.

Later I called on the Sawbwa of Kengtung, a prince of the Shan nobility. For the drive to the haw, which resembles a provincial town-hall, I hired a ramshackle Ford from the local Chinese mule contractor, who had made his fortune hiring out mules to the Government. The sentries at the gate awoke with a yawn when the car came rattling and snorting up to the gate, and presented arms languidly; one of them dropped his rifle with a clang. I found myself in an enormous hall, dark and unfurnished; in one corner an official seated on a dais was arguing with some natives who squatted round him in a ring. Then the Sawbwa's son appeared and led me up a flight of stairs into the Presence. The Presence proved to be a rather dirty old man, dressed in rich but dingy robes, and he had nothing whatever to say. He asked a few senile questions, chewing betel all the while, and spitting at intervals into a golden spittoon, so that I was glad when etiquette

permitted me to withdraw. No writer of musical comedy would dare to portray an Oriental despot as he really is, for truth is stranger than fiction and much more heartless.

In the mule contractor's ancient Ford I went up to Loimwe, the last fort in the Indian Empire, twenty miles from Kengtung and nearly 6000 feet above sea-level, while waiting for my mules. There are some magnificent trees of the wonderful *Cassia javanica* here. It has rose flowers borne in vast luxury without leaves.

From Kengtung there is a good mule road to Chiengmai, on the Siamese railway, 150 miles distant. This is the obvious route through to the South China Sea, and all trade passes this way; indeed a dry weather motor road is in course of construction.

Bound for Laos, however, you keep north of Siam, crossing the Mekong where that river forms the boundary between the Indian Empire and the French Colonial Empire. No trade goes this way, however, and it is difficult to hire mules for the journey; even the hardy Panthays, who go almost anywhere, are afraid of the all-devouring ruthless green jungle to Laos.

Early in April I set out for Muongsing, the first French outpost across the border, travelling by the small road which would take me through the heart of the Kaw country.

Ahead of us now was the highest peak in the Shan States, 8000 feet. We camped with the

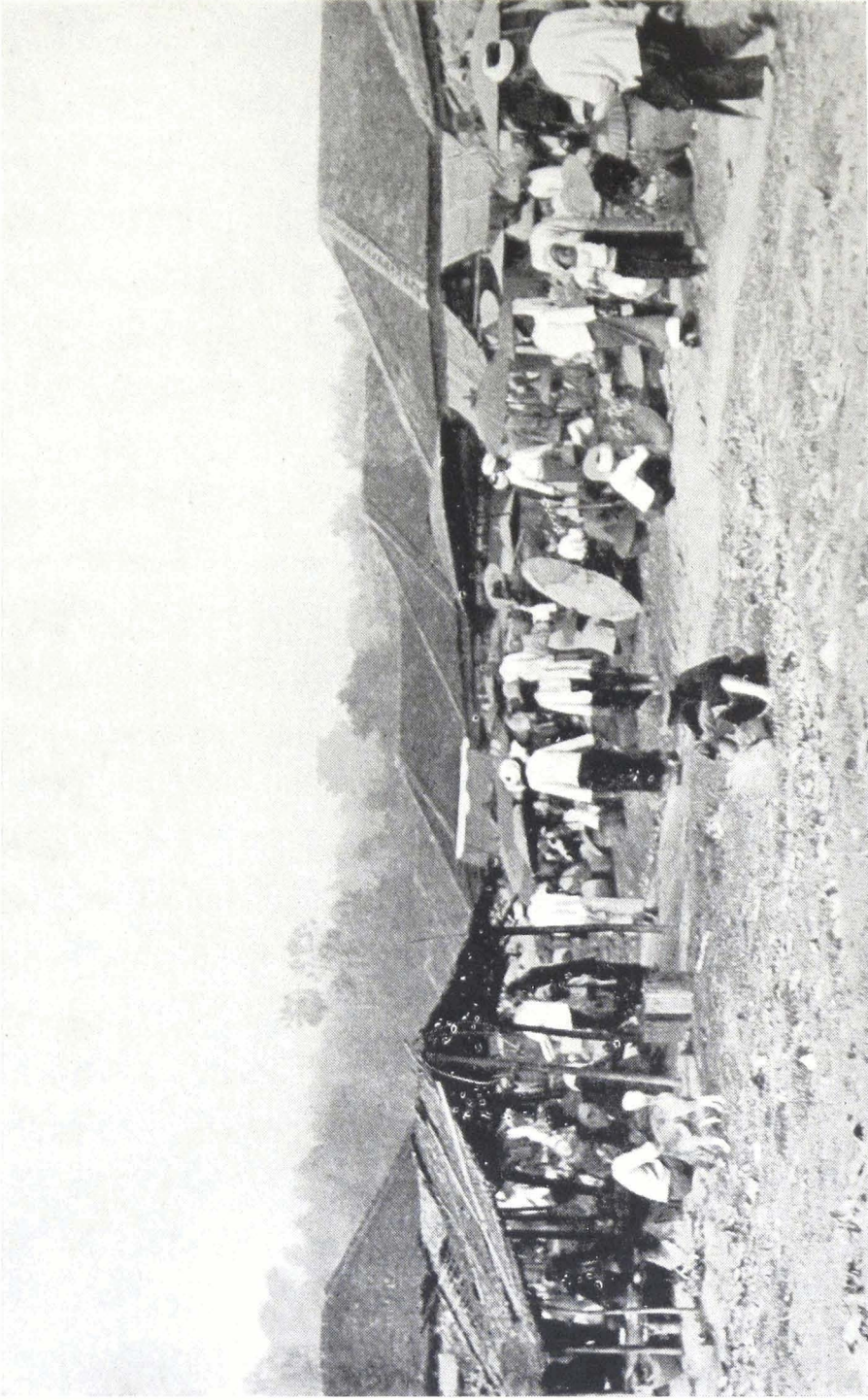
great mass of the mountain towering 5000 feet above us. A white mist gathered on its brow, where the forest clung like fur. Away down the valley the clouds were curdled copper in the shadowy dusk, and the wail of bamboo flutes came from the village. My tent was full of life: horse-flies, beetles, earwigs, cockroaches and spiders competed for place, and when I put out the lamp, fire-flies see-sawed in the darkness.

