



FRANK KINGDON-WARD

O.B.E., B.A.(Cantab), F.R.G.S., F.L.S., V.M.H., etc.

RETURN TO
THE IRRAWADDY

*With 46 Illustrations, one diagram,
and a folding map*

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F. K-W.

* Now the Director of the Royal Botanic Gardens, Kew, Richmond Surrey.

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CHAPTER I

Preparations

WITH the last words from the Burmese Embassy still clanging in our ears ("The Kachin State Government is not in favour of your proposed journey"), we got into a taxi and drove to Euston.

It was the 6th November 1952, and we were now committed up to the hilt to a year's plant hunting in the highlands of North Burma—unless, of course, when we reached Rangoon the Government of Burma said nay. So far it had said neither yea nor nay; or more exactly, it had said both yea and nay. The position was still somewhat obscure; it seemed to change with the fickle moon. But that final backfire from the Embassy, where we had of late been all too frequent callers, was the unkindest cut of all, and sent me to Lloyd's. Yet there was ever the fleeting hope that what the Burmese Government said today, it would unsay tomorrow; or perhaps, what the Kachin Government said today, the Union Government might unsay tomorrow.

It is a curious and distressing paradox that the easier it is to see the world, the less are we encouraged to see it; the authorities would prefer we prepared ourselves to see the next world. It is in the nature of things that the faster we travel the less we see; and it seems logical, therefore, that in the jet age we shouldn't bother to travel at all, since we shall see more by sitting still.

Most of the available international travel is undertaken by officials, with their retinues of secretaries, press agents and typists, careering across oceans to meet other similar officials on U.N. business, and peevishly disagreeing with them, thereby ensuring further journeys and further meetings.

Almost at the last minute we decided to travel north the day before we went on board, instead of by the boat train, thus taking it easy at both ends. Unluckily for them—and us—we omitted to notify our friends of this change of plan, so that while half a dozen with whom we were in constant touch forgathered at Euston to see the last of us, others, no less loyal, having learnt that the boat train left on the 7th morning, reached the station twenty-four hours too late, and rushed madly up and down the long train, surprised that we had cut it so fine. (We were breakfasting in Liverpool by then.)

The omens for a good journey turned against us from the start. While we were standing on the platform outside our compartment, making desultory observations with a sort of sham jocularly—the kind of irrelevant bromides that people whose minds are filled with other thoughts do utter on these solemn occasions—the overhead trumpets, the so-called loud speakers,

began to blare. These devilish gramophone horns, made of some sonorous alloy, are, one might suppose, designed to make as many persons as possible miss their train—or at any rate get into the wrong one. Their avowed purpose, however, is to inform confused travellers, already anaesthetized by the rush and roar of a great railway terminus going all out, what time the 10.45 leaves, from which platform, and to what distant bourne it is bound.

But in addition to this last-minute *aide-memoire*—as though visual aid in the form of time tables plastered freely about the station were so much waste paper—loud speakers have another function: they serve to trace passengers, and senile delinquents wanted by the police, by name. (How they must strike terror into the heart of the criminal trying to efface himself modestly by leaving the country, threatening him with a momentary publicity which a film star might envy!)

Kipling, with that pungent insight into the little weaknesses of his fellow countrymen which has so endeared him to us, remarked somewhere that “If you call an Englishman’s name aloud in public, you make him hot and fretty”; and surely there is no place in the world more public than Euston station at 10 a.m. on a weekday.

Imagine my horror, therefore, when the loud speaker began to roar my own name at the top of its metallic voice! “Calling Mr. Kingdon-Ward! Will Mr. Kingdon-Ward please go to the station-master’s office on No. 1 platform. Will Mr. Kingdon-Ward . . .”

I was standing right beneath the monstrous and unmannerly thing, and at first did not hear what it was announcing. Then suddenly I heard my name—and blushed. An official came up to me, and touching me on the arm asked me civilly if I was Mr. Kingdon-Ward.

“You are wanted in the station-master’s office, sir. Will you please go—that way, sir, platform No. 1.”

I went, while the Last Trump continued to roar like a bull.

It was a long way to the station-master’s office, and there was not much time before zero hour. I knocked timidly, entered boldly, and announced my name. The station-master, who was speaking into a telephone, glanced at me, motioned me to a chair, and I had a minute in which to review the position. My conscience was reasonably clear—so what was I wanted for? Was it the Burmese Embassy, to say that a decision had been reached, and that it was useless for us to go to Rangoon, as we would be deported immediately on arrival . . . or was it our principal backer, to say that he had just gone bankrupt and would unfortunately be forced to withdraw his support . . . or the police to say that Jean’s handbag had been found in a taxi? But the station-master was speaking.

“On the line now, sir,” and he handed me the telephone, picked up another.

"Mr. Kingdon-Ward speaking," I said, in a voice which I strove to make calm and business-like.

"Hullo, hullo! Oh, is that you, Mr. Kingdon-Ward? Sorry I couldn't get to Euston to say good-bye. I was detained at the Embassy. Yes, George Brang speaking. I rang up to say good-bye and to wish you both good luck . . . yes . . . happy voyage!"

Furious, but relieved, I almost flung down the receiver, but just remembered to hand it back politely and apologize to the station-master for troubling him over so small a matter.

"Thank you very much," I said hotly, and turning, ran for it. I reached our compartment just as the engine, far down the platform, began to whistle purposefully.

"Who in the world but George Brang," I thought bitterly, "would have had my name broadcast all over Euston station during rush hour!" Then, on calm reflection, "Who but George Brang would have realized it was possible to ring us up at the station and say good-bye!"

George Brang was a Kachin from the wilds of furthest Burma, whom we had met a year before in one of those romantic moments which sometimes happen in London. We were on our way to Australia House, having come to the desperate conclusion that for the plant-hunter, Sino-Himalaya—fabulous treasure-house of hardy plants for half a century's exploration—was no longer in bounds. Papua might have something to offer; at least it was not yet infected with Communists.

The tube was crowded, for it was the latter end of the morning rush hour, and a phalanx of men stood between the sliding doors. I particularly noticed a young man in Air Force uniform, and pointed him out to Jean.

"From Burma," I said, in what she called my rather superior tone of voice reserved for giving information gratis.

"Why not speak to him?" she answered.

I caught the young man's eye, smiled, and addressed him paternally.

"What part of Burma do you come from?" I asked.

"From Bhāmo," he replied readily with a disarming smile.

"I know you're from Burma," I said, "but what part of Burma?"

"From Bhāmo," he repeated patiently.

"Oh, Bhāmo!" I said, pronouncing it in English fashion. "Sorry!" (So he really was a Kachin!) "I used to know Bhāmo very well, but I haven't been there for years."

The train was slowing down; the young man was making obvious signs of departure. On the spur of the moment I gave him my name and address.

"Ring me up and come and have dinner with us one night." He might,

I thought, be lonely in London, and it would be nice to hear news of Burma again. He promised to phone, and as the doors opened, got out and smiled good-bye.

We went on to Australia House, but I must confess the ensuing conversation brought us very little nearer to New Guinea. By evening the newly kindled interest in "Pygmies and Papuans" had begun to wane. I was thinking of the misty mountains of Burma, lashed by the monsoon.

A few evenings later the telephone rang, and there was our young Kachin friend on the line. He promised to dine with us the following night.

That was a memorable evening, and—though we did not recognize it at the time—became later the corner-stone of our journey to the forest land between the twin Irrawaddy rivers. George Brang had not yet achieved that fluency in English which he commanded a year later, but he spoke it with fair ease, and understood it well enough.

We talked of the frontier hills, so green in summer behind their veil of cloud, but blue in the diamond clear winter air; of the great river sunk deep in its bed, smooth as porcelain while the northern glaciers are frozen up, but able to rise forty feet in a tumult of swirling mulatto-coloured water under the summer sun. By May the wet air from the Indian Ocean is being sucked into the hollow of Central Asia, to descend in sheets of rain at the first uplift of the land. We recalled the tinkling bells, in the silver dawn, as the heavily loaded mule caravans filed out of Bhāmo and set forth on the long road to China—and other happy memories. Would I ever see Burma again? I wondered.

"But why not?" our guest asked.

"The Government of Burma, in these days of uncertainty, would never give us permission to travel in the Kachin Hills," I said. "Nobody goes ten miles out of Rangoon, according to the papers. Isn't the country rent by civil war?"

George laughed. "The Kachin State has always been peaceful," he assured me. "It's the safest place in Burma. My people will give you a great welcome."

"Even so," I objected, "it's unlikely the Union Government would let us go. Besides, how does one get there, with the roads unsafe, the railway torn up, and the river steamers lying idle?"

He looked at me, and smiled patiently as though pained by my ignorance.

"We fly everywhere in Burma today," he announced proudly. "There's a regular service to Myitkyina twice a week. And of course the Government will let you go."

Some days later George came to dinner again. By that time we had taken our courage in both hands and visited the Burmese Embassy. When



1. Frank Kingdon-Ward and his wife Jean, just before their Expedition . . .



2. Chinese transport mule in North Burma



3. A dead tree with epiphytes—chiefly ferns, mosses and a few orchids

they told us it would take three months to get a reply to our application from Rangoon, we were glad we had wasted no time. Actually it took six.

On a later occasion George proved that he knew all the answers. He told us everything, from the Government rate for porters and the cost of rice, to the condition of the paths and the most acceptable presents for Kachin headmen and their wives. He also told us that we could get all the food we wanted in Myitkyina, though we decided to discount that by fifty per cent. His silver tongue made a year's plant hunting in the high ranges of North Burma look so simple that we felt almost abashed to go there.

The six months' delay in receiving any reply to our application for a visa strained our patience almost beyond endurance, and seemed inexplicable. Gone was the last hope of leaving England in the spring. It was not till a very old friend of mine had written to the head of the Burmese State—they had been at Cambridge together, and colleagues in Burma—that enquiries were made at a high level. The missing visas were then quickly disinterred from the archives, where apparently they had been composting for three months, and we were once more bidden to the Embassy. It was then that I enquired whether our visas covered the Kachin State.

"It's within the Union of Burma, isn't it?" the Secretary asked aloofly.

"Assuredly."

"Then of course your visa covers it. You can go where you like in Burma. Thirty shillings, please. Thank you; good morning."

But I was far from reassured as to the universal scope of our entry visas.

During these anxious weeks we saw a good deal of the exuberant George, who did his best to keep up our spirits, and repeatedly informed us that everything would be all right. He got himself into scrapes and called on us to help him out of them; treated us with delicious informality, and was full of innocent enthusiasms. His naïve way of describing the most unlikely events in which he had been involved appealed to our brand of humour, and did credit to his knowledge of the subtle distinction between the things which are "done" and the things which are "not done". He was a refreshing youth, and the more we saw of him the more we liked him.

Meanwhile, we had decided to accept the somewhat pontifical assurances of the Embassy Secretary that we would be permitted to go where we liked in the Kachin State, and act upon them. Thus, when in September, while on holiday in Ireland, I received an unsolicited letter from the Embassy gracefully recanting the careless talk of three months ago, I was not happy. It said simply that our visas did not entitle us to travel beyond Rangoon, and that if we wished to visit the Kachin State, we must seek permission from the

proper authorities in Rangoon. So that was that. Such clarification, like the original visas, might well have been vouchsafed us three months earlier.

On our return to London we lost no time in visiting the Embassy again; but this time we asked to see H.E. the Ambassador himself. The fact is, we were in a quandary. All along we had been compelled to navigate carefully between the financial Scylla and the political Charybdis, and here we were, threatening to founder on Charybdis after dodging past Scylla. There was no hope of raising the necessary funds—estimated at around £2500—unless we could convince the horticultural world that there was every chance of our delivering the goods—that is to say, seeds of hardy trees, shrubs, and rock plants. On the other hand, there was no chance of going anywhere at all unless we could first raise the funds. We were on the horns of a dilemma.

“Rashly and foolishly have I promised, but cunningly and patiently will I perform.” So I repeated to myself the words Charles Kingsley put into the mouth of Perseus, praying to the gods ere he set out to seek the Gorgon’s head.

The Burmese Ambassador received us kindly, and busy man though he was, talked to us for nearly an hour, explaining the position of his Government and the difficulties which confronted it. He made it clear that he spoke off the record, but his private opinion was, we should be permitted to visit the Kachin State. Certainly there was no need to despair. We left him, not only charmed by his courtesy and sincerity, but feeling much more hopeful than we had done previously. However, in the end it was the somewhat saturnine Secretary who had the last word in London.

A week before we were due to sail, in the final grand rush of preparation, the Embassy rang up, and left a message requesting me to call. It was “nothing important”—this from the Secretary. A letter had come from Burma about us, he informed me, whereupon he quoted the passage given at the beginning of this chapter.

“And so,” he concluded, “it is thought advisable that you postpone your journey for a year, until the situation improves.”

Stunned by this unexpected blow, I wasted no time in argument. After all, the Secretary was only passing on information received. I reminded him of his own words in June, which anyway he had recently recanted.

“The Kachin State is part of Burma,” I said.

He shrugged his shoulders. “Is it? The Chinese say it is part of China.” (This sounded like defeatism to me.)

“We are too deeply committed now to withdraw,” I remarked, and realizing the uselessness of further parley, shook hands with the Secretary and went. I had to break the awful news to Jean.

We were indeed too deeply committed to withdraw. Our initial outlay

in stores, equipment, steamer fares, and so on, before the journey even began, already amounted to nearly £1500—to say nothing of our time and trouble—especially Jean's time and trouble, she having been unsparing of both. Our heavy baggage was even now on its way to Liverpool!

Meanwhile our backers had been informed that permission to go even whither we had boasted we *would* go, had been granted. (I felt in honour bound to admit, in face of this new attitude on the part of the Kachin Administration, that at the last moment uncertainty had crept in.) No doubt we took an unnecessarily dim view of our prospects; we had good friends both in Burma and in England who would do their best—had already done their best—to forward our prospects. The Burmese, than whom no people in the world are more polite when properly approached, will go to almost any lengths to avoid refusing a reasonable request; though that does not necessarily mean they will say yes to any request, however reasonable it may appear. There is also the middle way—say nothing. Then, if the request, though not unreasonable, is ill-timed, it will quickly die of exposure. This much we had learnt from the Burmese Ambassador. So after the first shock we took heart again.

No, we could not withdraw . . . nothing venture, nothing win. "But cunningly and patiently will I perform," I thought.

By the time we reached Liverpool it was raining and blowing half a gale, the wind still rising. In the gathering gloom we drove straight to our hotel. After dinner we went to a news cinema to see the Queen open Parliament. When we came out, the rain had ceased, but the wind had meanwhile reached gale force. We decided to walk the short distance back to the hotel, but somehow lost the way, much to Jean's scorn.

"Call yourself an explorer?" she said. "Didn't they give you a gold medal or something?"

"Two," I replied with dignity. "But explorers do get lost, you know; only, being explorers, they find their way out of the maze."

Which we proceeded to do, by returning to the cinema and starting again. This time we went the right way, and before we reached the hotel it began to rain heavily.

It was with a sinking feeling that we saw the dread newspaper headlines at breakfast next morning: "Gale damage on Merseyside" we read. There were phrases, familiar to Britons, like "mountainous seas", "ships in distress", "lifeboats out", and "gallant rescues"; and of course "serious damage done".

The business of reaching the docks at Birkenhead, via the Mersey tunnel, and passing the various check points, went smoothly and with the least possible delay. At the sheds where we awaited the final formalities, we were

told that the Bibby Company had put our fifty boxes of stores and equipment—all our heavy baggage, in fact—in the passengers' baggage room, instead of consigning it to the hold, where as freight it rightly belonged. Moreover, they were not charging us for excess baggage. A most generous gesture, it meant not only a substantial relief to our budget, but even more important, that the stuff would come quickly off the ship in Rangoon for customs examination, thus avoiding a delay which might prove expensive.

Early in the afternoon we went on board M.V. *Staffordshire*, bound for Port Said, Port Sudan, Aden, Colombo and Rangoon, and were greeted with more gale warnings, including the grim rumour that ships were held up at the mouth of the Mersey, unable to enter the river; and this turned out to be true. Indeed, it seemed doubtful whether the *Staffordshire* herself would be able to leave the dock until the storm abated—but that did not worry us unduly; whatever might be happening outside, there was a flat calm inside the dock.

On the 11th December we stepped ashore in Rangoon. Our visas were good for three months, so we were in no immediate danger of being deported as undesirable aliens—so long as we stayed in Rangoon. We were prepared to spend that much time in Rangoon at ruinous expense, so long as we went up country in the end.

After some discussion the central government was persuaded to let us go in to the frontier areas, and we were permitted to depart. The Forest Department co-operated by attaching two of its Rangers to our party, at the same time requesting us to train them in elementary botany and the technique of plant hunting, which we were delighted to do. Even the British Embassy officials, who gave us all the help in their power, were dazzled at our success in getting away in less than a week.

On the 18th, having booked our heavy luggage through to Myitkyina by train, we flew to Mandalay; two days later we ourselves left for Myitkyina by road. Rutherford, whom we had met in Rangoon, was also visiting Myitkyina and had kindly offered us a lift in his car.

The drive of 500 miles, through the eastern frontier hills via Maymyo, Lashio, Namkhan and Bhāmo took four days, and we reached Myitkyina on the evening of the 23rd, just twelve days after disembarking in Rangoon.

CHAPTER 2

Myitkyina

MYITKYINA, though pleasantly situated on the river bank, is no earthly paradise. The hot weather is very hot, the rainy season very rainy. The river rises forty feet in the summer, and frequently threatens to burst its banks and sweep away the town—the crisis generally occurs about two o'clock in the morning.

During the war the old town was almost completely destroyed, and the new one is no improvement on the old, being dirty, noisy, and already overcrowded. However, Myitkyina is not all bad, and it offers compensations for its shortcomings, including a delightful cold weather of about four months' duration. The plain is as flat as a pancake, but the mountains of the China frontier form a massive background to the east.

We were committed to a week in Myitkyina while waiting for our two Forest Officers to join us; but actually the length of our stay was determined rather by the time it took the railway to deliver our heavy baggage, which had left Rangoon by train the same day that we left by air. Every day we visited the railway station to ask the same question of the goods clerk.

“Has our kit arrived yet?”

He was sympathetic, but unhelpful.

“When did it leave Rangoon, sir?”

“On the 19th—that is to say, it was handed over to the railway on the 18th.”

“Oh, it would be put on the train the same day. But it would take a week to get here. Come tomorrow.”

We went the next day, and the next, and the day after that. But the answer was always the same: tomorrow. I was beginning to feel we had been rash to trust our baggage to the railway. However, there was one bright spot in the gathering gloom. Every evening at dusk, when a few lights shone out in Myitkyina, we heard the shrill whistle of the approaching train as the Mandalay Mail rumbled round the bend and bore down on the station.

And then one night there was silence. We waited, growing more and more uneasy every minute. Darkness fell, but there was no familiar whistle, no distant rumble. Rail communication had broken down. We slept ill that night, and early the next morning went down to the station. The station-master seemed surprised at our agitation.

“No train? That's right—a bridge was blown up near Thazi a few days ago. No, not the train; a bridge.”

We went on to the goods yard.

"Was our baggage this side of the bridge, or the other, when it happened?" we asked.

The clerk reflected a moment.

"I can't say, sir. They'll repair the bridge in twenty-four hours."

We went away comforted. But when we returned next morning we received the usual reply: tomorrow. Suddenly the clerk had an idea.

"Wait, sir. A wagon was detached from the train at Mogaung the other day, with a hot axle. It might be the one with your baggage. I'll wire Mogaung and find out."

He was as good as his word, and when we next called we were greeted with the welcome news that the faulty wagon did in fact contain our kit, and that it would arrive the same evening. So all was well, and on the last day of the old year we went to the station for the last time and moved our kit up to the Circuit House in three bullock carts, where it made a huge pile on the veranda.

We were now waiting only for our Burmese colleagues to join us, and for one or two servants, if such could be found in Myitkyina. As to the latter, repeated and extensive search had so far failed to produce anything but an Indian cook, who offered his services (such as they might be) at a wage which no American millionaire would pay.

Christmas in Myitkyina hung heavily on our hands.

That evening we ate our meal in gloomy silence, then went to call on the doctor, in the hope of hearing the Queen's broadcast. After the usual frantic twiddling, which produced the usual succession of piercing squeals and babels of unintelligible phrases, we at last picked up Colombo and heard Her Majesty's first Christmas broadcast from beginning to end. Feeling more cheerful, we went to bed, determined nevertheless to spend Christmas 1953 anywhere but in Myitkyina.

One day we drove forty miles to Mogaung, a small town on the railway, where there are several jade shops. The road passes through the Pidaung game sanctuary, in which most of the big game of Burma can be seen by the patient observer if he waits long enough.

We drove across the soft sand right to the river's edge, but as the car ferry was on the far bank, Rutherford elected to leave the car where it was. We crossed by dugout and walked into the town.

In a dark hut men were cutting blocks of stone just as they came from the mine—quarry would be a better word, though the jade *is* dug up in large blocks. To cut these, a fine wire, fixed taut in a cane bow, is used; and for rough polishing, an emery disc at the end of a wooden bar. This bar is

pivoted in an upright wooden frame, the disc resting against the stone; the worker's hand, protected by a piece of leather, supplies the bearing. By means of a thong passed several times round the axle bar, its ends attached to treadles, the wheel is spun rapidly to and fro.

Then to the shops, to see what they had for sale, for jade is Mogaung's staple industry. The jade mines are at Kamaing, only a few hours' journey distant, but most of the jade goes to China—or used to.

Presently we found a smart shop where jade ornaments were displayed in a glass case. There were sets of buttons for a Burmese-style blouse, bar brooches mounted in gold, disc-shaped ear-rings. We bought a few things, and Rutherford (who ought to have known better) beat the charming Burmese ladies, mother and two daughters, down a rupee in the final settlement.

We reached the ferry about four o'clock. Nothing seemed to have happened during the three hours we had been away, and we got into the car thankfully and started for home. At least, the engine started, but not the car—so something *had* happened. We then noticed for the first time that the wheels had sunk half-way to the axles in the soft sand, and do what we would, the car refused to budge; the spinning wheels simply buried themselves a little deeper each time.

For two hours we worked, wasting time, strength and petrol, and almost running down the battery. All in vain. At last we realized that without help we never would extricate her. The sun had set, the brief dusk would soon give place to night. We decided to return to Mogaung and borrow a jeep to pull us out; it was the only alternative to spending the night by the river. So back to the jade shop we went, to ask our friends if they could lend us a jeep. It was dark now, and the pressure lamps were lit in the shops and houses.

The ladies were still sitting as before, and had been joined by a tall, handsome Shan-Chinese. They all welcomed us warmly. "Could they lend us a jeep?" we asked.

The tall young man said without hesitation: "I can do better than that. I've got a weapons carrier which will easily pull you out. We'll go down right away."

He called to his two younger brothers, told them to get the truck ready, and a few minutes later we heard the roar of the engine outside.

I fully expected to find a dilapidated lorry with a temperamental engine, picked up cheap in a junk shop, waiting for us. My surprise was great, therefore, when I found myself climbing into a big six-wheeled vehicle with a powerful winch in front. All three brothers came with us. The searchlight was switched on and we drove down to the ferry. The raft was almost awash as we were poled slowly across.

The far bank was exceedingly steep, but the six-wheeler, with the engine going all out, having moved carefully off the raft took the slope at a rush. It had almost reached the top when the engine stalled and the truck began to run backwards. The driver let it go, slowly, till it reached the water's edge, when he again tried to rush the sandhill, and again the engine stalled on the brink. Clearly the loose sand was too much even for that powerful engine; so the driver wisely decided to stay where he was, almost—but not quite—up the bank.

Now, for the second time, we resigned ourselves to a night in the car—or perhaps in Mogaung Police Station, supposing they had accommodation for vagrants. But our Good Samaritan was not defeated. Running out the steel cable, we dragged it slowly up the bank and past the stranded car. It just reached some bushes on the edge of the road. Hooking it round what looked like a tree stump, we gave the signal, and the winch drum roared in reply. The truck stayed put; there came an ominous sound; the tree stump leant over, and began to emerge from the ground. We then found it was really the corner post of a fence, about twenty yards of which had been pulled out by the roots! There was nothing else within reach which the truck could exhume, and once more it looked like checkmate.

Suddenly I had an idea. We couldn't get the truck ahead of the car to haul it backwards on to the road; but why not haul it forwards out of the sand, and hope to turn it round before it had time to sink again? We had only to attach the wire rope to the front axle and wind in. Then one or other *must* move—unless, of course, the cable parted!

No sooner said than done. The wire was attached to our front bumper, and the winding in began. For some seconds nothing happened. The strain was terrific and the cable was making ominous creaking noises. Then slowly and simply the car began to move towards the river, out of the grave it had dug for itself; and in a minute or two it was clear. Calling on all its power, Rutherford managed to drive it, a few yards at a time, backwards over the soft sand, while we strewed garlands of elephant grass before it every time it stopped. Thus jerkily it pursued its triumphant way on to the hard high road.

Meanwhile the truck stood still on the sand bank, poised at thirty degrees above the Mogaung river. Since it wouldn't go forward, it would have to go backwards on to the raft—a delicate operation in the dark. We offered our help, but our friend wouldn't hear of our staying. He would leave the truck there for the night, he said, and return at daylight, when it would be a simple affair; nor would these kind people accept anything for their services.

We paid the ferryman, said good night—though we felt uncomfortable at abandoning our friends—and started back for Myitkyina, where we arrived at ten o'clock. The Deputy Commissioner, informed by the butler

of the Circuit House that we had not returned, was about to send out a search party!

As we turned in after a well-earned dinner: "And to think that I beat them down a rupee on the price of those jade trinkets!" said Rutherford remorsefully.

Twice a week the plane came in from Rangoon and Mandalay, and every Thursday it went on to Putao, 135 miles further north, the extra flight, and back to Myitkyina, taking two and a half hours.

Jean was anxious to see Putao—possibly she shared Saw Shwe Thaik's scepticism concerning the existence of Burma's icy mountains, and preferred to see for herself. So on the afternoon of New Year's Day 1953, she and Rutherford boarded the plane on its arrival, and were whisked northwards.

It was a remarkably clear day, the dustless atmosphere sparkling, so that one could easily see a hundred or two hundred miles, and make out the most distant mountains quite clearly. They returned to a late tea, thrilled by what they had seen, and satisfied with the view of a glittering array of snowy peaks. I did not altogether envy them their quick trip to the edge of beyond. Several times I had done the journey between Myitkyina and Putao—220 miles, on foot—taking twenty leisurely days over it, and revelling each day in the slowly changing landscape. I still think that North Burma is best seen from the ground.

Another trip we made was to Tanghpri, a village at the confluence of the eastern and western branches of the Irrawaddy, about twenty-seven miles from Myitkyina. It was on this occasion that, continuing a few miles beyond Tanghpri, we discovered the two broken bridges which Major Shan Lone had mentioned in Rangoon—one result of the great October wash-out.

On the voyage out to Rangoon we had met amongst the passengers two Irish nuns, one elderly, the other very young and on her first visit to Burma. Both were charming, and finding that they belonged to St. Columban's Mission in Myitkyina, of which the elderly nun was then Mother Superior, we had promised to call on them. This we did, with the result that we met not only the sisters, but several priests also, with whom we quickly made firm friends. One of these, Father Frank MacManamon, was building a new church at Tanghpri, being his own architect, contractor and master builder. The foundations of the church were being dug, so we saw very little except the shape of things to come.

At Tanghpri both branches of the Irrawaddy emerge from the hills on to the Myitkyina plain, eddying between long groins of grey rock as they rush to meet one another. In the whirlpools created here lurk some of the biggest mahseer in Burma, and many a sixty-pounder has been landed with rod and line at this confluence.

CHAPTER 3

On the Way

IN Myitkyina bazaar we bought bulk rations for the months ahead—salt and kerosene (rice could be bought later), and many domestic implements, such as iron buckets, firebars, an Aladdin lamp, and other things. We also set about arranging transport to Sumprabum—three bullock carts for the heavy boxes, a jeep and trailer for ourselves, servant, and lighter loads. All this was fixed up by the 1st January; but we could not start before the 5th, as Burma Independence Day fell on the 4th, and work was at a standstill.

Before this we had found a servant, a Kachin named Karim Gam, who had been in the service of the American army during the war, he said. His chief virtues were that he could cook a little, and that he spoke Hindustani. He was a strong and husky youth, and as he seemed willing to work, we believed we had found a treasure. Anyway, we must have a servant.

Our Burmese forest officers had not turned up, though it was already ten days past Christmas; but we were eager to be off, and they could join us at Sumprabum.

The start was fixed for the 5th January. Rutherford was bound for Laohkang up the eastern river, from where he proposed to cross the southern Triangle to Sumprabum on foot, and join us for a few days before his leave ended. So we went our divergent ways.

One of the arts in which the Asiatic excels the European is that of getting a quart into a pint pot. When we returned to the Circuit House after a last visit to the bazaar on the 5th January we found that the jeep men and Karim Gam between them had packed forty pieces of kit into jeep and trailer, still leaving room for five bodies. Two of these, Karim Gam and the driver's mate, curled up like kittens in the well of the jeep, surrounded by a rampart of boxes, while three of us occupied the front seat designed, of course, for two.

The rest of the stuff—boxes of stores, tents, kerosene oil, and other equipment—had already been piled on to three bullock carts; but this was no great feat of stowage. A bullock cart on the Myitkyina-Sumprabum road will carry about 1,000 lb., and take a week or ten days (according to the state of the road) to do the 131 miles. Actually our carts carried much less, because of their bulk. Jeep and trailer carried about 800 lb.

We started at noon. For the first fifteen miles we bowled along the broad

metalled highway at a good speed; but presently we entered the foothills below Tanghpri and found ourselves in the evergreen forest, amidst a wealth of trees, climbing plants, and tall bamboos. The road here is narrow and twisting, close to and at some height above the rocky bed of the Irrawaddy, with delicious glimpses of swift water and silver sand through the screen of vegetation. Half an hour later we were past the confluence and heading up the valley of the western Irrawaddy or Mali Hka, which is the Kachin name for the river.

We reached 'Nsop Zup—another good fishing spot—at 2.15, and from here to Tiang Zup, eleven miles farther on (which took us over an hour), the road keeps close to the river bank. The winter light now began to fade, so we halted here for the night, having come fifty-one miles.

After a quick cup of tea we went down to the river—now at low water, leaving a wide belt of boulders, sand or rock exposed—to collect plants. Though frost is unknown here, there is not much in flower at this season; but the river bed is a change from the forest. By April there will be white dog roses and crimson Azalea in bloom, the former on the sandy banks, the latter on the rocks just above high flood level.

“Zup” means a small confluence, and next morning we crossed the Tiang river by steel cable suspension bridge and entered the hills west of the Mali Hka, which is not seen again. We were now deep in North Burma, a region of infinite mountain ranges threaded by an arterial system of narrow valleys, through which pulse multitudinous rivers, rising and falling like the tide in summer and winter; the whole is thickly felted with evergreen forest. The largest rivers rise amongst the glaciers of the Tibetan mountains, which from Sumprabum are sometimes visible to the north.

The core of this country, known as the Triangle, lies between the two branches, eastern and western, of the Irrawaddy, which unite, as already described, at Tanghpri, twenty miles north of Myitkyina.¹

From north to south, like a backbone through the Triangle—though not in the middle of it—runs a conspicuous range of mountains forming the watershed between the two rivers. For the most part its crest line is about 9000 feet high, keeping level for considerable distances, though here and there rises a conspicuous peak. But about seventy miles north of the confluence it suddenly erupts into a group of peaks nearly 12,000 feet high. They lie at the sources of the Hkrang Hka, a tributary of the Mali Hka.

It was these peaks on the watershed which were our objective. On previous journeys I had been in many parts of North Burma, especially amongst the northern glaciers; but never had I visited this small constellation of peaks which, being somewhat isolated, I believed might prove to be the

¹ Before the war this village did not exist. A mile or so further north there was a village called Weibsi.

refuge of many endemic species of plants, whether relicts of an earlier flora, or the latest product of evolution.

The watershed lies well over towards the eastern river. Consequently, coming from the west it is necessary to cross a series of foothills and lesser ranges, all trending north—south on a long and gradual ascent to the crest line. The far flank, however, is precipitous, descending directly to the eastern river, or 'Nmai Hka 9000 feet below. Nowhere does the distance between the two rivers exceed fifty miles.

We made a late start on the 6th. The road climbs out of the Mali Hka valley, out of the morning mist which keeps the jungle sweet and green. Soon we are threading our way along the crests of the ridges 1500 or 2000 feet above the river, which is now lost to sight. The hills are covered with evergreen jungle, including many tall trees and a few short palms. Occasionally we crossed a stream breaking through a rocky gorge to the Mali Hka. Here the forest is richer and denser—not only does frost never enter into these deep sheltered valleys, but throughout the winter they are steeped in mist till nearly midday, and so partake of the character of tropical rain forest.

Sometimes the road ran along the hot dry western face of a sandstone cliff, almost bare of plant life; then swinging round, we found ourselves inside a re-entrant where the sun never penetrates and the mud never dries, so that we sank deep into the ruts. It was as we nosed round a blind corner that a jeep, driven fast in the opposite direction, all but collided with us head on. A quick turn saved us, almost sending us over the edge instead. There was no time even to be frightened. Luckily for us we had one of the best drivers on the road, though not the best jeep. It was, in fact, a most remarkable vehicle, but we soon got used to the wheezing and clanking which arose from its guts, and to the rattling of its exterior. One wheel was covered with boils, made by the inner tyre trying to push out the canvas strip which plugged each hole in the outer cover. Seated on the outside, I was continually being pulled inwards by centrifugal force, or threatened with expulsion at a tangent into outer space. Once, to save myself, I grabbed the handbrake and pulled it clean out, since it was attached to nothing; I nearly went over backwards, but saved myself by quickly grasping a knob on the dashboard, which came away in my hand. Everyone was convulsed with laughter as I seized this and that, only to find it was a stage property. I felt it would be safer to let myself go, quietly.

Every few hours we passed strings of bullock carts camped by the roadside near a small stream. The Indian drivers prefer to travel by night and lie up by day, even in the winter. We covered another fifty miles the second day, in seven hours' driving, and finally halted at Maithang Ga, where we shared the bungalow with a drunken Punjabi road surveyor. We got rather

bored with his lachrymose complaints about the hard life he led on the road. Utterly homesick as he was in Burma, he was too weak a character to cut free and go back to his own country, preferring to put up with the terrible climate and unfriendly people rather than make the effort to go home. I'm afraid we were unable to work up the degree of sympathy he obviously hoped for. Also, when drunk he was extremely noisy and tiresome, and that didn't much endear him to us either.

From Maithang Ga one has a clear view westwards over tumbled low hills to another rain range, not so high as the backbone of the Triangle, but like it running straight through North Burma. This is the Kumon range, which forms the watershed between the Mali Hka and the Chindwin; and beyond the Chindwin are the mountains which separate North Burma from Assam.

Next morning we waited in vain for breakfast. Eventually we found Karim Gam loading our kit on to the jeep, as though it was the most ordinary thing in the world to start on an empty stomach.

"Aren't you going to cook us some breakfast?" I asked, shocked at such levity.

"There's no water here, sahib."

And apparently there wasn't. The supply, never profuse, had dried up.

"Then we must stop at the next bungalow and eat," I said, now resigned to anything.

However, we were now only thirty miles from Sumprabum, where we arrived soon after noon, still breakfastless. The village, which lies about ten miles west of the Mali Hka, sprawls up the south-east slope of a long ridge running north to south, 4500 feet high, and, as we quickly discovered, well above the heavy morning mists. The whole of North Burma is corrugated thus with ranges of mountains.

We went straight to the P.W.D. Inspection Bungalow.

It warmed our hearts to see cherry trees in full bloom in the bungalow compound. It was the carmine cherry (*Prunus cerasoides rubea*). They had been planted here, of course, but the carmine cherry is scattered through the forests of North Burma; in fact, the plants cultivated in England were obtained from there. The flowers were a fine deep pink, and showed up brilliantly against the hedge-sparrow's-egg-blue of the sky.

We spent the rest of the day unpacking some of our boxes and equipment, ready to start work as soon as we were settled in. It felt very cold here compared with Myitkyina, though we were little more than 4000 feet above sea level. Frost there is none, but a fire at night and in the early morning is pleasant.

That night the air was diamond clear, and the ebbing colours after the sun went down behind the Kumon range filled our hearts with joy; a long, lingering stain of orange kept the western sky alight, but overhead it changed slowly to steely blue, with the brilliant stars rising above the dark mountains of the Triangle. The ranges looked violet against the pale luminous sky, while whole galaxies came out and powdered the heavens.

I have said that the physical obstacles to be overcome before we could hope to reach our objective were not comparable with the political obstacles we were likely to encounter beforehand. Yet with a minimum of delay and no friction at all, thanks to the goodwill of the Burmese Government, we now found ourselves at the base we had chosen in London nearly a year previously; so that we had every reason to feel pleased with the way things were going. After weeks of travel we were within fifty miles of our goal.

But now that the political hurdles were behind us, the physical obstacles loomed up in all their stark nakedness, as never before. These obstacles I soon perceived were nothing out of the ordinary for a young man, and a fit man. I was a fit man; but I was no longer young, and so I began to ask myself in all seriousness: could I do it? I had no illusions. We were within sight of our goal—yes. But as far as Sumprabum we had travelled by ship, plane, car, and jeep. We had not yet been called upon to tax our own strength, to draw on our reserves the least little bit, to make any physical effort at all. Now our staying power would be put to the test.

I had no serious qualms about Jean. She had come gallantly through the ordeal of the great Assam earthquake in 1950. She was well able to tackle the mountains of the Triangle, river crossings, rough hill tracks, and much else. But what about myself, who was responsible for all of us? If I broke down, it would be a poor look-out for Jean.

I knew that it must take us at least fifteen days on foot, many of them hard days, bitter days, from our rear base at Sumprabum to the crest of the range. Moreover, to achieve worth-while results, it would take much longer, and we would almost certainly have to spend the rainy season in the mountains. It was no quick trip to the top and back, but a long residence, with the prospect of slow deterioration—staleness—I had to envisage. Not only would toughness be required—and most required towards the end; but much more: staying power. I put the question to myself squarely: could I stand the strain?

I thought I would sleep on that one.

Never shall I forget the view that greeted us next morning, the 8th January. I was up at 5.30, woken by a bugle. The sun had not yet risen, but it was light—the sky a sort of limpid blue; and an orange glow like strip lighting hung over the dark violet range which spanned the eastern horizon.

The view embraced a semi-circle from north-east through south to south-west, and was all mountains, cloud, sunrise, and fresh clean sky. It was the colouring, with infinite gradations and sudden contrasts, that for a few fleeting minutes was so exquisite. The wide shallow valley of the western Irrawaddy, and the low billowy hills this side of the Kumon range, were brimful of white cloud, whose ruffled surface resembled a foaming sea battering on the cliffs. All the lower ranges were engulfed; but here and there the blue tips of isolated hills had drifted away from the main ranges to form separate islands. And all the time the light was increasing, the orange glow fading, the sky turning whiter, the surf more unreal.

I called Jean to come and look. Ever since we landed in Rangoon she had been troubled with one thing after another, and had had little reason to fall in love with Burma on sight. Now she was enchanted; the view—which was to be repeated many times—helped to restore her morale. We sat by the stove drinking hot tea till the sun shot up in a shower of gold over the main range. The nip went out of the air as the splendour of the morning reached a climax.

Now I knew the answer to my problem of the night before. I had complete confidence in myself. I could and would go the whole journey.

CHAPTER 4

Early Weeks at Sumprabum

AFTER breakfast we were smartening ourselves up to call on the Sub-Divisional Officer (S.D.O.) of the Public Works Department, and request permission to stay on at the bungalow, when Karim Gam announced the arrival of a visitor.

Callers! This was fine—we were to be made to feel at home from the start! We went into the living-room bursting with bonhomie, to be confronted by a shortish, sturdy-looking Burmese with shrewd eyes in a weather-beaten face. He was dressed in full khaki uniform with slouch hat; and the silver star on his shoulder-strap proclaimed him an officer. There was a second Burmese, dressed in mufti, with him; he carried a note-book.