On the second attempt to climb the mountain with fresh guides, and coolies to carry tent, bedding and food for four days, we camped near the top. It was pleasantly cool here. There were clouds of a white-flowered Rhododendron, Veitchianum, in the tree-tops, and a splendid Michelia in bloom. An owl hooted gently from time to time, and the challenging bark of a deer disturbed the peace. Next morning we awoke to the song of birds. It was a lovely day, and from the high ridge we could look right out across the valley to the next range of hills, all chequered with clearings across which a few cloud puffs threw vast violet shadows. We scrambled about on the roof of the plateau, and at evening descended into a little valley, where we camped again; and on the third day we descended to the village. After this diversion we pursued our way eastwards towards the Mekong.

When we topped the last range we could see, below, an arc of the Mekong trapped in the hills. Descending 4000 feet we reached the ferry. The







The Market at Kengtung, Southern Shan States. See page 66.

raft would only carry five mules at a time, and it took six trips to get us all across ; luckily there was little current here, and indeed the Mekong is much less impressive than the Salween.

The path on the opposite bank was execrable, and presently we were glad to take to the river-bed, where, however, the intense heat stabbed us in the back. Gradually the path improved, and after passing through some glorious jungle reeking with Orchids, we joined, on the third day, the main road between Muongsing and Hwei Sai, an important post lower down the Mekong.

Muongsing is the last French outpost in Laos. It takes a French officer, landing in Saigon, six weeks to reach Muongsing, which is regarded as an important node, on account of the number of trade routes which converge on it. One can get almost anywhere easily from Muongsing—except to French Indo-China. Perhaps the best caravan route of all is that which goes to Kengtung ; but no trade passes this way. Here three empires meet. It is only 40 miles to the British border, and only three hours to the Chinese border. Finally the Siam frontier is not many days' march to the south. The obvious highway to the coast is of course the Mekong, only it happens to be unnavigable. Nine marches south of Muongsing is Hwei Sai, the head of boat navigation. It is odd to look down that long corridor from the ferry, with the broad river shouldering its

way through the sloping hills, and to know that it carries no craft on its bosom. It is like a fine speedway, perpetually closed by the notice, "Road up."

And the day after my arrival at Muongsing I went down with a severe attack of fever, which kept me in bed for a fortnight. However, by the end of May I was slowly learning to walk again, and went on by raft and pirogue down the rapids of the River Namtha to the Mekong, and on to Luang Prabang.

On 10th June I left Muongsing for Namtha, two marches over the hills. Once we left the plain, however, the going was bad, for the hills are steep and the path was slippery after rain. The ponies made up for the slackness of their owners. Small as they are, their strength and willingness are wonderful; they made light of the hill ranges, carrying their 120 lbs. loads without difficulty. The breeding of these sturdy animals is a Laotien industry. The country east of Namtha is perhaps the wildest in French Indo-China, and gives a very definite idea of the uncompromising nature of Laos. A dense tangle of forested hills stretches away as far as the eye could see, but now the valleys were packed in mist, and the view dissolved in rain. The path climbed spur after spur, and plunged down into deep ravines filled with tropical jungle.

Arrived in Namtha, a small post on the river of that name, commanded by a French N.C.O. who

received me most hospitably, I waited two days while five pirogues were being prepared to carry me, my servant and luggage to Pakta on the Mekong, nearly 200 miles distant. These pirogues are shallow dugout canoes, with a low roof clapped on amidships to keep off the sun and rain. It is impossible even to sit upright under the roof, let alone stand up. One is expected to lie down. The river looked uncommonly like a big sluggish ditch at first, but it soon changed its character.

Each pirogue carried a crew of four men, two forward and two aft. The really important man was the forward steersman, on whom our very lives depended ; he was always a middle-aged and experienced navigator who knew the Namtha river as we know Piccadilly, though all the Laotiens appear to be good watermen. Soon we entered the first rapids and the fun began. It was dangerous work. At one moment we were floating idly along between high walls of green jungle. Then turning a corner we heard the roar of rapids ahead, and found ourselves being sucked towards them with ever-increasing speed. But the rocks were so overgrown with bushes that from a little distance there appeared to be no passage. As we rushed along towards the fall, suddenly an opening yawned, and next minute we were swept down the foaming slope. Now it was the steersman's turn ; he would pick the boat's head off a fang of rock with one powerful lash of the oar, then sweep madly with it like a frightened

fish's tail to guide us through the narrow slot. So we bounced through the surf, dodging the rocks, while waves slapped over the gunwale, and the air was rent with the sound of frenzied water. Had we hit a rock, we must inevitably have swung round broadside on and been instantly swamped. It was lucky that the pirogue had a stout keel, for in some of the shallower rapids we came down on submerged rocks with a bump, or scraped over boulders at the bottom of the river.

Looking back one saw the pirogues following us slide into view one by one over the lip of the rapid, to disappear instantly amongst the waves. They seemed to be engulfed in spray, and as they reappeared I counted them carefully, but the number was always complete. I thought that probably as we approached the Mekong the river would become more sober. Not a bit of it; some of the biggest rapids occurred not far above the confluence, and this game of running the gauntlet went on for six days. When one realizes that the Mekong itself is strewn with rocks and whirlpools for several hundred miles below Pakta, this is not so surprising after all.

One brilliant afternoon we passed through a magnificent limestone gorge. A fringe of Dragon-trees lined the cliff, and fiery rivers of a wonderful scarlet climbing Bauhinia ran down some of the biggest trees. The violent beauty of the scene took my breath away.

In the forest were Oaks, Engelhardtia, Dil-

lenia, *Hibiscus macrophylla*, and Paper Mulberry (*Broussonetia papyrifera*). Gigantic climbers—Muenna, *Acacia*, *Millettia*, *Vistis*—cascaded over the tallest trees. An *Acacia* in fruit was more brilliant than many a flowering shrub, and fountains of purple or violet flowers spouted from the *Millettia*.

The Mekong is one of the most extraordinary rivers in Asia, matched only by its almost bed-fellow, the Salween. Although not less than 2500 miles in length, its course becomes more and more erratic as it approaches the China Sea, and within 350 miles of its mouth occurs the biggest fall in an almost continuous series of rapids. Between Pakta and Vientiane, a distance of 450 miles, the bed of the Mekong may be likened to a gigantic stairway with long treads of smooth water and short rises of furious rapids.

Running the rapids of the Mekong on a raft was a very different experience from shooting the Namtha rapids in a pirogue; one felt safer, but also much more helpless. Long jagged groins jutted far out on either side, and the river raged over them. Ugly rocks in mid-stream were awash, or bared their fangs in a horrible grin as the pulse of the river rose and fell. Sometimes the raft span round in the whirlpools till I was giddy; at other times we went lurching through a tumult of waves, skidding past rocks which, had we hit them, would have flung our pieces into the backwash.

One day we ran a mile of rapids at high speed ; the whole wide river-bed was so thickly sown with rocks that it was difficult to see any channel at all. Meanwhile the rising bosom of the river, blotched with foam-suds, bore towards the distant sea quantities of timber, aquatic plants, bamboos, and such-like vegetable matter. But the Mekong was by no means at flood-level yet, as was proved by the great baulks of timber—nearly all teak—stranded high and dry on rocks which stood many feet above the surface ; these would all be swept downstream later in the year.