“Good morning! Are you the Post Commander?” I asked, holding out my hand. “Do sit down.”

“I’m a police officer,” he replied dourly. He spoke in English, but rather as though he had not done so for some time and had become rusty. Then, in the cold, efficient manner of one of the late Peter Cheyney’s heroes, added: “What are you doing here?”

Though he had ignored my offer of a chair, I still thought he was making polite enquiries, and would soon ask us if we were comfortable, and was there anything he could do for us?

I therefore replied to the question literally, while Jean finally broke down his defences by offering him a cigarette, which he accepted—though with reluctance, it seemed.

“I’m a botanist. We’ve come to collect plants in the Kachin Hills,” I said.

The officer now sat down, removed his hat, and placing it on the table scowled at me. He rather curtly refused a cup of coffee. This, he intimated, was not a social call. He was on duty, and till matters were cleared up between us he would encourage no advances. Suddenly enlightenment dawned on me. The Kachin State Government in Myitkyina had not warned him that we were coming.

“I’ve got a permit from the Home Ministry in Rangoon,” I said, pulling it out of my wallet.

Next minute he was skimming through the flimsy document with its few lines of Burmese typescript; and as he read a change came over his features. When he handed it back to me he smiled for the first time. He



Lisu tribesman with his crossbow



5. Maru grave in North Burma



6. (*Below*) A Lisu grave in North Burma

thought better of a cup of coffee, too, and became affable. He also waved aside the suggestion that when our pass came from Myitkyina I should send it to him.

“Quite unnecessary,” he said, and began to tell us about a wonderful plant which grew in the forest, and was a sovereign remedy for snakebite. He promised to show us a specimen; and that was our first introduction to the locally renowned *mashaw-tsi*. Shortly afterwards, U Ba Hkin was transferred to Myitkyina.

We now made our way across the road to the S.D.O.’s office, whose bungalow we saw perched on a small platform at the summit of the cleared slope, like an eagle’s eyrie, overlooking the whole of Sumprabum. It had the widest possible view of the surrounding mountains.

Sunder Singh, the S.D.O., greeted us warmly. Both he and his friend Dr. Lal, the Civil Surgeon, had lived for years in Sumprabum, and both spoke fluent Kachin. Indeed, Sunder Singh had laid out and built Sumprabum in the early ’thirties. Below the scattered village, the slope steepens for several hundred feet to the little valley which is filled with jungle, amongst which are a few small clearings; but the village precincts were cleared before the war, and being continually cleared, have settled down to grass, patches of scrub, and widely scattered ornamental trees. In a commanding position on the crest of the ridge stands the Post itself, where a sentry keeps watch over the hills by day. Below that are the school, the Assistant Resident’s bungalow and offices, the Post Office, the Roman Catholic and American Baptist missions, and the bazaar. Further round to the north, and below the S.D.O.’s bungalow, is the hospital, and the Civil Surgeon’s bungalow.

Sumprabum had one amenity which Myitkyina, with twenty times its population, has not got and perhaps never will have: tap water laid on to every bungalow. This is not really very difficult in a small hill village, though by no means every hill village has an ample water supply from the hilltop above. Those that have, pipe it along split bamboo flumes to the centre of the village, whence the women fill their bamboo vessels—a great improvement on the usual method of descending one or two hundred feet into a nearby gully to draw water from a spring, as the majority must do. But Sumprabum had real lead pipes, with brass taps which turned the water (C. only) on and off.

The motor road zigzags in long sweeps up the slope from the col, and continues northwards as a good bridle path below the crest of the ridge. A second bridle path takes off north-eastwards, descending steeply to the Mali Hka—the Arahku road; and a third, the Kijitu road, runs south-east. Steep, narrow tracks, or flights of steps, connect one bungalow with another. Lastly, there are the inter-village paths, which run in all directions.

Before we had been five days in Sumprabum we had met all the government officials, including the Assistant Resident, a Kachin named Sam Naw from Sinlumkaba, to whom we were much indebted for help.

Our first business was to make arrangements to forward the bulk of our baggage on to our chosen base, a Hkanung village called Hkinlum, at the sources of the Hkrang Hka, and at the foot of the peaks. But before making firm plans we had to await the arrival of our three bullock carts from Myitkyina.

The first, with most of our ten months' stores, arrived on the 12th January, having been less than a week on the road; but the other two did not turn up till the 18th. It was a fortnight since they had left Myitkyina; but this was accounted for by the fact that the Indian carters had suffered from fever on the way. Malaria is rife in North Burma, and the carters certainly looked sick men. We could now plan the next step.

For transport we had a choice of Shan elephants from Putao, Chinese mules from Yunnan, or local porters. Elephants, however, could not go right through, and would have been difficult after Htingnam, which was less than half way to our base. Mules could go as far as Arahku, leaving one stage more on which only porters could be used. The best choice seemed, therefore, to be porters who could carry the whole way from Sumprabum.

However, porters were relatively expensive, rarely carrying more than 45 lb. and frequently less, at a cost of Rs.2/- per day. Chinese mules in 1953 were in short supply at Sumprabum, for reasons which will presently appear. They work only in the dry season, and return to Myitkyina, and thence to Yunnan, in March. In the end we hired twelve of them to carry our heavy stores boxes, which weighed 60 lb. each, to Arahku. At the start, the head muleteer made so much trouble that we decided not to repeat the experiment at any price—though in justice to him I must add that in the end he did fulfil his contract. Mules worked out cheaper than porters.

At the same time we got our first batch of porters, so that by the 26th January we had the satisfaction of knowing that forty-four loads were on their way to Arahku.

As for rice, of which we had to buy 1000 lb. for a start—staple food for four persons, two of whom were genuine rice eaters, for eight months—we learnt that we could buy that most easily at Htingnam, a large village four stages on the way to Arahku, and carry it from there, thus saving four days transport. We therefore bought it in advance (the price goes up as the season advances and stocks dwindle) and stored it at Htingnam to await our arrival.

While all these preparations were going on, we plied our trade of plant

hunting assiduously, though not much was in flower before March. We also studied the far country through binoculars whenever the peaks were clear of cloud.

As already mentioned, the Arahku peaks stick up abruptly from the main watershed between the eastern and western branches of the Irrawaddy. They are about fifty miles from Sumprabum to the north-east, and are best reached via the valley—or gorge, rather—of the Hkrang Hka, a left-bank tributary of the Mali Hka. From the Sumprabum ridge they appear, not as a single range, but as a number of short overlapping spurs, arranged in echelon as it were, and horribly precipitous. The crest of the watershed is thirty-two miles from the Mali Hka in a direct air line; but it drops precipitously to the 'Nmai Hka, which lies almost immediately beneath its eastern flank, only three miles distant.

To south and west, however, the country looked warm and friendly—mountainous yet, but with smoother outlines and gentler slopes. Many villages were visible, perched up on the lower crest lines. The presence of villages, whether visible or not, is revealed by clearings and patches of secondary forest chequering the slopes up to 6000 feet altitude.

West of this low country, through which runs the Myitkyina–Putao road, the Kumon range has an average height of 8000 feet or so, rising to 10,000 or 11,000 feet due west of Sumprabum.

On our daily plant-hunting excursions we soon explored the immediate neighbourhood. One of the most interesting walks was along the crest of the ridge, which was clothed with brushwood. The climax vegetation of the Mali valley, often up to nearly 6000 feet, is sub-tropical evergreen broad-leaved forest, except in so far as south- and west-facing slopes have been cleared by man. Many big trees are met with, including two splendid Dipterocarps (*Dipterocarpus* itself, and *Shorea*); and such handsome species as *Terminalia myriocarpa*, so happily named. All three were in fruit, and the more conspicuous for that.

The chief trees we noted in flower up to the middle of March were a *Meliosma*, the Indian horse-chestnut, a beautiful *Eriobotrya* covered with hawthorn-scented blossom, and a new species of *Michelia*, of which I shall have more to say later.

In several of the bungalow compounds we had noticed small trees of the carmine cherry (*Prunus cerasoides rubea*), leafless and in full bloom, which the S.D.O. had planted before the war. In Japan, cherry trees are looked upon as almost divine: no Japanese boy would think of despoiling so sacred a tree. I was told that during the Japanese invasion of Burma, bungalows round which cherry trees had been planted were, during the subsequent retreat, inviolate, though others might be destroyed.

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For all its fine school building, its hospital, its jeep road connecting it with Myitkyina, the weekly plane which flew over on its way to Putao and back, and other marks of progress, shopping in Sumprabum was an unsatisfactory pastime. There were five or six shops, owned by Kachins or Shans, huddled together in the bazaar. They displayed a fair range of goods from rat traps to patent medicines, and especially the products of such benefactors of the human race as Miss Elizabeth Arden; but not much in our line.

Whenever we entered a shop we found a crowd of people, proprietors and potential customers, sitting on the floor gambling. One got the impression that the shop was only a front to conceal more profitable wholesale dealings, in opium perhaps; or illicit diamond buying; or bootlegging. There was a certain gay insouciance amongst the mercantile community which suggested that retail trade was elementary stuff and not worth bothering about. I don't think we purchased a thing there.

But Karim Gam, who soon became an habitu , spent money freely, so that he had no difficulty, when the crisis came, in obtaining credit. After repeated warnings, we finally dismissed him as a confirmed opium eater and drunkard on the 27th February. But before he departed for Myitkyina, he went to one of the shops, fitted himself out royally with new clothes in addition to those we had given him, and promised the Rs.60/- payment as soon as he received his next month's pay. He left by the next jeep, and was never seen again. But this is to anticipate matters.

Local supplies too were limited, especially at this season. From time to time there were a few small fish for sale, or women called with some minute eggs or bunches of rather flavourless, soapy bananas, which were edible only when mashed up and eaten with condensed milk. The only things which appeared to be in unlimited supply were rice and rice beer—as we quickly discovered from Karim Gam's antics. In fact, it early became evident that our servant would not last very long. He was a typical bazaar beachcomber.

When studying in London the map of the North Triangle we had fixed on Arahku as a possible base from which to get at the pass over the watershed, and the high peaks. Looking at the country, as portrayed on the map, we anticipated a long, slow journey of perhaps fifteen marches from Sumprabum. At that time we knew nothing of surprising developments which had taken place.

In the preceding year, galena had been discovered at Arahku, and the Union Government was anxious to find out what could be done about it. The Mines Department took the matter up, and about the time we arrived in Rangoon an American mining engineer had gone out to Arahku. Meanwhile the Kachin Government was working on the track, with the object of making



7. Maru girl weaving striped cloth



8. (*Top*) The Base Camp, at 4000 ft., near the village of Hkinlum, North Burma

9. (*Bottom*) Cane suspension bridge. "A narrow footway and two swaying canes to hold on to . . ."

an all-weather bridle path fit for mules and elephants. As a matter of fact, three or four elephants had gone most of the way to Arahku, carrying stores, and come back with bags of galena. But the hills were too steep, the track too rough, and—well, their Shan owners had said: never again.

In short, not very much had been done to the track as yet. It was still little better than a fair-weather bridle path, with unbridged rivers hardly crossable in the rainy season. Nevertheless, it was pleasant to arrive at Sumprabum and hear that the path we were due to take was better than a jungle track; and even more pleasant to hear that Mr. and Mrs. Peters would be returning from Arahku to Sumprabum towards the end of January.

On the 23rd the Peters arrived in pouring rain. They dined with us that night, while we dined with them the following night, and we learnt a lot during that time. I was impressed by the fact that for the last month, as Peters informed us, there had been ground frost every morning at Arahku. That meant some change in the vegetation, even down in the valley; we had never had frost at Sumprabum, or anything approaching it.

In one way the Mines expedition had done us no good. Being a Government expedition, money no object, in some directions at least prices had risen. Further, they had hired seventy-five Chinese mules—practically all there were in the district—on a monthly basis, and had paid top prices for them. No wonder we could get only a beggarly dozen, and had to pay heavily at that! But on the whole we profited from the galena mine, not only by getting first-hand information about the country, but also because we were able to use their godowns at Arahku for storing our kit temporarily.

I need hardly add that Peters did not encourage the Kachin Government to continue mining galena at Arahku (since no other ore was found) eighty miles—of rough mountain track—distant from a jeep road. The cost of transport to Sumprabum alone worked out at approximately As.8 for every pound of ore carried, whether elephants, mules, or porters were used. We ourselves had to transport nearly two tons of stuff to Arahku (and thence on a further day's march to Hkinlum), much of which was dead weight in the form of containers—stores boxes, jerry cans, and steel uniform cases; so we knew something about it.

Besides his seventy or eighty mules, Peters had with him nearly fifty porters, many of whom, having no work to do in the fields at this season, were only too glad to carry loads back for us, thus earning pay for two journeys instead of for only one. Gradually we got our loads off, till finally we had left only the stuff we required while working at Sumprabum, and for the journey out to Arahku.

On the 25th January the Peters, with three jeeps and trailers and seventy-five mules, left for Myitkyina, and we did not meet them again. As their party had required over a hundred mule loads of supplies in order to operate

for two months, I wondered how we should get on with about half that number of loads for eight months! He had warned us that we should get no local produce whatever beyond Htingnam; but this was an unduly pessimistic conclusion, based on winter experience, when nothing is grown in the villages and half the population has gone away to seek work elsewhere.

True, it would have been impossible for four of us, or even our two servants alone, to live off the country, even in summer when a few supplies are available. Nor had we expected to be able to do so; rather had we taken the line that we should get nothing. Food for the four of us for eight months had therefore to be piled up at Arahku, or wherever we finally chose to make our base; but few luxuries were included.

We had been barely a week at the Inspection Bungalow when Sunder Singh offered us a cottage which was temporarily empty. This we gladly accepted, and on the 14th January moved in. Here we could not be disturbed by visitors from Myitkyina, who stayed at the I.B. The only drawback: it was as draughty as Piccadilly Circus in an east wind.

On the 20th January Rutherford turned up, without his porters whom he had outmarched—though to what purpose it was difficult to say. He had crossed the southern Triangle from the eastern branch of the Irrawaddy to the western, by the bridle path, whence he had come on to Sumprabum. Normally this is reckoned about ten stages, but Rutherford, a fast walker and burdened with only a few loads (he was on holiday), had done it in a week. We had not expected him before the 25th or later.

We told him what we had heard of *mashaw-tsi*, and he was eager to go off and look for it, hardly realizing that to look for a plant you wouldn't know if you saw it, in the jungle, is obviously a waste of time; while to try and dig the secret out of somebody whose livelihood may depend on secrecy is equally unprofitable. But the full story of *mashaw-tsi* is told in the next chapter, so it need not be anticipated here.

Rutherford left Sumprabum on the 27th January on his quest, and returned on the 30th, having double-marched as far as Htingnam and back. On the 1st February he left for Myitkyina.

Throughout January the weather reminded me of an exceptionally fine and warm English spring. We had far less rain, however, than most English springs enjoy, while temperatures were quite moderate, anything between 40° and 50° minimum at night, 60° and 70° maximum by day. When it did rain it generally rained hard, though rarely for long.

One late afternoon, billows of dead black cloud such as might herald a typhoon began to form up over the near hills, and half an hour later a terrific storm burst over Sumprabum. Lightning flashed, the wind shrieked, and rain descended as a curtain. But hardly had it begun when it suddenly

turned to hail, and in less than a minute, discs of ice half an inch in diameter were hurtling down on our heads, as thick as apple blossom in a wind. The storm circled slowly round us like a hawk on the search, and we watched fountains of water cascading down a distant hill path. The hailstones bounced on the grass in our compound, and turned it into a miniature ice field. But soon, through the trailing ragged fringe of the cloud we could see the low sun shining brightly on hill and dale to the south. By dusk the stars were sparkling in a clear sky, and the barometric pressure was higher than it had ever been before.

The great difference between a monsoon climate on the plains (even so close as the Myitkyina plain), and in the hills, is that in the hills you can never rely for long on its not raining. A fortnight without rain at Sumprabum was exceptional. In between storms or showers, heavy night dews kept the vegetation moist.

It will readily be understood that plants from Sumpabrum are not hardy in Britain, and we did not have to worry about marking plants for seed. The only thing we might have found worth sending home as a greenhouse plant would have been a new species of *Didymocarpus*—but they do not flower until July. Thus our plant collecting at Sumprabum was of scientific interest only.

CHAPTER 5

Jungle Medicines

SEVEN or eight thousand years ago, so it is thought, not-so-primitive man invented agriculture—or rather, gardening. The first farmers were gardeners. They cultivated grasses and roots for food; it saved the trouble of searching for them in the jungle, and enabled man to live in open country. *Who* were the first gardeners, and where, is not important for us; food gardening, which had begun to replace food gathering, no doubt originated in many far sundered places more or less simultaneously, or perhaps over a long period of time; lots of people invented it.

Before gardening became fashionable, non-agricultural man, during his treks in search of food, must have tasted a great variety of plants; and if by any chance one of them happened to allay sickness or pain, he would have invested it with magic powers—if, indeed, he recognized any connection between cause and effect. Nevertheless, though gardening was invented at least 6000 years before the birth of Christ, the cultivation of drug plants on a big scale is a very modern development.

In the middle ages in Europe, monks had their herb gardens, just as the Chinese had gardens in which they cultivated drugs like opium. Tea itself may have started its career as a tonic rather than as just a pleasant drink. The early Chinese ceremonial of tea drinking suggests either that the plant was rare and highly valued, or that it had some religious significance. For thousands of years man had recourse only to jungle plants for curing disease, and no doubt the best cures have survived by sheer merit, while less certain ones have been forgotten. Nature has perhaps been prodigal of cures, since almost every tribe has its own specialities. Nor can one identify a particular cure with a particular tribe; every tribe on earth seems to have migrated from its original home and entered a new one, driving out the original inhabitants—or absorbing them. Most tribes would have brought their more precious plants with them on migration.

Migrations are not always in the distant past. Some are recent—are even going on today. In the short space of forty years since I first went to North Burma, I have seen slow migration in action. It is difficult to account for an *Iris* that will be mentioned later—found growing in every village around Hkinlum but never seen wild, and apparently never setting seed—unless we suppose that the Hkanungs brought it with them from outside. If they brought it from their older home, it must have been for some purpose; but whatever that purpose was, it appears now to have been forgotten.

The same is true of a day lily (*Hemerocallis*), also growing in Hkinlum, which being self-sterile is also seedless. Again, the Chinese *Lilium Henryi* grows "wild" in the rice fields of Manipur—but not outside them, in Manipur.

It may be that the tribal leaders, in the turmoil of migration and change, have forgotten the traditional uses of these plants; yet it seems unlikely that they would remember to bring them, but forget what they brought them for! More probably they found new drug plants in their new home (or more effective drugs), so that the traditional plants became obsolete. Even so, it is curious that they should have survived in the villages, unless we suppose that they are used for some purpose which the people are shy of mentioning to strangers. Who can say? These wandering tribes have no history. The plants mentioned, however, might give a clue to whence the tribe came—if we knew their exact distribution as wild plants.

Pioneers learn the hard way, by trial and error, in their search for edible plants; and there must all too often have been error. Indeed, with drug plants especially, failure and success might easily be confused, when marked improvement in the sufferer's condition—that is to say, the cessation of pain—happened suddenly. One may surmise that death also all too often coincided with eating a particular plant—possibly the same one that had relieved pain. This would make accurate recognition of cause and effect difficult.

It was not a desire for martyrdom, but stark necessity, which prompted early man to experiment with a new plant. But the search for food was one thing, the search for medicines quite another. The pioneer seeking relief from pain would be abstemious in face of the unknown—much more so than the man seeking relief from death by hunger. He would be less attracted by bright colours, of fruit or leaf or toadstool. Nevertheless, the mortality may have been high for a short time if the plant tried was very poisonous and of wide distribution, thereby attracting the attention of widely sundered communities. However, the higher the death rate, the sooner would its reputation get around.

One is inclined to look upon the man—say, rather, the several men—who first nibbled the edge of a mushroom, as heroes. But many toadstools are much more conspicuous, and therefore attractive, than this rather dowdy fungus; although it must be confessed that the flesh pink gills and oyster white "hat" of the adolescent mushroom are not without charm. Even so the more exotic-looking kinds were probably eaten first, if only because mushrooms are confined to open meadows, of which there could have been few in those far-off days.

Although mycologists soothe our fears by telling us that there are (at least in this country) far more harmless than lethal toadstools—a reminder which is as salutary today as it is necessary—death by misadventure, in the

days when trial and error was the only recipe for knowledge, must have been common.

Today there can be few tribes, however backward, however remote from the main current, who do not know a poisonous plant when they see one—at any rate in their own territory. It is rather in the West, where industrialism and city lights have brought about a complete severance from all but potted nature, that ignorance of wild nature is rampant. The inevitable result is—since happily children retain their primitive instinct of curiosity—an annual crop of fatalities from eating poisonous plants, particularly toadstools which every country-born child knows by sight and learns to avoid.

In North Burma people are quite sophisticated today. During the war they learnt something about foreign medicines and every tribesman has heard of "M. & B." This wonder drug is on the tip of every tongue, and its cures are the subject of fireside conversation. No jungle medicine is mentioned in the same breath with it.

Almost every inhabitant of the Triangle invests M. & B. with miraculous curative powers, such as are hardly claimed for any patent medicine by the most plausible salesmen in the West. No matter what ails him—and every man, though he may not have a name for it, knows when he feels ill—the Kachin or Hkanung asks for M. & B. That there are a number of different sulphur drugs may puzzle the amateur doctor, wondering which one to administer; but it presents no difficulty to the Kachin. All are reduced to M. & B.; M. & B. is the magic formula, the universal pain stopper, the elixir of life. The curious fact is that even the most toxic of these powerful substances appears to have no unpleasant effects on the hillman—he swallows them as a child swallows sweets, with never a sign of headache, nausea, depression, or other discomfort. And if the hillman combines a course of M. & B. with a little judicious home cure, at least he ascribes the happy ending as much to the former as to the latter, and asks for more.

Other foreign medicines in demand are aspirin and, of course, quinine; definitely quinine rather than any of the new remedies which may be effective preventives but do not compare with quinine in *curing* an attack of malaria. The Triangle is, in fact, a highly malarious country, and it is surprising that the inhabitants have no remedy against this insidious disease other than a general tonic. Hence their belief in quinine, which has long been available to them. However, the Mines expedition had given out so many medicines that saturation point had been reached, at least temporarily, and for several months no great demands were made on us.

Perhaps the West has become a little smug about what the wise men call jungle cures dismissing them as empirical—which they are—and their purveyors as quacks—which they are not. But the fact that malaria could and did attack anyone anywhere, irrespective of race, colour or creed, and

that it killed men and undermined whole civilizations, forced the West to recognize one jungle medicine at least: quinine. Cinchona—the source of quinine—is, I believe, the only jungle drug plant cultivated on a commercial scale by the West, for its specific curative properties.

We learnt of many medicinal plants commonly found in North Burma; but only three of them appear to be widely known and in general demand, so far as the outsider can judge. In what follows I shall confine my remarks to these three.

Most celebrated, in the North Triangle at any rate, and of chief interest to us, was a plant known as *mashaw-tsi*, so named after the Kachin village of Mashaw, situated half way between Sumprabum and Hkinlum. As related in the previous chapter, this drug plant was a one-man monopoly, and no secret was more closely guarded than its identity.

The senile Kachin who claimed to have discovered *mashaw-tsi* and its uses, or who had first exploited them, styled himself the *mashaw-tsi* Duwa, or Chief; Duwa being a title usually reserved for Government officials and genuine heads of clans, though it is also a title of respect. This cheerful old rogue claimed a monopoly not only in purveying *mashaw-tsi*—at a price—to the public but even in the occurrence of the plant which he maintained grew *only* in the jungle near his village! This latter claim, however, was somewhat vitiated by the fact that two other headmen made the same claim for *their* villages—in strict confidence, of course.

The first thing I learnt about *mashaw-tsi* was that it produced but one leaf; the second, that it had a long tap root—by which equivocal and almost mutually exclusive peculiarities it could be readily distinguished from inferior brands with short tap roots, producing more than one leaf. We were warned to accept no substitutes. No doubt it was a leaf of an inferior brand which the Duwa was sometimes tempted to give away gratis, as a gesture of friendship; his only form of advertisement, by the way, and if noised abroad not calculated to impress anyone favourably, or forward his own interests.

As a botanist myself, I could vouch for it that there are few plants in North Burma—or anywhere else—which produce only one leaf; or that such a plant, if it existed, would feel the need of a long tap root. The only comparable curiosity I could think of was the African desert Gymnosperm called Welwitschia, which in the course of several centuries produces but *two* immortal leaves! In a sense it never grows up, these leaves being the first pair of adult leaves formed. But this was likely to be beyond the purview of the *mashaw-tsi* Duwa.

It came as no surprise to me when at a later date he revoked the one-leaf story in favour of five or six leaves. With less than five or more than six leaves a plant failed to qualify as genuine; no one was more anxious than the

Duwa that we beware of imitations. And this was of some importance, because presently magic thrust its insatiable suckers into the business.

Said the Duwa, if anyone were to acquire the true plant illegally, the *nats* (those brownies of the wilderness) would promptly neutralize any good effects it might produce. Yet it seems unlikely that anyone could acquire the genuine article other than from the fountain head, since anything even closely resembling it was promptly declared by the proprietor to be spurious. By such devious means did he fortify his claim. He was a toothless, wizened little man with a ravaged old-parchment skin, a stringy beard, and lank grey locks. His kilt was torn and patched, his feet were bare and unclean. A greasy grey beret perched on his dingy crown, and what might once have been a sort of shepherd plaid, thrown over his shoulder, suggested a Scottish laird in reduced circumstances.

Hearing that we were interested in plants, the Duwa paid us a visit at Sumprabum, and with a ceremonious air as of one conferring inestimable benefits on the human race, presented me with one leaf of his proprietary medicine. After soaking it in cold water to take out the wrinkles, I pressed it, and thereby obtained a passable specimen. Except that it dried a dark colour, and was not unlike the leaf of some species of *Strobilanthes*, it yielded no information whatsoever. It agreed with the rather fragmentary specimen given to me by the Assistant Superintendent of Police, but not with a leaf later presented to U Tha Hla—and probably not with *mashaw-tsi* either!

We pondered over it for some time, asking questions which the sly old man either parried or failed to hear. Under pressure he might have broken down and let out a damaging clue to the plant's identity. Perhaps one of the innumerable brains trusts of the fecund B.B.C., armed with twenty questions, might have winkled out the truth: a plant with a long tap root, producing five or six leaves; a powerful antidote to snakebite—what is it?

At this time, during our early days at Sumprabum, Rutherford went off on a lightning tour to try and solve the problem. Arrived at Htingnam, he found the Duwa there, which saved him a longer walk. Rutherford immediately tried to pick up a few crumbs of information, or misinformation, on the spot. Three days later, to our great surprise, he returned to Sumprabum, announcing that he had been successful in his quest! Rutherford had a profound knowledge of the physiological action of drugs on the human body—it was his favourite topic of conversation—but unfortunately he did not know one plant from another. The Duwa, it seemed, had grudgingly let out a few unimportant facts about his plants (including the substitution of five or six leaves for the original one), and an unkind rival had told Rutherford that, far from being confined to Mashaw, the plant grew in various places, including Tanghku, a village only eight miles from Sumprabum,



10. An epiphytic orchid (*Dendrobium chrysanthum*) in full bloom. Flowers orange with sepia spots. Warm, temperate forest

11. (Below) *Rhododendron stenaulum*—an old tree in the warm, temperate forest





12. (*Top*) Backbone of North Burma. The mountain divide between the Eastern and Western Irrawaddy above Hkinlum in The Triangle

13. (*Bottom*) The far-famed Irrawaddy

through which he had already passed on the way to Htingnam. But that was all.

On his way back, Rutherford, suddenly enlightened from on high, dug up a certain plant, and on the rather inconclusive evidence that it had a long tap root and bore several leaves, which he said were of a relevant shape (and which were in fact undeniably leaf-shaped), concluded that he had discovered the secret drug. He therefore marched straight through Tanghku at six miles per hour, without stopping—a speed inconsistent with plant hunting. The plant he showed me, which he claimed was *mashaw-tsi*, found, he said, only beneath a particular kind of tree, was a seedling oak, growing (not altogether surprisingly) under its parent oak.

However, it appeared that two Kachin women, on being shown Rutherford's plant, had murmured *mashaw-tsi*, as though it were some religious formula, the repetition of which would bring spiritual solace; but being myself somewhat sceptical, I would have preferred them to pick out *mashaw-tsi* from an exhibit of, say, a dozen plants, before I paid any attention to their smartness.

In one particular Rutherford did throw a possible ray of light on the problem. The village schoolmaster at Htingnam had a small garden in which he cultivated a few plants reputed to have healing virtue; a herb garden, one might say. Rutherford looked these over and brought back several withered specimens, together with their native names, and a little information. But since they had neither flower nor fruit, I was unable to identify any of them—with one exception; that was a species of *Euonymus*, whose foliage and flower buds were unmistakable. The Kachin name for it is *lapū shin lap*, and they eat the leaf as a cure for snakebite; it is known also to the Burmese, who call it *mway kike say*.

This is of some significance, because later U Tha Hla was shown a plant said to be the genuine *mashaw-tsi*, and of course he collected and pressed a specimen. As soon as I saw it I recognized it; moreover, several Hkanungs who were present cried out, like the abbot at sight of the jackdaw, and equally heedless of grammar: "That's him!"—meaning, I gather, *mashaw-tsi*.

Imagine my surprise! It was none other than the *Euonymus* Rutherford had collected from the schoolmaster's garden! I had myself collected an *Euonymus* in the forest at Sumprabum, at Hkinlum, and elsewhere! It was certainly not a common plant, being widely scattered; but neither could you call it rare.

Thus there is a *prima facie* case that the secret and locally famous *mashaw-tsi* is a species of *Euonymus*; and though the evidence in favour of this is far from conclusive, I give it for what it is worth. At least it might be a useful starting point for further investigation; obviously we should like to know more about it.

What then are the properties of this drug plant? Or at least, what is claimed for it? On this point the old Duwa was emphatic: taken internally it is a sovereign remedy for snakebite. (Whether it was effective in cases of opium poisoning—which must surely be common in the Kachin State—I did not learn; and it would have been tactless to enquire.)

Though no written testimonials came our way, undoubted cures—or at least improvements—are on record. Dr. Lal, the very able civil surgeon at Sumprabum (since promoted to malaria research), used it on a patient suffering from mushroom poisoning, thereby saving his life; and stated that it was good for hangovers. He also added: *some* cases of snakebite. There are other authentic cures. Many persons carry a leaf of *mashaw-tsi*, purchased from the Duwa, around with them, as an insurance policy; and no doubt the Duwa did a good trade selling one leaf at a time, genuine or not, to his clients.

It is, of course, part of the plant hunter's job to follow up any clue to a plant known to and used by the natives. On this occasion we failed, mainly because of the Protean changes the plant underwent. Telemachus never had such a job to pin down his father-in-law as we had to pin down *mashaw-tsi*. Yet for all we knew to the contrary, it may be lying today in our collection of dried plants, unrecognized and unhonoured.

Various people, including ourselves, were given free samples (unfortunately not always identical). Did one have occasion to use the leaf, and obtain no benefit from it, it would be no consolation—and a bad advertisement for the Duwa—to learn that one had been fobbed off with an imitation. I wonder whether the sly old man ever thought of that! Anyway, before the summer came he was dead; presumably his mantle as the *mashaw-tsi* Duwa descended upon his son.

Dr. Lal had come very close to learning what the plant was, for on one occasion, the Duwa's wife being ill, he had taken her into the hospital, where, under his care and treatment, she recovered her health. The grateful Duwa had thereupon promised Dr. Lal a plant of *mashaw-tsi*, but at the last moment recanted. True, he offered his gift to Dr. Lal, but at the same time demanded the sum of Rs.70/- (five guineas) for it! In view of the uncertainty of receiving the genuine article, we ourselves were chary of paying the Rs.100/- demanded of us, for a plant which might well have been an imitation.

Another minor medical plant, a fragment of which Rutherford brought back from Htingnam, was called in Kachin *wai-brang-lap*—literally the monkey leaf cure. Described as a shrub some three feet tall, it had trifoliate leaves, each leaflet with a long caudate-acuminate apex (drip-tip); but I observed no further clue to its identity. To suggest that it might be a species

of *Vitex* would be taking a wild liberty. The Kachins apply it to wounds, and also chew it.

The story of how it got its name is no doubt apocryphal. Dr. Lal, who told me the yarn, did not vouch for its truth. A Kachin hunter shot a monkey, which fell to the ground mortally wounded, as it appeared. Strolling leisurely forward, the hunter was surprised to see the monkey rise painfully, drag itself away into the forest, and pluck a handful of leaves, some of which it ate, while others it applied to the wound. After that it swung off into the trees and disappeared—some say to live for ever.

Another important medicinal plant of North Burma—important to China—is known as *machit*; a word which today is on the tip of every ministerial tongue in Kachin State government circles. We had been specially requested to look out for *machit*—which is really the Maru word for medicine in general, but has become by popular usage attached to an alpine species of *Fritillaria*.

In 1930, when I was exploring the sources of the Irrawaddy, Chinese, Lusos and Tibetans used to come over in gangs, especially to dig up the bulbs of this plant, which they took back with them, literally in thousands. All supplies went direct to China over the northern passes, where the plant is common. They did not touch the distant Burmese market—if there was one. I never saw this *Fritillaria* below 12,000 feet, and was certain we would not find it growing on the Arahku peaks, which are a couple of thousand feet too low; nor did we. But even had we found it, there was no likelihood that it could be cultivated down country. It is not confined to the high alps of North Burma.

In August Tha Hla made the long and tough journey from Hkinlum to Putao and back, to try and get some bulbs of *machit* from the Chinese shops there; but the shopkeepers laughed and said they did not know the meaning of the word, and certainly had none. So far as my experience went, the bulbs were never taken south at all, not even to Putao.

Finally there is *Coptis Teeta*, which the Chinese call *hwang lien*, or yellow root, and Kachins call *numran*. It is a small herbaceous plant, never more than a few inches high, with ferny leaves and inconspicuous flowers like small green buttercups (it belongs to the buttercup family). It grows patchily in the forest, not usually below 7000 nor much above 8000 feet, and is of no horticultural worth. The Chinese consider it a cure for malaria, and a tonic—which in China not infrequently means an aphrodisiac.

Though not cultivated, where it is found growing it is encouraged to spread by clearing the undergrowth around it; and since it is the bright yellow root which contains the active principle, the plant has to be dug up

when sufficiently mature. This is a plant which might be grown on a big scale down country, and ploughed up. It needs a good deal of shade, however, and might therefore be grown under some other temperate crop such as high-grown tea, and hoed back into the soil after the roots have been cut off, thereby giving green manure to the main crop.

Many other medicinal plants are known and used locally in the Triangle. Several were pointed out to me—for example, Clematis and plantain (*Plantago*, not banana). Others we were told about; but none of them appeared to be significant. In the alpine and sub-alpine belt we collected a species of Aconite which was common, but it did not excite our porters; and in the village pasture lands a species of *Artemisia* grows in considerable colonies.

There are also many plants which, one may be sure, have never been tried by the local hill tribes, whose properties—if any—are unknown in the West because the plants themselves are unknown; and these too might yield valuable drugs. Close observation, or pure chance, might crack wide open some secret not yet revealed.

CHAPTER 6

Gold Mining

DURING the ten weeks we spent in Sumprabum we were not idle. We sent off loads whenever we could get porters to carry them. We also continued to collect plants—a job which grew more interesting as the weather grew warmer and more trees came into flower. Before we finally left we had collected between three and four hundred flowering plants and ferns; and though this was but a tithe of the total flora, it gave a fair cross-section for that season.

We found tea (known at the Tea Research Station in Assam as “dark Burma”) growing in second growth thickets, but it was obviously an escape from cultivation or semi-cultivation, not truly wild. On one slope I found a small plot of several hundred bushes, where some attempt at orderly cultivation had been made. It was completely smothered by jungle, and had probably been abandoned before the war. Nobody collected the leaf now; it is easier to buy made tea.

Early in February we made a trip to Ningma Daru, to see if there was more in flower down in the valley. Ningma Daru, on the left bank of the Mali Hka, is two stages from Sumprabum on the Arakhu road. Starting on the 6th, we reached Tanghku (eight miles) the first day, nearly all down hill; the weather was fine, and the march an easy one, the road following a spur. Within two miles of Sumprabum we discovered a remarkable species of *Michelia* coming into flower—the first of at least a dozen Magnolieae in this region. I did not recognize it for an unknown species, though it was certainly unknown to me; I merely looked at it critically because it *was* a *Michelia*, like no *Michelia* I had ever seen before.

It was a strapping tree, straight and unbranched like a *Dipterocarp*, with a domed crown, leafy and compact. At the ends of the twigs small white flowers were coming out. They were difficult to see, even through a powerful field glass. The leaves, too, were small, about the same size as those of *Manglietia Caveana*, or, say, the cherry laurel. In fact, it looked a very commonplace (though tall) and undistinguished *Michelia*—except for one thing.

The flowers, as I have said, were rather inconspicuous, but some of the branches bore fruits, which were uncommonly large; when they occurred, in clusters, they were also extremely conspicuous. Indeed, I marvelled that such poor little flowers could produce such large, fearful-looking fruits.

However, it was not so much the size as the shape of these which was remarkable. To begin with, the carpels were extraordinarily swollen and thick-walled. They looked rather like some gaping bi-valved shell—a cockle for instance. Instead of being arranged in an interrupted spike, they sprang in a bunch from the end of the stalk—or tried to. Some were shouldered out of the way, but all sprang from as near the end as there was room for.

Imagine an ordinary fruiting spike of *Michelia*, suppress the internodes, thus telescoping the carpels on to one another, and you get this odd-looking fruit—though the carpels were larger and thicker than those of any other *Michelia* known to me. Six or seven of them in a bunch formed a sort of knobkerry, and quite as lethal.

There were two of these big trees close together, and a third just over the ridge, quite close; and I found a fourth specimen nearer Sumprabum. But those four were all I ever found. It looked a primitive type of *Michelia* which was dying out.

Crossing a ridge at an altitude of about 4500 feet, we immediately came in sight of the Mali Hka nearly 3000 feet below, its broad valley under a rich mantle of tropical forest. Beyond the river the country soon lifted again, and the eye picked up ridge after ridge, each one higher than the last, till they culminated in the main divide and its snow-covered peaks; these last looked like a line of frigates sailing over a sea of cloud.

From here we were looking less obliquely at the Arahku ranges, though we were still well south of the high peaks. Now it looked more like one continuous backbone—the spine of the Triangle—than it had done from Sumprabum. The more isolated peaks still seemed nearly vertical. We never had a really broadside view of the group from a distance.

The descent to Tanghku was steep and it was hardly surprising that the elephants had loathed it. Although we were well within the zone of cultivation, there was plenty of forest, many of the trees being of great size, while the high road banks were often plastered with the handsome lop-sided leaves of *Begonias*.

On the second day, though we had to descend only another 600 feet to reach the river, we plunged straight into a more tropical zone of vegetation than that of Sumprabum. Quite early we came across two more species of *Magnolia* (one of them was *M. pterocarpa*) with large, rather hard leaves. Neither was in flower.

How does one find “new” trees? Or any trees? How, in fact, does one see the trees for the wood? If a tree happens to be in flower or in fruit, and is common, it may be conspicuous half a mile off; and if it looks unfamiliar, naturally one takes a second look at it through a field glass. I have often sat

down on top of a hill, or in a clearing, and gone carefully over the forest tree by tree, searching for the rare or unfamiliar species. During the day's march one must keep alert, and note anything that catches the eye; but of course many a tree is missed, either because it is not conspicuous at that season, or because one doesn't happen to be looking in the right direction. Probably it will be seen later, somewhere else.

Within the forest, however, where the canopy is invisible from below, many a tree or epiphytic plant is discovered only as a result of picking up fallen fruit or flowers, or more rarely, leaves; or not discovered at all.