Whenever we felt the tug of a rapid and heard the distant roar, the steersmen girded up their loins, and the crew sat up, shouting and chanting. Then they began to work in unison, with short brisk strokes, while the forward steersman stood alert, ready for the crisis when, with one frantic sweep of the oar, he must drive us just that foot which represents the difference between safety and disaster. The crew, to judge by their deep grunts, always think they are doing an immense amount of work, as indeed they are ; only most of it is dissipated in heat. The effective work is small. But considering its size and weight, and particularly its shape, the raft was not so unwieldy as it looked ; though when a strong wind caught it broadside on it performed queer tricks, and we had to run ashore and wait for the storm to blow over.

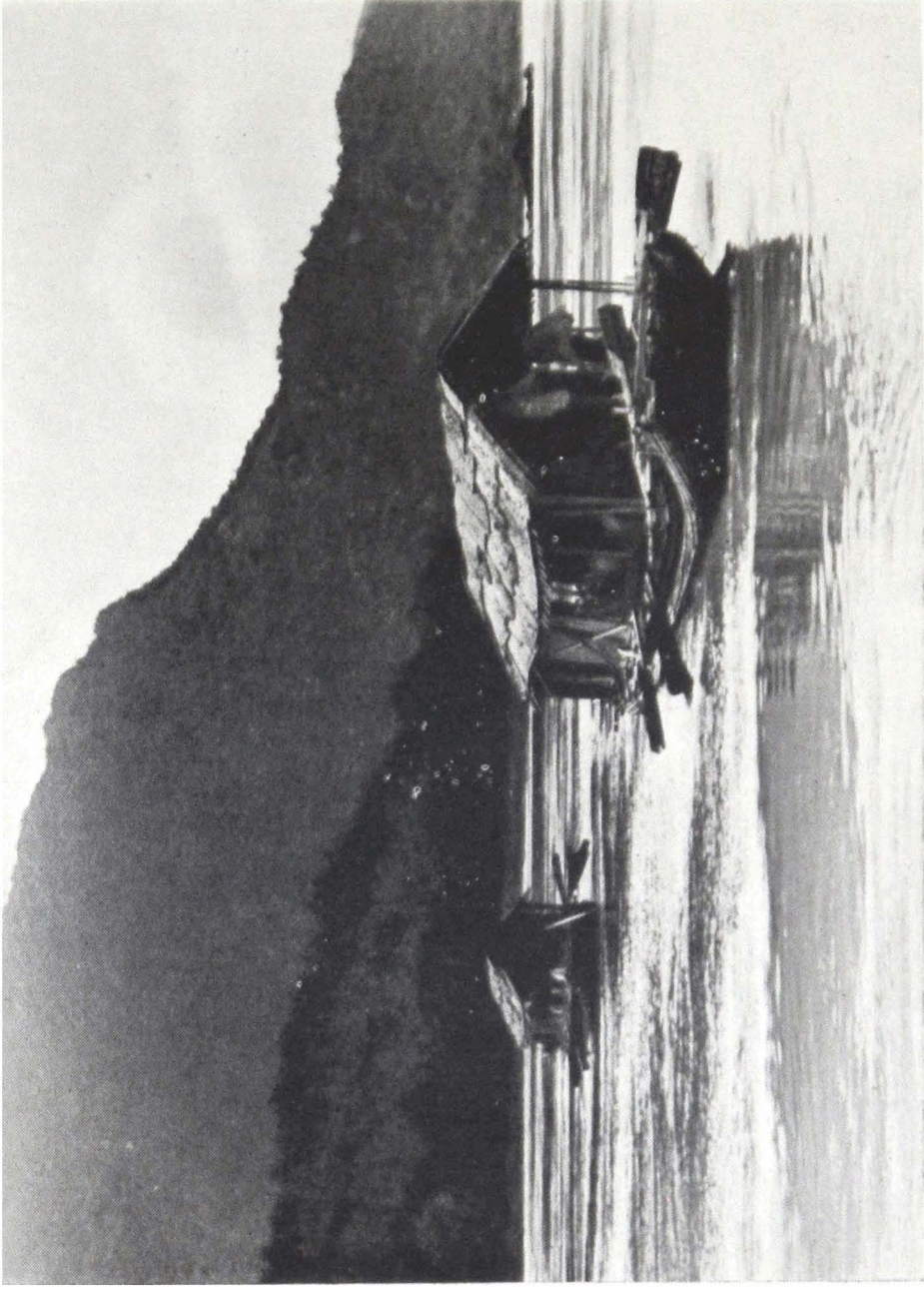
Life on the raft, though exciting at times, was more monotonous than in the pirogue. Each evening we tied up, though sand-flies and mosquitoes were abundant inshore. At dawn we started again. There was no midday halt, nor could I be put ashore to collect plants at a minute's notice. There were few villages, the country was wild and deserted, everywhere mountainous and mostly covered with dense forest. Generally we could not even get any clean water, but had to drink of the copper-coloured Mekong, which had a flavour all its own. From day to day we passed pirogues toiling upstream under the shadow of the rocks, making use of every backwash from the current, but even so hardly seeming to move as we slid by. Boats cannot be hauled upstream except over short stretches, as it is necessary to be continually crossing the river. They are poled and pushed by four men or more, according to size, who, armed with long bamboos, walk slowly the length of the boat, shoving together, and bent almost double under the strain.