To get any idea of the many species occurring in a mountainous and densely forested country like North Burma, one *must* spend a full year there, since, as in England (or anywhere else), different trees are conspicuous at different seasons. Also, one must go over the same track to and fro, several times.

But it may be a matter of years before one can say whether or not a tree, or any other plant, is new to botanical science. Not till comparisons have been made with all known herbarium material in the great museums of the world—and that usually by specialists—can one be certain on the point; and even then on appeal the next expert may upset the judgment. There is a certain amount of latitude in the interpretation of species; it is not a law of the Medes and Persians—there are no scientific dictators. Hence the importance of bringing back herbarium material—dried and pressed specimens.

The 7th February, after rain in the night, was dull, the path muddy. We waded across a small stream in a wide stony bed, and were told that at times it was impassable for days together. A mile before we reached the Mali Hka we passed through a small village whose huts were raised ten feet above the ground, reached by tall ladders. The surrounding country looked like a swamp. The river at this season, however, was very low and still falling. It does not start rising till the snows beyond Putao begin to melt, in April.

Now the temperature of the water was 61°F.—about the same as the air. A wide band of gravel with large patches of clay mud was exposed, although from above we had seen nothing but sand. Evidently the current was slower here; hence the ferry. It may have been the great quantity of mud deposited beyond the banks along this stretch that made the flora so monumentally dull. Upstream on the far bank, however, are sandstone cliffs on which grow several interesting shrubs, including *Rhododendron Simsii*.

An elephant with his driver on his back was picking its way down to the river as we arrived at the ferry. Just at that moment it got into the mud, sinking in almost to its belly at every step. Obviously it didn't like it. However, once in the river it was thoroughly at home, and easily swam the eighty or a hundred yards to the far bank, though washed down some distance by the current before it could land.

We crossed in dugouts, which carried five passengers and three or four loads at a time. Though the gunwale was almost awash, it was safe enough in this tranquil water—so long as nobody rocked the boat. But in the rainy season, when the current is twice as swift and the river half as broad again, it can be dangerous.

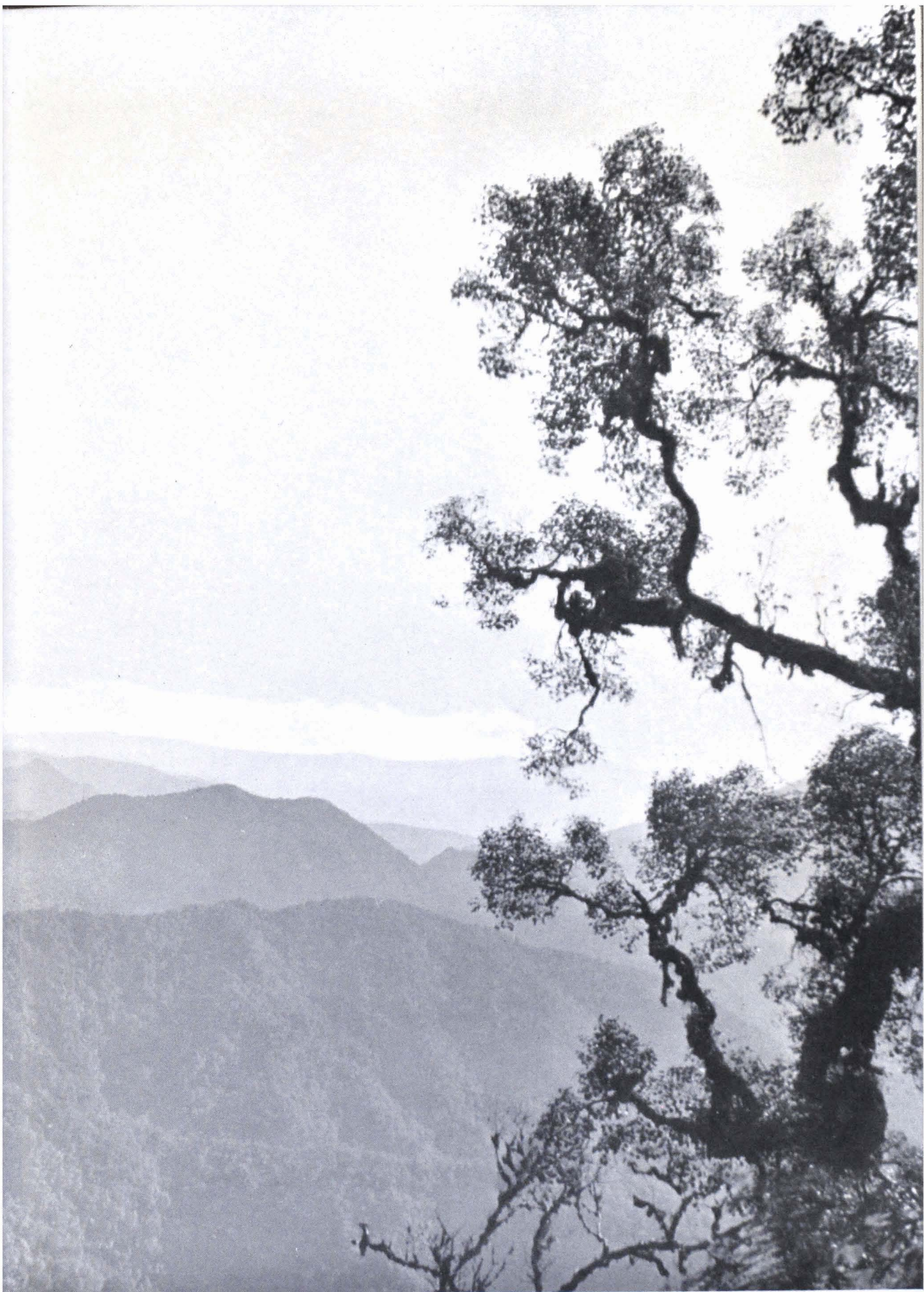
Ningma Daru (Daru means a ferry) is a Hkanung village just inside the Triangle. The vegetation, 1200—1300 feet above sea level, is, even in latitude $26^{\circ}40'$, distinctly sub-tropical; and it is rather surprising that more effort isn't made to cultivate fruit. Inside the village is a small plantation of tea bushes, many of them ten to twelve feet high. Pawpaws are also grown, and pummelo, but little else.

Down by the river, where the broad exposed beach is stony, two Lisu families were washing for gold dust, which they extracted with wooden cradle and wicker basket. The Lisus are the gold diggers of North Burma; many come over from the eastern Irrawaddy and its tributaries (especially the Ahkyang river) with dust in the winter; most of it is bought by Chinese traders and shop-keepers, who, I was told, give the Lisus a rupee for a match-stick's weight of dust.

It is extraordinary how the Lisus discovered in the first instance the tell-tale layer of black sand which contains the flecks of gold; for never is it on the surface, always a foot or two down beneath water-rolled pebbles. There may be surface indications known to the expert; if not, it must be by trial and error. Tiny spherical nuggets, rough like bread-crumbs, occur occasionally; they fetch a trifle more than dust.

The Mali Hka was so calm at Ningma Daru that I thought we might float down to the confluence on a raft, if not in dugouts; the distance must be under a hundred miles. But when I suggested it, the people laughed and said that the first of an unending series of violent rapids was only just around the corner. After all, the river drops about 200 feet between Ningma Daru and the confluence at Tanghpri.

That night a thick mist lay over the water, filling the valley to a depth of several hundred feet and persisting till long after the sun was up next morning. About 8 a.m., contrary to what I had expected, the water was nearly 9° warmer than the air; and there lay the reason for the mist. It was not, as one might suppose, the water vapour in the air, condensing where it came into contact with the cold water; but the warm surface water evaporating into the cold air, where, however, it condensed immediately. That would account also for the layer of air immediately in contact with the river being clear of mist. Much of the atmospheric moisture, too, condensed as the temperature fell. The trees dripped heavily and loudly, and to walk across the grass was like having a foot bath. The mist thinned very slowly, but by 8.30 it was well clear of the river, and by eleven o'clock the sky was as blue as any poster



14. *Bucklandia populnea*—a primitive tree of North Burma, and parallel ranges of hills

15. Guardian *chinte* outside a Burmese pagoda



16. Building a Kachin house; lifting the main post

advertising a Mediterranean cruise. Meanwhile the river, seen through the rising mist, looked like green ice.

Earlier, we had watched the local elephant, its front feet hobbled, stroll majestically out of the forest fringing the bank. It looked enormous in the mist, like some monstrous Liassic lizard lumbering slowly to the water's edge; thence it waded out into the peaceful river, and swam leisurely across to where there was fodder.

Starting back for Sumprabum on the 9th February, we reached Tanghku in a few hours, and spent another night there on a level with the mist ceiling; and the following day reached Sumprabum.

Towards the end of February we moved house once more. The S.D.O. now required our cottage for one of his subordinates, and very kindly invited us to share his commodious bungalow, giving us the run of it. He himself was generally out on the road, 150 miles of which was under his charge.

By the end of January we had reached the conclusion that we would need far more kerosene than we had brought with us from Myitkyina. To give us decent illumination we would have to use all the lamps we possessed, including the Aladdin. We required also plenty of kerosene for camp stoves; so before we left, we asked Rutherford to buy us four more 4-gallon tins, and put them on to the first jeep he could find bound for Sumprabum.

We expected it any day after the middle of February (Rutherford having reached Myitkyina on the 2nd), and had an array of jerry cans ready for it when it arrived. But day after day passed, and still no oil came. In March we began to hear all kinds of rumours in the bazaar—the oil would arrive tomorrow; the oil was still in Myitkyina; it was stuck on the road half way (indeed it was); and so on. Everything except the oil itself. Finally we had to leave Sumprabum without it, but we asked Sunder Singh (from whom we had been compelled to borrow several gallons, our main supply having gone ahead with the advance baggage) to decant it into the jerry cans on arrival, and send it out to our base camp, taking over one tin for himself.

Unfortunately, when the four tins at last reached Sumprabum, Sunder Singh was out on tour again, and all the oil was sent on, not in jerry cans, but in the original leaky tins, which became more and more leaky with each additional day's portering. A 4-gallon tin of kerosene weighs 34 lb., so that meant four coolie loads, since it was impossible to make up 40 or 50 lb. loads. By the time we got the oil at our base camp, at least a quarter of it had leaked away; and as we had to send four gallons back to Sunder Singh to replace what we had borrowed, and a little over, we were left with an extra eight gallons only, at the fabulous price of Rs.32/- per gallon, or about ten times the cost of the kerosene in Myitkyina! Luckily we had just enough to

see us through; but only because the Aladdin lamp—one of our greatest comforts—was out of action by the end of August.

After our return from Ningma Daru, Karim Gam became very troublesome. He was usually dopey in the mornings, and several times I had to go and call him myself, much as though he were drunk. After breakfast he would slip out and saunter off to the bazaar, ostensibly to do our modest daily shopping; but it was seldom we found him in to give us tea when we ourselves returned to the cottage after several hours plant hunting. Sometimes he would remain away for five or six hours. Once he returned too drunk to speak, let alone work.

The first time this happened I warned him that if he got drunk again he would be “given a holiday”—a pleasant euphemism for dismissal which he perfectly understood.

On the 24th February he repeated the offence when we had guests, and I told him he must go. The next evening he celebrated his *congé* with yet another carouse. We happened to be dining with Dr. Lal that night, but so afraid were we that he might damage Sunder Singh's house or property—he was utterly incapable—that we had to get the Police to give him a bed in the lock-up. Had I been inclined to waver that morning, there was no indecision now.

By midday on the 26th we had seen the last of our stalwart, but not before there had been a terrific scene. Before he was paid off we insisted on his returning all warm clothing and bedding (which was irreplaceable) for the benefit of his successor. He knew perfectly well that they became his property only if he stayed with us throughout the expedition, for this had been clearly stated when we first gave them to him. But the thought of parting with such treasures was more than he could bear, or believe. Dismally sober as he then was, for twenty minutes he pleaded and grovelled, and the indignity of the scene was nauseating.

We got rid of him at last, and as recorded, he paid a farewell visit to his shopkeeper friends in the bazaar before finally disappearing.

Before this show-down we had acquired a moon-faced youth named Joi Wa Naw, a Maru, living with his elderly Kachin wife in a village a few miles from Sumprabum. Sunder Singh employed him as a carpenter from time to time (though really he was a road coolie), and recommended him. We had given him a temporary job, to accompany our twelve hired mules to Arahku and see that everything was all right. He performed his share of the work creditably, so on his return we kept him on. After Karim Gam left, Joi Wa Naw became our No. 1 servant, and we promoted him to cook—though he said (truthfully enough) that he didn't know how to cook. He knew very little Hindustani, but that had perforce to serve as a common language between us. He hadn't an idea in his silly head, and his cooking began and

ended with plain boiled rice. Still, as that was to be our staple diet for about nine months it didn't much matter; and Jean did manage to teach him a few simple dishes.

Before we left Sumprabum we acquired a second help. He was a pleasant-faced youth of good character, and like Joi Wa Naw a Maru. His name was Lan Nye Naw, his age about twenty-three, and he was quite the dumbest thing on two legs I have ever encountered, including even Joi Wa Naw. But while pointing out the limitations of the two men on whom we were chiefly dependent for liaison with the hill tribes, I must not give the impression that they were a dead loss. On the contrary, they had several good points, and perhaps on the whole we were lucky. Our two Maru boys were clean and honest, and though you could not call them hard-working, they were willing enough. Above all, they were peaceable chaps, not given to brawling or stirring up trouble; nor had they the common hill vices of opium and drink. And if Joi Wa Naw turned out something of a Don Juan in his way, his intentions were strictly honourable—by tribal custom at least. They were not the ideal servants for such an expedition; but we might easily have fared much worse.

It was a great pleasure to meet Kachins and Hkanungs who remembered me from the old days, though I had never been a government official. One day when Jean was at the hospital, Dr. Lal introduced to her a Hkanung who was having a look round. He was Gu Shen Hpung, at that time Taung Ok of Kijitu, an important village in the South Triangle.

Hearing Jean's name, Gu Shen Hpung asked her—in Kachin, for he did not speak English—if she was the wife of the Nampan Duwa (the nickname by which I had long been known to the North Burma people—it means Chief of the Flowers!). Dr. Lal said yes, and Gu Shen Hpung told Jean that he had known me for many years, and that I used to go to places where the Hkanungs themselves dare not go! Afterwards Jean brought him up to tea. He was a good-looking little man with straight black hair, a friendly smile, and very white teeth—unusual in a Hkanung or Kachin. Jean couldn't believe it when he told her he was fifty-two—he looked about thirty! But I had met him the first time I passed through his village beyond Putao, on my way back from China, in 1922, and again in 1926, '31, '37 and '41; and it *was* true. Gu Shen Hpung was very annoyed at being posted to Kijitu; but on our return to Sumprabum in December we met him again, this time on his way back from Kijitu to Putao, whither he had, to his delight, been transferred.

He presented Jean with one of those little cane baskets people patiently weave in the hills, a charming and also a useful thing. Men and women sling them over the shoulder to carry pipe and tobacco, bobbins for spinning cotton, and similar good works.

The question arose, should we make one journey out to Arahku, or two? In other words, should we go out early in March, returning to Sumprabum about the end of May for the rainy season, and going out a second time in October for the seed harvest; or should we go out in March, horse, foot and guns, and stay put till the end of November?

Having spent several rainy seasons in the Burmese jungle, I was inclined to jib at the prospect of another, though there was, of course, much to be said in its favour. Jean was all for staying out, so I devoted some thought to the matter. In the end, realizing that it would clearly need quite an effort to reach Arahku at all, let alone repeat the journey twice again under more arduous conditions, I decided Jean was right. So we prepared to move out and stay out.

It had been our intention to leave on the 17th March, as I wanted to be established at our base camp at latest by the end of the month. This would enable us to try the first peak in April, in time to catch the early tree rhododendrons and magnolias in flower.

Unluckily, while we were out in the forest one day, Jean ran a bamboo spike into her leg, and tore a nasty hole. As was her wont, she made light of it at the time and walked the two miles home. We went straight to the hospital, where Dr. Lal promptly made all safe for her—the danger of infection in such cases is great—and stitched the wound. But there was no marching to Arahku or anywhere else until Jean's leg was reasonably healed; and though Dr. Lal himself came up to the bungalow and dressed it for her every day, it was over a fortnight before he allowed her to leave. The sulpha drug he administered, as usual, upset her more than the wound.

On the 19th March, who should turn up but our two Forest Rangers, whom we had begun to think were never coming. U Tha Hla, the senior of the two, was a man of thirty-five with eighteen years' service in the Burma Forests; U Chit Ko Ko, Curator of the Forest Herbarium in Rangoon, was twenty-six.

I had just time to have a look at their kit and equipment (which required some modification and additions) and explain our plans, before we had to make another jump ahead. However, it was not difficult for them to follow us out to Arakhu, and as we had arranged to start on the 21st March, we stuck to that plan.

Two days later we were off on the last lap of the long journey.

CHAPTER 7

On Foot

SO the great day had come at last! The odyssey was about to begin. For weeks we had looked forward with increasing excitement to our further travels. Sumprabum was becoming a little tedious, and the thrills of discovering new plants, of basking in the glow of massed rhododendrons in bloom, of peeping into the unknown, unmapped, unexplored country, awaited us and beckoned us on.

On the other hand, we must restrain ourselves, not get too impatient. We might grow much more weary of our base camp than we were now of Sumprabum. Boredom is an occupational disease of the plant hunter, especially in the rainy season, unless he is continuously on the move. It is better to take things as they come; by going on—and on—and on—ever seeking something a little better, a little more exciting, one may go so far as to arrive back at the starting point without ever really having seen the intervening country.

Throughout March the weather had been gradually deteriorating, with more and more frequent rain, though there had been delicious days too. As it happened, the spring of 1953 was unusually wet. However, the 21st March was a fine sunny day, which raised our morale. I always like to *start* on a fine day, whatever happens afterwards.

Making up the last miscellaneous loads is always unsatisfactory, for while the Hkanungs don't mind carrying 50 lb. or more if it is a nice compact load—like a chop box, which fits easily on the back—they dislike awkward-shaped baskets from which stick out oddments like fire bars, empty kerosene tins, lamps, and such like. We ought (by weight) to have had only twenty loads; but twenty-five porters turned up, and they all wanted to earn money—easily if possible. Several small girls tried to get away with 25 lb. loads, but we headed them back and they laughed good-naturedly. Eventually we compromised on twenty-three porters, chiefly because Joi Wa Naw was too stupid to prevent it. Finally we started at 11.45, reaching Tanghku in four hours.

That night the weather broke, a severe thunderstorm with high wind assailing us. Rain came through the thatch and we got wet, but not too badly.

The next day's march to the river was muddy, but the rain gradually ceased and we enjoyed a fine evening at Ningma Daru. In the six weeks since we were last here the *Azalea* (*Rhododendron Simsii*) had come into

bloom; now it formed brilliant brick-red patches on the pale sandstone cliff. We were destined to see this shrub in flower, intermittently, and always in stream beds, all the way to Hkinlum.

The 23rd March was another fine day, and though the march was a long one, taking us from 7.30 till 2.30, with an hour's halt, we enjoyed every mile of it. Before starting, I took the temperature of the river and found it was 61°, 2° warmer than it had been the last time we were here; but the air was now 59°, or 9° warmer. Consequently there was no mist. The water level was up several feet, and would not fall again till next winter.

We began climbing out of the valley along an easy gradient, and much of the way we were in climax forest where the variety of trees was astonishing. In the few villages through which we passed, small fenced gardens of opium poppy were in full bloom, white and an occasional purple being the only colours. Another noticeable plant was an epiphytic orchid with charmingly coloured flowers, the lip pale purple, the other petals ivory white. They were borne in fascicles on short leafless stems (it is deciduous), and for several miles nearly every unshaded tree had a number of these plants growing on its trunk, from near the base to the topmost branches. It appears to be very local, since we met with it nowhere else; but possibly we only noticed flowering specimens!

Our fourth march from Sumprabum was also a fairly long one; it took us five hours, with several halts. Before we started, gibbons were calling to each other not far away—a pleasant reminder that these apparently deserted forests are not entirely devoid of life. It would be interesting to know whether the destruction of forest within the zone of cultivation has reduced wild life, particularly mammalian wild life; or whether the resultant increase of easily accessible food in the shape of standing crops has actually increased it. Medium game may perhaps have withdrawn from the zone of cultivation to the next higher zone, whence at harvest time monkeys, deer, pig, and on occasion bears, descend under cover of darkness to the village fields. Everywhere standing crops are raided—even today, when firearms are plentifully distributed amongst the tribesmen; yet one seldom meets or hears game in the forest, and it would be foolish to depend on wild game for more than an occasional meal.

Swiftlets were flying over every village, and with the hot weather coming on, koels were calling day and night—sometimes *all* night—with maddening repetition.

During the march, blood-red *Erythrina* trees, still leafless, were conspicuous in the forest, despite their rather small stature; and here and there we saw the beautiful Persian lilac (*Melia Azedarach*), which has nothing to do with *our* lilac whose name is *Syringa*. One can understand why Persian lilac is planted all over India as an ornamental tree.

Other outstanding trees were a magnificent red birch, which nevertheless lacked much of the maiden grace of our silver birch; *Cedrela*, which belongs to the same family as the Persian lilac, a family of trees typical of, though by no means confined to, North Burma; numerous oaks, chestnuts (*Castanopsis*), figs and myrtles (*Eugenia*), and best of all, a species of *Elaeocarpus* smothered with blossom, and—like our lime tree to which it is closely related—bathed in honey fragrance.

At a village where we halted for an hour, our girl porters proceeded to break off a lower branch from a tree which was a tall white pyramid of blossom. Every twig bore its burden of tiny bead-like flowers. These they stripped, and threaded on cotton to make "daisy chains", which they wore in their hair. We called it the daisy chain tree—and still do, as we have not yet succeeded in identifying it.

Htingnam, built on several small hills which are separated by deep wooded ravines, is the largest, tidiest, and most prosperous village between Sumprabum and the peaks. It has a model school, a large single-roomed rest house and two shops, and is well laid out. It also has a hospital under construction. Planners who knew their job must have had a hand in the layout of Htingnam. Great areas of forest have been cleared for cultivation. The altitude is 3500 feet, which is little lower than Sumprabum. Its totally different appearance is due to the fact that it lines the interior of a great green bowl, surrounded by high ranges of hills. Being excellently watered, with streams trickling down it on all sides, it can grow wet rice as easily as dry hill rice; in fact, Htingnam is the granary of the North Triangle.

It is worth looking down into this green bowl, and it will certainly catch the geographer's eye. The bottom is not flat—far from it; rather is it liberally embossed with grassy sugarloaf hillocks, some of which are as carefully tended as an English lawn, and crowned by huts.

What, however, is startling, is its appearance of having been gouged out by ice, which it very well may have been. Close to the path is a hillock with outcrops of quartz, some of which are faintly engraved with glacial striae, while the hillock itself looks like part of a moraine. Here, it seemed, was the first hint of ice action within the Triangle. In a monsoon climate, however, the common signs of glaciation tend to be worn away rapidly.

Our Sumprabum porters had only contracted to come as far as Htingnam, and since we would have to stay here at least one day to pick up the rice and collect porters to carry it, we paid them off (though several elected to come on with us after all).

When asked to engage more porters, the headman told us there was a funeral wake in progress for a deceased chief, and we should have to wait

several days before anything could be done. People were still arriving from distant villages to take part. We were now seven days' march from Hkinlum, and the more difficult country lay ahead. All that night the drums and gongs beat steadily, while the firing of hour-guns added to the solemnity of the occasion.

We spent a busy day on the 26th March rearranging and trying to reduce our twenty-three loads; taking over, weighing, and bagging rice, and doing routine jobs. The sky was overcast, but only a little rain fell before night, when a thunderstorm enlivened the darkness.

We were awakened about midnight to find ourselves being drenched with water; a fierce wind was driving the rain in through the partly open end of the hut. We dragged our camp beds into the middle of the room (not a simple job over a split bamboo floor), thereby escaping both the rain and the puddles; but the continual flashes of lightning and the heavy roll of thunder, always noisy in the hills, kept us half awake.

It was still pouring when we got up on the 27th, and as there was no prospect of moving anyway, we took our time. Unexpectedly, soon after 6.30, Joi Wa Naw told us that enough porters had arrived and we could go on after all.

Soon after nine we turned up a narrow wooded valley, where embayments filled with meadow gave a glimpse of England. The little river became more and more like a trout stream; and we suddenly emerged into a beautiful broad grassy valley, where stood the village Hkinduyang, amidst whole fields of terraced rice.

This valley with the English look, the bubbling brown trout stream overhung by willows, and the emerald green sward, was a revelation. Yet in spite of its pleasant associations it, too, suggested glacial relics, being most probably an ancient lake bed.

We rested here long enough to pick up some more rice, for which girl porters were ready waiting; and with the rain teeming down harder than ever, started up the slippery mountain track.

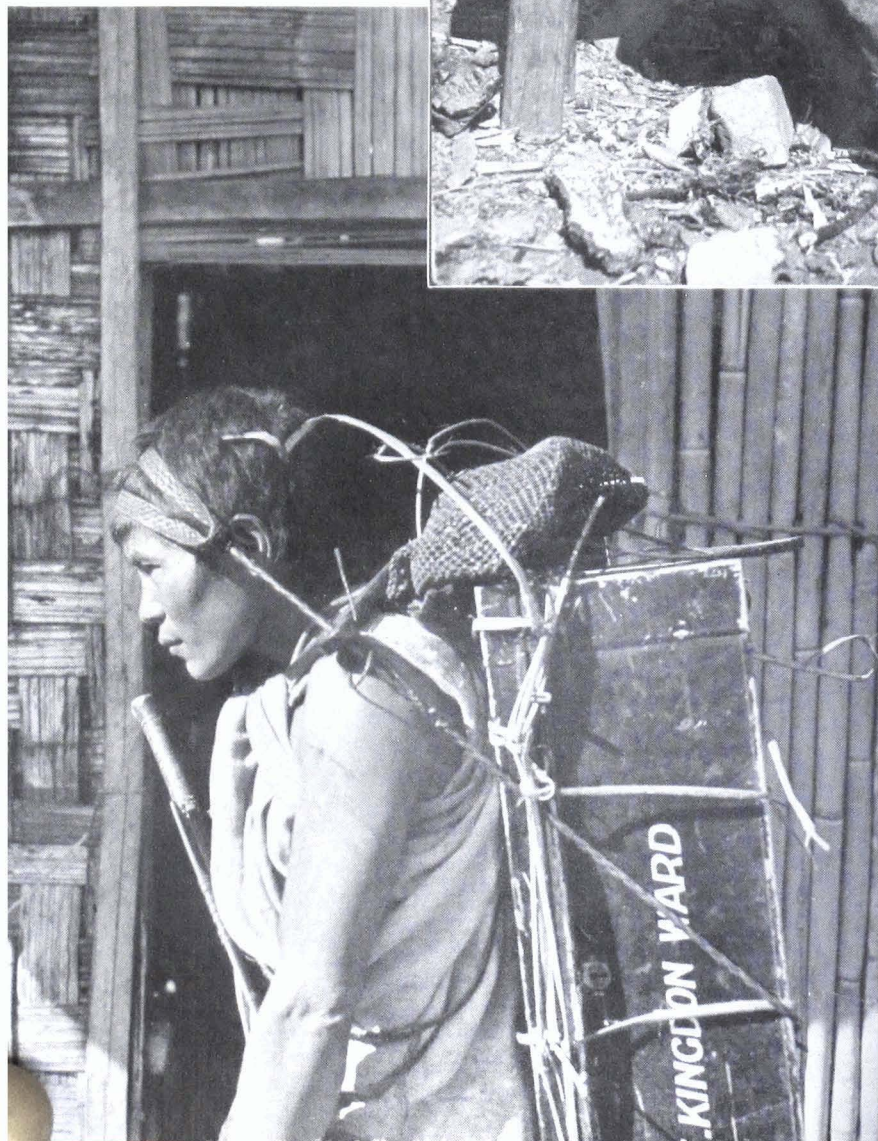
From this point the country began to change rapidly. Hitherto we had been amongst the rippling foothills of the Mali valley, where cultivation comes easily amidst sub-tropical vegetation, and winter is merely a pause in the everlasting summer, wet or dry. Now the hills become steeper and higher, the valleys narrower, the forest more temperate—above all, the villages smaller and more squalid. For the first time we met with the carmine cherry in flower; but even so changes in the forest were extremely gradual. Leeches were bad, both in the undergrowth and on the muddy track, and the legs of the porters were soon streaming with blood.

Late in the afternoon a sharp final ascent brought us to a wretched village called Kamajaw, 4100 feet, our stage for the day. All round it on the



17. Terraced hillsides, North Burma.
Moist, warm-temperate climate

18. Lisu girl with dog



19. Porter with load

edge of the forest grew clumps of pale violet Iris, like *I. Wattii* or *I. japonica* with yellow-crested falls.

Next morning the people informed us there was a *nat galaw* at a village a few miles distant through which we would have to pass, and that it would be impious for us—or them—to sully the road with our feet before noon; in fact, we had visions of spending an unprofitable day at Kamajaw, when we wanted to get on. A *nat galaw* is simply a feast for the *nats*, those brownies of forest and hill which everybody talks about but no one has ever seen. At all costs one must avoid offending these unpleasant dryads. However, it soon appeared that if we would make a small collection for the *nats* (who seemed after all to be human) our impiety might be overlooked; we could, in fact, compound for sins were we inclined to.

It was a mild form of blackmail—or should one say, a roguish form of traffic control?—and when I offered three rupees, they were accepted with such alacrity that I wished I had made it two.

From Kamaja we descended very steeply down a smooth mountain side to the Hkrang Hka river. I wondered how on earth the mules had got down this bit—still more the elephants. However, Chinese mules are acrobats, and it takes a very bad bit of country indeed to defeat them.

This was the river whose sources lay amongst the high peaks. Here it was fifty yards wide at low water, but impassable at flood level. The current was slow enough for us to cross on bamboo rafts; but it took two rafts, each with two men, an hour to ferry us all across. In the rainy season travellers from Hkinlum cross by rope-bridge much higher up, and follow the west bank.

The temperature of the water was 59°, 2° colder than the Mali Hka a few days earlier; the heavy rain and melting snow would account for that. A very slight mist lay drifting on the surface.

Our destination for the day, Paira, a thousand feet above the river, was a decadent place—mud everywhere, stinking and sour, giving rise to a jungle of coarse weeds; the few huts squalid and rotten, and leaning drunkenly backwards. The roof of the rest house leaked so abominably that we had to have something done about it. Everything smelt musty; even the wretched-looking inhabitants seemed to be coated with mould. If I had not seen an enormous orange-headed hornbill with conspicuous yellow bill sailing leisurely across the valley that morning, Paira might have got me down, so depressing was it. But it's lucky to see hornbills.

We were awakened at 3.30 next morning by water streaming through the roof on to our beds; after which we didn't get much more sleep. We were glad to leave Paira—one of the most squalid villages I have ever slept in.

The following day I almost stepped on a greenish-coloured snake which

lay curled up on the path. It stayed perfectly still when I leapt back; but when I proceeded to poke it with a stick, it suddenly woke up, instantly raised nine inches of its length, and expanded its neck to twice its usual thickness, looking wicked.

Having safely crossed the Hkrang Hka, we resumed our north-easterly direction, following its left flank deeper into the hills. The country was much broken up, dissected by innumerable streams which had to be crossed, with endless ascents and descents.

On the 30th we were warned we had a long day ahead of us. It might have held no particular terrors had it been fine and dry, but in the rain, even a five-and-a-half hour march, with a twenty-minute halt for a snack, proved rather exhausting. We must have climbed at least 4000 feet up and 3000 feet down, and as the path was always steep and often slippery, it was not surprising I arrived at the end of the stage tired out. However, as usual half an hour's rest and a mug of hot tea restored me.

On the 31st we had another long march, crossing a great number of streams flowing to the Hkrang Hka from a high range a few miles to the east.

Shortly before we reached Mahkawng, at the end of the stage, we had a good view of a conspicuous white rock, about two miles up a valley to the east. This marks a limestone outcrop, which is certainly peculiar in this country of igneous rock. Nearby is the village of Bunru, where there is a cave.

I have said that beyond Hkinduyang the trees of the forest gradually change; but for a day or two at least the change is almost unnoticeable, if only because the type of forest—broad-leaved evergreen—does not change perceptibly. The most visible difference is the appearance of new deciduous trees; but even these might have passed unnoticed, did they not happen to be in flower now.

Foremost amongst them were the carmine cherry, already mentioned, and a big tree, naked but for the fact that every twig and branchlet was lathered with snowy-white blossom. I picked up fallen flowers, since we could not otherwise get them; and believed I had found a new species of deciduous *Styrax*. It certainly had the flowers of a *Styrax*. A month later we collected foliage, which was not that of a *Styrax* at all; and two months after that we procured unripe fruits, which with its fibrous, loofah-like but tough interior bore no resemblance whatever to a *Styrax*. It was, in fact, the large, solid, sausage-shaped fruit of a tree called *Rehderodendron*, discovered only this century in China. Though closely allied to *Styrax*, it is very different in several respects, most noticeably in its fruit, and in being deciduous.

It must be emphasized that the gradual change of forest from one zone

to another—which we were experiencing—is not like that from evergreen broad-leaved forest to deciduous broad-leaved forest. Such a change would indeed imply a marked alteration in climate, and particularly a difference in precipitation or humidity. It is more subtle than that, and is caused not so much by a change in rainfall as by a gradual lowering of temperature as we approach the high peaks. This zonal development was hardly appreciable, but one could not but notice the appearance of new species.

The day's march began with a very long and steep descent to a noisy stream, crossed by a bamboo bridge; and this stream I shall long remember, because just after I had crossed it I looked back and saw on the other bank a large spreading *Terminalia* tree which leant over the water and thrust its arms almost to our bank. One of these great limbs was plastered with orchids—probably they all were, but I had eyes for this one only. Amongst them, and in full view, was a species of *Cymbidium* with large snow-white flowers. I say confidently a *Cymbidium*, because it had the leaves of a *Cymbidium*, and, I assume, the flowers—certainly the inflorescence; but as I never had a close-up view of the flower, it is possible that I am wrong in this identification. Whatever the genus, it was lovely.

Only once previously had I seen this plant, and that was in April 1949 in the Mishmi Hills of Assam. It was perched on the summit of an erect sixty-foot-high tree trunk, from which every vestige of bark and every bough had long since been stripped, leaving nothing but a smooth ash-white pillar of dead wood. The orchid was utterly inaccessible. On that occasion also I had identified it as a snow-white *Cymbidium*, and I had no reason to think it was anything else now that I had a better view.

So far out on the branch was it growing that it overhung a rapid in the middle of the torrent. Had one been able to chop down the branch—it looked impossible—it must instantly have been swept away. On the other hand, to have felled the tree, which looked even more impossible, might have blocked the river. I studied the matter for some time, and decided that we must leave it till the winter.

I regret to say we never got the plant.

From the bridge we had a long climb over a high spur, from the summit of which we got our first close-up view of the main watershed, tapering up to its monstrously steep sugarloaf peaks, about ten miles to the east. Thence we descended several hundred feet to the little village of Arahku, after six consecutive days' marching from Htingnam, during which we had marched barely fifty miles. But what miles!

CHAPTER 8

The Silver Mine

ON our arrival at Arahku we were welcomed by the Nepali overseer who had been left in charge of the galena mine by Peters, until the Government reached a decision regarding its future. It was still being worked. After Peters' report had been studied, orders came to close down; and by the end of April it was deserted.

We found more than fifty of our loads in the mine's godown awaiting our arrival, though the overseer had sent a few on to Hkinlum for us. During the next few days Jean got the remainder moving, while I explored the neighbourhood for plants.

We heard that our base camp was ready for occupation, in spite of the fact that we had arranged to supervise the building of our own hut at least. The Arahku rest hut, though tiny, was in good repair, having been occupied for some weeks by the Peters. But the eight or ten village huts were only average. The altitude was 4566 feet, and as the little valley faced north-east, it was rather a cold spot. Two great shoulders which marked the entrance of the Hkrang Hka into the gorge rather curtailed the view of the peaks.

Across the river, high on the bluff, stood the village of Lajā, and just beyond that the Hkrang Hka broke up into three main streams, one flowing from the north, one from the south, and an intermediate one (which soon forked again) from the north-east. This last ought to be the main stream, since it continues the general direction of the river, whose course lies south-west. However, it certainly isn't the largest branch; either the northern or southern branch is the main stream.

The commonest trees in flower in the forest were the tall Rehderodendron, whose spreading crown seemed to be covered with snow; and the carmine cherry which was equally conspicuous. I found a specimen of *Michelia Bailloni*, with pale yellow flowers which suggested *M. Champaca*; a robust-looking *Eriobotrya*, quite different from the Sumprabum species though with similar hawthorn-scented flowers; and an *Elaeocarpus*. Oaks and chestnuts were plentiful, and higher up—in fact, higher than I ascended—bright pinkish-purple blossom scattered amongst the many greens, yellows and purples of the young foliage, belonged to *Rhododendron stenaulum*, a rather tropical-looking tree. In spring, the breaking leaf buds give a more colourful display than does the autumn colour at this low altitude.

Down by the stream, where grew some very big trees, we noticed small

white clouds clinging to the canopy. These, when we got close enough to see, were caused by an epiphytic shrub, *Rhododendron dendricola*, whose big flowers, white, or occasionally flushed with pale pinkish purple, were opening. We found another closely allied species, also an epiphyte, but flowering later and less common. One or two plants were in bud, but we never saw it in flower; the flowers, judging from a bud I dissected, might be pink. Anyway we secured a few seeds from an old capsule.

A rather unusual looking plant which we had found in flower at Sumprabum was in flower here also. It was a woody climber belonging to the huge family Compositae—a species of *Vernonia*, with innumerable small heads of pink flowers.

However, it must not be supposed, from this emphasis on a few trees not seen at Sumprabum, that the forest was completely different. At comparable altitudes it was not. Up to 5000 or even 6000 feet many of the trees were certainly identical with Sumprabum species; and not only so, but the forest type was identical. Of course, even at Arahku, and still more at Hkinlum, one could not but notice a certain number of trees which we never saw at Sumprabum, and also the absence of a certain number of conspicuous Sumprabum trees. If new tree species appear, it is a fair inference that they replace other species which have disappeared, so that one observation, to some extent, checks the other. No species is dominant enough to form pure stands.

At Hkinlum the forest is slightly more temperate in composition, thereby reflecting the shorter summer and longer and colder winter; but there is no definite swing towards a temperate flora until frost enters into the forest itself, above 6000 feet. The difference in composition might amount to a fifth of the total woody species; but even so, it is chiefly confined to new species of the same genera, such as oaks and chestnuts. Some modification of the Sumprabum forest flora is due to two factors: the different proportions in which trees common to both areas occur; and a general decrease in the number of woody climbers as the average temperature falls. Later I remarked an increase in the number and variety of epiphytic plants (particularly small shrubs) in the moister Arahku-Hkinlum area; but such minor features are not very obvious in a landscape. It was the more concentrated spring leaf-break and flowering of the bulk forest which gave it a new look now.

Two plants we found at Arahku are in a class by themselves; they will be referred to more fully in later chapters.

One day I followed a good track which rose gradually through old secondary growth towards a ridge. At about 5000 feet altitude, or perhaps rather less, I came on a big tree growing beside the path at the foot of a sharp rise. Ascending the rise, I sat down on a rock to survey leisurely through a field glass the big tree, in the hope of seeing amongst the welter

of epiphytes, something new. I was further away from the tree now; but this slight handicap was discounted by the fact that I had a better view into the cavernous crown, being nearly level with the top of the bare trunk.

I had scarcely begun to examine the alien population when I noticed something that made me stare harder. I focussed the glass again with the utmost precision, aware that from this point I could see only part of the plant—only to discover presently that from any other angle I couldn't see it at all. Thus I continued to stare. What had attracted my attention was something toast-coloured—a cluster of crisp, ripe capsules, more or less like small cones standing on their heads, jiggling stiffly in the breeze.