One evening, after many days on the water, we sighted the pagoda on the hill overlooking Luang Prabang, and were soon drifting along under the high bank, slit here and there by long flights of steps leading to the street above. Rafts and pirogues increased in number; groups of women were drawing water, or washing; children were bathing. At dusk we tied up off the French



quarter, and I went ashore to call on the Chef du Provence, who was entertaining me.

Luang Prabang is one of those strange Oriental places whose names we have known since nursery days, and which are marked in large letters on every map of Asia, no matter how small the scale, but which no one you meet has ever seen. The town once had a significance it no longer possesses: only the name remains to recall its departed glory. Once upon a time the province of Luang Prabang was almost equivalent to what is now the protectorate of Laos; and the town on the Mekong, with its palaces, temples and monasteries, and a population of 40,000, covered several square miles. But the disastrous wars with Siam in the middle of last century ruined the country; and although since the coming of the French there has been peace, Luang Prabang has never recovered its ancient hold on Laos. However, there is still a King of Luang Prabang, who lives with his baker's dozen of wives in a garish palace on the river bank. Close by are housed his racing pirogues, beautiful lithe craft with almost the finish of an English eight. They are 40 feet long, perfectly proportioned, curved up at each end, and carry a crew of forty men. Racing takes place when the river is high. There is nothing I know quite like Luang Prabang. One thinks of some old town in Burma, naturally; but the Irrawaddy is navigable for steam vessels, and that makes all the difference.



Rafting down the Mekong in Indo-China where miles of dangerous rapids are negotiated in these clumsy craft. *See page 73.*



Consequently I was sorry when, on 29th June, I had to embark for Vientiane on the paquebot of the Messageries Fluviales de Cochin Chine, the more so as the Chef du Provence and the other French officials with whom I came in contact had been extremely hospitable.

One has no sense of being on the plains at Luang Prabang ; at most it is a green bowl in the hills ; consequently it is with no sense of surprise that one sees the mountains close in again, and the country grow wilder than ever. We were soon spinning through rapids, and between the falls, in spite of the great breadth of the river, the current was tremendous. At one point, with the water swirling round us, heaving and bubbling like a devil's cauldron, we remained almost stationary for several minutes, though the crew were working desperately. A raft which was being hauled on by twelve men did not move against the current. On the whole, life on the postal paquebot was very similar to life on the former raft ; a pleasant enough life in its way, though the tropical forest is of course monotonous. The less responsible French tell you that the Laotien are pleasant people, always talking and laughing. This is certainly true ; but after such close contact with them for so many days, I began to wonder whether people who dissolve into laughter as readily as some persons dissolve into tears are really so mirth-provoking. Could their lightest word really be so uproariously

funny? They seemed to laugh from sheer lack of self-control.

At last on 7th July the river widened out again, the hills receded, and early in the afternoon we were on the plain of Vientiane, the capital of the Protectorate. It is regarded as on the fringes of civilization, and has a considerable French population. There are many delightful houses, a number of old temples salvaged from a jungly grave and cared for by the French, though disfigured by telegraph and electric light standards, and a large number of Annamite shops. Away from the residential quarter and the bazaar, however, it is a typical Laotien village.

From Vientiane to Savanakheth is 254 miles, and it took us two and a half days' steaming from sunrise to sunset in the launch of the Resident Superior of Vientiane which was placed at my disposal.

At Savanakheth I said good-bye to the Mekong, and hiring a motor lorry left the same afternoon for Hué, distant 240 miles by road, where I joined Mr Coolidge's party. The road passes through open savanna-like forest, where dozens of delightful flowers waved in the long grass. On 19th July we all left by train for Tourane, the seaport of Hué, a few hours' journey. From Tourane we took steamer to Saigon, where we met Colonel Theodore Roosevelt; and what was left of three parties were at last united, only to disperse a few days later.

At Hué I botanized on the sand-dunes, where I found numbers of interesting plants, especially "rosette" Papillonaceæ with enormously long tap-roots, but my expedition ended when the steamer's siren sounded the departure for Saigon.

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