My first thought was, they were lily capsules. Impossible of course. And yet, as I looked until my eyes began to ache, I became convinced that they *were* lily capsules. There was nothing else they could be. What an extraordinary chance—a lily growing high up in a tree, in a clump of orchids. A chance in a million! Well, I had only to continue up the path to find lots of lilies growing on the bank. So on I went; but I found no lilies. I must have been mistaken after all.

On my return to the tree I studied the plant again. No, I was *not* mistaken—they were lily capsules growing in the fork of the first branch about twenty-five feet from the ground. There was no means of getting them; the trunk was vertical, vast, and smooth. Not a creeper or a cable clasped that pillar of a tree.

Eventually I gave up all hope of ever collecting this particular specimen. No doubt, farther up the valley we should find plenty of lilies growing in the orthodox way, in pine forest. But there was no pine forest, and I wasted two months looking for a lily on the ground, when all the time it grew *only* up in the trees! However, a full account of the long search is given in Chapters 18 and 19.

We were less successful with the second plant. One evening a small boy brought us several branches of a tree which I did not recognize, though the leaves vaguely suggested a *Taxodium*, or even a *Metasequoia*! As there were neither fruits nor flowers, I could make little of it, except that it was a Conifer.

A day or two later, scattered in thick jungle, I myself found half a dozen immature trees—no more than saplings—ten or twelve feet high. What on earth could it be? I had visions of another unknown conifer, persisting, like *Metasequoia*, through the ages—a primitive type which was old when the coal seams were being laid down a thousand million years ago. It was extremely graceful, with soft pale green yew-like leaves, short and very thin, close set along the scaly branchlets like the pinnae of a bird's feather along the shaft.

When I asked the villagers to show me a full-sized tree, they said they

didn't know of one. However, I found another small specimen inside the village, so they weren't very observant.

Why had a small boy brought me branches of this tree in the first place? Why had I found half a dozen very young specimens in a single patch of forest close to the village? Why were there no big trees? There was something mysterious in all this, I felt sure. But what? Was the tree sacred, or valuable, and had it recently become extinct?

Tigers, or what the people said were tigers, were fairly common in the neighbourhood; one had recently entered the village and killed a buffalo close to the hut where we slept. However, we neither saw nor heard a tiger during nine months—only rumours.

The first five days of April were very pleasant; the weather was bright and warm, rain fell only at night. The forest was fragrant and exhilarating with the enchantment of spring in the air. If only it were like this all summer (with some rain, of course, at night), how blithe it would be!

We visited the galena mine. A shaft six feet high had been blasted thirty or forty feet back into the precipitous mountain side, just above a ravine; and there were a few heaps of ore lying outside. We heard shots several times a day, but there were not a dozen men on the job, and clearly the output was negligible. No valuable metal had been found, nor was any likely to be. Eventually work was stopped, and the small maintenance party returned to Myitkyina.

During these five days at Arahku Jean sent on sixty-five loads, most of which had piled up in the godown before we even left Sumprabum; and on the 6th April we ourselves were ready to start on the final march to our base camp. That morning we set off with fifteen personal loads—expanded from an estimated twelve or thirteen to meet local unemployment.

It was a lovely spring morning, and with what was reported to be an easy march of six miles in prospect, we were in high spirits. Just beyond the village we came to a large patch of blue Iris; then we lost this plant until we reached Hkinlum, where it was again particularly abundant.

By the time we were opposite Lajā, we were at least 2000 feet above the river; but just beyond that the Hkrang Hka broke up into two streams, which themselves broke up quickly, until there were five headwater streams, all draining the high peaks. There is a cane suspension bridge over the main river at Lajā, and all five branches are bridged; the longest bridge is that over the southern branch, opposite Hkinlum—the one we had to cross. I was not looking forward to it with enthusiasm.

For two miles we walked through splendid forest, where Jean found our first and only *Cypripedium* (not, of course, in flower). All *Cypripediums* in North Burma, except alpinines—if any—flower in November-December. Here

also, under the rocks, grew masses of a *Gesnerad* (possibly a species of *Didymocarpus*), which in the absence of flowers looked deceptively like a *Primula*.

After four hours I began to grow tired, but was told we were about half way. We had reached the top of a spur which had hitherto blocked the view of Hkinlum. Now we saw it for the first time, across the southern branch of the river and considerably below us; still several miles distant. It was a large village, packed into a narrow rising valley, with the mountains rising dark and sombre immediately behind; their thickly forested slopes betokened a world of mystery.

A long circuitous descent brought us, past flowering bushes of *Styrax grandiflora*, to the cane bridge. The river here was just a violent torrent rushing headlong through a gorge, the main cables of the bridge lashed to trees on either cliff. This gorge was about fifty yards wide, and the centre of the bridge, which sagged heavily, was thirty feet or more above the raging river. Huge rocks, half submerged, made the water boil and foam. However, women and children, not to mention men, crossed it every day, so I supposed we could. I went first, anxious to get the ordeal over as soon as possible; though I crept along, holding on for dear life, while Jean followed close behind, encouraging me. She actually enjoyed it, and pranced across as though she had paid sixpence for a thrill at a fair, and was determined to get her money's worth.

The porters, with their loads supported by a head strap leaving both hands free, crossed one or two at a time, carefully, but without the least hesitation—all except one small girl, who could not face it. A friend, having dumped her own load, went back and carried her load for her, the timid girl creeping across in front.

A zigzag rock climb, very steep for one or two hundred feet up the cliff, brought us out on to an undulating terrace, from which a wide shallow valley led to the village. The terrace had been kept clear of forest by long-continued fire and sword, and on more or less level ground stood our new hut, round which were gathered about a hundred of the local population, mostly women and children. The district headman, Kaw Dang Gam, the village headman Hkinlum Gam, and other city fathers, welcomed us.

We inspected the hut, which wasn't bad. The timber framework of alder poles was solidly put together; the walls and floor of split bamboo matting were adequate, and reasonably draught-proof; and the thick bamboo leaf thatch could be counted on to keep out the rain as efficiently as it would keep in the rats. It certainly kept out the light, since the eaves projected well over the two small square window frames, placed three feet above the floor. This, however, was a necessary protection against the driving rain, which would otherwise have come in not only through the window frames (protected as these were by little swing doors), but through the woven walls too.

There were two rooms: a small one behind, which we made into a bed-



20. Rhododendrons in the wilds. *Rhododendron ariizelum*:
a tree with large bunches of yellow flowers

21 and 22. Hill-tribe girls from Northern Burma



cum-bath room; and a larger living-room, which occupied most of the space; This latter led, through the one doorway, on to a narrow veranda, which was nevertheless useful. The whole hut was raised three feet above the ground, the veranda being reached by a short ladder (actually a notched log) at either end.

Close by was a small hut divided into cookhouse and sleeping-room for our two servants; and fifty yards beyond that was a large hut, not new, which at the moment was unoccupied (unless by travellers *en route*), where the village schoolmaster lived when he was in residence.

The school house itself, a square barn-like hut two stories high, very solidly built, crowned a grassy hillock not far away, almost overlooking the river gorge. From the surrounding mountains it was a conspicuous object, by which it was easy to locate Hkinlum. As for the village itself, that lay up the valley.

By the time we had our camp furniture installed—two Safari beds, a solid folding wooden table, two small chairs and a collapsible bath—the place began to look habitable. There was a square earthen hearth, and above this we hung racks for drying things; we also had a number of shelves built along two sides, and placed a row of chop boxes containing stores and equipment along one wall. Thus the place gradually came to be both home and workshop. Later we pitched our largest tent nearby, and our base camp was complete.

It was unfortunate that the altitude of Hkinlum was so low—only 4000 feet. From the botanical point of view, the low country was as interesting as the high; but not from the horticultural.

The first few days were spent in doing miscellaneous jobs connected with settling in. We paid off all the porters (some of whom we had not seen since they left Sumprabum with the advance loads six weeks previously); had the rice stored in a rat-proof granary; and paid cash for our home. This last transaction was not altogether satisfactory, since it roused in us suspicions that we were being exploited. No doubt we were to a small extent. But our main expenditure would be for transport, and as the Government fixed the rate for that, there could not be much overcharge so long as we made up the loads fairly.

In Sumprabum we had agreed to pay Kaw Dang Gam Rs.105/- for the huts, built according to our specification, and explained in detail by Sunder Singh himself, and had given him an advance of Rs.20/. But when we came to pay him the balance, he murmured sheepishly Rs.200/-! This, naturally, we refused, and after a somewhat heated argument—in which Joi Wa Naw showed himself as clay in the hands of the local debaters—we agreed, not without indignation, to pay another Rs.150/-. Thus the leasehold of our house cost us altogether Rs.170/-, or thirteen pounds. Perhaps contractors exceed their estimates in England too, but not often by a hundred per cent.

However, as we should in any event have given Kaw Dang Gam Rs.15/- or Rs.20/- extra, and as we estimated that the building must have occupied fifteen men for three days, besides the cost of the materials (all from the jungle, of course), we hadn't been grossly overcharged.

The weather had turned very wet, and we were treated to several thunderstorms, such as usually precede the monsoon. During the next few days we explored the precincts of our camp, collecting as many plants as possible before the great surge of spring flowering began. There were paths in all directions, some going to small satellite villages, others to the fields, or to the river, a few into the forest for a short distance.

Fairly common was *Manglietia Caveana*, a tall semi-deciduous tree with smooth ash-grey bark and a compact crown, bearing small white flowers amongst the old leaves. It is not worth cultivating. An *Albizia* with white flowers was also common, coming up quickly in second growth. A third tall evergreen tree bore erect spikes, and looked at a little distance something like a horse chestnut in bud; but the leaves are simple. It is probably a species of *Terminalia*.

However, there were not many trees in flower around Hkinlum at this early date; or if there were, we didn't see them. In fact, the forest 1500 or 2000 feet above the village seemed to have more colour; but this may have been due to the presence of a few *Rhododendrons* in bloom, and to the young foliage of several laurels, scattered at this altitude.

Two days after our arrival we went for an evening walk northwards up the main valley. The sky cleared with magical swiftness, and we returned beneath a pale blue dome as the sun dropped in golden splendour behind the violet hills. We had a wonderful view south-west down the valley of the Hkrang Hka, whose course we could follow for many miles; and an equally fine view of Tama Bum, the highest of the Arahku peaks, which lay almost due south. There was still plenty of snow on the northern slopes.

On the 12th April the deluge began again. It was the day our colleagues U Tha Hla and U Chit Ko Ko were due to arrive, and in the afternoon we walked down to the cane bridge to meet them. Neither of them had ever seen a cane bridge before, and I expected we should have to help them across. Tha Hla arrived on the far bank first, with an enormous bunch of flowers in his hand. He waved these at us, sending showers of rain water into the air. Then without a moment's hesitation he stepped on to the swaying bridge as though he had been in the habit of trusting himself to such things all his life; clutching his flowers tighter as he held them aloft, out of the way of the ropes, he crossed swiftly, occasionally using his free hand to help maintain his balance. I was much impressed.

These two were quickly installed in the empty house, and our party was complete. We were now ready to start serious work.

CHAPTER 9

How to Lose Yourself

OUR Burmese colleagues and their servant Maung Ba Zan occupied two large rooms in the empty house, which was also used by travellers from Rawang (a district on the far side of the range) or from Htingnam, who stayed for a night or two on their way across.

We were now poised to tackle the high peaks; but as we could still see plenty of snow on Tama Bum to the south, there was no immediate hurry. I proposed to spend a week or two exploring the neighbourhood of Hkinlum, getting to know the local trees and other plants. Meanwhile Jean gave Tha Hla and Chit Ko Ko lessons in how to press plants; and finding that they had brought but a single wooden press, of enormous weight and doubtful efficiency, persuaded them to have a dozen pairs of light bamboo lattice frames made for the purpose. These improvised presses, tied with thin rope, were lighter to carry, easy to manage, and worked well. Tha Hla wrote up the field notes while Chit Ko Ko tied labels on to the specimens and attended to the numbering and pressing.

One of our first jobs was to check our rice supplies and make sure we had enough. We had plenty of tinned food, if little variety; but rice was the basic food supply for all of us, and it was of the greatest importance that it should last. In mid-April we found we had 695 lb., with about 200 lb. still at Htingnam to be sent on—though I did not expect to get more than about 150 lb. of this, owing to short weight, losses on the road, and other means of attrition. Altogether we moved about 900 lb. of rice over 65 miles of difficult country to our base camp.

At this juncture Kaw Dang Gam offered us 300 lb. at the Htingnam rate, and we jumped at it; though why he was so keen on selling us even that small quantity, when the village always ran short before the new crop came in, was a mystery we did not solve until much later.

Eventually we found ourselves with about 1000 lb. of rice. At the rate of 4 lb. a day this would last us, allowing for some loss in transport and from the depredations of weevils; against this last, short of storing it all in airtight metal containers, we could not insure ourselves. Had we not stored it in a rat-proof granary, we might easily have lost half of it within two or three months. As it was, the rats in our thatched roof got comparatively little out of us, though they gnawed soap, plastic cups, canvas bags, and other indigestible articles. Whenever we discovered something which they

regarded as edible, we shut it up at night; though that only drove them to try something else—and we couldn't shut up everything.

However, we inferred from the frequent fights which went on in the thatch, and the increasing number of daylight forays, that food for the growing broods which aimed to go on the ration strength was becoming a problem.

Tha Hla had, therefore, undertaken to find out all he could about the pass to Rawang, which we knew crossed the range somewhere to the north-east of Hkinlum. It seemed the obvious place to make for at the start; and though this part of the region is unsurveyed, it looked on the map comparatively easy to reach.

Immediately south of the pass, and distant about one and a half miles, was Tagulam Bum (11,523 feet), which one could reach by following the crest line of the watershed. Or could one?

Anyone who has an inkling of what this country is really like will realize that a mile and a half, measured on the $\frac{1}{4}$ -inch map, must not be taken at face value. Unless a hunters' track existed, we would have to cut one for ourselves. There would be steep ascents and descents amounting in sum to hundreds of feet, rock pinnacles where the ridge became a razor edge, easy slopes where it broadened out, and possibly deep gashes across it which could neither be bridged nor turned, making this line of approach useless. Close as it was—on the map—it might still prove to be a major operation to reach the summit of Tagulam Bum.

All these matters had to be discussed with the locals, and suitable arrangements made. We learnt that the pass was used in the summer, chiefly by the Rawang people; and that a party of Lisus had already crossed to our side in the first week of April. There was said to be a good camping ground an easy march from Ralu village, whence we could reach the pass in a day.

But when we tried to find out how far it was, and how many camps we would need between Ralu and the top, we met with difficulties. I was in favour of a camp at the pass itself, but the locals said it would be impossible to camp there. A hillman always thinks in terms of his own prowess; and as he would march almost twice as fast as we should, for twice as many hours a day, it was difficult to compare notes and reach a decision.

In the end, Tha Hla sent off a small party of men to reconnoitre the track, clear a good camping ground at the lower site, and if possible a second one on or close to the pass. They were to report back as soon as this was done.

One of the most interesting shrubs round Hkinlum was a species of *Camellia*, the genus to which tea (*C. sinensis*) belongs. It was interesting

precisely because it grew all round the precincts of the village, and in one or two other villages, but nowhere else. Clearly it did not grow wild here.

It was a bushy shrub, and in thickets where it had obviously not been cut down for some years, attained a height of six or eight feet. Now in unripe fruit, it had been in flower two or three months ago. I noticed it particularly for two reasons: the colour of the young leaves, which were cherry red; and their shape, not unlike that of a tea leaf, but narrower, and with a long-drawn-out apex—technically called caudate-acuminate. It was, in fact, very similar to a species named *C. caudata*, but it wasn't that species.

This *Camellia* was not in any sense cultivated, though it grew in every thicket, and even came up in pastures. But since we never saw a really wild plant, it can only have been an escape. Some tribe, at some time, *had* cultivated it—and one can only suppose had used it to make tea. The reason it was no longer cultivated was possibly because genuine tea could be obtained from Ningma Daru and other villages in the Mali valley; but more probably because these people don't drink.

Rising immediately behind the village, to north and north-east, was a mountain which we called Hkinlum Cliff, really a spur of Tagulam Bum. If we could climb it, we must reach a main buttress which would have led us to the crest of the watershed, just south of our peak. Unfortunately it was too steep for laden porters, and what was worse, waterless: as a matter of fact that goes for practically all these ridges.

However, it was well worth a reconnaissance, and on the 16th April we all set out to have a look at the forest. During the past week we had had a series of sharp thunderstorms, and we could not doubt that the monsoon would break before very long. This day looked finer than usual, and we set out in high spirits.

The first part of the ascent was by a good path up over the *taungya*, some of which had only recently been cleared of second growth forest and burnt. So we reached the skyline above the village at 5500 feet, and began the real climb.

Presently I saw what looked like a number of white butterflies on stalks; except that they trembled slightly in the wind, they might have been displayed in a glass case. However, they were high up in an alder tree, and a field glass resolved them into handsome *Vanda*-like flowers. Though almost impossible to get, they were worth remembering until we found others more accessible. Shortly after this, cultivation ceased altogether, and the forest encompassed us.

Hitherto we had followed a well trodden path; but from the moment we entered the forest it became a narrow, barely visible track, though obviously a passage had been cut at some time. After going about half a mile even

this ceased, at the foot of what we named the first cliff, where the angle of slope suddenly increased, and we faced a dense barricade of viciously armed cane.

Jean and I sat down on a convenient log to eat a snack lunch, but it was too chilly to be enjoyable and we soon decided to move. We felt we had done enough for one day, and prepared to start down. The Burmese boys were just ahead, so we shouted to them to follow us when they had had enough. Tha Hla shouted back something about a rhododendron. The altitude was just 6000 feet, and the temperate forest really begins here, though its appearance from the outside is still almost sub-tropical.

We proceeded slowly, collecting plants and trying to recognize the trees—always a difficult business. From time to time we called to Tha Hla and Chit Ko Ko, whom we supposed were still quite close. However, they had not caught us up by the time we reached Hkinlum.

About an hour later Chit Ko Ko arrived. He reported that Tha Hla had gone on up to the mountain, cutting his way through the forest. He had waited an hour for him, and then, feeling cold, had come down. I supposed that Tha Hla would return any minute now, but when five o'clock came, and there was no sign of him, I began to grow uneasy. Even in the open it was dark before seven; in the forest it was practically dark now.

Presently Chit Ko Ko went off with a man carrying a lantern. An hour or so later they returned, having seen and heard nothing. By this time I was seriously alarmed for Tha Hla's safety. On several occasions I have lost my way in the mountains in China, and I knew what it felt like when one first came to full realization of one's position. That such a thing should happen the very first time we all went for a climb together augured ill for the success of the expedition. I knew that Tha Hla had nobody with him—we had taken our own man, but of course he had come down with us—no food, no spare clothing, matches, brandy, or anything. Probably he had his water bottle, and he always carried a big jungle knife; nothing else of use.

We warned the village, and two men went off up the trail; but I had little hope of their finding Tha Hla in the dark, or even of penetrating far into the forest. If he had fallen over a cliff and injured himself, we might not find him for . . . I did not dare voice my fears. But we might be able to track him.

Meanwhile we made preparations for a search party to start the following morning—brandy, thermos flasks of hot tea, morphia and bandages, blankets, a rope, and other things. I wanted to go to bed, but as we must start long before daylight it hardly seemed worth while.

At nine o'clock we heard voices outside, and saw a torch wavering down the *taungya* path in the distance. A shadow materialized out of the darkness, and to my enormous relief Tha Hla spoke.

"Good evening, Mr. Kingdon-Ward."

A vast load slipped from my mind. I felt overwhelmed with relief. Tha Hla's clothes were torn to ribbons, his face and hands badly scratched; but he was unhurt, smiling, serene. He began to tell me his story. . . .

But my joy at his safe return rapidly gave way to indignation at the frightful anxiety I had suffered; and instead of listening, I cut him short, saying curtly and coldly: "I'm glad you're back safely. Please come and see me in the morning. Good-night," and I turned and went into the hut.

It was an ungracious welcome, and immediately I felt ashamed of myself. I was soon to learn that Tha Hla could look after himself in the jungle as well as any man—though he had acted thoughtlessly on this occasion. But I felt off balance.

By the following morning I had recovered my equanimity, and when Tha Hla came to call on us, which he did early, I greeted him warmly. Nevertheless I gave him a good talking to. I tried to impress on him how easily one could get lost in a country such as this, with which he was unfamiliar, and the dangers of a night spent in the jungle when one had neither food nor warm clothing. I asked him not to do such a thing again.

"What would be my position if you got killed!" I asked rhetorically. "The expedition has hardly begun, and you go and lose yourself for no reason whatever. We *must* stick together on excursions. You gave me an awful fright."

Tha Hla, who had spent years in the jungle—though, as he himself would be the first to admit, not in mountains such as these—heard me out politely. He did not even smile. He apologized for giving us so much trouble, and promised not to lose touch again without first telling us what he proposed to do.

Then he told his story. As I had seen for myself, the track ceased at the foot of the cliff, and Tha Hla, thrilled at finding the first tree rhododendron in flower a short distance beyond where we had seated ourselves for lunch, started to hack his way up the ridge. Shortly afterwards, his ambition fired to red heat by the discovery of a second rhododendron, he determined to reach the top of the first cliff, where the ridge, as seen from Hkinlum, flattened out to a shoulder before steepening again.

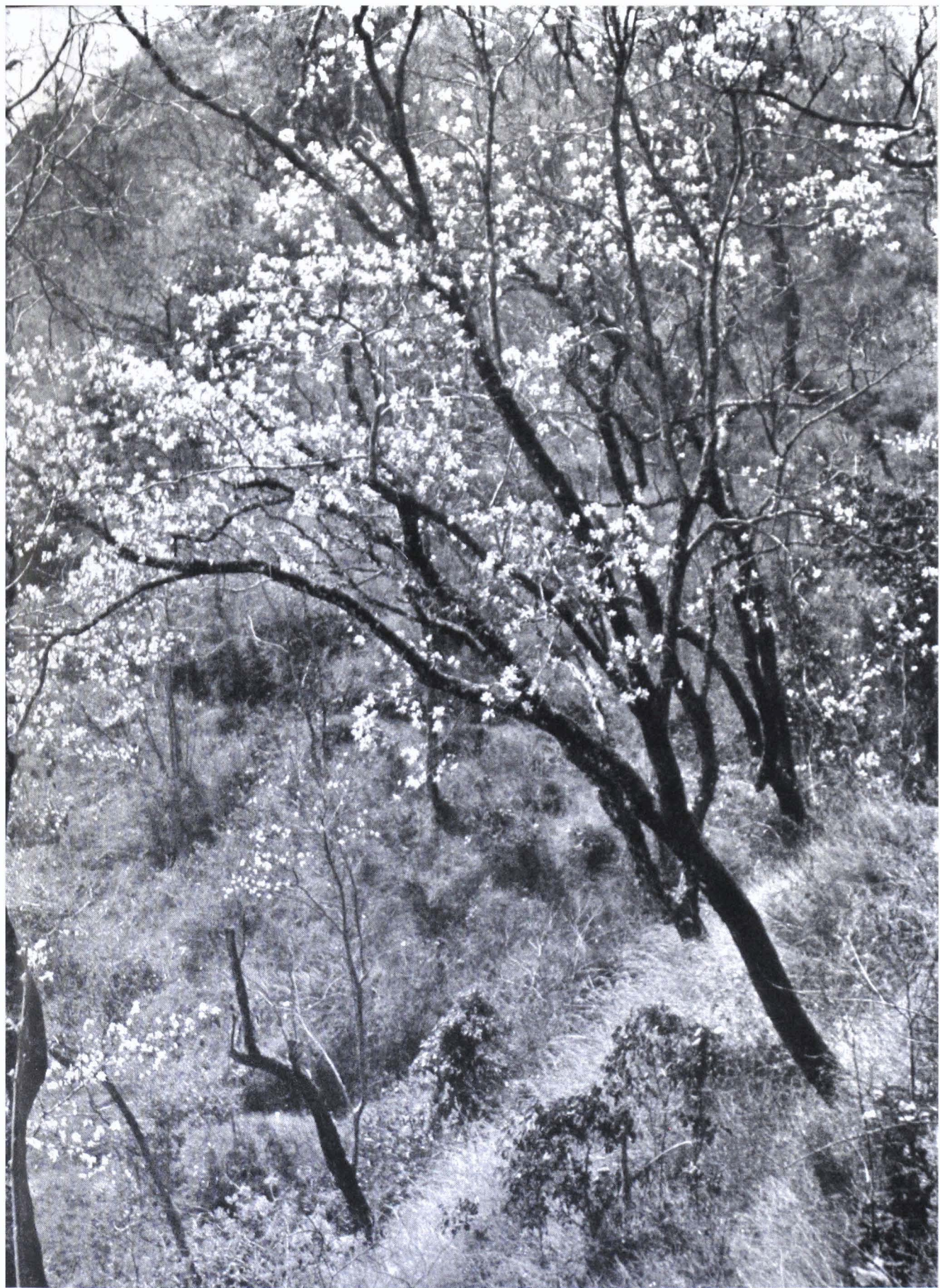
Cutting a way up that precipitous ridge proved tremendously hard work; but nothing daunted, he persevered, and at last reached his goal. Here he found himself amongst ten thousand rhododendrons and other shrubs and trees "in sparkling raiment bright". By the time he had collected everything in sight he noticed it was getting late. He therefore started down, only to discover that when *all* directions lead down, and there is no well marked track, how easy it is to go astray. Presently he diverged from the main ridge on to a secondary one, and soon found himself in fresh difficulties. He

struggled on, got back on to his track, again lost the way, and finally reached the place where he had parted from us at lunch time.

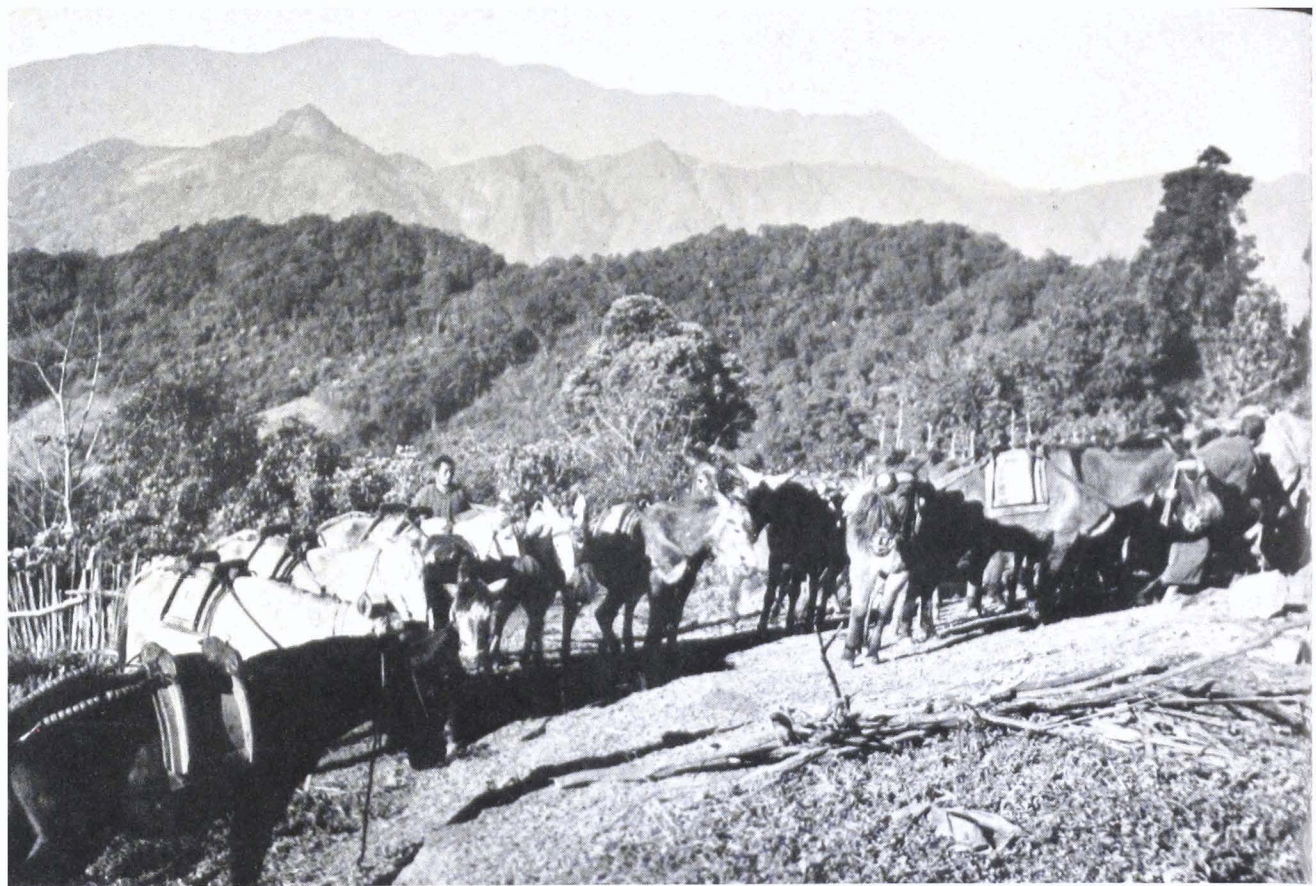
It was now quite dark, he said—probably about 7.30—and though he was on the path by which we had come, he could see nothing. He shouted at intervals, and after some time heard an answering shout. Presently the two Hkanungs we had sent to search for him arrived, carrying bamboo torches. It must have been a difficult journey back on such a dark night, even with a torch. Had they not been on the path, it would have been an impossible one. The Hkanung guides, of course, were invaluable.

As for the fine bunch of rhododendrons, poor Tha Hla had had to throw them away one by one, as they were torn to shreds in his struggles through the cane-brake.

During the day we discussed Tha Hla's bold climb from every point of view, and finally decided to carry a light camp up to the topmost cultivation and continue up the ridge from there. But first we sent two men to blaze the trail. They returned in twenty-four hours, having completed the work begun by Tha Hla; and we fixed the start for the 19th April. Unfortunately I had caught a slight chill on the last climb, probably as a result of sitting down while warm; and on the evening of the 18th my throat was so sore I felt half inclined to cancel the trip. However, during the night I felt so much better that I decided to carry on.



23. *Bauhinia variagata*



24. (*Top*) Transport mules from China, assembled for the Expedition in North Burma

25. (*Bottom*) Some of our Hkanung porters

CHAPTER 10

A Try-Out

NEXT morning, going very slowly, we took only two hours to reach the edge of the forest, where there was a hut overlooking a very steep cultivated slope, and just sufficient more or less level ground to pitch one of our small tents. Jean and I occupied this, the Burmese boys shared the hut with the owner, and three servants camped and cooked beneath the granary alongside. It was not an ideal place, and all parties were cramped; but for a couple of nights we felt we could put up with it. The excitement of finding rhododendrons in flower, now that the hunt was on, buoyed up our spirits.

Soon after we arrived it began to rain. I had gone out on a short plant hunt, and came back wet. That night I began to feel really ill, and next morning I was in no condition to climb the mountain—or indeed to get out of bed. I had a temperature and could not speak above a hoarse whisper. Jean was so worried she sent Joi Wa Naw down to the village to bring up the medicine chest.

Meanwhile Tha Hla and Chit Ko Ko started up the ridge with two men, and when they got back in the late afternoon they brought with them a fine collection of specimens, including four species of rhododendron, all of which went to prove that we had reached an entirely new belt of forest. Though I hated not being able to go with them, I was glad Tha Hla got the credit for this success, after his “reccy” of the 16th.

Thanks to Jean’s unremitting care of me I awoke on the 21st feeling very much better, the fever gone. There had been heavy rain in the night, but the day broke fair and remained fine till two o’clock. As I thought it possible that, after a full day’s convalescing, I might feel well enough to climb the mountain, we decided to stay on. Both we and the Burmese boys spent the day in camp working on their collection, which they generously shared with us. In the afternoon a violent thunderstorm broke overhead; we couldn’t depend on the weather for twenty-four hours. Before the storm, however, the shade temperature rose to 84°, much higher than we had yet seen it at Hkinlum. The storm continued all night, but the 22nd April broke calm and serene as an English summer’s day, with a vast ocean of blue sky to the south—the only direction in which we had a clear view. There was fresh snow on the peaks.

I felt heartened when all four of us started up the mountain at nine

o'clock. What would we find in this belt of temperate forest, I wondered, sandwiched between the sub-tropical forest of the valley and the alpine slopes above?

Although the "first cliff" was only 800 feet high, it took us two hours to reach the shoulder above it. In the first place, it was often precipitous, and at several points we had to use hands and feet to climb up the rocks; and in the second place, there was much to see and collect on the way up. On either flank the ridge dropped steeply a thousand or two thousand feet to invisible ravines, so we did not diverge far from the track.

It was on the shoulder, at about 7000 feet altitude, that we began to find interesting trees and shrubs in flower, the forest being a little more open here. The best of the rhododendrons was a thin famished-looking gawky shrub, its creamy white, exquisitely shaped flowers bursting out from amongst the angular branches. It grew sometimes epiphytically, more often on the rocky edge of the ridge, where its smooth deep-red bark made it easily recognizable. I had thought, when I examined Tha Hla's specimens of it the previous day, that it might be a new species; now that I saw it growing, I felt sure of it.

Here too I picked up fruits of the rare *Rhodoleia*. I might never have noticed the tree (though it was in flower) but for this, so thick is the canopy of the temperate rain forest. Except from well-placed points of vantage it is often difficult to recognize the constituent species, and the gloomy purple flowers of *Rhodoleia*, in spherical heads, are not showy—though the leaves, almost white beneath, are conspicuous.

The forest as a whole was composed chiefly of oaks, chestnuts, maples, rhododendrons, birch, cherry, and *Sorbus*, with scattered trees of a non-European type, including the aforementioned *Rhodoleia*, *Illicium*, *Eriobotrya*, *Daphniphyllum*, *Schima*, *Zanthoxyhum*, *Helicia*, *Bucklandia*, and various laurels and magnolias. The undergrowth was scanty, except in a few places where it consisted of climbing bamboo or of cane thickets, some of the stems an inch in diameter and no doubt of corresponding length. Scattered ferns, begonias, ground-orchids, and other shade dwellers grew thinly elsewhere; but the trees themselves, though their crowns spread out above, hiding the sky, did not grow so close together as to impede progress.

The ridge was fairly level for the next hundred yards or less; then began to ascend again, gently at first. Presently we reached a place where it broadened out, and there had once been a clearing and a camp site, as we found signs of a fire. Here we halted for lunch. While resting, I noticed a big *Eriobotrya* tree coming into flower. One of our men climbed it by means of a creeper wrapped round the trunk, and lopped off several branches.

The track had been cut thus far, but no farther; and we now took over the cutting, where necessary, ourselves. We moved slowly, as the ridge

rapidly steepened again; but there was no more cane, and hence not so much cutting to do.

At the foot of a rock face we traversed beneath it to the left, and a few minutes later found ourselves astride one of the great ridges of Tagulam Bum, which radiate westwards. A cliff barred our upward progress in the direction from which we had come; had we traversed to the right, we could have reached the top of the cliff. (This we did in September, as described in Chapter 22.) However, we had had about enough anyway. On either side of us were tremendous precipices, and we looked down on to the crowns of trees far below. What was obvious was that the deep gullies on either side of the ridge were inaccessible, and that we could not camp any higher (even supposing that men could carry loads up the "first cliff") because there was no water.

Here Tha Hla found the first specimen of *Rhododendron euchaites*, its waxy blood-red bells dangling in loose clusters amongst the narrow pale-faced foliage. It is a striking shrub, though the flowers hide rather coyly amongst the leaves, and are best seen when the plant can be looked up at from below. We noticed a Sorbus in flower, but quite inaccessible. Trees were breaking into leaf and flower all round us.

It was now two o'clock, and we had been going for five hours. The weather had kept fine, and remained so during the long and rather arduous descent. We reached camp at 4.30. I was tired, but not distressed, and well satisfied with the day's work. Immediately after tea Jean got to work on the press.

It had become obvious during the last three nights that our small tent was not well adapted to prolonged wet weather; it was at least a foot too short for comfort, while the outer fly did not come down far enough—though these defects would hardly be noticeable in fine weather.

Our fourth and last day was heralded by a wet grey dawn, and it was a relief to be returning to base. Two hours later the sun was shining brightly in a cloudless sky, while a cuckoo called and called! We went down leisurely, through the *taungya*. None of the newly razed slopes had been burnt yet, as the dead trees had no chance to dry until we had a spell of really good weather. Curiously enough, some of the more superstitious villagers secretly blamed *us* for the unusually wet spring, and one ancient had done his best to persuade us not to go up the mountain.

"If you go it will rain," he said.

(So it did, especially at night.)

Failing to convince us that it would be unwise to proceed, he had tried to intimidate our porters and dissuade them from carrying for us. But they preferred to take the cash—and "let the credit go".

Now that it was time for us to come down he tried again, with the same result.

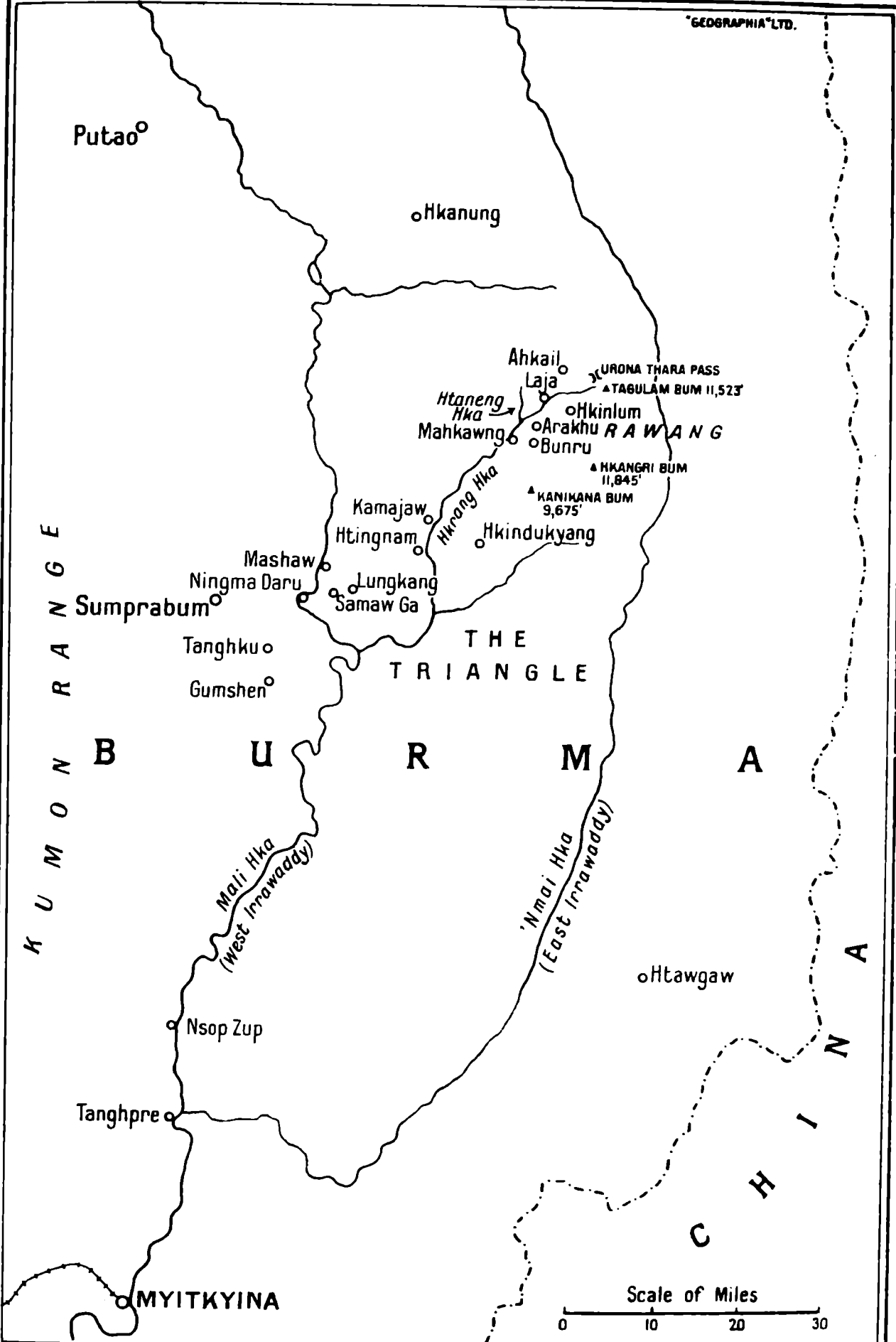
"It will rain," he croaked. "It will rain harder than ever."

However, the willing porters ignored his jeremiads, and again carried for us. He proved no expert weather forecaster, for now we enjoyed a spell of fine weather. Nevertheless, the recent storms had laid a fresh quilt of snow over Tama Bum, as we noticed when it emerged from the cloud. It melted in the course of a few hours (this on the 23rd April). By evening, from our hut, we could see no trace.

Back in our hut we found things much as we had left them. Our hens had laid a few eggs, more oil had leaked into *Ewigkeit*, and more rats had installed themselves in our thatched roof.

I now selected a small patch of old second growth forest, where *Styrax* and *Camellia* grew, in which to cultivate such orchids as we had collected. We had brought a few down from the mountain with us, and these were the first to be installed—some in selected trees, some in the ground. Amongst the latter were several charming little *Anoectochilus*, whose black velvet leaves were netted with mother-o'-pearl pink inlay.

May was approaching, and it would soon be time to make a bid for the alps. Nevertheless we remained at our base for another seventeen days, getting acquainted with the flora while we enjoyed the pleasant spring weather. The last of the snow had melted by the first week of May.



Putao°

o Hkanung

Ahkail
Laja

URONA THARA PASS
▲ TABULAM BUM 11,523'

Htaneng Hka
Mahkawng
o Hkinlum
o Arakhu
o Bunru

▲ HKANGRI BUM
11,845'
▲ KANIKANA BUM
9,675'

Kamajaw
Htingnam
Hkrong Hka
Hkindukyang

Mashaw
Ningma Daru

Sumprabum

Tanghku
Gumshen

THE
TRIANGLE

B U R M A

Mali Hka
(West Irrawaddy)

Nmai Hka
(East Irrawaddy)

o Htawgaw

o Nsop Zup

Tanghpre

o MYITKYINA

Scale of Miles

0 10 20 30

Putao°

o Hkanung

Ahkail
Laja

URONA THARA PASS
▲ TAGULAM BUM 11,523'

Htaneng Hka
Mahkawng

o Hkinlum
o Arakhu R A W A N G
o Bunru

▲ HKANGRI BUM
11,845'

▲ KANIKANA BUM
9,675'

Kamajaw
Htingnam

Hkrong Hka
o Hkindukyang

Mashaw

Ningma Daru

Lungkang
Samaw Ga

K
U
M
O
N
R
A
N
G
E

Sumprabum°

Tanghku°

Gumshen°

T H E
T R I A N G L E

B U R M A

Mali Hka
(West Irrawaddy)

'Nmai Hka
(East Irrawaddy)

o Htawgaw

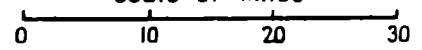
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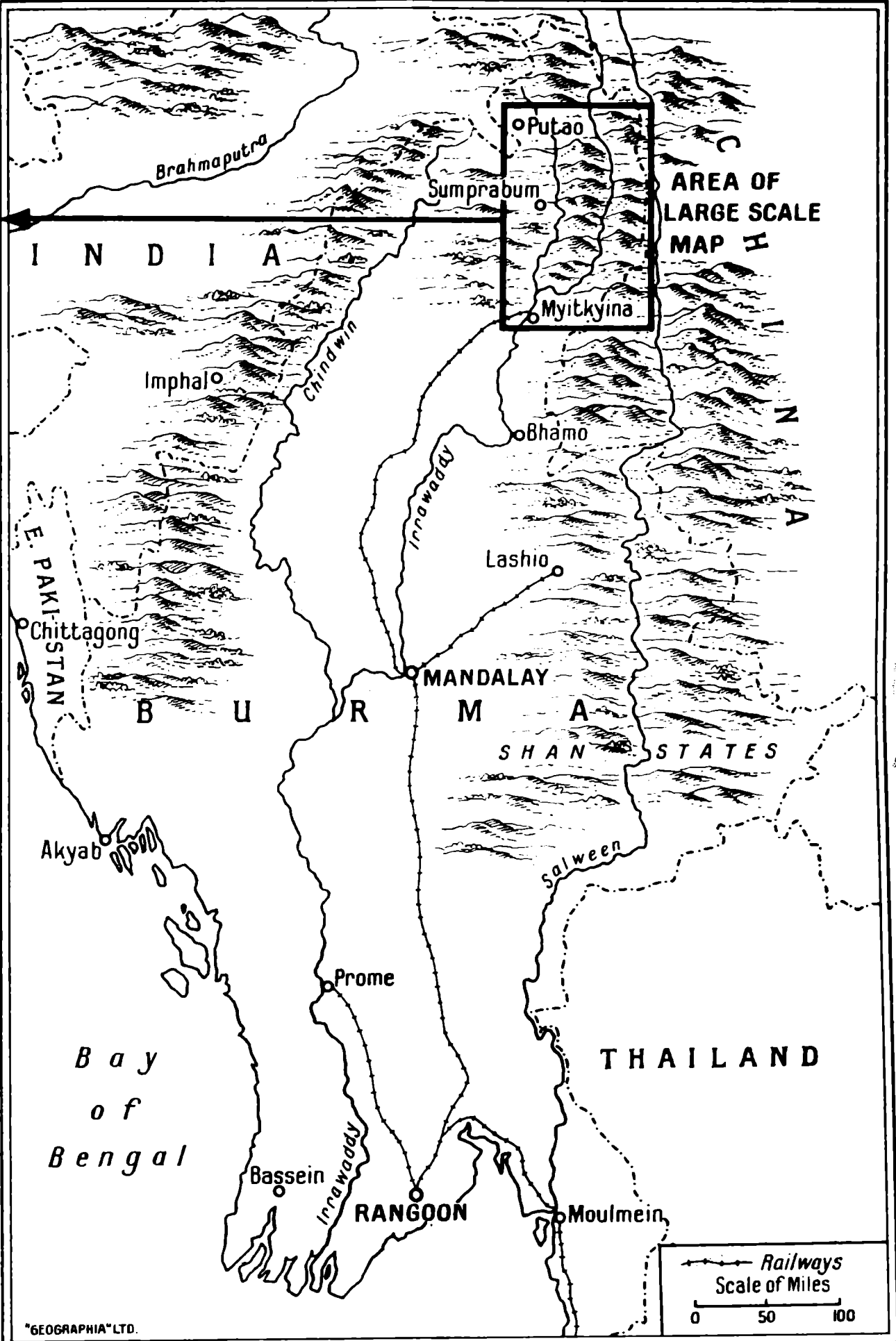
Tanghpree°

MYITKYINA

C
H
I
N
A

Scale of Miles





Brahmaputra

I N D I A

Putao

Sumprabum

AREA OF
LARGE SCALE
MAP II

Myitkyina

Imphal

Chindwin

Bhamo

Lashio

Irrawaddy

Chittagong

MANDALAY

E. PAKISTAN

B U R M A
S H A N S T A T E S

Akyab

Salween

Prome

THAILAND

Bay
of
Bengal

Bassein

RANGOON

Moulmein

Irrawaddy

Railways
Scale of Miles

0 50 100

CHAPTER I I

Interlude at Hkinlum

BY this time the hut was infested with huge cockroaches. One couldn't open a stores box without breaking up a public meeting, and as they scattered in haste, they bred as they ran; or seemed to. The rats also were multiplying too rapidly for comfort—ours *or* theirs. Foiled in the living-room, they had adopted an unpleasant habit of exploratory survey in our bath-bedroom; and twice I had been suddenly woken up in the middle of the night by a rat dashing across my face. This scurvy treatment warned me to tuck in the sandfly net when I went to bed.

Outside, blister flies were increasing, though these little pests never became bad. I had already picked up several leech bites on my ankles in the wet vegetation; but that was my own fault. We had brought plenty of dimethyl phthalate, guaranteed to keep leeches at bay, so long as one remembered to smear it over one's ankles and wrists *before* going into the forest. Early in May termites (white ants) began to emerge from the ground in thousands.

With Hkinlum as centre, and any radius, there were plenty of places which seemed worth exploring in detail, though one usually had to traverse a mile or two of unedifying secondary growth before reaching the spot. One of our favourite walks was the path to Ralu, winding round the base of the high range in a general northerly direction. On the 25th April we made a successful reconnaissance of this route as far as the summit of the spur which separates Hkinlum from Ralu, either village being tucked into a re-entrant; and a mile down the further slope, where there were patches of climax forest. From the top we had a clear view to the north-east, and looked down on to three valleys in which flowed the three northern and eastern sources of the Hkrang Hka. Two of these rivers flowed from the direction of Tagulam Bum, which being sunk within the folds of that mountain, were invisible. But the main stream—not shown at all on our $\frac{1}{2}$ -inch map—flowed out of a white blank marked "unsurveyed". We also made out several villages, including Ralu; not one of them was above 5000 feet. Altogether there are eight satellite villages in the four valleys above the main confluence.

On our right the stark minarets of Tagulam Bum just showed over the mounting ridges of the foothills. On the Hkinlum side of the spur we had an equally extensive view to the west, down the valley of the Hkrang Hka; and then, swinging round to face towards Hkinlum and our base camp, the latter clearly visible, southwards to Tama Bum, Hkangri Bum, and *their*

satellite peaks. Beyond that we could see nothing, because further south the main range dropped abruptly and levelled out at 9000—10,000 feet, with the smooth rounded contours we had observed from Sumprabum.

On the sunny Hkinlum side of the spur were wide *taungya*, some of them freshly cut, now dry and ready for burning. We had climbed the hillside above the path, and reached the top edge of the *taungya*, when someone fired it below us. There was a fresh breeze blowing up the hill.

The crackling of the dead leaves and explosion of bamboos, together with volumes of smoke rolling towards us, soon made us aware of the fire; and before we had fully decided which way we had better retreat, these preliminary symptoms were followed by red flames leaping and running up the slope. Luckily we had not far to go. Even so, we had to decide quickly, as we were snarled up amongst dead timber ourselves. We had just time to collect flowering branches of a tree I had seen, then moved quickly along the crest of the spur towards a flank, and so down to the path below the holocaust, from where we had the satisfaction of watching the fire rampage along the crest of the spur whence we had fled. It soon burnt itself out.

Actually we were in no serious danger of incineration. Had retreat along the ridge been cut off, we could always have plunged over the crest into the dense evergreen forest which clothed the east face, where the fire could never have followed us; however, it was very steep, and we might have been compelled to go some way down, and stay some time, before venturing back.

On this day we secured our first plants of the "white Vanda" (*Vandopsis polyantha*), several of which I bound with string on to trees in our orchid wood. They put on a lot of growth during the rainy season, and were quite troublesome to prise off the trunks when we came to leave Hkinlum.

Another favourite walk was southwards in the direction of Tama Bum. The path ran high above the river, across the steep cattle pastures where buffaloes, humped Indian cattle and mithan grazed. About a mile from camp it crossed the river by cane bridge, and climbed steeply to a village called Hpo-ome. Amongst the rocks in the river bed, and in the jungle lining the banks, we found many plants not previously seen. One of the finest trees—though we did not become conscious of its presence till it flowered in September—was a *Lyonia* fifty or sixty feet high. In the autumn, every branch and twig was beaded with the stiff rows of white flowers, like bloated miniature urns such as one associates with bell heather. It looked as though the whole crown was decorated with myriads of tiny alabaster fairy lamps, touching each other and all inverted.

The southern stream of the Hkrang Hka, which we had crossed by the

long cane bridge the day we reached Hkinlum, split into two streams half a mile above the bridge; the river we crossed at Hpo-ome was the larger and more easterly of the two branches, both flowing from the north or west face of Tama Bum. As for the southern, smaller, branch, though it too rose amongst high peaks, we never saw it again. At the confluence were two more cane bridges, one spanning each branch; hence the confluence received the uninspired name of Two Bridges, or more euphemistically, Watersmeet. The first one, strung high above the river, spanned a gorge; but the second was much closer to the water. As we never had to cross them, I purposely refrained from doing so, disliking the airiness of the first, and the skewiness of the second; but women and children crossed them daily, and they held no terrors for Jean either.

Thus the Hkrang Hka has five source streams, all of which were now shrinking in volume as the last of the snow melted on the peaks; they would not rise so high again until July, by which time the monsoon rain would be making its presence felt.

Watersmeet was within half a mile of our camp, and became a favourite evening stroll, particularly in the hot weather. We rarely returned thence empty-handed. Besides Watersmeet and the Hpo-ome crossing we reached the bottom of the gorge at two other points—a little below the Hpo-ome bridge on the larger of the two southern streams, and again half a mile below the main Hkinlum bridge. Almost everywhere else the cliff plunged straight to the river. Several good plants came from the rocky banks or from the jungle just above high water; either a tree found nowhere else, or something growing on a tree. One of several begonias was found only here, its large crinkled leaves pressed flat against the vertical cliff as though flung against it like a pot of green paint.

It was now full spring in the valleys, proclaimed not only by the warm sunny weather (the midday temperature often well up in the seventies), but by the arrival of migrant birds, and by the flowering of trees. Amongst the latter, the most conspicuous on open ground, cultivated, to-be-cultivated, or had-been-cultivated, were a ferny-leafed *Acacia* with fluffy white flowers in pompons, like *A. Julibrissin* to look at, and *Millingtonia hortensis*, with large creamy yellow trumpet-shaped flowers. Nobody knows where this last grows wild; not here apparently, for though it was common in secondary growth, we never saw it in the forest. And yet, it is thought to grow wild somewhere in Burma. The root is used as a medicine.

Manglietia Caveana was also common, a tall fine-looking tree with sturdy crown; but as we saw it here, hardly worth cultivating. The small white flowers are half hidden amongst last year's leaves, not yet all fallen, and this year's not yet fully out. At this altitude it seems to be semi-evergreen.

One of the suspension cables at Watersmeet has its canes bound round the trunk of such a *Manglietia*, whose short dumpy cones lay about on the cliff edge. Later we found a pink-flowered form, which was much more attractive.

At this season cuckoo meets koel, and the two compete in cheerful if monotonous rivalry—though normally the one presides over matins, the other over vespers. At Hkinlum, however, the cuckoo called every morning and evening till dusk; sometimes it even called *in* the night, thereby usurping the functions of the koel, which having taken over at dusk called *all* night. It has a slightly greater register than the cuckoo, repeating a three-note phrase on an ascending scale, until you think it must burst—and wish it would. Perhaps it thought it would too, for after the fourth or fifth call it returned abruptly to the lowest, and again worked its way up the scale to bursting point. Being quite unmusical (as Jean tells me), I loved to hear both birds—even at dead of night.

The evening after our return from Hkinlum Cliff, I had the best close-up view of a cuckoo I have ever had in my life. We were crossing a steep pasture slope, when it suddenly called very close, rose out of the ground just in front, flew past us low down, and settled on a tree stump twenty yards behind. We wheeled round and raised our field glasses, though we did not expect a cuckoo to wait. But wait it did, after making a single call; and we examined it leisurely, while it eyed us carefully, and in silence. So bold was it that we had time to take in every important feature except the colour of its beak—the dark wing coverts and back, ashy throat, barred breast, and ruby eye, besides the long pointed wings and short tail. After a couple of minutes it flew off.

On the way down from the mountain Jean had seen what, from her description, I took to be a fairy bluebird, one of the most typical and beautiful species of the North Burma forests, which in summer will ascend to 8000 feet. And we had observed the first sunbird as far back as the 13th April, though they had probably been about some time before that. The latter had an iridescent violet cap, and shimmered all over with deep blues and purples, as it sucked honey from the orange flowers of a *Mussaenda*. I had watched this species probing the blood-red pea flowers of an *Erythrina* beside our hut.

Talking of birds, I rarely went into the grassy pastures round the village without putting up several bamboo partridges. They lay low as long as they dared, but their confidence in camouflage seemed suddenly to evaporate, and at the last minute, they rose from almost under my feet. I say rose, but actually they hardly rose at all, and flying so low and so fast—hedge-hopping as it were—would have been difficult to shoot; nor did we in fact ever eat one. I never saw any I put up settle, though they did not fly far.

Another not rare bird in the spring was the white-tailed blue robin, easily spotted by a thin white bar down either side of the tail, otherwise deep prussian blue all over. It is the same size as the white-capped redstart, also common along these boisterous rocky streams; and redstart I took it to be when I first caught sight of it.

Another agile bird we saw frequently was the active little yellow-bellied fantailed flycatcher, restlessly flirting its outspread tail when perched at base between air strikes. In fact, we saw and heard a variety of birds, especially in the foothills; but not being well trained in recognition, I could seldom name them. A few, whose chief characteristics I was able to jot down and report to my friend Mr. B. E. Smythies (author of that magnificent work *The Birds of Burma*), he kindly named for me. I feel he would have enjoyed himself at Hkinlum. No collection of birds has ever been made in the Triangle.

Quite early in May there was a death in the village. A fifteen-year-old boy had been to Htingnam, and was taken ill on his way back. Within a few days of his reaching home he was dead. The same evening he was buried beside the path which slanted up the hill on the other side of the torrent, above which our hut stood.

From our camp we watched the long file of mourners—nearly all girls in white blouses and coloured skirts—winding up the path behind the coffin. Many hymns were sung at the graveside for this was a Christian funeral, and the body was laid to rest alongside three or four other graves. A wooden cross marked the new one.

In several places in North Burma, terracing the steep hillsides for wet rice cultivation may be seen, and where wet rice will ripen, this seems the reasonable answer to the constant food shortage in the highlands. After all, if terracing is possible in the Naga Hills, and even more pertinently, in the Htawgaw Hills inside Burma, there is no reason why it should not become almost universal in the Triangle. The progressive Hkanung village of Nogmung, under its able headman Gu Shen Hpung (now Taung Ok), took it up years ago.

During my walks around Hkinlum I found two places where terracing had been tried on a very small scale. But they had lain fallow for at least two seasons, and nobody seemed interested in them any more. I was told that the people found it too hard work, though it is difficult to see how it could possibly be harder work than the *taungya* system. It would at least make food production less dependent on a capricious climate. The excessively wet spring of 1953 postponed the firing of the *taungya* till very late, thereby shortening the growing season and ensuring a poor crop—especially of maize.

All this only goes to show how difficult it is to persuade people to abandon traditional methods and adopt new-fangled ones. Nevertheless, it seems to me certain that within the next fifty years irrigated rice will be the chief food crop in North Burma; it is only a question of finding out what breed of rice is best for local conditions.

During the seventeen days we spent at Hkinlum, we collected many plants, only a few of which appeared to have any future as garden or even greenhouse plants. Two, however, were outstanding and deserve a few words.

One of them, first found on the 29th April, was an orchid—a species of *Dendrobium*. It had flowers of pure gold, the protruding lip slightly darker—almost orange—the colour of a crocus, and fringed with a long curly golden beard. Of the many orchids we collected, I thought this was the most handsome. It was by no means a large plant, and rarely carried more than six or eight flowers on one erect stem. We spent many hours searching for more plants, but secured few; they grew mostly high up on big trees and were difficult to spot, and even more difficult to reach. Curiously enough, all the plants we did collect came from one ravine; we never saw it anywhere else. In the end I had six plants, all of flowering age, growing in our orchid wood; but of these I believe only one or two survived the journey to England.

The second plant was a *Magnolia*—or rather, that is what I took it to be. It was a small forest tree with lovely ivory-white faintly fragrant *Magnolia*-like flowers, nodding on rather long peduncles, so that they were to some extent protected from the rain. But it was the small thin leaves which particularly attracted Jean, for when she had pressed a good number of specimens, she drew my attention to the fact that they dried black. What was more impressive, however, the midrib stood out like a white silver wire tautly stretched from base to apex, no other veins showing at all. This tree was later identified as *Alcimandra Cathcartii*, an allied genus of the *Magnolia* family with a restricted range in South-East Asia; it was not common here.

The start for Tagulam Bum was fixed for the 12th May. It was certainly unfortunate that we were not on the mountain during the fine weather of the last fortnight; but there was no means of foretelling that it would rain heavily almost throughout the second half of May.

Ordeal by Rain—I

IT was raining when we got up in the dark on the morning of the 12th May. The valley was full of cloud, and daylight showed no peak visible in any direction. The previous evening we had been excited at the thought of what lay ahead of us. Now in the wet grey dawn our hearts sank. Should we postpone the start for a day? No! After all, tomorrow might be fine, and by midday we should be in the temperate forest, and by evening higher than we had been yet. Anyway, the cuckoo was calling cheerfully, and I had a theory that if he called soon after sunrise when the skies looked most sorrowful, it meant a fine day. And so it turned out.

Though we were packed by 8.30, our twenty-four porters did not begin to arrive for another hour, just as we were finishing a postponed breakfast.

However, one expects to start late the first day, when everything is at sixes and sevens. A short march is therefore desirable. There are many matters to be settled. Shall we take this—and this, or do without? Do we really need that—or that? We must leave the base-camp stuff properly packed, but easy to get at quickly on our return. Odds and ends have to be packed in baskets, or attached to other loads, and these must be checked not once, but twice; otherwise we shall see somebody sneaking off with a bucket or a kettle, and claiming it a load! We must also see that nothing is forgotten, which means more checking. . . .

But it was reliable information which was hardest to come by. The map showed Ahkail, the day's stage as we thought, in the middle of a blank white area marked 'unsurveyed'; and it was two and a half miles away—surely a *very* short march! But of course it was much further than that really, and anyway our destination was a village called Ralu, not shown on the map at all.

Still, we had been half way to Ahkail the day of the *taungya* fire, when we reached the shoulder; and Tha Hla had walked to Ahkail and back in a day to arrange for porters.

Talks with the local people would go something like this:

“How far is it to Ahkail?”

“It isn't any distance.”

“But how far, by the path?”

“It's round the corner—over the hill there.”

“A day's march?”

“No, it's a short way. We don't sleep there tonight.”

"How many days to Rawang?"

"I haven't been to Rawang."

"But you must know people who have been there. How long do they take?"

"Two days; three days."

"Going from Hkinlum, where do travellers sleep the first night?"

"Near the pass, at a camp called Tibu."

"Not at Ahkail?"

"No, not at Ahkail."

"And the second night?"

"They reach Rawang the second night."

"Don't they camp at the pass?"

"No, there's no camping place on the pass."

"We don't want to make such long marches as that. Where could we camp?"

"At Tibu."

"But beyond that?"

"I don't know. I haven't been there."

And so on, endlessly. We must trust to personal reconnaissance and to our experience of this type of country. The important thing on the first day is to get going and shake off as quickly as possible the feeling of limitation and restriction imposed by low altitude, while one's thoughts go winging up to the uttermost peaks and all the wonders that there be, when there is nothing left above you but the stars.

Still, it was eleven o'clock before we got off with our twenty-four porters. Tha Hla had another sixteen. The sun was shining in a clear sky and it was already hot. From the top of the shoulder we crossed by a short but dilapidated cane suspension bridge. This branch, which flowed from the east, was nothing but a furious mountain torrent whose bed was choked with huge boulders—probably the least of the five, but a formidable obstacle nevertheless.

A short steep climb brought us to Ahkail, a village of three or four huts; and another longer and steeper climb up a slippery clay hillside, followed by an easy mile along a contour, brought us finally to Ralu. This was an even smaller village, and the last word in squalor. Ralu was, however, from the scenic point of view, well situated. The walk occupied less than three and a half hours, so it was hardly a stage.

After a rest and a cup of tea we went off to explore a nearby gully where a pocket of virgin jungle survived amidst large areas of dull second growth. Jean picked up some ivory-white and flushed pink fleshy petals scattered in the undergrowth, shaped exactly like those short-handled porcelain Chinese spoons they give you in restaurants. We easily followed up this clue to a

large evergreen tree, though the flowers lacked the warm rosy glow of *Manglietia insignis*. I nevertheless took it to be a bloodless form of that beautiful tree. True, it was flowering some two months earlier than *M. insignis* usually flowers in Assam; but then, it was growing some 2000 feet lower down.

The horticulturist, of course, notices these things, and if two trees, regarded by botanists as identical, regularly flower at different seasons—perhaps a month or a month and a half apart—he inclines to regard them as different species. Possibly he over-emphasizes the importance of this. He has little warrant for regarding them as of more than different behaviour, even as two children of the same parents are likely to behave differently.

I was surprised to learn that this pink-tinged *Manglietia* is identical with the rather dim white-flowered tree of Hkinlum (*M. Caveana*), often found no higher than 3000 feet; but less surprised to learn that it was not *M. insignis*, which I had found at 7000 feet in Manipur some years previously. In short, *M. Caveana* is a low-level, *M. insignis* a high-level species; and so far as I can see, that—and the difference in colour, together with a slight difference in the shape (though not the size) of the leaves—is about all the difference there is. I have little doubt that the two overlap in altitude also.

Our small tent had been pitched between two huts built end to end, on very uneven ground. It was a tight fit, and as usual in such a cramped space, uncomfortable in wet weather; but there wasn't room to pitch the big one, which measured about $8\frac{1}{2}$ ft. \times $10\frac{1}{2}$ ft.

The villagers advised us to sleep the night in the hut, because, they said, the previous evening a tiger had visited them and carried off a pig. All the more reason for it not to come again so soon, we said, and sat tight. For one thing, Jean was afraid of being devoured by fleas if she slept in the hut, and for another, I have never really grown accustomed to sleeping in a dormitory, in spite of much experience.

It was a lovely cloudless evening—the last clear weather we were to enjoy for a long time. From Ralu we looked south-west straight down the valley of the Hkrang Hka. We could see for what appeared to be an immense distance, but was actually no more than about twenty miles. Spurs, thrust out from either flank, buttressing the ranges across which the river cuts its way obliquely, at first hardly suggest an ice-worn valley. However, they overlap only at the base, and villages like Arahku and Lajā, perched high up on either bank, stand on terraces or ledges which undoubtedly mark all that remains of an old glacier floor. Most of the ice-worn trough has been washed away during millennia of monsoon rainfall.

A bamboo clapper had been rigged up close to the tent, with a long string leading to the hut, attached to it. This could be tweaked from time to time

by anyone inside, and thus it was hoped to scare away the tiger, should it appear again. Both Jean and I slept uneasily—not from fear of being carried off by what was no man-eater, but because of the frequent clacking of this contraption so close to us.

Nevertheless, at two o'clock I suddenly awoke and sat up. Sure enough, something was breathing hard within a foot or two of my hand; and then I distinctly heard the crunching of bones! I couldn't help thinking of the tiger, and turned up the lamp. Then I shone my torch through the little window of the tent, and getting out of bed, poked it between the flaps of the door. I was in a blue funk.

Two emerald eyes shone back at me, and the silence was ominous. Then something moved, and suddenly the tent jerked. It was a mithan tripping over the guy ropes. Except for yak in Tibet, I have never known any animal so distended with curiosity as a mithan. "Enquire within" might have been writ large on the tent. Ignoring details like guy ropes, mithan always trooped in the direction of our newly erected tent, and breathing heavily as though fearful of an ambush, they poked their noses between the tent flaps and had a good look (or smell) round.

Still, mithan don't crunch bones. Then I remembered we had flung some chicken bones outside the previous night; so it must have been a pidog. At this moment Jean woke up and sleepily asked what was the matter. Hoping for a little sympathy in my ordeal, I said: "Animals eating bones."

"Whose?" she asked, and went to sleep again.

On the 13th May, which was to be *the* day—the day we got amongst the rhododendrons at last—we started from Ralu at nine o'clock. The altimeter gave the height of the village as 4650 feet, which is a few hundred feet higher than Hkinlum.

The sun was already shining fiercely, and after a long and dull ascent through second growth only a few years old, we were thankful to reach the shelter of the forest, above all cultivation—past, present or future. The only plant of interest with any claim to beauty we met with in this zone was the climbing *Vernonia* with tight plumes of florets, like small shaving brushes, purplish-pink in colour. We first saw it at Sumprabum on the 22nd February, just beginning to open its buds, and again in full bloom at Arahku on the 4th April. Now it was over. Climbing *Compositae* are quite exceptional in an enormous family, the best known being the bright yellow *Senecio scandens* and the South American *Mutisia*.

We were now on a ridge and could follow the much-used path without difficulty. We ascended gradually, with several descents, and gained height slowly to start with. At about 7000 feet we found ourselves in the midst of forest which was old when the Talaings ruled in Pegu, and Rangoon was a

village in the marshes of the Irrawaddy delta—forest which had probably not sensibly changed in 5000 or 50,000 years. The trees, of many species all mixed up together, though hoary with age were yet upright and virile. They looked enormous, in height, and especially in bulk and girth. The maples festooned with thousands of slender red tassels made a notable display; in autumn, when the fruits had turned crimson and spread their wings, they were magnificent. Besides these there were oaks, chestnuts, hollies, Magnolias, laurels, cherries, birch, rhododendron, and many others.

Though the overhead canopy was unbroken, it was thin in places, and enough light came through to sustain a variety of shrubs and small trees, which could hardly be described as a second tier, but ranked rather with the herbaceous plants which grew beneath them. Two shrubs which deserve mention were a spindle (*Euonymus*) twinkling with hundreds of tiny chocolate-drop flowers on long stalks; and a much rarer dwarf *Hydrangea* bearing terminal heads of powder-blue flowers. Each inflorescence was clasped by a lace collar of four paper-white sterile flowers.

Then, on the dark mouldering leaf carpet, under the dripping canopy, came the third tier of vegetation—the herbaceous layer, of which two plants immediately attracted our attention. They grew close to one another in scattered colonies, as though for self-defence. One was an *Arisaema*, a *de luxe* model of a cuckoo pint. The magnificent dark liver-coloured spathe, narrowly ribbed with silver, looks like a drinking horn. It is whorled on either side, and from a little distance these side rosettes look like bat's ears, or even ammonites; while the triangular tip, pulled well down over the rim of the vessel, is narrowed abruptly into a whiplash tail which reaches the incredible length of four to five *feet*, and of course trails on the ground. But not directly. Each spathe is accompanied by one solitary compound leaf, which like the spathe, springs directly out of the ground. The leaf blade is composed of three separate leaflets, the whole being almost fan-shaped, borne aloft on a strong stalk. It is taller than the spathe, and shelters it like an umbrella.

As Jean pointed out, the "tail" almost invariably lies along the midrib of the central leaflet, which may be as much as a foot and a half long; and from its pointed tip hangs down to and trails on the ground.

How, then, was the "tail" laid with such mathematical precision along the midrib of the central leaflet, when the leaf itself was taller than the spathe? Jean asked. A fair question. One thing seems obvious: the "tail" was accurately laid down before the leaf stalk grew up. First the "flower"—strictly, the spathe sheltering the flowers which are crowded on a spadix—appeared, followed later by the solitary leaf, whose stalk grew faster. It carried aloft the "tail", already placed on the central leaflet. The "tail", however, grew fastest of all, till it trailed on the ground, and still continued to grow.

But why? To what purpose? Was it in order to lift at least the tip of the close-fitting hood sufficiently to permit the entrance of some creature? (I have read that slugs pollinate *Arisaemas*, but have never caught them in the act.) Or was it to act as a guide to some creature seeking the interior of the hood?

Unfortunately, on our return in November we didn't find a single plant which had set any seed; so if the scheme is as postulated above, it met on this occasion with scant success; nor did we ever discover what the hypothetical creature was.

The second prominent herbaceous plant was a squat ground-orchid (*Calanthe*), which from the centre of a lettuce-like clump of broad leaves sends up a short spike with white flowers having a violet lip. They looked as dainty as butterflies crowded on a stick.

About this altitude also I noticed a fine specimen of the white *Stauroopsis* orchid, which is no lounge lizard of the valley. It is noticeable that, just as in England, the flowers of the forest come into flower in the spring. In England this is generally before the trees are in full leaf, while there is still light filtering through the canopy. Our wood anemones, primroses and dog's mercury, for example. Here, however, though the forest is more than half evergreen, the same habit persists. After the middle of May one can find few plants flowering in the forest, the most conspicuous being scattered epiphytic orchids, particularly *Coelogyne*.

Nor does one see the closely woven carpets of flowers so characteristic of English woodlands—as bluebells and wood sorrel (*Oxalis*). I have spoken of *Arisaema* and *Calanthe* colonies, but that is a relative term. You may find a dozen or a score of plants together, but they are not growing cheek by jowl; and I know of nothing in the temperate forest of North Burma at all comparable with our own flowers in that respect. One must deliberately hunt for flowers in the monsoon forest. You *can* help seeing them. On the other hand, the deciduous forests of Europe are without the epiphytic flora which is such a feature of every forest zone from sub-tropical to sub-alpine in North Burma.

There were many lianas in the temperate zone, but nothing enormous. Most of them were not much larger than honeysuckle in England. Two climbers now in profuse flower were an *Actinidia* and a *Derris*, the latter not unlike a pink-flowered *Wistaria*, and quite charming.

At noon it began to rain, and shortly after, we halted; on one side of the narrow ridge was a big slip partly covered with low scrub. Here we crouched under a bank to rest and drink tea out of a thermos. Presently we felt better and faced the steeper second half of the climb in good heart. Even so, I was getting tired, and had to take the more precipitous bits slowly, with the result that I began to feel cold. The porters had long since gone on,

and so too had Tha Hla's party, while Jean stayed behind to keep me company.

The forest was still much the same, with shrubs replacing trees on the sharp ridges. At last we reached an exposed granite knoll, whence the path descended slightly and entered the forest again. Just beyond, we could hear the splash of a stream. Through the trees we saw a spiral of smoke, and heard voices and the ring of iron on wood. We had reached Tibu camp.

A forest camp rarely qualifies as a "desirable residence", in spite of the lordly acres surrounding it. But as we saw it at that moment, when we were tired, wet, and hungry, Tibu camp deserved the epithet. To see the big tent pitched, fires burning, and hot tea in the offing, was wonderful.

The tent had been pitched on the narrow crest of the ridge between two huge trees. The ground was reasonably level, but it was impossible to walk round the tent without tripping over guy ropes or slipping over the edge. The forest was swathed in a spongy cloak of moss and fern. Clumps of yellow-and-white orchids, embalmed in moss and dripping with water, were falling by their own weight from the trunks, or hung suspended by a thread.

By the time the Rippingille stove had warmed up the tent and we had drunk a mug of hot tea, we felt on top of the world. Tha Hla's party occupied a larger platform cut out of the slope below, but the ground was soft and muddy, and their single fly tent was much less snug than ours. We always felt sorry for them in wet weather, but we never heard either of them complain.

CHAPTER 13

Ordeal by Rain—II

WE awoke early next morning. It was to be another and even more exciting day. Thick layers of greasy-looking cloud filled the valley. Presently it came rolling up like smoke from a bonfire. We felt half inclined to reverse our plans—stay here for the first week, and go on to the pass later, when the weather might improve. But our curiosity got the better of us; we wanted to see the pass *now*.

After early tea, while the servants were having their breakfast and packing, Jean and I dashed back along the path we had come up the previous day, to have a look at the forest from the knoll. It was some 200 yards distant, and from this point of vantage on a fine day we should have a magnificent view from south round to west and north-west, with the Hkrang Hka flowing obliquely away from us to the south-west.

Beyond the knoll the path traversed an exposed face below the crest of the ridge, which was covered with almost impenetrable thickets.

From the knoll we looked down on to the roof of the forest on either side of the ridge, and saw hundreds of Magnolias (*M. rostrata*) and big-leaved rhododendrons, which were the dominant trees here, besides all those previously mentioned. So Jean and I went off in different directions. When we met fifteen minutes later, she clutched in her hand a fine truss of daffodil-yellow rhododendron flowers, with small leaves of the "Grande" type. It looked like *R. sidereum*, though the leaves were smaller and the flowers a much deeper shade of yellow than is usual in that species. On the way back to camp I looked up, and there almost over my head was a gnarled and patriarchal tree perhaps three centuries old; and its crown was of saffron orbs, like the stars for multitude.

We left Tibu camp at 9.45, and the rain began at the same time, coming in a deluge. We felt exalted.

The path was exceedingly steep, with boulder steps so high that it was impossible to take them without using one's hands; but a small stream, rapidly swelling to a torrent, cascaded down the obvious channel. At this level the bamboos had recently flowered and died, leaving a hideous tangle of blackened haulms leaning at all angles. The forest was very open, the big trees rather far apart; they included *Magnolia rostrata* and *Michelia Doltsopa*, at its highest limit (about 8000 feet), *Quercus lamellosa*, *Tetrameles*, and whitebeam (*Sorbus*). It looked rather as though somebody had tried to open

up the forest by fire raising, though with very limited success. Still, one must suppose that this track had been in use for a century or two.

When presently the slope eased off we emerged again from the cover of the forest on to a fully exposed slope. On the steep part, the torrent, now rushing down the path like a millrace, had washed the rocks from under our feet as we trod on them, making a foothold very insecure. Here the path was simply a trench, and it was stagnant water we had to deal with. Also, it was overgrown with dense thickets of thin-stemmed *Arundinaria*, whose feathery branches met overhead. Pushing our way through this, over our ankles in mud and water, or slopping almost knee deep into invisible pools, we were drenched to the skin in a matter of minutes. All the time we were exposed to a wind which in the bamboos sounded like an express train running through a junction. It sucked the warmth out of our bodies in no time at all.

There followed a descent, and presently we were under the protection of forest again, on a more level section of the ridge. But it was too late. The intense chill had set up an uncontrollable shivering, and we felt wretched. At the next steep ascent I was almost "all in". The porters had gone ahead and Tha Hla's party also. But Jean, who was not feeling good herself, stayed behind to keep me company, though she could easily have kept up with the porters.

Under these tiresome conditions, with the rain streaming down and the track a butterslide where it wasn't level and a bog where it was, we could hardly take great interest in the plants we saw. But it was impossible to ignore them completely. The massed rhododendrons to some extent compensated us for the misery we suffered. The finest sight was Jean's yellow "Grande" rhododendron, clumps of veteran trees growing together along the ridge, and all in full bloom. It was like a sudden blaze of sunshine through the streaming rain.

We passed under smallish trees of *Magnolia Campbellii* subsp. *mollicomata*. A month earlier they must have been a brave sight, for they had borne many blooms. Now the long awl-shaped leaf buds were just breaking. Hollies, of unusual habit, and *Symplocos dryophila*, which bears crowded starry white flowers like a blackthorn, were also prominent; and so was a gloomy *Daphniphyllum* spouting fountains of purple flowers. Strangely enough, we did not meet with a single Conifer—spruce, larch, pine or fir.

We had been going barely three hours, but I felt I couldn't keep on much longer without a good rest. It was hardly a day to linger; nevertheless, I was forced to halt so frequently, if only for a moment, that I was able to collect a few plants. I guessed we were not far from the alleged camping ground, and that however bad one felt, relief was in sight.

As the slope became easier, new rhododendrons burst on us—the blood-red *R. euchaites* and white-flowered *R. bullatum* high in the trees.

But there was nothing to compare with a tall rather fastigiate shrub, so profusely covered with large bell-shaped flowers that one could hardly see any leaves at all. They were of several shades, usually a pale primrose-yellow, but often salmon-pink or faintly tinged blue-violet, and sometimes pure white. The bushes lined both sides of the ridge forming an avenue of blossom which was startling. This species was related to *R. triflorum*, and it so dominated the ridge that for two or three hundred yards it made a double wall of contrasting colours, with here and there a splash of crimson *R. euchaites* or the splendid purple of a shrub like *R. oreotrepbes*.

During the last part of the ascent, the ridge was riddled with wide holes filled with liquid mud, though they looked deceitfully solid. We went in knee deep. Jean had now gone ahead to help prepare the camp and some hot tea. She sent back a man with a tot of brandy for me, but perhaps I looked a little (hardly much) worse than I felt. Anyway, I didn't need brandy, which was precious on the post, so to speak.

Quite suddenly I came upon a lot of disconsolate porters huddled together on the path, with our two servants looking distressed, and Jean with an expression of near despair on her face. "There's no camping ground," she said, "only this!"—indicating the forest in general. "We can't pitch the tents. The only thing to do seems to be to return to Tibu camp. What do you say? I don't think you can do it, can you? We're all so frightfully cold. We must at any rate rest and have a meal first."

I said I didn't feel like going down and we'd stick it out. We managed to clear enough space to put up the small tent, though it sagged like an old sack, with the guy ropes tied haphazardly to tree trunks, and the uneven ground broken by projecting stumps. After that we strung tent flies and "waterproof" sheets along the path, and managed to give some shelter to our servants and to their fire. Tha Hla's party pitched their outer fly—one could hardly call it a tent—on a muddy platform in the dip of the col; but the roof was full of holes and let in a lot of water. Their bedding, like ours, was soaked through.

We lit the stove in our cramped tent, and after a couple of hours, during which time we had changed into dry clothes, Joi Wa Naw brought us some hot tea. Jean, always at her best when things are going badly, then made tea for everyone, for which the porters were very grateful; and presently we all began to revive.

It was hard labour changing all the plant paper, with three days' collecting in the presses, and we soon realized that it would be impossible to work under such conditions for a week on end. The collection would suffer. We must return to the more spacious Tibu camp. Our little tent was already full of sodden clothes, wet plant paper, several fat presses which we hoped to keep dry, together with our camp beds and wet bedding. All other loads



26. Maru girl in North Burma



27. (*Top*) Kachin girls pounding rice—on the way to Sumprabum

28. (*Bottom*) Burmese woman selling pots—made of baked mud—near Bhāmo

stood about outside, in pools of water, it being quite impossible to put them under the fly. The more important ones had their waterproof sheets spread over them; but half our sheets were out on loan to the wretched porters. If we wanted anything, we had to go outside and burrow around for the right box, then open it in the pouring rain—the height of discomfort. We christened this Dismal Camp.

We presently learnt that the porters wouldn't budge next day unless the rain ceased. The path, they said, was too difficult to carry loads down while the rain continued. If they went down without loads, leaving us behind, we might be here for a fortnight before they returned. We pondered this and agreed to feed them for one day if they would carry our loads down the following day, wet or fine. There was at least a chance the weather might improve.

Unfortunately it didn't, and we stayed put in some discomfort, chiefly owing to the fact that Jean had to change all the presses. Every sheet of paper—about 300 of them—must be hand-dried singly over the cookhouse fire, and this thankless task our good-natured girl porters performed.

Throughout the night of the 15th May it continued to rain. Nor was there the slightest improvement in the morning. We dressed more warmly, and prepared to retreat. The Burmese boys, who had spent two cold wet nights under their fly, were a bit downcast, but uttered no word of complaint.

After early morning tea, while the men with numb fingers were dismantling the camp in streaming rain, I prepared for a dash up to the pass, which was said to be close. Going hard all the way, I climbed the 500 feet to the top in twenty minutes. The path through the rhododendron forest was steep, but not difficult, the ground interlaced with roots which offered good foothold.

At the top—altitude about 9500 feet—so thick was the mist that one could see only a few yards. I knew it must be the top because we were in open country. Though I couldn't see, I sensed the deep chasm where, 8000 feet below, the eastern Irrawaddy flowed like a mill-race. There was a chorus of small birds darting and twittering amongst the rhododendron blossom.

I found myself standing on a large foot-high patch of rhododendron—a blur of rich rosy purple. It was a dwarf form of *R. tephropeplum*, and even through the mist and rain I could see it was a first-class plant. I collected ample material of this, and rather less of a pink-flowered *Vaccinium*; then turned and went back as fast as I could.

Some of the porters had already started down, but quite a few of the loads were not yet tied up, and Jean put the new plants in the press straight away.

By 10.30 we were on our way. I was more warmly clad this time, and though the long traverse was worse than it had been two days before, and

the precipitous rocky descent to the camp much worse, we got down without an accident. However, while we were arranging things, poor Chit Ko Ko arrived, colder than any of us. His lips were blue, his teeth chattering like castanets so that he couldn't speak coherently, and he looked terrible. We gave him hot tea immediately, but unfortunately couldn't lay our hands on the brandy flask, which was in a load that hadn't yet arrived. I rubbed him hard all over, and in ten minutes or so we restored the circulation and he felt better; but we realized the ordeal he must have been through in the upper camp.

It was a great relief to be in the big tent again, with nearly all our loads safely stowed, and plenty of room to work in. We lit the stove, got up an enormous fag, and began slowly to dry our clothes and bedding.

Of course, one has often been wet through before. You can't collect alpine plants in South-East Asia without being frequently baptized. But I cannot recall ever having been so stricken with the wrong kind of cold as on that 14th May.

CHAPTER 14

Tibu Camp

IT was with a feeling of relief that we woke up on the 17th to find ourselves in the big tent again. When Joi Wa Naw brought morning tea I got up, lit the stove, and contemplated the luxurious scene with relish. Our beds nowhere touched the canvas, and both sides of the tent were lined with deep pockets containing everything in constant use. There was a good passageway down the middle, and room for the dhoolie at the top end, on which the tea things now stood. At the head of each bed were our clothes boxes, with two more boxes at the foot. The presses were ranged along the side of Jean's bed, and there was room to hang up wet clothes over the small stove. We thoroughly enjoyed our morning cup of tea and biscuit.

We began drying our clothes and bedding, changed the six presses, wrote up field notes, and the weather being bad, spent the day organizing the camp so as to make the most of the available space.

The porters came for their pay and said good-bye. Telling them they had done well, we gave them all a day's extra pay, which pleased them; and the girls shook hands with us, solemnly and warmly, gripping their own right wrist with the left hand as they did so—a mark of friendship, and perhaps of respect amongst the Kachin tribes. It seems to be a combination of the old and the new, a variant of the picturesque Indian and Burmese custom of placing the hands together in front of the body, in greeting or farewell. Our Maru servants, when handing us anything, would hold the right wrist in the same way, or make a gesture as though to do so.

The departing porters took with them a note to Gang Shim Gam, our transport agent so to speak, telling him to bring them up again on the 31st May, if fine. We required fewer porters for the return, of course, as we would have consumed a considerable weight of rice, stores and kerosene oil.

Gang Shim Gam was an unsatisfactory sort of man. He had formerly been an N.C.O. in the Burma Frontier Force, and spoke Burmese; so he was useful. We first took him over as a personal servant from the Mines overseer when he left Arahku, and Gang Shim Gam stayed with us for about a fortnight in all—though we saw little of him. He certainly did a minimum of work, and an ailing wife was the excuse given for frequent absences at his own village near Ralu. As soon as he decently could, he left our personal service for the more speculative business of arranging our transport on a

commission basis, collecting porters from the small scattered villages of the foothills, as required.

During the next few days we explored the neighbouring slopes, not only in an intensive search for new plants, but also to mark good plants for seed. No doubt we had seen the pick of the trees and shrubs—especially such as were in flower—on the way up; we now turned our attention to the less favoured. Ferns were dominant in the undergrowth, though they comprised fewer species than in the valley. Together with moss and lichen they were also the dominant epiphytes. Orchids, except for a single species (*Coelogyne corymbosa*), were much rarer. This *Coelogyne* is extremely abundant, and was found growing often in great quantity on trees, bulging with puffs of moss. It ascends to 9000 feet, and is under deep snow in winter. The only trees it doesn't grow on are the rhododendrons, whose smooth trunks defy moss.

The flowers were astonishingly variable. Perhaps the most common colouring was a snow-white flower with a shovel-shaped lip, thinly striped with chocolate-brown lines on a yellowish-white ground, and having two chrome yellow blotches or spots on either of the upturned edges. These spots, however, varied in size, colour, and shape, while the lines might be completely lacking; with the result that the flowers, when closely examined, looked quite different.

In *Coelogyne*, the inflorescence springs independently from the base of the small conical pseudo-bulb, while a pair of leaves springs from the apex. As there are usually several pseudo-bulbs flowering together, and in this species the inflorescence consists of a loose raceme of several flowers, the effect of massed flowers is charming.

We spent twelve days in this camp, but were so hemmed in by precipices in every direction that we found it impossible to stray far from the ridge.

Happily Tha Hla, who had already proved himself a stayer, was eager to try to reach the alpine region, and on the 27th May, with one local man, he actually reached the summit of Tagulam Bum. It was a fine day, and starting at dawn, he got back to camp long after sunset, helped by a full moon. He had spent fourteen and a half hours on the climb. It was a wonderful effort, and met with considerable success. I shall not soon forget the dazzling array of rhododendrons he had laid out by his camp when we visited him early the next morning to hear his story. There was no path up the ridge beyond the pass I had reached, he told us, but from there he turned due south and followed the watershed to the summit, cutting his way through the rhododendron scrub as he went.

We spent a happy time going over his collection, which included a number of interesting rhododendrons, especially dwarf species. There was

also a striking primula (flowers over) with circular leathery leaves, which I had never seen before, and a fine "Bergenia" Saxifrage with large heads of rosy purple flowers.

On the 24th—a fine day—Jean and I retraced our steps up the rock stairway and across the traverse of evil memory to its highest point, where in a hollow under a granite cliff two or three men might sleep in reasonable comfort. From the top of this rock we had a fine view across a bottomless valley to the crags and precipices of Tagulam Bum. To reach the summit we would have to continue eastwards along our ridge—as we had already done once—to the point where it joined the main range at the pass (called on the map Urong Thara); then turning due south along the crest, make direct for the summit. All this was clear enough; but it looked a long climb. On a far rocky spur we clearly saw fir trees against the sky.

The north face of Tagulam Bum, seen from this lookout, was sheer, with huge steep slabs of bare rock. There seemed to be little chance for alpinists. However, it was not really quite so bad as that, as we were to discover later.

On the night of the 21st the long spell of continuous rain and heavy mist came to an end. It was almost uncanny to be awakened suddenly at 2 a.m. by the silence, to become slowly aware that the steady drumming of rain on the tent—even the slower but heavier plops from the dripping trees—had at last ceased. The respite would probably be brief, but it was none the less welcome.

Dawn came, and we could see the trees, sharp against the sky. For ten days the mist had been so thick that at a range of twenty-five yards you couldn't tell the trees apart—it was just a high wall of forest. They loomed like ghosts through the shifting cloud, appeared and disappeared, taking on new forms; the vague fringe of ferns and moss borne by every branch looked like seaweed waving slowly with the tide in submarine depths. There might be 12,000 to 15,000 feet of cloud above our heads, and 4000 to 5000 feet below us. Sometimes the forest we knew seemed to dissolve altogether, to be replaced by some prehistoric landscape out of which anything might presently emerge.

But there were no prehistoric monsters—only monkeys. We heard them often, but rarely saw them. They were probably langurs—it was rather high for leaf-eating monkeys. Bags made of the silver-grey fur skins are often carried by Lisus.

We were rather concerned about certain rhododendrons at this level, notably *R. megacalyx*. The original *locus classicus* of this species was North Burma, but it was subsequently found in Assam and Tibet. It has, in fact, long been in cultivation in this country, though it suffered heavy casualties during the war from unavoidable neglect in some gardens. In Northern Ireland I have seen a fully grown plant—probably the finest cultivated

specimen anywhere—at Ballywalter, growing in the open against a wall; but it is hardy only in the mildest districts. The plants we found now in full bloom were the equal of any I have ever discovered anywhere, and there was always the chance that it might be a hardier form, or what gardeners call a better “doer”. As it was uncommon and widely scattered, it was some time before we found enough plants to satisfy us.

R. chrysodoron we found once only, a solitary plant; and that too had to be carefully marked for seed, in case the flowers (so far unseen) were different. A lot of time was devoted to the search for a third species—a slim shrub growing in thickets, flowers not seen; and in the end we found half a dozen specimens which had flowered well and would give a good crop of seed.

Two more species of *Sorbus* were found. One of these, a sturdy little tree, was in full flower on the ridge at the 9000-foot camp. It had large leaves like the whitebeam, but they were not matted white beneath, and bore corymbose heads of flowers like the English hawthorn, with the same strong bitter-sweet scent. But the most distinguished feature of this tree was the autumn colouring of the leaves. Instead of curling up and turning brown, as the leaves of the whitebeam did, they turned a rich honey gold, translucent as goldbeater’s skin, and retained their shape until they dropped. The fruits of both these *Sorbus* were much alike, not very different from those of the English whitebeam.

Much less common was a shrub sometimes growing as an epiphyte. It must have flowered in the winter, because the plants we found bore, in lax corymbs, small hard green fruits, which were half ripe. I never altogether understood the status of this species; it might have been a *Pyrus*. We did not collect it in flower, though a *Pyrus* I saw flowering high up on a big tree in October might have been this species. There was one small plant growing in a thicket near Tibu camp—it bore a few bunches of fruit; another I found in July on the way to Tama Bum, but subsequently lost. All the fruit we got in November came from one or two large epiphytic shrubs.

So long as there were rhododendrons in flower, one might say that the temperate forest was full of birds; probably there were fewer now than there had been. A pair of magpies visited Tha Hla’s tent every day, coming boldly inside—the edges of the tent did not reach the ground, so that it was open on both sides and at both ends. They hopped about picking up scraps of food. Someone set a simple trap for them, and one afternoon while Tha Hla and Chit Ko Ko were having tea with us, one of the pair was caught in the trap.

Maung Ba Zan, Tha Hla’s servant, tied a string to its leg and brought it up to show us. Jean held it while I noted its main points. It had a very strong yellow beak, an inch and a quarter long, the upper mandible hooked over

the lower like a shrike's, with bristles at the base like a barbet; and though the bird was fifteen to eighteen inches long, most of this was tail, the head and body measuring only seven or eight inches. With its red-orange legs and gamboge beak it was certainly a striking bird, in spite of its dull plumage. The general colouring was a uniform smoky grey, only the tail feathers being white, broadly barred with black. The head also was black. As to its age or sex—unfortunately at this point Jean's attention strayed, she took one hand off the captive, and with a single raucous cry it flew out between the tent flaps, trailing its string behind it, and was instantly lost in the forest. Nor did these birds again visit the camp in search of food.

When the weather cleared a little, we had good views in several directions; first, from the ridge on which our tent stood, through the trees to the north; secondly, from the knoll just below our camp. Having cleared this of scrub, we had a fine all-round view, but particularly to the south and south-west down to the valley of the Hkrang Hka. What we could *not* see, without ascending the steep path to the traverse, was Tagulam Bum itself.

We went down the path on the 22nd May—the first fine day of the tour—almost as far as the col where we had lunched on the way up. There were some *Michelias* and *Manglietias* in the forest here, which I wanted to sort out. However, we didn't have much luck with them. Instead we found a large epiphytic shrub, from which dangled heavy clusters of globular fruits, looking like thick-skinned new potatoes. It is a species of *Eriobotrya* (*Rosaceae*) with large handsome leaves, always epiphytic, and widespread in the forests of North Burma. It flowers during a very brief spell of leaflessness early in October, while the new leaf buds are breaking. The clusters of fruit, slightly larger and heavier, but otherwise unchanged, still hang there, looking as though nothing ever happened to them. Thus the seeds take at least a year to ripen, and the brown fruits are just as hard in November, when they are already twelve months old, as they were now in May.

In November we brought down half a man-load of them. We laid them out in the sun till they gradually softened (this took about three weeks), and then squeezed out the hard core. So far as I know, this is the only way to deal with them. I have never found the fruits soften on the tree, not even in December. It appears much more likely that they gradually drop off and rot on the ground, and I have picked up fallen fruits; but it would be rash to depend on windfalls for seeds, as they are difficult to see, and may roll far down the slope.

The *Eriobotrya* grows into a considerable tree, and could never derive enough food and water, even from the big trees on which it generally establishes itself. But quite early it insures itself against all risks by sending one or more stout roots down the trunk, till they reach the ground. Thus it

not only has a less precarious food supply, but also a second means of support. If the supporting tree on which it started its career were to collapse, therefore, under the weight of its guest, the guest could presumably keep itself alive, even though it came down in a heap. The plant I am referring to had indeed done that to some extent, owing to the gradual but not yet total collapse of its support. Some of it already lay on the ground, and long festoons bearing easily accessible bunches of fruit hung low from the branches. This tendency of epiphytic trees to insure their lives by coming down to earth is not peculiar to *Eriobotrya*. It is equally typical of *Sorbus* (Rosaceae again); and close to Tibu camp a big *Sorbus* tree growing on an enormous oak had thrust down a root as thick as a man's arm. It clung closely to the host trunk, pressing against it like a boa-constrictor, and looking as though it were welded to it. Its behaviour is quite different from that of a strangling fig. The fig's design is aggressive from the start; it *intends* to strangle its victim, hoping to supplant it in the forest. Numerous adventitious roots grow out from the branches, their tips suspended freely in the air, till they meet the ground. Or the fig climbs up the host from below, the stem sending off adventitious roots right and left, which anastomose to form a close network entirely enclosing the trunk of the host, wrapping it in a death shroud. I have never known a host trunk to grow fast enough to burst through its bonds before the latter could squeeze the life from it; but if a tree could retaliate thus, it would be a fair revenge.

What the *Sorbus* or *Eriobotrya* seem to do is to send out a root from the base of the stem in the usual way, which creeps down the trunk seeking darkness in the crevices of the bark, and behaving in all respects like a normal root, till eventually it reaches the forest floor and has a stake in the land. In so far as these trees make contact with the earth they cease, of course, to be complete epiphytes, and it is possible that they may some day obtain independence, if they are still living when the host dies, or falls. But this is unlikely to happen often; the death of a big tree in the forest is usually a long-drawn-out affair.

We also spotted an epiphytic *Pyrus* perched on an unclimbable tree, and spent half an hour hurling heavy sticks at it before we could knock off sufficient fruiting material—only to find that it was the *Pyrus* mentioned earlier in this chapter, uncommon but not quite unknown.

While we were enjoying a snack lunch—the first time we had been able to do such a thing in comfort since we left Hkinlum—we heard the silvery note of a Burmese gong ringing through the forest, and presently round the corner came a file of men with two or three women, most of whom were carrying loads. Two riflemen of the Frontier Force, one with a newly wed wife, and their porters composed the party. The bride also carried a load; not so the bridegroom. That was conventional. The newly married rifleman

stopped to chat with us while the others went on. They were returning to their villages in the 'Nmai Hka valley on two months' leave. He had married a Hkinlum girl, and was now taking her back to his village. As he had come from Prome, which is only 180 miles north of Rangoon, it took him quite a long time to reach his home; say, a day's flight to Myitkyina, two days by jeep to Sumprabum, six or eight days to Hkinlum, and at least another three or four over the range to his own village in Rawang. He told us he had already spent Rs.1000/- —the savings of eight years' service—on this spree. But what of it! That was what savings were for. Now he was married he wouldn't need to save money. His wife and children would look after him in old age. An eminently reasonable economic outlook. As for the gong, whose resonance vibrating sweetly through the forest sounded like wedding bells, that was one of the perks, or wedding presents.

The party went on and we continued our plant hunting. When we got back to camp they were halted there, gossiping with our men. They had cleared a platform, but had not bothered to build themselves a shelter. Apparently they relied on us for that, and asked to borrow one of our tents! The party would reach Rawang next day.

The following day a party of Lisus arrived from Rawang, so this route is used more than a little. They brought a note from the American missionaries, Mr. Robert Morse and his wife, inviting us to visit them. Unfortunately we had no permits to cross the 'Nmai Hka; or rather, we had given our word in Rangoon that we would not do so. So the invitation could not be accepted.

We sent Joi Wa Naw and another man up to Dismal Camp with orders to clear a proper camp site. At the same time we sent a note down to Gang Shim Gam telling him to bring up twenty porters immediately. Now that the weather looked better we wanted to return to the upper camp for a few days.

In due course word came back from Gang Shim Gam that he couldn't get porters till the end of the month, as the people were busy in the fields. Anyway it seemed doubtful whether the camp site was any better than before.

On the 29th May our porters turned up unexpectedly, and as the short break in the weather was already a thing of the past, we decided to start down a day earlier than we had intended.

We had worked hard for the comparatively few plants we collected during that fortnight; but I was well satisfied with the Museum material, which Jean had prepared. One of the last plants we found was *Berneuxia tibetica*, a widespread species in North Burma, Yunnan and Assam in the temperate forest zone. It grows in large primrose-like clumps, usually under rocks, always in deep shade, and looks at first sight deceptively like a primula with smooth leathery leaves. It belongs to the same family.

It was raining as usual when we broke camp on the 30th. As far as the

beginning of the forest there were plants to collect and to memorize for seed. On the slip below the col grew masses of *Gaultheria* (*G. semi-infera*) which promised to be a wonderful sight when its berries ripened in October. This slip, with its open formation of shrubs, gave the impression that it might contain some good new plants, and with some difficulty I scrambled down the cliff and gained a foothold on the loose sandy slope. Such slips, like gullies, are gold mines to the plant hunter, because they continually offer new territory to seeds seeking freehold ground, which normally have little chance of germinating in the crowded forest or of surviving if they do. A chance seed of a rare plant may germinate in just such a spot; and the higher the altitude the better. However, I found nothing except another *Gaultheria* (*G. Wardii*).

After we emerged from the dripping forest into second growth, we descended as fast as the slippery clay path would let us, reaching Ralu and our old camp site—now a bog—four hours after we started. The men had done nothing to improve the ground, but they had pitched the tent.

In the afternoon it rained so heavily that streams of water poured down the bank and through the tent flaps; our beds soon stood in a lake. To add to this trial, water dripped heavily on to my bedding. Tha Hla wisely went on to Hkinlum with a couple of porters, leaving Chit Ko Ko to bring on the loads next day.

The rain continued all night, and the 1000-foot descent to the river was tiresomely slippery. At the cane bridge I took off my boots as the wet bamboos were also slippery; in my woollen socks I got across without difficulty. The river was in spate and the noise deafening.

Just beyond Ralu we came on a split bamboo stuck in the path. Several sharpened sticks were wedged into it, pointing in all directions save back to Ralu. This was a polite notice to the previously mentioned tiger, telling him which way he might go. It was the general belief in the village that if it was so discourteous as to ignore the hint not to visit them again, it would come to an untimely end.

On the Ralu side of the shoulder, which sent a long undulating ridge in the direction of the Hkrang Hka confluence, both rice and buckwheat were coming up well. But on the Hkinlum side we descended through tangles of half-burnt bamboo and bush growth, where no crops at all were yet visible, so badly had the burning been done. Until all the half-burnt wood had been cleared away, and the slopes raked over, no grain could be sown. But I noticed the neatly spaced "drills", all done by hand, of course, for maize, which is interplanted with hill rice and ripens about the same time, or a little earlier.

The hyacinth-blue of *Dichroa febrifuga*, which is like a *Hydrangea* without its white ruff of sterile flowers, was now in bloom, and everything had

been growing madly during the three weeks we had been absent. The insect population had increased tenfold, and the army of moulds, mildews, and other obnoxious fungi was a good second. Like music to our ears was the familiar call of the cuckoo all the way home.

Our hut was intact. Rats, unable to find any food, had done a certain amount of wanton damage, and were clearly present in force. Jean noticed one of the Ralu coolies returning with a very plain tabby cat in his empty basket. It was getting wet, and no doubt was cold and hungry. It cried piteously. Jean's heart melted and she offered the man Rs.5/- for it; but he refused, saying there were even more rats in Ralu than there were here.

We now felt like commuters returning home after a wet camping holiday, and thoroughly enjoyed a hot bath and meals off a table. We no longer needed a stove.

CHAPTER 15

Back to Base

THE comparative comfort of a base camp where one can keep installations which it is impossible—or at any rate inconvenient—to carry when on tour, is always welcome for a week or two. But in the busy season one grudges spending more time there than is absolutely necessary.

Plant hunting, with priority for alpine plants, is, in monsoon Asia, a seasonal occupation. Three-quarters of the horticultural plants one wants are most easily found between April and June; almost all the seeds one collects are secured between October and December. We felt we had at most a month's full time collecting left before the slack season began; and we were itching to get away on our second excursion, to the southernmost of the higher peaks.

Our map showed Hkangri Bum on the main divide, 11,845 feet; and naturally we supposed that the peak visible from Hkinlum was Hkangri Bum. The local people, however, corrected us. The visible peak was Tama Bum, they said, and Hkangri Bum was hidden behind it. The half-inch map confirmed this, showing an unnamed peak just in front of Hkangri Bum, and 21 feet higher—11,866 feet. Tama Bum, then, was our next objective.

Meanwhile our immediate work was to see that the villagers cut a passable route to the peak, establishing such camps as would enable us to reach the alpine zone. Secondly, we wanted to discover what was flowering in the valley, and collect everything we could find.

We planted the new orchids, including *Stauroopsis*, in the orchid grove, where they quickly established themselves; then we incorporated our Tagulam Bum dried plants in their family bundles, and began to prepare a list of plants for seed.

The forest had gone into purdah behind a curtain of rain. Gone was the gaiety of an all too brief spring; everything had fused into a dull and deadening amorphousness. Colours, shapes, smells—every feature of the vegetation had run; no sharp edges remained. However necessary it might be for the forest to prepare months in advance for the annual spring pageant, the beginning of the monsoon, when the heat is turned on and the skies warp and weep, is a dull time for the eager plant hunter. Meanwhile waves of ephemeral growth, herbaceous and climbing plants, are surging over the paths and open spaces in exuberant mood.

It is a tide in human affairs too, for next year's food supply is in the balance. The clearings have been made, the seed sown, the young plants are

launched, and the first weeding has been done with care and patience. Already the slopes above the village, black when we left three weeks ago after the burning, are emerald green where the rice crop is sprouting.

We followed most of the old walks, and found a number of plants, some of which might help to throw light on migration routes in South-East Asia. Not every plant can be regarded as of much importance in this connection; at least, not every species can be regarded as of equal importance. Some species, for example, are found all over the tropics, not only in the Old World but in the New, and one must assume, either that man (directly or indirectly) has had something to do with their wide distribution, or that they came into existence long ago, and are so tolerant of conditions that they thrive wherever fate leads them.

Others, however, may be endemic over a small area, and are either new species or the last survivors of a once widespread species in process of extinction; it is not always easy to decide which. In a dynamic region such as North Burma, the flora as a whole is fluid. It is still on the march, as it were—here today and gone tomorrow; only we must think of today and tomorrow as representing geological, not civil time.

Amongst a number of plants we found were such notable species as *Lonicera Hildebrandiana*, a climber with the largest flowers of any known honeysuckle; a species of *Agapetes* (a genus of epiphytic Ericaceae for which North Burma is famous); and an unknown species of *Elaeocarpus*. But our happiest discovery during the fortnight was undoubtedly half a dozen plants of the epiphytic lily growing on a tree which had been blown down one night in a storm. The fallen tree lay close beside the path across a small marsh. We dug up several bulbs, and transferred them to the orchid wood, where we could keep a close eye on them.

At this season the villagers were busy constructing small one-roomed huts high up on the steep cultivated slopes, so that watchers could overlook the crops. They also set up bamboo poles, split half way down, with a string attached to one half, leading to the hut. Near the hut all the radiating strings are gathered together, attached to one master string, which is operated from the hut. A tweak of the master string sets all the bamboos clapping, and the noise is intended to frighten away marauding animals—birds by day, mammals such as deer and pig by night. From August onwards, families take turns to watch, spending days and nights in the nest. Often it is a mother with several children; sometimes a man and a maid seize the opportunity to have an unofficial honeymoon.

On the 2nd June we celebrated the Coronation of Her Majesty Queen Elizabeth II. Tha Hla and Chit Ko Ko accepted our invitation to a special dinner. First we sat out on our little veranda, eating pickled walnuts,

maraschino cherries, and nuts—all brought out to Burma for this great occasion. Then we went indoors for a wonderful meal of packet soup followed by roast cock—a noisy bird we were only too glad to condemn to the pot—fried potato balls (these were made with mashed potato powder; we had no fresh potatoes), and boiled pumpkin, with a tinned Christmas pudding to finish up with. We hadn't had such a meal since we left Myitkyina. We drank the Queen's health in brandy—part of our precious medical supply—and then went outside to light sparklers. These, bought in London at great expense, proved somewhat incombustible and had to be dried by the fire before they would ignite. In fact, they had to be cooked. Still, it was fun, though we blanched when Tha Hla told us we could have bought Chinese sparklers in Mandalay bazaar for less than half the price we had paid for them. The Chinese are streets ahead of the West in anything pyrotechnic—at least as regards first principles such as bangs and fizzes. The important point is, they go off.

Anyway, it was a wonderful celebration, and the Christmas pudding was a notable success. I mention this because the second one, earmarked to be eaten five months later, was not.

Then there was the important matter of reaching Tama Bum. We learnt that an earlier generation had hunted on the mountain, and that a pass over the range had formerly been in use. Nowadays, however, nobody hunted from this side, though people from the 'Nmai Hka valley still visited the peak to collect aconite poison for their arrow tips. Probably they now claimed the mountain as their own, and had warned the timid Hkanungs to keep off their preserves. If that was so, the path on this side would have been lost in the jungle in a few years, and someone must find it again and clear it.

The organization of this job was assigned to the ever enthusiastic Tha Hla; nor could it have been in better hands. His early enquiries for volunteers produced a team of four men, some of whom remembered roughly the direction taken by the old path. As already recorded, the southern branch of the Hkrang Hka divided into two about a quarter of a mile above the suspension bridge on the Arahku path; and following up the larger branch from Hkinlum, we had to cross it perhaps half a mile above the confluence, in order to reach the village of Hpo-ome. Thence a path goes up the spur between the two small rivers, and no other stream of any size is crossed.

Looking at that maze of hills which rippled upwards towards the peak, I could not but feel that had we been compelled to work out a route for ourselves, we should have had a difficult problem to solve. I think that holds for all parts of North Burma. Since, generally speaking, one must follow ridges and avoid all but main valleys, the direct route is often the best. But all too often a chosen ridge won't "go"—though the snag is invisible till you

reach it—and one must retrace one's steps and start again. It is also necessary to remember that loads have to be carried up, and there is a limiting steepness to what the villagers can manage, even with light loads.

From Hkinlum on a clear day, and with the aid of field glasses, it was easy to see that we must reach a certain main ridge in order to get to the top; the question as always was which one of the scores of minor ridges to start up!

Local opinion was that we should find Tama Bum easier than Tagulam Bum, though it was never explained in what way. Subsequent experience did nothing to justify this optimism.

On the 11th June, Tha Hla's working party of four men returned to report progress. He had had a little difficulty with them at the outset, because they asked for Rs.3/- a day, which of course Tha Hla refused to pay. It appeared they had been suborned by Kaw Dang Gam to demand more than the Government rate. Tha Hla having threatened to report him and the path cutters also, if they didn't toe the line, the men saw reason and went to work.

They now reported that they had traced the old path and cleared it for some distance, though they still had to clear the camp sites, of which there were to be three. The third and highest was not above the tree line, as we had hoped, and from the description did not sound any higher than Dismal Camp on Tagulam Bum. This was disappointing; but the men said it was not difficult to reach the alpine zone.

They wanted a day's rest in the village, but promised to return to the mountain on the 13th June, when they would finish clearing the camp sites and complete the path to the end of the forest. From there we could probably get along by ourselves. The start was provisionally fixed for the 15th June.

While developing some photographic plates in a daylight tank one evening, I had an unfortunate experience. Against the wall of our hut hung a bottle of some brown liquid, which I took to be hypo used on a previous occasion but still fairly strong; and having washed out the developer, I poured in the hypo.

After half an hour's fixing, I was about to open the tank to examine the negatives when Jean remarked: "I say, what a frightful smell of petrol!"

I had, as a matter of fact, noticed a peculiar smell myself earlier, but had paid no attention, not connecting it with photographic affairs.

Jean put her nose to the tank. "Good heavens! What've you got in here?" she asked.

"Hypo, of course," I said, turning pale.

"Where did you get it from?"

"Out of the hypo bottle. Where else would I get it from?"

At that moment Joi Wa Naw came in. He looked across at the wall

whence I had removed the bottle, and began searching round the room, sniffing at everything suspiciously as any cat on the prowl.

"What d'you want?" I asked him tersely.

"A bottle," he replied with his fatuous grin, his eyes coming to rest on the table.

"This one?" Jean indicated the offending empty bottle.

"What was in it?" I asked, prepared for the worst. (Four good negatives ruined; no chance of retaking them; quite irreplaceable. Oh well!) I began to open the tank.

"Stop!" cried Jean, aghast at my grim looks. (I was bereft of words.)

"Don't open it. They may still be all right."

"What was in the bottle?" I repeated dourly.

"Petrol," said Joi Wa Naw. "I brought it from Myitkyina for my lighter."

"The plates are ruined," I said tonelessly. Nevertheless, to humour Jean I made up fresh hypo, poured out the dirty stinking petrol (it was obviously second-hand, siphoned out of a jeep tank), poured in clean water to rinse several times, and went through the ritual of fixing once more. An hour later, after prolonged washings, I opened the tank, looked at the negatives—and they were perfect!

I looked at Jean and smiled; and at Joi Wa Naw, who gave his usual sickly grin. He was looking ruefully at the empty bottle and wondering whether to ask me for compensation or not. He wisely decided against it, and I ticked him off for leaving a bottle of petrol hanging right over the fireplace, and not even telling us it was there. (Luckily for us, the hut, and all our belongings, we didn't need a fire!)

In North Burma, where the limits of the monsoon are almost within sight, and the climate is known in general terms, the local weather is almost always unpredictable over short periods of time. By mid-June the south-west (wet) monsoon was blowing throughout Lower Burma, but I knew that we could always hope for an occasional fine day, or even a week. Since our return to Hkinlum it had been mainly fine, and if the monsoon held off till the end of the month, what happened in July didn't matter. What we needed was fine weather in the alps—now.

Temperatures, however, were rising steadily—a bad sign; and the damp heat was gnawing into our energy. Maximum temperatures were in the seventies, and on the 13th reached 80° for the first time. The nights, too, were getting warmer, with an average minimum of nearly 65°. Would we have fine weather on Tama Bum, I wondered?

The path cutters returned to the mountain on the 13th as promised. We decided to delay no longer, and sent to the village for porters.



29. Typical Kachin girl



30. Clump of *Saccharum* grass in fruit

As usual we were up at daylight on the 15th June, eager to be off. Mindful of previous delays, however, we took our time, refusing to be hustled; so, perversely, the porters assembled earlier than usual, and we started before ten o'clock on a bright summer's day. An hour's walk round the side of the hill and up the valley brought us to the Hpo-ome cane suspension bridge. A brand-new one replaced the shoestring we had crossed earlier. From here it was half an hour's steep climb to Hpo-ome, a small village with a view, at an altitude of 4500 feet.

Hpo-ome is the last village south of Hkinlum, and we rested nearly an hour, enjoying a fine view of a pyramidal peak on the main divide, visible at the head of the larger of the two valleys. It stood out with conspicuous clarity, a landmark for miles by reason of a U-shaped gap in the ridge close beside it. This gap could only have been carved by an ancient glacier.

While resting we drank some of the sourest *zu* I have ever tasted, calculated to upset the hardiest stomach. It was to be our unlucky day, beginning with the discovery that one of our two thermos flasks had been broken, and *that* after having survived two earlier expeditions.

About noon we continued our journey, up the ridge through second growth in which two small trees were outstanding. One was a species of *Saurauja*, every branch encrusted with pink flowers arranged in true lovers' knots, which had burst through the bark; the other was a slender green-barked very aromatic Laurel (a species of *Litsea* with straw-yellow flowers). We later sent seed of this little tree to be planted in one of England's Gardens for the Blind.

It was hardly more than a mile to our camping ground, by a good bridle path; and here we pitched the small tents at an altitude of 5030 feet. After a rest and a cup of tea I continued up the path, which gradually became steeper; and in less than 20 minutes entered the forest. The altitude here was 5500 feet, and there was no more cultivation or second growth. I had reached the zone of big-leaved oaks, notably *Quercus lamellosa*, a most noble tree.

Back in camp, Jean told me of further ill news. Joi Wa Naw had forgotten the tin of dried turnip—our only vegetable. Further, the porters, who had been warned to bring four days' rice supply, had brought only three—or so they said. Perhaps, with greedy memories of Tagulam Bum, they were counting on us to feed them after the third day; and it turned out that owing to a further miscalculation we had brought far more rice than we needed!

However, all these difficulties were overcome by sending men back to Hpo-ome now, and to Hkinlum if necessary the following day, to bring up forgotten things—though the loss of our thermos flask was irreparable.

From our camp we could see in one direction only—due west. The sky was cloudless. It looked as though it couldn't rain for weeks.

CHAPTER 16

Tama Bum

AT 5 a.m. the temperature was 53°, but a little later we heard thunder in the south. It sounded like distant gunfire, and I felt certain the monsoon was rushing upon us. A cuckoo was calling when we started.

By 8.15 we were inside the forest, which was fairly open, single bamboo haulms growing between the big trees. Round each node was a ring of hard but blunt thorns, so it was not the sort of plant to grab hold of carelessly. The type of bamboo undergrowth is a good index to the type of forest, in the temperate zone; any change in the former betokens a change in the latter, and gives a rough guide to altitude.

We had no difficulty in getting along, and where the undergrowth was dense, the path cutters had done their work well. I saw few traces of a previous path. On the whole, the forest was gloomy and colourless, but here and there we noticed an epiphytic orchid, or a blood-red *Aeschynanthus* in flower.

After reaching 6000 feet, the terrain became tiresome—a series of short steep ascents followed by easy descents, so that it took us some time to reach 6500 feet and stay there. When the ridge became saw edged, we traversed below the crest, still in forest. Here the rocks were covered with colonies of a clumped *Didymocarpus* with very attractive violet *Ramonda*-like flowers. We had seen it, out of flower, near *Arahku*. There is something about the crimped leaves and the habit of this plant which suggests a *primula*, though neither flowers nor fruit bear even the most superficial likeness to a *primula*.

Tha Hla and Chit Ko Ko, who could outmarch us with ease, had spent the night at the village, where they would be in a stronger position if we found we needed to change any of our porters—which in fact we had to do. Starting at about the same time as we did, they caught us up within a couple of hours, and by this time had gone on.

After four hours we halted for a snack. There had been several showers, and now a steady drizzle set in, so we did not rest long. The ridge now became exceedingly steep, and my speed was correspondingly reduced. However, at 12.15 we suddenly came on the camp. All things considered, it wasn't a bad spot, the steep-flanked ridge more or less level for fifty yards or so, and wide enough to take our small tents pitched end to end. The altitude was 7400 feet.

Water came from a stream not far down the slope, reached by a difficult path, while immediately ahead the narrow ridge splayed itself out to become a steep-sided hill—almost a cliff—which blocked our way and also the view. At the foot of the hill Tha Hla had pitched his camp, while we were at the far (lower) end of the line, with the servants and many of the porters in between.

After we were safely in our tent, the porters, without a word to us, took the big tent and tried to pitch it for themselves. As there was only just room for the small tent, with the guy ropes tied to bushes below the ridge, it was obviously no place to try and pitch the big one (otherwise we would have used it ourselves), and we saw with dismay the telescopic poles slanting in all directions, the sagging fly and tangled ropes. Joi Wa Naw said he knew nothing about it, and denied complicity. Naturally we were furious, since it was certain that if it rained heavily in the night, or a wind rose, the half-pitched tent would collapse in ruins.

Soon after we reached camp, the path cutters passed through on their way down to Hkinlum. They had finished Camp III, but had failed to establish an alpine camp as there was no water on the ridge. However, we could easily reach the top, they said, from the high forest camp, though it was some distance.

What about tomorrow's march? we asked.

Not difficult, they said; about the same as today's. And with that we had to rest content.

The mist was rolling up, and towards evening heavy rain set in and continued till morning. Prospects were not bright.

Next morning we were in the clouds, and moisture was dropping heavily from the trees, though it had stopped raining. Tha Hla's party were away first, and I being the slowest member of the expedition, started at 7.30. Jean stayed behind to supervise our two boys, who could hardly be trusted to pack the loads properly, and invariably forgot something important.

The temperature had not fallen below 60° in the forest. Instead of going straight up the hill, as we had done on Tagulam Bum from Camp II, we worked round its flank, crossed a stream knee deep in soft growth, and ploughed through mud and bamboo. We never seemed to get going. The path was villainous, slippery with mud, and overgrown with lush vegetation full of leeches. I was getting exhausted almost before we had started, and by the time the main body caught me up I wanted to rest.

The porters stopped at one place to collect the yellow roots of *Coptis Teeta*, growing in what was perhaps an artificial clearing. It was a stiff climb from this maze of marsh up on to the ridge in the rhododendron forest at

about 8500 feet; no doubt there had been a better route than the one we were following. But if so, nobody knew where it was.

After nearly four hours I was in need of a rest. Both Jean and I were cold, wet through, and hungry. We sat down on the wet spongy leaf mould beneath the canopy of big-leaved rhododendrons, our backs against a red bole as stout as a Scots pine chilled and unhappy. We ate chocolate and sucked Horlicks tablets, and shared a pint of hot tea, which revived us somewhat; but when we started again I felt stiff and stale.

Half an hour later, however, I felt completely restored, and got along much faster. We were still climbing steadily. Earlier in the year the rhododendron forest must have been a magnificent sight, though as a matter of fact the "Grandes" had flowered poorly this year; we saw no capsules ripening.

Now we faced another high hill, and again the track followed a contour round the flank, crossing an awkward gulch. Except right on the crest of the ridge, there were many trees besides rhododendrons in the cool temperate forest—*Magnolia Campbellii*, *Sorbus insignis*, oak, holly, cherry, maple, Gamblea. We also noticed large colonies of a "Petiolares" primula by the path, *P. taliensis*. The flowers, of course, were long since over (all the "Petiolares" flower early, sometimes—like *P. sonchifolia*—in the snow), and in fact all seeds had already been sluiced out of the sleek green calyces.

Another plant we found was a very prickly form of *Rosa omeiensis* with pale yellow four-petalled flowers; it is the Chinese equivalent of the well-known *R. sericea*. There were also thickets of a dwarf Mahonia, though few of them had produced blooms at the last time of flowering.

We crossed a stream, climbed steeply for a short distance, and found ourselves in Tha Hla's camp. Another fifty feet up the precipitous slope and we were astride the main ridge once more. And here, to our relief, we found Joi Wa Naw and the porters setting up our camp. It was an even greater relief to see that there was just room for the big tent, and to find that it had not been damaged the previous evening.

It was only 12.45 now, so the climb had taken us about five hours. After a short rest we joined in the work of preparing a camp. The altitude was 9700 feet, and we were in almost pure rhododendron forest, consisting of two tree species—*R. arizelum* and some form of *R. eclectum*; it would be an abuse of language to call it a shrub. Several small epiphytic species grew on other trees. Rhododendrons are not sufficiently co-operative to grow on each other; but then, as already pointed out, they are not in a position to support any epiphytes at all, not even moss or lichen. I was disappointed to see no Conifers.

We now paid off the porters, who, starting down at 1.30, would easily reach Hpo-ome before dark. There is no comparison between the time it takes to climb a mountain like this in such conditions, and the time it takes

to descend. The two days' ascent had taken me ten hours' actual climbing, which was certainly longer than any of the porters had taken, in spite of their 45 lb. loads. Part of the time, of course, they had been resting, whereas on the way down they would not need to rest at all. I doubt if it would take them as much as four hours to reach Hpo-ome, and from there they could easily reach Hkinlum in another hour.

What a hillman *could* do, if he had a mind to, was proved the very next day. In the evening we found that Joi Wa Naw had forgotten to bring the kerosene pump. It was an essential bit of apparatus, and as it was entirely within his province, I insisted that he return to Hkinlum next day and get it.

He was highly displeased, and made a number of objections, as well as suggestions how it could be retrieved by someone else. But I turned a deaf ear, so he went.

We found he had kept two of the women porters, who weren't in a hurry to go down, for the night; so he had company all the way, and started down soon after daylight. We expected him back the next day but one. Apparently his chief objection to the trip—that he was frightened to spend a night alone in the forest—was genuine, since he tried (without success) to borrow Tha Hla's rifle. Anyway, he was back in camp the next day, with the pump, by 4.30, having come all the way from Hkinlum. He said he felt tired and stiff, but was otherwise all right. Jean gave him quantities of glucose in his tea. It was certainly a marathon test.

After we had settled into our new camp we went to see how the others were faring, and found Tha Hla in considerable pain. He had slipped on one of the steep ascents, fallen, and run a twig into his eye. This is a constant menace where a path has been cut through forest, and one is on the alert for such a mishap—especially Jean, who had run a bamboo into her leg in the jungles round Sumprabum. Tha Hla had been unlucky; although in another sense he had been extremely lucky. Had it been a cut bamboo he would certainly have been blinded, and the spike might have penetrated the brain. As it was, the point of a twig had cut through the eyelid, making a nasty but not serious wound. It was like him to say nothing about it until we were rested, though it must have pained him a lot.

Jean at once got to work, cleaned and dressed the cut, and put on a bandage. Poor Tha Hla was out of action for the next two or three days, but the wound healed well and he was none the worse.

We turned in that night with the comfortable feeling that we had at last, with toil and tribulation, got somewhere.

We Reach the Alps

I WAS up at five on the eighteenth, in spite of the previous day's toil. It had rained all night, but I hoped to get a view of the alps before the cloud came up from the valley, even if I couldn't reach them. After a quick cup of tea I took the path up the ridge, and in about twenty minutes found myself on a small alpine top, clear of trees and covered with a short thick tangle of "Sanguineum" rhododendron, whose rich crimson tubular flowers, in trusses of three or four, were now opening. The thick matted fur which covers the under-leaf surface of this dwarf species is a pinkish buff, but on older leaves it always turns a dark coffee colour, almost black, due to the presence of a fungus.

This was indeed a joyous moment; we must be near the alpine region. Cloud was rising fast, but there were gaps to east and west through which I could see glimpses of endless mountains. Directly ahead of me, across a V-shaped notch, the ridge rose steeply in a long slope to the next alp, then passed out of sight. Except along the sharp crest of the ridge I could see nothing but evergreen snow forest, composed almost entirely of gaunt silver firs, rhododendron, and dwarf solid-stemmed bamboo.

When the ridge was narrow, with steep flanks, its crest was covered with a mixed growth of shrubs and small trees, including rhododendrons, Clethra, *Enkianthus himalaicus* and *E. pauciflorus*, *Sorbus insignis*, white-beam and many other species. The tall white spires of Clethra were just beginning to open; the chalk white corymbs of *Viburnum cordifolium*—a shrub here—were nearly over.

It was a very wet day, so we stayed in and rested. Next morning Jean, Chit Ko Ko and I, with one or two of our helpers, set out to explore the ridge. From the first alp we descended to the bottom of the notch and started up the long slope where the silver firs began. In another half-hour we reached the second alp; but the weather was now so thick we could not even see how far down we had to go before beginning to climb again. All round us, silver firs grew scattered amidst a thick growth of Arundinaria, like tall woody meadow grass. The altitude was exactly 10,000 feet; except for the "Sanguineum" rhododendron, we found no more dwarf species. A yew had appeared in the shrub thickets along the rocky ridge.

In the evening the cloud suddenly broke up, and for a few minutes we had a wonderful view to the south-west. The most distant range we could

see, of a deep indigo blue, was the Komon range beyond the Sumprabum ridge. Sumprabum itself was also visible, though at that distance it was not possible to make out the village, even with glasses.

This brief break in the cloud wrack at sunset is a curious phenomenon I have frequently observed in the mountains of North Burma during the monsoon; I had almost come to expect it. It is not easily explained; but it occurs more or less at the moment when the up-draught of daylight is giving way to the down-draught at nightfall. Occasionally, too, we had views of the higher peaks in the early morning before the cloud began to rise out of the valley. The 20th June began with just such a dawn, and after breakfast we all started up the ridge in high spirits. It took us only forty-five minutes to reach the second alp at 10,000 feet; but after descending again we climbed more leisurely, allowing plenty of time to look about us.

Presently I caught sight of a deep gully on our left, parallel with the ridge, patched with gold where colonies of *Caltha* grew amongst the big chestnut-like leaves and stately pinkish flower heads of *Rodgersia*. While Tha Hla went off to explore here, Jean and I continued up the ridge a short distance and traversed into the gully at its head. The precipitous sandy rock slip was covered with a thin carpet of creeping *Gaultheria*, yellow violets, woodrush (*Luzula*), and a few other small alpiners. Round the funnel-shaped head grew dense thickets of rhododendron, the commonest of which was a charming bush with circular leaves and sulphur yellow dangling bells, which might be *R. telopeum*. There was also a small tree with the glaucous foliage and triple-flowered trusses of *R. oreotrephes*, but the flowers were a deep rosy purple.

From here to the next alp was not far, but very steep, the crags up which we had to scramble hidden amongst tufts of *Rhododendron tephropeplum*, a species like *R. glaucophyllum* (*glaucum*), which might have been *R. toangpoense* or *R. pruniflorum*, *R. triflorum*, and a reduced *R. telopeum*; amongst these were low bushes of the charming *Vaccinium glauco-album*, the leaves of which look as though they were cut out of jade.

An easy slope now brought us to a third summit, which jutted out from the ridge like an elbow; and we named it "the elbow". It was covered with bushes of dwarf rhododendron, dwarf rose, dwarf juniper, dwarf *Euonymus*, and most-dwarf creeping *Rubus*; in fact, so dwarf was everything that the alpine region must be very close. The altitude was exactly 10,500 feet, and stopping often to explore, it had taken us two hours to get here. A few days later, going non-stop except to draw breath, I did it in an hour.

It was raining steadily now, and masses of cloud were being driven across the ranges. For a minute or two the summit loomed up, but it looked miles away, though it was only 1300 feet above where we stood. Looking along the broken ridge, we had glimpses of the most frightful precipices,

and I didn't much like the appearance of the mountain. However, we went on a short distance through the snow forest, which was clearly about to cease altogether. Just here, under a rhododendron bush, I observed a lily-like plant coming up, which could only be a *Nomocharis*.

Jean and I now decided to return, leaving Tha Hla and Chit Ko Ko to go on if they wished. Jean had a wretched sore throat—the third that month—but had enjoyed the climb. Some three hours after we reached camp, Tha Hla arrived. He had been almost to the summit, and had found a number of good plants. These included a delightful prostrate *Androsace*, the white flowers having a bull's-eye which varied from ochre to sulphur yellow or almost green; a charming dwarf willow, highly aromatic; and two dwarf rhododendrons—*R. campylogynum* and *R. crebreflorum*.

He said there was no real difficulty, though one cliff seemed a little awkward; but that the topmost 500 feet were stony and almost bare.

Few of the plants we found that day were new, though I thought it possible the *Nomocharis*, when we found it in flower, might prove to be so; and there was a good chance that some of the rhododendrons would turn out to be improved varieties.

In the highest forest one still finds a few epiphytic shrubs. Round our camp were two epiphytic rhododendrons—*R. micromeres*, which was just opening its rather sickly yellow button flowers, and a species of "Boothii" type, whose flowers were long since over. This latter was not rare on the ridge, and we found plants at nearly 10,000 feet; but no flowers. It seems to be an unknown species. There is also *R. bullatum*, which does not ascend above 9000 feet; and a little lower down *R. vaccinioides*, and the *Coelogyne* already described. A neat *Vaccinium* hung in long festoons from the sloping trunks of the trees, the thread-like stems bearing close-set rounded leaves with here and there little sprays of white urn-shaped flowers, followed by smooth black berries like boot buttons, sweet like a whortleberry but otherwise flavourless.

Evidently, then, temperature plays only a minor part so far as the epiphytic flora of these forests is concerned. All-the-year-round humidity is what they chiefly need.

In the snow forest there is sharp competition for mastery between a few broad-leaved trees, one needle-leaved tree (silver fir), and one woody grass (*Arundinaria*). None prevails completely over any considerable area; but each may be locally dominant. The broad-leaved trees are chiefly one or two species of rhododendron, especially *R. arizelum*; but occasionally one finds scattered deciduous trees like *Viburnum cordifolium*, *Sorbus*, maple, and birch, the last-named alone forming pure stands—but then it is hardly a tree.

Broadly speaking, on Tama Bum, silver fir with rhododendron undergrowth was dominant on sheltered slopes, *R. arizelum* on exposed ones, with *Arundinaria* more inclined to contest the ground with the former. However, from a distance the snow forest looks pure silver fir.

Four days after spotting the *Nomocharis* on the "elbow", I found a plant in flower—not in the alpine region, but 1000 feet lower down in a heavily shaded gully. So tall was it that at first I thought it must be a different species. The stem was clothed with numerous long narrow leaves, distichously arranged, the single terminal bell flower pure white, with the gleam of satin; and at the extreme base a purple stain, as though a drop of plum juice had dripped into it and dried there. The plant, growing at the steep head of a gully in thick broad-leafed forest, was four feet tall, and leant down over the slope as though too feeble to hold itself up—as indeed it was.

The very next day Tha Hla found a plant in flower on the crest of the ridge. It wasn't more than a foot or fifteen inches high, growing erect, but otherwise I could detect no difference between the two specimens. It is unusual to find a *Nomocharis* which grows both in the open and in deep shade; such indifference points to adaptability.

After this success I continued my visits to the gully, and to adjacent ones. I followed them down till they turned into rock scuppers, too precipitous to descend further, too deep to climb out of. Water cascaded over the boulders, and on the treeless flanking cliffs grew scattered *Nomocharis* plants, some bearing two and even three flowers.

On a boggy slope, where no trees grew, I found a colony of *Nomocharis* of all ages fighting for existence amongst crowded coarse-leafed perennial plants—*Senecio*, *Rodgersia*, and others. This *Nomocharis*, in many ways so like certain species of lily, was an interesting discovery. The whole of North Burma has six species, besides one *Notholirion*, one *Fritillaria*, and *Cardiocrinum giganteum* (alias *Lilium giganteum*), as against three species of true lily. So North Burma may presently be recognized as a centre of distribution for unlily-like lilies.

The rock slabs in the gullies, when not completely bare, supported a film of vegetation which included *Arenaria*, with the tiniest twinkling white flowers, prostrate *Gaultheria*, and wild strawberry plants.

Our climb on the 20th had made Jean's throat worse, and now she took to her bed for several days. Though she was feeling wretched, she continued to change the presses every twenty-four hours. I wasn't feeling too well myself.

On the 27th June we went up the ridge again, and Jean insisted on coming too. I told off Lan Nye Naw to stay with her. We started at 8.30,

and, going as fast as I could, I reached the "elbow" in an hour—after allowing two! Jean followed more slowly, but stuck to it till Tha Hla (who could overtake me whenever he liked) persuaded her to return to camp. I went on because I felt that if I dawdled I would never reach the alpine region.

Beyond the "elbow" an exiguous forest of wizened fir trees struggled on for less than half a mile; many of them had had their heads blown off, and the rhododendrons amongst which they stood, crouched lower. Suddenly all tree growth ceased. We climbed a short cliff, and I found myself balancing on a razor edge. The wind howled across the desolate mountain. Through the turbulent cloud, bare rock needles of terrifying aspect loomed up, partly seen and partly guessed. One moment I was peering over the brink of a bottomless precipice; the next, looking down a bare scree, which was cut off below where the angle became steeper. Sugarloaf peaks leaned here and there like crazy towers.

Presently I came to two tiny ponds, with violet and white anemones and dwarf sedges scattered over the turf. The water in the ponds was deliciously warm.

I was over one of the bad spots. Large bushes of juniper—they must have been incredibly old, and had grown with tedious slowness—grew along the brink of the precipice. Just below the ridge on the north side, a great sloping slab of bare crystalline rock outcropped—granite or gneiss—and in the joints and cracks grew dwarf rhododendrons, *Vacciniums*, and other plants. It was not difficult to reach the slab, and crawling across it I managed to collect *Rhododendron repens* and *R. campylogynum* (or *R. myrtilloides*). Two larger scrub species, whose leaves were covered beneath with a thick pelt of fur grew around the outcrop where there was more soil. The pelt of one was a deep reddish orange; of the other, pale—like wash-leather. The former was *R. chaetomallum*.

Presently I reached a solitary stack some twenty feet high, perched astride the ridge. There was just room to creep round it on either side; it was even possible at one point to climb to the top, which I did. On this stack grew a variety of alpine, including hassock-like clumps of *Diapensia himalayana*, Cassiope, *Rhododendron crebreflorum*, one or two Saxifrages, and a pigmy red-flowered Sorbus like *S. reducta*. The last-named is only a few inches high with tiny sharply serrate leaves which turn scarlet in November. Just here the ridge was particularly steep on both sides, while immediately ahead it rose in a cliff, from which the stack had been detached by weathering. The cliff stuck out like the bows of a battleship, with a precipice on either side; and though there were rough toe-holds up it, there was nothing to hold on to. As the top was out of sight I shied at going up, in case I stuck half-way. And that ended my climb for the

day. The altitude was just 10,800 feet, so I was still 1000 feet from the summit.

Turning back, I soon met Tha Hla, who shouted that he had found more *Nomocharis*, and several other good plants. He had worked his way down through a dense growth of *Arundinaria* on the north face to another rock slab; and here, along the joints, grew colonies of a ground orchid, some purple-, others yellow-flowered—obviously two colour forms of one species, the colours not segregated. The flowers were large for the size of the plant, their shape attractive but not remarkable. The flowering stem, which is about four inches high and bears one or two narrow leaves, springs from a pseudobulb like that of a *Coelogyne*, which it resembles in some respects, though it belongs to a different genus (*Spathoglottis*). Considering that this orchid must be buried under snow for two or three months at least, one might expect it to be hardy in Britain. Nevertheless, I should be extremely surprised if it is. Orchids are unreliable; they are never hardy in Britain if they can find an excuse for not being so. More likely, however, it is nothing to do with climate, and a lot to do with soil bacteria.

There was a second species of orchid on the sloping slab, a minute *Orchis* with purple flowers, the lip darker spotted. It had the appearance of a certain tiny *Utricularia* which grows amongst the moss on tree-trunks in the temperate forest. This was partly because the fan-shaped lip was much the most prominent part of the flower, and being (like the *Utricularia*) three-lobed, with the middle lobe bifid as well as heavily spotted, it attracted attention.

It had been raining steadily for some time, and leaving Tha Hla and his men to continue the climb, I started down about 1.15. I had only occasional glimpses of the country, but what I did see was always dramatic and menacing. When for a moment the wind tore a rent in the veil of cloud, I saw aiguilles and isolated pillar rocks, cliffs like castle walls, very forbidding, and on the south side, long barren screes sloping at about 50°. All the ridges were sharp edged, usually flanked by precipices on one side and screes on the other. Here and there it was possible, with care, to get down a short distance; but one could never see far enough, or long enough, to be sure what happened lower down; and to descend a steep and difficult scree, only to finish up on the brink of a cliff, was obviously foolhardy. It was a new world, built on edge. How we regretted we had been unable to establish a camp 1000 or 1500 feet higher, which would have enabled us to explore intensively much more ground! Another botanical expedition to Tama Bum will find many plants we never saw, especially if the approach is made from the east or south.

When I got back to camp I found Jean in bed again. She had reached the "elbow" (10,500 feet) and rested there for some time. Then she had

gone slowly down with Lan Nye Naw, arriving rather exhausted and with a touch of fever.

There was no change in the weather, and after some discussion we decided that unless it improved immediately, we would cut short our time on Tama Bum. On the 1st July I was feeling ill and depressed myself, though Jean was better. However, we all felt either that Tama Bum wasn't coming up to expectations, or that too much of it was inaccessible. The places that looked most promising were unapproachable in bad weather. Whatever the reason, we were not getting a good enough return for our exertions. I was mainly concerned now to find enough specimens of those plants wanted for seed.

In the late afternoon we rather dragged ourselves up to the first alp, where the glorious dwarf "Sanguineum" rhododendron was in full bloom. We were rewarded by two interesting sights: a humble bee pollinating the great silvery white trumpet flowers of *Rhododendron polyandrum*, furiously trying to get clear of the viscid pollen threads which had entangled its hairy legs; and a green and peacock blue swallowtail butterfly flitting amongst, and probing, the crimson flowers of the "Sanguineum".

On the 2nd July we sent a man down to the valley to collect porters. We did not expect them to arrive for three or four days; but they must have been standing by for a call. On the 3rd, Tha Hla and I went down the gully looking for *Nomocharis* and marking plants for the autumn. Lower down, Tha Hla found *Cardiocrinum (Lilium) giganteum*. Jean was up on the ridge collecting various plants. When we returned to camp we found the porters had arrived.

All the time we had been on Tama Bum the weather had been cool, the highest temperature I recorded being 64° (once) on the 2nd July, the lowest 52°—frequently. Day temperatures usually reached 62°—63°; at night it usually dropped to 52°—54°, the range being small. This might be called average English June temperature. A daily range of more than 10° was exceptional. At these temperatures, and in such great humidity, plants grew rapidly. There were about fourteen hours of daylight.

Sections cut across rhododendron wood, however, clearly showed cycles of wet and dry—or it may be warm and cold—years, one type of ring usually lasting for a decade or more.

On the 4th July we started down. For once we were not completely enveloped in cloud. The rain was coming straight down out of a leaden sky, with the summit of the mountain and the long ridge leading to it entirely, though dimly, visible. The path, after so much rain and the passage of so many people the day before, was dreadfully slippery, and the difficult last

mile through the swamps extremely tiring. The moss forest was a place of dripping gloom, dismal and almost without a single visible flower to cheer us up.

Arrived at Camp II Chit Ko Ko went down with what at first sight looked like a bout of malaria; but in the evening, after Jean had given him camoquin—the new ultra-rapid malaria cure—he had so far recovered that it probably wasn't malaria at all! Tha Hla forged ahead and reached Hpo-ome the same evening; but we stayed at Camp II.

Continuous rain made the churned-up track more and more difficult, but next morning we reached Camp I in three and a half hours, and halted for a snack. The rain was becoming heavier, so we tramped on through the mud to Hpo-ome, intending to rest there. However, it was too cold to linger, and almost immediately we set off on the last lap, and were across the bridge by noon. I had been going badly these last two days, but Jean, having recovered from her devastating sore throat, went splendidly. She now plugged ahead to get the hut ready, though in the next hour, feeling better, I regained some of the lost ground. We took only six hours from Camp II to Hkinlum, but it was a tough march.

My four-days-old cough had left me without any voice at all, and now my stomach was upset too, though I did eat a little boiled rice for supper.

It actually turned out a fine evening, and towards sunset we sat out on our little veranda, enjoying the view of the open green slopes and the dark mountains and forests which shut in the valley, and the changing shapes of the clouds sailing across the blue sky.

In spite of what Tha Hla called "the weariness and tiresomeness" we had felt on the mountain (a free translation of the Burmese name for our discouragement and indisposition), we now felt happy and confident again.

By the following morning we were on the verge of total defeat! Too tired to sleep, ill, exhausted, and utterly dispirited, we almost felt as though we couldn't go on. It was safe to indulge in *misère*, because it was quite certain that so long as our present mood of disillusion and faintheartedness lasted, we simply weren't fit even to start, let alone complete, the ten or twelve difficult marches to Sumprabum in the height of the rains. Nevertheless, for the next twenty-four hours we wrestled with a bad attack of defeatism. A few slices of thin bread-and-butter, an apple dumpling or a piece of plum cake would have made all the difference. However, it was only necessary to hold on; in a few days we were sure to recover our morale.

The morning of the 6th July was fine, allowing us a good view of Tama Bum and of the long level ridge on the far side, which we could never reach. We went about our chores leisurely. The orchids in the wood were growing well, and one of the lilies showed two minute flower buds. We made up for

our lack of sleep the previous night by sleeping that afternoon, and woke up feeling better. My cough was improving too, though I still couldn't speak above a whisper. We bought several small fish and some fresh green vegetable like spinach called *sāg*, and recovered our appetites.

In the evening Tha Hla gave me some Burmese medicine for my cough, which was soothing. If either he or Chit Ko Ko felt in low spirits, they certainly didn't show it; nor perhaps did we!

On the 7th the temperature, from a minimum of 68° rose to a maximum of 79°. Our spirits soared when we heard the familiar friendly call of the cuckoo again. We felt happy and confident. Once more we were back to our normal selves.

Search for a Lily—I

“CONSIDER the lilies of the field,” urges the Gospel; “they toil not, neither do they spin.”

Evidently Christ personified them as women, who were and are still the drudges of the Orient, toiling all day and weaving cloth in their spare time. So they are, further, contrasted with a man and a king, Solomon, the most magnificent ruler of his epoch, who nevertheless in full regalia was less magnificent than these lovely flowers who do no work. The inference would seem to be that even though you're a woman and do no work, so long as you are beautiful and well dressed like the lilies, you have done your bit to make the world a better place. Whatever is meant by the Israeli lily, we can vouch for the fact that the plants we call lilies today are indeed beautiful. Scores of hybrids are. But no hybrid so far made is as beautiful as its parents.

Burma is part of South-East Asia, whence during the present century more than half the lilies of the world have been derived, mostly from China. But Burma is the last corner of this region where one would expect to find lilies, despite the fact that two species (*L. primulinum burmanicum* and *L. Bakerianum*) grow on its eastern frontier. Generally North Burma is either too hot and wet, covered with dense evergreen forest; or too cold and wet, and so unsuitable for lilies anyway. The centre of Burma, on the other hand, is too hot and too dry. One may even suggest it is too far south for the temperate and temperamental lilies, which, though they may smile at frost and drought within reason, hate moisture in the resting stage, whether hot or cold. Most of the East Asiatic lilies come from between the parallels of 30° and 40°; or if from further south, at least from the higher hills.

Yet who can predict what unexpected and queer plants any region may harbour! When I rashly named a few genera which previous experience in North Burma had led me to expect to find in the Triangle, lilies were not mentioned, though I was not unmindful of species from both Burma and Assam which refused to behave conventionally, particularly the charming *L. Mackliniae*.

In Britain and the U.S.A. lilies are amongst the popular plants of the age. In Britain there exists a Lily Group within the Royal Horticultural Society, comprising people who are particularly devoted to their study and

cultivation; and this group, now about 400 strong, publishes a year book containing articles on every aspect of lily culture in all parts of the world, together with notes on anything even remotely connected with their classification, distribution, hybridization, and welfare.

Though our clear objective was the temperate and alpine zones of North Burma, I did not seriously expect to find lilies. If the thought ever entered my head, it was no more than a vague hope. When, therefore, on a bright April day in 1953, in the course of a walk, as already described, I found irrefutable evidence of one, my joy and astonishment were the greater because we had barely left the sub-tropical evergreen forest behind us.

I have always, and not without good reason, associated lilies in South-East Asia with pine forest, or at least with conifer forest of some sort. Thus, in the Assam Himalayas, *Lilium nepalense concolor* occurs in pine forest, while *L. Wallichianum* is associated with both *Pinus* or with *Cupressus torulosa*. (*L. Mackliniae*, the Manipur lily, however, found at higher altitudes than the two last named, up to 8500 feet, is an exception. It grows on open grassland.) On the Assam-Tibet frontier, and far up into Tibet, *L. Wardii* grows only in thick pine forest. Again, along the Burma-China frontier, *L. primulinum burmanicum* and *L. Bakerianum* both grow in pine forest.

The facts concerned with the discovery and introduction of the Burmese epiphytic lily are so fantastic that the story seems worth telling fully, even at the risk of some repetition.

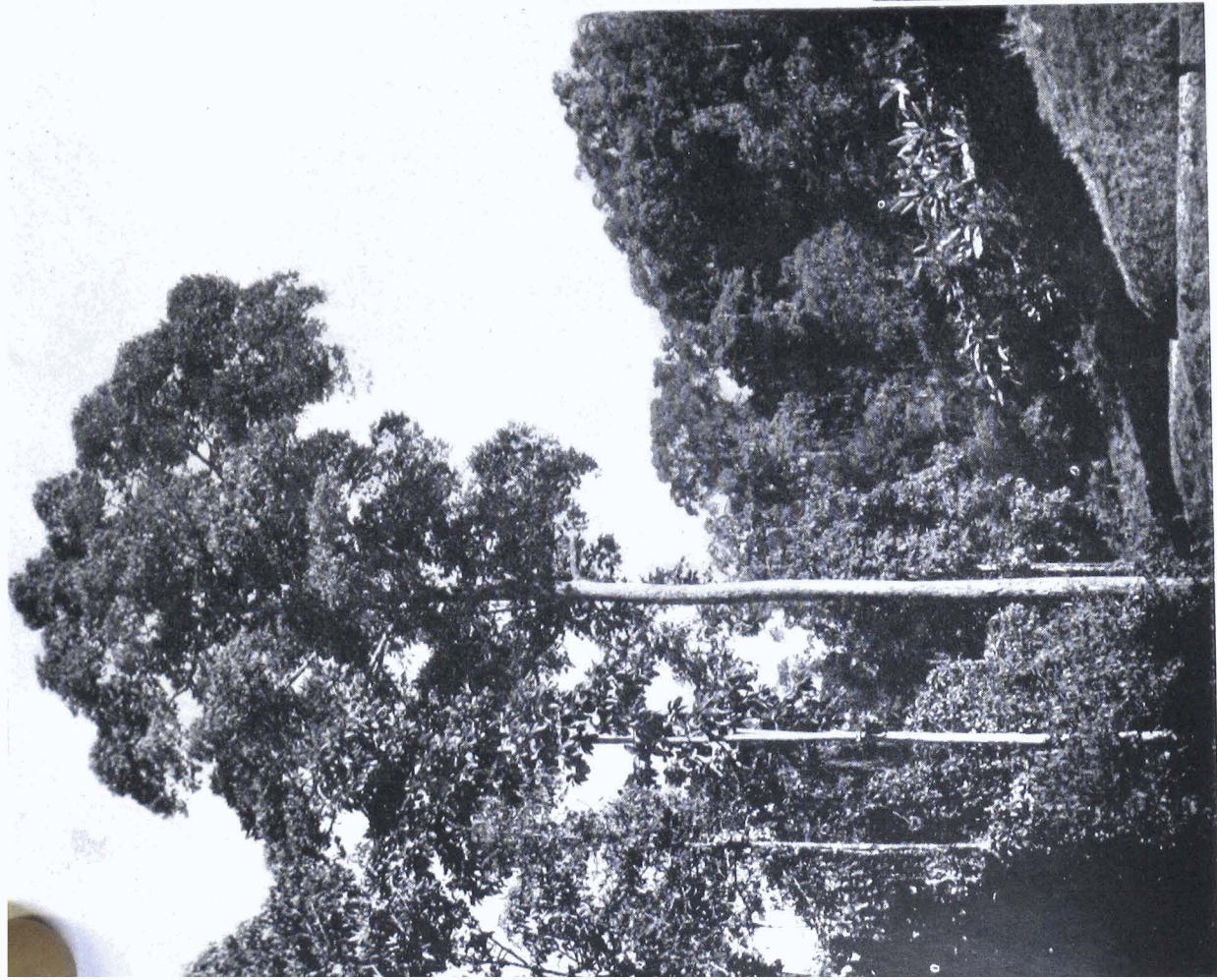
As already recorded, we reached Arahku on the 1st April. During the five days we stayed there I explored the lower slopes of the forest, and it was during one of these walks that, high up on the trunk of a big tree covered with epiphytic ferns, orchids, and other plants, I noticed a number of conical capsules shivering, their stems shaken by the wind. They looked exactly the size, shape, and toast colour of long-since-ripe lily capsules, now empty, and they gaped at the seams in exactly the same way. One can easily mistake a lily capsule for that of a *Nomocharis*, or even of a *Notholirion*—two closely related genera; but it would be even more remarkable to find either of those growing high up in a tree at 5000 feet altitude than to find a lily. In fact, it didn't help at all, and I was still convinced that what I saw was a lily. It must, then, have a bulb.

There were three or four capsules visible or partly visible; but the stem (I thought there were two close together) was hidden. It looked about eighteen inches high.

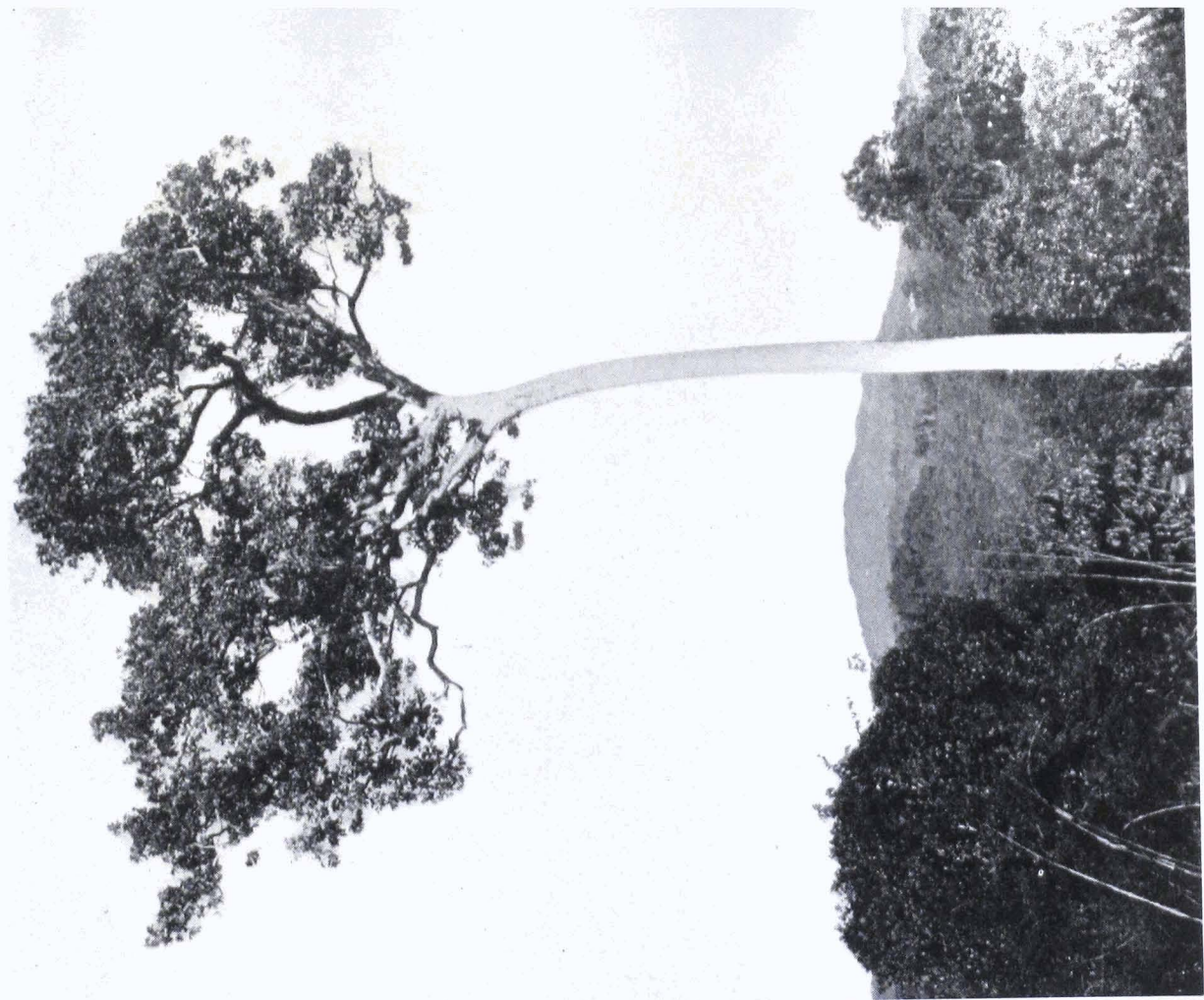
I realized there might still be a few unspent seeds at the bottom of each capsule, but the tree was unclimbable, and far too big to cut down. No vegetable ropes hung from the branches, no stout creepers or tangling roots wrapped themselves round the trunk, offering convenient hand and foot-



31. The Kachin fashion in ear-rings . . .



32. Tall fig tree with a young Dipterocarp next to it. Burmese jungle



33. Giant Dipterocarp in North Burma jungle

holds. I consoled myself with the reflection that somewhere not far away this phantom lily would be plentiful. Was it not because it was plentiful that a wind-borne seed had lodged high up in a tree and miraculously grown into a full-sized plant? Or had the pressure on available ground space driven a few of the more enterprising to seek a new life in the tree-tops? It might be a minor miracle that any should have survived that pioneer effort, or that I happened to notice it; but it was of no particular significance. Round the next shoulder of the mountain which hid Hkinlum, we should come to pine forest, and lilies would be as common as they were in the Htawgaw Hills north-east of Myitkyina. One thing, however, seemed probable: this wasn't any known species of Burmese lily.

On the 6th April we moved on to Hkinlum. The slopes beyond Arahku, however, were in no way different from those with which we were already familiar; and there were no conifers in sight. Though we searched the open grass slopes, and the shady banks where the path ran through forest, we saw no sign of lilies either. I had made a miscalculation.

At Hkinlum the search began again. Naturally I attached little importance to the check. When the lily flowered in the summer we should see it easily enough—it had hardly appeared above ground as yet. Nevertheless, on every walk we kept an eye cocked at any likely spot—without result.

After the first fortnight I began to formulate theories: it wasn't a lily at all; it merely bore lily-like capsules. It *was* a lily, but confined to the limestone outcrop at Bunru. We must find a limestone outcrop at Hkinlum if we wanted to find the lily; otherwise we must pay a visit to Bunru. It grew as an epiphyte at Arahku because that tree happened to filter enough limestone dust from the air to sustain it!

Whether or not it was a lily, we were already beyond its range; it got just as far up the valley as Arahku, but really belonged further down, only we had missed it.

And so on, becoming more and more far-fetched as I became more and more exasperated. How I regretted having been so complacent over the Arahku plant; I ought to have taken steps—ladders—to secure it, even if it meant sending to Sunder Singh at Sumprabum for a cross-cut saw!

Weeks passed. We climbed the first cliff overlooking Hkinlum, and made our first trip to Tagulam Bum, from whence we returned at the end of May. Not a sign of the lily anywhere.

And then on the 7th June, the second clue came unexpectedly. I was following the track which goes from the top of the village to the cultivated slopes above, and on to the Hkinlum mountain—a favourite walk which

sometimes proved profitable. Half a mile above the village the path skirted a marsh, and here I observed that a tree had recently been blown down, and lay, shrouded in its burden of climbing plants and epiphytes, across the marsh. Poor helpless things! For how many years had these weaklings, unable to compete on level terms with their like, relied on their strong neighbour for almost everything they required: light, air, water, and such food as the crevices of the bark afforded—lording it over their less fortunate neighbours who had found no pie in the sky! And now that the mighty are fallen, they lie in the dust:

“ . . . equal made
with the poor crooked scythe and spade.”

(Actually they lay in the mud!)

Many of the epiphytes, no doubt, would live on for a year or more on the fallen tree, dropping off one by one as the leaves died and the bark peeled and the great trunk rotted; but their days were numbered.

Meanwhile, I have always considered it worth while to poke about amongst the confusion which a fallen tree offers, in the hope of finding a rare fern or orchid, or a new species of Agapetes, or a Gesnerad. Indeed, inside the forest, a fallen tree is often the only clue to the invisible hanging gardens above. Noticing a small rhododendron in the wreckage, therefore, I began to search.

There were probably thirty or forty species of vascular plants with no visible means of support now that their prop and stay had fallen; but I found nothing unusual till suddenly my eye was caught by a somewhat corkscrew stem, about a foot high, with several rather broad leaves. It was growing up from the under-side of the trunk, but had been half-smothered by the branches. It was a hunch which made me dig it up, to disclose a small thick-scaled bulb, white as a cod-fish's belly.

“The phantom lily!” I exclaimed to myself. “So it *was* an epiphyte after all.”

Of course, there was no proof that this was the Arahku lily, or even that it was any sort of a lily. Yet it seemed improbable that it could be anything else than the Arahku plant. In the first place, there are very few bulbous plants in North Burma, even at alpine level; and since both leaves and bulb, even if they *were* a little unusual, were consistent with its being a lily, that was by far the most likely plant. It had a lily capsule, a lily bulb, lily leaves. Secondly, that there could be *two* different bulbous epiphytic plants here was really asking too much. *One* was remarkable; two would be supernatural!

It again occurred to me that the plant, in spite of its retiring disposition,

must be fairly common. Otherwise how came it that I saw the first specimen, in fruit, high up in a tree, while the second one was so obliging as to grow on a tree which happened to fall right across my path? Luck? Well, if so, *what* luck! For, note that as an epiphyte, and not a big one either, half-smothered amongst epiphytes high up on a tree, it was virtually invisible from below.

Further search amongst the wreckage revealed several more lilies, including one or two fairly large plants. I dug up two of the smaller ones and carried them back to camp. One I planted in the crown of a short pollard tree, close to our hut. It was in full sun, and the tough humus collected here was just what the gardener ordered. The other I planted in a hollow tree-stump in the deep shade of a copse where we had started a collection of orchids.

From now on I became epiphytic-minded, and searched every big tree in the neighbourhood through a field glass for lilies; but with no further success.

Nothing more happened till we got back from Tama Bum early in July. Then on the 6th I went to look at our two planted lilies. Both were alive. The one in the copse had grown enormously, and I was excited to see two small flower buds. The plant growing in full sun, however, though quite healthy, had made little progress.

A week later Jean and I walked up the hill to the fallen tree again, and saw that the largest of the several plants left behind was also going to produce two flowers.

The marsh plants had grown vigorously, and assisted by the massed epiphytes which had likewise increased in size, and a wealth of new shoots put out by the tree itself, threatened to bury the prostrate trunk altogether. It was much more difficult than before to find lilies.

I decided to leave the flowering plant where it was, in case of breakages while transplanting it, and to take only small bulbs. So after clearing away some of the vegetation, especially round the flowering specimen, to give it air, we dug up several others and carried them back to the copse, where I planted them on the tree-stump.

Even if we found no more lilies, we now had four flowers from which we might hope to produce four capsules of seed—or rather, three, since we must sacrifice one flower for the press.

On the 29th July I visited the tree again, only to discover that the plant with the two buds had rotted away, having become completely waterlogged in the marsh; nor could I even find the bulb in the slimy mud. The marsh vegetation was now so tall and thick that it was almost impossible to find anything; it was unlucky that the tree had fallen with the lily-bearing side

downwards—though they were doing their best to struggle up from beneath it. I collected one more bulb, and decided to return in the autumn and clean the trunk completely, so as to reveal any still hidden lily.

The position now was as follows: we had one plant about to produce two flowers, and six or seven smaller bulbs. Successful introduction, therefore, rested with these, since it was unlikely that self-pollinated flowers would produce good seed, or that we should find any more plants.

A week later the pedicels of the two flowers-to-be were three inches long and hung down in typical Martagon style. I began to reckon that a well-grown plant might reach three feet, and bear six or eight flowers.

I also noticed that in the leaf axils had appeared what looked like minute pointed buds. Later these bodies grew into turgid green vesicles, and became detached. Eventually they were washed out by the rain. I could now pick them up off the ground. They must, I thought, be bulbils, by means of which the plant could reproduce itself vegetatively in the tree-tops. I sent a few to England, and they lived to germinate nearly a year later.

By the 14th August the plant was two feet tall. It had been injured when the tree fell, and even now the base of the stem lay horizontal and partly crushed (though it functioned perfectly), while the upper leafy part was askew. But for this, it might have been three to four feet tall. Sixteen leaves, from four to five inches long and an inch wide, clothed the stem, with the two dangling flower buds at the top, borne in the axils of the uppermost leaves. These buds were now two inches long and plumping up, borne at the ends of pedicels four and a half inches long, and so quite clear of the leaf tips. I hardly thought they would open for another fortnight, and we were growing impatient.

During the August "drought"—if one may call it that—on several occasions I watered the lily bulbs! At this period, early afternoon temperatures were in the eighties, and once or twice reached 90°; so that despite the usually high humidity, the air towards sunset felt almost dry for several hours. Then, if the sky remained clear, a heavy dew came down, drenching the vegetation; or there might be a sharp thunderstorm.

The 18th was a day of suppressed excitement. The previous evening I had detected a faint crack in one of the lily buds; it could only be a matter of hours now. So on the 19th August we paid our morning visit to the copse earlier than usual, and almost tiptoed along the path to the tree-stump, hardly daring to speak.

The first flower was fully open, and we stood before it in silent enchantment.

Search for a Lily—II

OUR tree-top lily was a true "Martagon", the rather narrow petals having the texture of watered silk, and the delicate nile-green colour of a grape. They were curled right back, as in the Turkscap lily, fully displaying the rich mahogany anthers with their deep orange pollen; and hovering over the flower, like a spirit reluctant to depart, was a delicious if elusive scent of cloves or nutmeg—I am not sure which.

That moment was a wonderful climax to a long stern chase. To crown our success, it only remained to make sure of live bulbs, or bulbils, or viable seed, reaching England. It could not possibly be hardy; yet I felt that lily growers would surely be glad to take a little trouble, and afford a little glasshouse space, to so beautiful and interesting a plant, which might well help to start a new race of lilies.

Moreover, it might prove hardy in other lands where lilies are admired—in Bermuda, for example, in New Zealand's north island, and in California.

On the 22nd the second bud opened, and the flower was no whit inferior to the first. That same afternoon we visited the fallen tree for a last intensive search, and I directed Maru La to cut away many of the branches (which were still alive and covered with foliage). As a result, we detected two more lilies which had valiantly pushed their way out from under the trunk, only to encounter an impenetrable thicket of vegetation. Both had large bulbs, which we dug out safely.

Of the two flowers in the copse, we pollinated one, transferring pollen by means of a paint-brush. The other pollen parent we snipped off, and Jean made a beautiful specimen of it—the only pressed wild specimen in existence. We tied a muslin bag round the seed parent.

Now we let the village into the secret, showing some of the brighter lads—at least, we hoped they were brighter—our plants, and offering a reward for every perfect plant brought to us. We emphasized that we wanted the bulb, and that it must be uninjured; also, that any plant bearing a capsule, or a flower, was to be shown us, but left severely alone for the present.

By the 26th August our "cultivated" plant was over. I picked up the withered petals—they had turned from green to yellow—and noted that they still retained their delicious scent. Why not add them to Burmese tea, I thought, to give a faint fragrance, just as jasmine buds are added to Chinese tea!

So we sat down to await the results of our pollination experiment,

and of our village propaganda. By the end of August the ovary, whose style was now bent up like a fish-hook, was certainly swelling.

Except for the steady growth of the inseminated ovary, and the development of a good crop of bulbils which dropped intermittently to the ground, nothing of note happened for three weeks.

On the 14th September I went to search for a red-flowered *Saccolabium* (a small orchid of which I had already found several plants). Above the village I turned aside through the woods towards an immense tree we had seen before. Growing in the deep shade of a ravine, beside a brawling torrent, it was swathed from top to toe with enormous creepers, and such a wealth of epiphytes of all kinds that every bough was hidden. Also, it was impossible in the confusion to recognize anything except a jumble of orchids, ferns and shrubs. On a previous occasion I had peered into this tree, an Atlas carrying a world of vegetation on its back, through field glasses; but I had seen nothing remarkable—barely anything at all, so dark was the interior.

On this occasion I found a man at work stripping the lower part of the trunk and hacking off some of the smaller branches. The stems of a big climber still clasped the trunk, so that it was possible for a nimble man to reach the big boughs above, and perhaps the canopy. Anyway, a number of amputated limbs, and intricate bundles of orchids, lay in chaos on the ground; and on searching through these, as a down-and-out might search through a pile of garbage, I found several interesting plants new to our collection.

Presently the Hkanung woodsman brought me a long spray of an orange-flowered orchid, a fern I had not seen before (*Oleandra Whangii*), and three big plants of—the phantom lily! These quite dwarfed our earlier plants, the largest being four feet tall, with leaves ten inches long by two inches wide. It had carried three flowers on six-inch pedicels, and the fact that these had simply dropped off showed that they had never been pollinated; they may have been five or six inches in diameter.

It was disappointing to find that the three plants had not a bulb between them; but they would make excellent pressed specimens. I told the man to bring them along to our camp, and I would show him just what I wanted. There Joi Wa Naw explained to him that we wanted bulbs now, and ripe capsules in November.

Two days later he came back with three fine bulbs embedded in a solid slab of packed vegetable debris, as tough as peat but much less uniform. They looked like fossil shells—what was visible of them—in a lump of grey sandstone. There was a fourth one, separate, and all four were of good size. He reported that they came from another tree, and that there was one ripening capsule; he had not yet been up the big tree.

We told him to guard the capsule with his life, and on no account to pluck it. Meanwhile he could climb the big tree and explore the interior of the crown thoroughly for more plants. He promised to do his best.

Now I began to think that perhaps the tree-top lily was less rare than I had supposed, but hardly as common as I had once hoped. In any case it was so perfectly camouflaged as to be invisible. One came, one looked, but one did not see. It might grow on three out of four big trees—and there were thousands of these; but since one does not *expect* to see a lily growing at the top of a tree, and the colour blends perfectly with the surroundings, the chances of spotting it were negligible.

I had the good fortune to find one in fruit as early as the 3rd April, which gave me the required clue. After that, any large tree, fallen or not, *might* bear lilies; the chances were possibly in favour of their doing so. Well, we were lucky to have found some on a fallen tree. And though we could never hope to see them from below, whether they were in flower or not, we could pay men to climb likely trees and search.

That same day we actually acquired another half-dozen small plants with bulbs attached, brought to us by some village boys. Another boy brought one sticking out of a large ball of mud, purporting to enshrine the bulb. As earth was quite the wrong mixture—probably so much poison—I removed it, pointing out to him as I did so that mud balls were taboo. However, when I looked up, the erring youth had vanished without waiting for his reward. Nor was this surprising, for by now the ball of earth had been removed—and there was no bulb!

Immature bulbs looked more like small corms than scaly bulbs. The unusually thick scales were perhaps a precaution against drought and cold. All epiphytes run the risk of drought; and as there are ground frosts in the open for two or three months—perhaps even inside the forest—it can be cold in winter. The bulbs are very close to the surface of the substratum, since there is no depth for an epiphyte, even on the largest tree. (That is perhaps one reason why lilies in general are so reluctant to become epiphytes.) Epiphytic shrubs like *Sorbus* sometimes send one root right down to the ground as they grow older—perhaps thirty or forty feet below—to provide enough water for their needs. But herbaceous plants can't do that.

I dumped all our new supply of bulbs, embedded in their clods, inside the hollow tree, and left them thus until we finally packed.

Meanwhile, the ripening ovary in the copse continued to swell and swell, until it was full size and ready to open. When we started on our October climb we tied it up in a muslin bag, lest it open while we were away and the seeds be irretrievably lost. We hoped also that the strange

white cloth would deter any village goat or prowling rodent that took a fancy to the capsule.

Shortly after our return from Tama Bum at the end of October, we began to grow impatient. Nothing more had happened. Our flowering lily had lost its leaves, and the capsule had long since ceased to swell; but it obstinately refused to split its sides. It was quite dry, but still green in places, and rather too flabby for my liking. So I opened it. Neatly stacked in three piles were hundreds of seeds—or rather, skeletons, for not one of them contained an embryo. With charming poise they floated away on the faintest zephyr, silver white discs thinner than tissue paper, and were seen no more.

So that was that. Everything now depended on the bulbs; and they looked in perfect condition.

The final act took place on our return from our third and last autumn climb.

On the 22nd November Tha Hla decided to pay a last visit to Arahku before we finally packed everything. We were to return via Lajā, on the right bank of the Hkrang Hka, and so would not pass through Arahku on the way home.

I seized the opportunity to explain carefully to Tha Hla exactly where the first lily, whose capsules I had spotted in April, grew, on a certain tree. If it had flowered again this year, it might be possible to get seed by means of a bamboo ladder. Tha Hla promised to do his best, and I knew very well that he would.

Two days before we were due to leave Hkinlum for ever, he got back, having visited not only Arahku, but also Bunru with its limestone cave. He had found the tree as described, and noted that the lily had flowered again and ripened several capsules. His men, however, had been unable to climb the tree. Nothing daunted, he found a more slender tree nearby, and himself climbed till he was almost level with the plant. Then by some extraordinary feat of strength and gymnastics, he had reached out and plucked four ripe capsules, of which he gave us three. They contained plenty of good ripe seed. We also received another few bulbs from the villagers, who were evidently getting their eye in; and so ended the long search.

We dug up and carefully packed all our bulbs in dry moss, each bulb individually, then put them all in a Burmese *pah* (a light oblong basket of woven bamboo strips, completely enclosed by a cover similarly woven), and they were ready for the journey home by air.

There is little to add. It gave us great satisfaction, not only to have collected both bulbs and seeds of this unique lily, but also to have seen it in

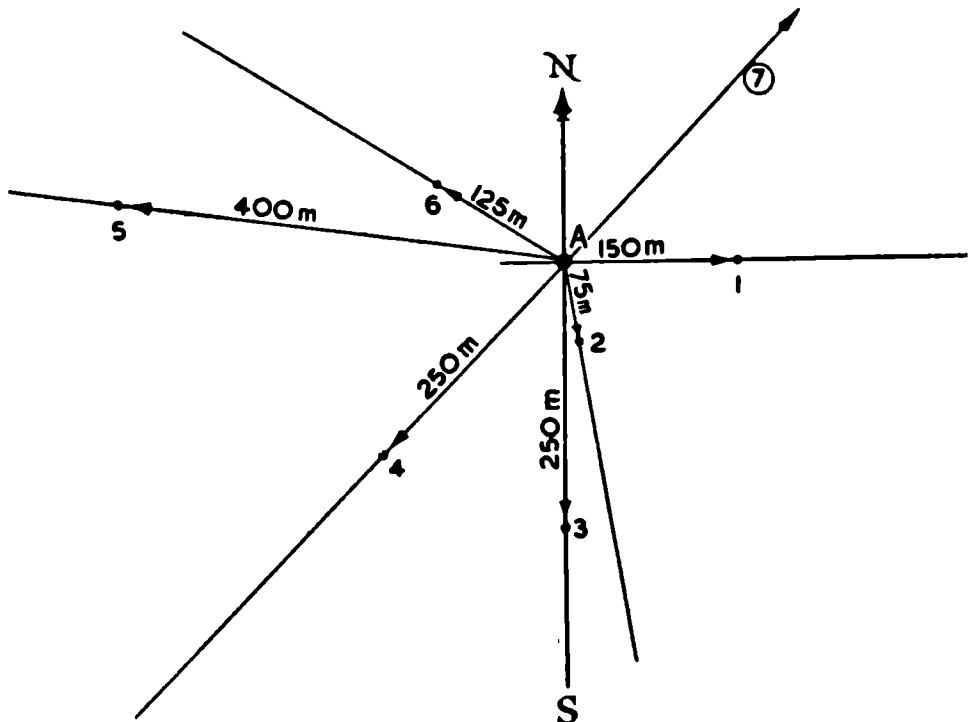
flower; and to have pressed material (including a single flower and several capsules) for the British Museum herbarium.

What the future holds for it I cannot say. The Royal Horticultural Society was frankly not impressed, regarding any tender plant, in these days, with a jaundiced eye. But lily growers were pleased. Personally I think the Burmese tree lily will be heard of again.

To me it seems curious that a lily which is, in some important respects so un-lily like, should have so orthodox a flower. Look at its curious bulb; its tall but weak stem, unable to stand erect without support; its odd-looking seeds with minute embryo; its comparatively short style; and above all, its unique habit. But that, of course, is one delightful aspect of nature: you never know what it can turn out of its workshop.

In 1954 the epiphytic lily flowered in the Royal Horticultural Society's gardens at Wisley, and in the Liverpool Municipal Parks, both under glass. It was described and named *Lilium arboricola* by Mr. W. T. Stearn of the Natural History Museum staff in the *Gardeners' Chronicle*, 136: 126 (25th Sept. 1954), R. H. S. *Lily Year Book* 18: 132 (Nov. 1954).

The following diagram shows its relative position, and air-line distances from the nearest lilies in South-East Asia.



Hot Weather

SOON after our arrival at Hkinlum we had rented part of Kaw Dang Gam's rat-proof storehouse for our rice. On drawing a fresh supply now, we found every bag riddled with weevils. These tiny boring beetles eat the heart out of the grain, leaving an outer shell, which crumbles at a touch, and an impalpable floury dust. The only way to get rid of them is to spread each sackful out in the sun, when the minute creatures scuttle in all directions seeking cover. It is then easy to winnow out the dust and husks.

We lost perhaps ten per cent of our supply from this means alone, besides at least five per cent short weight from one of the shops in Htingnam, and another five per cent loss on the road, through using old and leaking sacks.

The combined school and church, which was the only two-storied building in the village, was built on rising ground not far from our hut. The school-master's house, in which Tha Hla and Chit Ko Ko lodged, was equidistant, on the other side. We often met, or at any rate saw the school-master, who was hardly more knowledgeable (and certainly no more intelligent) than most of his thirty or forty pupils. Since the war the leaders of the hill tribes have become enthusiastic about education—or instruction—and are always clamouring for government grants to build schools and provide teachers. It is a great opportunity for the Central Government to insist that in return, top priority shall be given to Burmese culture and language; but I am not sure that the Government is making the most of its opportunity.

However, it is difficult to gauge the impact of education on a purely agricultural community, which can never be anything else if it is to exist at all. It is obviously an advantage for village headmen and elders to be able to communicate with one another by letter; but for the romanization of Kachin and the art of writing, the hill tribes (who have no written language of their own) have to thank neither the Burmese nor the British, except indirectly, but the early American missionaries.

It is also, no doubt, an excellent thing for the young men to join the army and see the world—or the next world; and for the opportunity to do that they are indebted to the recruiting parties who periodically tour the hills (or used to), seeking recruits. In the Military Police or the Frontier Force they learn the value of discipline, come in contact with other races, and widen their outlook.

But it seems a mistake to draw off the brightest youths to the towns,

where they aren't needed, to become clerks on an inadequate salary, or jobless and discontented corner boys, where they learn bad habits. Yet the matter is not simple. The bright ones have every right to enjoy a higher standard of living than village life seems able to offer; and where are they to get it if not in the towns! This is not to say that life cannot be made more comfortable than it is in the hill villages.

At 9.30 every morning a small boy rang the school bell and we used to see the children walking or running down the path from the village, carrying their slates and satchels—the latter, ordinary Kachin bags. Only the smaller boys, up to the age of ten or twelve perhaps, had to attend; but girls big and small, even grown-ups, flocked to the seat of learning. This seemed paradoxical, since all domestic chores and most of the agricultural work is done by the females of the household. Book-learning, you would think, is not for them. On the other hand, the men do little of the hard labour, and in their youth especially can easily be spared.

Many of the lessons were sung (as in the old board schools of England), only here it was chiefly hymn singing. On Sundays the school became the village church, and was monopolized by the Christian community, comprising about half the village; but the same may be said of the religious as of the scholastic life. The Sunday services (there were always at least two) consisted almost entirely of hymns, and American hymns at that. I disliked them because they made Jean (who is musical) fume and fret. Certainly they were unimaginative, with never an unexpected note. Sometimes somebody preached a sermon, which went on for a very long time.

During this month two Hkanung Christian missionaries from Rawang visited Hkinlum—mere striplings. They stayed at the school-master's house, which was used as a guest-house for travellers. They had come, not by the pass we had reached near Tagulam Bum, but by a rarely used pass close to Tama Bum. These missionaries, like the apostles of old, go round the villages preaching. They are not paid for their services, but are put up and fed by the local Christians.

July is one of the wettest months of the year (or it was in 1953). Rarely did we see the sun; but an occasional fine morning, afternoon, or evening helped to make life tolerable. It warmed up, but the shade temperature did not touch 80° till almost the end of the month. On the 30th July it reached 82°, and it rarely fell below 70° at night. We went out for short walks and collected a number of sub-tropical plants, though very few trees were found in flower. Two species of *Elaeocarpus*, one with exceptionally large flowers and leaves, were noteworthy. They are handsome trees, allied to the lime which is not found in this part of the world. Species of *Hoya*—woody climbers with waxy white flowers in compact heads—were numerous.

In the village a few plants of *Hemerocallis* produced flowers of a tawny orange. One of the rhizomes I sent home flowered at Mount Stewart in 1954. Writing of this in the R.H.S. *Lily Year Book, 1955*, Lady Londonderry described it as being "a glowing orange flame colour, with red markings on the petals and a greenish yellow throat".

Towards the end of the month the first of two magnificent *Dendrobiums* began to open its brilliant orange flowers; but I will leave their description till the next chapter.

In April I had found two small trees of the big *Rehderodendron* close to our camp, and both bore fruits within easy reach. I had kept an eye on them, intending to collect the fruits as soon as they were ripe. I was distressed to find now that every branch which had borne even one fruit had been torn down; not a single fruit survived. The reason for this apparent vandalism was that the local people ate the hard scanty green flesh. However, I got the village boys on to the job, and they soon provided a basketful of ripe seeds—more than we needed.

By the end of July a profound change had come over the valley. With the fading beauty of the forest, the very air had changed. When we arrived in the spring, the scent of the fresh earth, purified by frost, of the swelling buds as they strained and cracked open, of the baby-fingered leaves as they uncrumpled, and of the slowly opening flowers, was sweet. Now, after weeks of rain and darkness, the fecund mouldy soil had broken out into noisome blights, blisters and excrescences. The forest was a shambles of low life, parasitic and saprophytic, locked with nobler forms of vegetation in merciless nibbling warfare; and the stench of battle, of the living and of the slain, hung heavy in the air. I noticed it most when I went into the forest to look for orchids. Rotting leaves, flowers long dead, fallen bud scales and the broken limbs of trees, stank to high heaven. No less did over-ripe fruits, fluffy with mildew, stink. Unripe fruits, plucked from their hold by birds or squirrels and now abandoned to hordes of hungry insects and worms, lay on the ground half buried in the festering mould. To stroll through the forest in the damp mid-summer heat is quite unpleasant. Compared with the breath-taking air of spring, the smell of the grave is odious; compared with the crisp lilliput crackle of new life as the bud scales are forced aside, the poignant rustle of the shroud is macabre.

But however discouraging the immediate outlook may be, there is always something to live for; and as a part-time diversion I found much solace in watching birds—not very regularly, but sometimes, especially when I was drinking an early morning cup of tea on our little veranda. As a non-expert, however, my watching, apart from the sheer pleasure of

watching, had little other object than recognition, by size, colour, shape, or flight or by combination of these.

I have often asked myself: what happens to all the gay birds of the hills during the height of the monsoon? And not being a student of birds, I cannot answer my own question, though I am convinced there is more than one answer. Birds being the most mobile of all vertebrates make the most of their opportunities. As soon as conditions cease to be to their liking, they move on, or up, or down the mountains. However that may be, in the evergreen rain forest throughout July and August there seemed to me to be comparatively few birds of comparatively few species. (Here the comparison is with the number of bird species in Burma as a whole, which according to B. E. Smythies is about 1000, of which 953 have been reliably reported.)

What had become of all the insect- and honey-pecking birds—the sibilas, fairy bluebirds, honey-suckers, tits, flycatchers, and many more—which are such a feature of the temperate forest when the rhododendrons are in flower? Perhaps the answer is, they were there, but I didn't see them. Does each stratum of air fauna move up or down to a higher or lower stratum of forest as the seasons advance? Or does it disperse? One learns little of bird life in the mountains *as strata*, though the habits and movements of a great many individual species have been observed and recorded by a succession of able field ornithologists.

One day, the 13th July to be exact, some village boys brought us a form of the white-breasted kingfisher which they had snared. It was quite unharmed, and did not seem to be fussed, though it kept very still in Tha Hla's hand. As soon as he released it, it went off silently with a normal dipping flight, as though not in the least surprised by the episode, and one had a second good view of its appearance. It differed from white-breasted kingfishers I had seen down country in having the beak orange-brown rather than red, and a short white eyebrow. More important, in flight the wings appeared to be black *and* white, though at rest the kingfisher blue of the outer wing coverts alone showed. It was like an amendment to the ordinary bird. In this area it is hardly possible for the most hydrophobic kingfisher to be far from water.

The only other species (apart from the "common") I noticed was a pied kingfisher flying down the river; that was on the 26th August. I remembered it particularly because I had just trodden on a small snake in the forest lining the river bank, which wriggled off at a great pace. Otherwise I might never have seen it—the snake—at all.

Snakes were neither particularly common in the valley, nor very rare. All but one that I saw were small—under forty-two inches. On the path one day we saw a Hkanung killing an extremely nasty-looking viper, a

vivid grass green with black markings. But most of those we met were less handsomely coloured. I never heard of anyone at Hkinlum being bitten by a snake; but lower down the valley, in the more sub-tropical forest, the popularity of anti-snake venom medicine—such as the famous *mashaw-tsi*—suggests that snakebite was not unknown.

To return to birds. Throughout the short hot summer an early-morning chorus began as soon as it was light, and lasted an hour or two before it died down. Occasionally during the day a barbet or other unmistakable bird called, and after dark an owl. I last heard the cuckoo on the 10th July. It had been calling neither so frequently nor so ecstatically as in May, but it kept time and in tune. When drinking tea in the early morning, as recorded, I watched such birds as I could see through a field glass. Unfortunately the view in front of the hut was limited to open rough pasture, where a few scattered shrubs and pollard trees grew amongst concealed circular trenches round ancient graves; and few birds found our graveyard particularly interesting. An exception was the black-headed shrike, a pair of which were often to be seen. They delighted to perch on reeds and sway to and fro.

One or two pairs of spotted munias were often about in the early mornings. They would flit restlessly in the sedgy scrub, half concealed. Occasionally one would perch on a bush, flicking its short tail. In the late afternoon a number of these would turn out on parade, drilling by platoons of twenty or thirty, flying in perfect formation, which was good to watch.

Scarlet minivets were not rare round Hkinlum, and on the 29th August I saw a streaked spider hunter, a dull-coloured greenish bird with an enormously long curved beak like a surgeon's needle. Indeed, I could hardly have missed it. As I descended the ladder from the veranda it performed its remarkable helicopter act, hovering in my face. So near was it that it was almost out of focus, and its wings, fluttering madly to maintain its immovable balance, brushed my hair. Had it mistaken me for a spider, I wondered, instinctively drawing back from that formidable beak? As it realized its error and flew away, I caught sight of its bright orange-yellow legs and feet. I do not recall seeing another.

On the very last day of August I recorded that incredibly brilliant little bird, the so-called purple sunbird. I saw it as iridescent midnight blue, with violet breast. It too was hovering, but not so close to me as the spider hunter.

Cinnamon sparrows also visited the old cemetery, but not in large flocks. Head and back are dark cinnamon brown, whereas throat and breast are much paler, making an agreeable but not violent contrast.

On the 10th July I noted a small chestnut-backed woodpecker, probably

the species known as the rufous woodpecker—certainly about the same size. There must be many woodpeckers in these almost limitless forests.

During the many fine evenings in August and September a few bats flitted round our hut. They appeared to be all of one species, and I doubt if we ever saw more than a dozen together. On dull and wet days, however, their place was taken by swiftlets which swooped and wheeled, flying fast in complicated ellipses all over the rough pasture, but centred round our hut. Evidently they found plenty of minute insects in the air. In fact, insects, attracted by our light at night, became such a plague that Jean, by cutting up and sewing together a large roll of surgical gauze, made a tiny mosquito-proof cage, beneath which we dined and read after dark. It was hung from the crossbeams of our hut, and was efficient.

The arrival of a pair of yellow-headed wagtails on a buffalo wallow close to the hut aroused a momentary hope that the cold weather was coming; but it was a little optimistic to start thinking about the cold weather so early as the 5th August, when the day temperature reached 75° and the minimum was 67°. These wagtails strutted about in the damp mud, picking up worms and other delicacies. I was surprised to see them in what must have been breeding plumage. The male is larger than the female, with throat, breast, and belly bright yellow, the yellow head alone finely streaked with black. Back, wings and tail are a dark brownish black, with lighter patches on the outer wing coverts at the shoulders, and a black beak. The female is a much paler yellow, and the colouration elsewhere lighter.

There was another cinnamon-coloured bird which I recorded the same day, as I drank my morning tea. It sat on a bush, indifferent to the rain, and allowed me a good view of it. Like the cinnamon sparrow mentioned above, it had a mixture of light and dark brown in its colour chart. The head was a warm chestnut or cinnamon bronze, with a much paler—almost cream-coloured—cheek patch below the eye, and a prominent streak or eyebrow of the same colour above it. This bird (the white-browed laughing thrush) stayed with us for some time.

On the 19th July, while walking down to the river where a number of birds were flying about in the forest, I remarked two birds I had not previously seen. The first was a small bird, verdigris blue-green all over, with black legs, feet, and bill, and a little dark colouration at the tips of the primary wing feathers when at rest—almost certainly a verditer flycatcher. The second was much bigger—about the size of an English thrush—and midnight blue all over with a bright yellow beak and black legs. It was perched at the top of a big tree close to the river, and looked very much like an ordinary blackbird, though it was certainly more blue than black. I don't doubt that this was the blue whistling thrush.

All the birds mentioned in this chapter are well known in Burma, at

least to ornithologists, and I am giving away no secrets in mentioning them. But as there are very few people who do know the birds of Burma, these amateur but first-hand notes may interest some of those who don't.

Just as North Burma has its alpine plants, most of which are known from the eastern Himalayas to western China, and a few from the European alps, so it has also its Palaearctic birds which, being mobile, can come and go at any season.

The 26th July was the first day of the Buddhist Lent, and after midday both Tha Hla and Chit Ko Ko fasted for the rest of the day. I fasted for another reason. During the last ten days of July a growing distaste for food had become chronic, and my tongue assumed the appearance of a piece of second-hand wash-leather. Sometimes I felt miserably ill, but not always; nor did I take to my bed. This went on throughout August and far into September, though there were occasional days when I felt quite well, and even hungry.

July ended up, surprisingly enough, with three fine sunny days with temperatures in the eighties—82° on the 30th. During this static period I gave lectures in field botany to the Burmese boys and Jean, which were much appreciated. I liked this, because it enabled me to polish up my own half-forgotten knowledge, and gave me practice in presenting it in an interesting light. Besides, it passed an hour and a half of the long hot mornings pleasantly.

I rarely felt energetic enough for a walk, and had to content myself with a daily stroll through the orchid copse to see how our plants were faring.

Throughout the summer a certain fungus (not an Agaric, or toadstool) was a popular food in the village, and people would go to the trouble of collecting it if they happened to come across it while at work in the fields. (It favoured dead logs rather than living trees.) Though we ate it occasionally as a morsel with our curry—having little enough variety in the way of fresh food—we quickly grew tired of it, and before its season was over barred it from the menu for ever.

Gumoh-tsi, as the Hkanungs call it, is a foliaceous fungus with a frilly rim, dirty yellowish in colour. It grows out horizontally in a series of scallop-shaped, partially overlapping plates from tree-trunks, dead or dying, or from rotten logs. The pale gills diverge like ribs from the base of each scallop, and the whole flabby vegetable, after being cooked, evolves into a revolting black jelly without form or flavour. It was as nauseating to look at as a wet sea slug, and as rubbery to the touch. No wonder it invariably gave me diarrhoea.

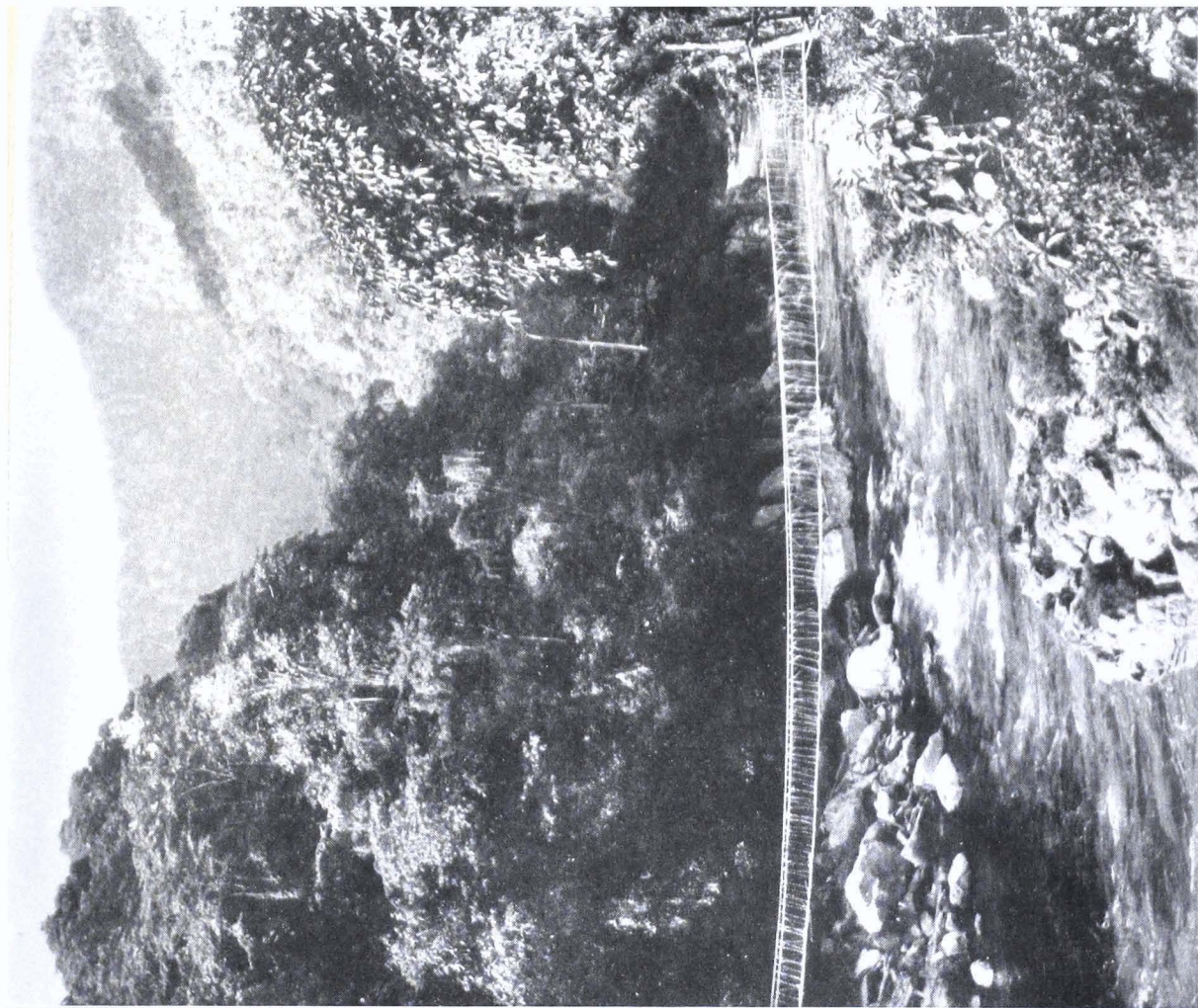


34. (*Top*) Moist temperate forest, about 8000 ft., in The Triangle, North Burma

35. (*Bottom*) Hill farming with a vengeance. It is country like this, with 45° slopes, that the Irrawaddy hill tribes must clear to cultivate their crops. Such slopes are cleared up to 7000 ft.; above that height crops will not ripen



36. Carrier on a cane bridge: this is hauled to and fro—carrying humans, animals, or other loads



37. Typical cane bridge in Northern Burma

Flowers in August

ALTHOUGH August was a poor month for flowers—at least in the valley—some of those plants that did flower were memorable. Perhaps it was that, this being a forest climate, one always hoped to find flowering trees; but very few trees flower in the rainy season.

Towards the end of the month the epiphytic lily flowered, as already described; but though the most important, it was not the only rains plant to flower. Two notable orchids, both species of *Dendrobium*, followed suit. *D. chrysanthum* was the first, some plants of which came into bloom before July was out, though the species as a whole was not in full bloom till the middle of August. An average plant I kept an eye on had produced several leafy stems up to four feet in length. One of these eventually bore fascicles of glowing orange flowers with a warm sepia spot on either cheek. This spike hung straight down from the branch on which the plant grew, carrying about sixty flowers. It looked like a thin golden ingot.

D. fimbriatum, the second species, flowered later. Before the flower buds showed, it appeared to be almost identical with *D. chrysanthum*, though it was even bigger, the stem reaching a length of five feet. The leaves, though similar in shape, are a little smaller than those of *D. chrysanthum*, a difference which one hardly notices until the two are placed side by side.

The flowers of the two species are extraordinarily alike, especially at a little distance: the same glowing orange colour, the same sepia spots on the same shovel-shaped lip; but the lip of *D. fimbriatum* is coarsely bearded, and that alone serves to distinguish it from *D. chrysanthum*. In their inflorescences, however, the two species are quite distinct. Whereas *D. chrysanthum* bears clusters or fascicles of flowers, each stalk springing separately from the main axis (though occasionally two pedicels are joined at the base), in *D. fimbriatum* the flowers are borne in a raceme, with up to a dozen flowers springing from the common stalk, which is borne on the main axis. They are half as large again as the neat, almost circular flowers of *D. chrysanthum*, but almost exactly the same shade of orange, with the same glowing sepia spots. (There is a colour form of *D. fimbriatum*, however—a much lighter, more glossy orange, which I did not observe in *D. chrysanthum*.)

The large capsule—of *D. fimbriatum* at any rate, nearly five inches long and broad in proportion—takes over a year to ripen.

Both species, it will be observed, flower late in the rainy season—

D. chrysanthum July to September, *D. fimbriatum* August to October—during a period of high humidity, high temperature, and maximum length of daylight. Both seemed to do equally well, whether growing inside the forest in deep shade or right out in the open. I fancy, however, that the former were the larger and more robust plants.

These two Dendrobies were extremely common round Hkinlum, and there were comparatively few big trees which didn't flaunt one or the other—but not, I think, both. Not infrequently a number of plants, of different sizes and ages, will grow on a single tree; but I never to my knowledge saw both species on one tree. One or other species arrives first and claims the pitch as its own, somehow keeping its rival at bay.

A big plant growing not too high up in a tree, hanging down in golden festoons, is a magnificent sight. It gives one a new insight into nature in her most generous mood. An exceptionally fine plant of *D. fimbriatum* growing near our camp had produced nine flowering stems bearing fifty racemes, and between 300 and 400 massed flowers in bloom at the same time. I devoted some hours to looking for the finest specimens in accessible positions, in order to photograph them.

Between them, these two species are in flower for about eleven weeks, with an overlap of two or three weeks when both may be found in good bloom.

Another handsome plant which flowered in August was an almost prostrate Begonia. Its habitat was rocks in the river bed, and it had smooth dagger-shaped leaves, amongst which shone clusters of glowing brick-red flowers, neat and miniature. It was perhaps the best of a dozen species of Begonia we collected, though one or two others ran it close. There are forty or fifty species of Begonia in North Burma, and several are outstanding. I think the most charming of all is an epiphytic species with the manuscript name given to it by the late H. Airey-Shaw of *B. hymenophylloides*—"like a filmy fern". I discovered this in North Burma some years ago, but the seeds did not germinate. It would be worth while to send living plants; but as most of the plant disappears in the winter, it would be advisable to send large slabs of bark (which might also contain seeds), or even pieces of the tree-trunk, so as to avoid any root disturbance.

Early in August we sent a man to Arahku to look for a mature tree of the Taxodium-like Conifer already mentioned. Before he started we showed him our dried specimens, and told him all we knew about them—which was little enough. He said he recognized it, and would bring us back material. We told him we must have flowers, fruits, and eventually seeds—ripe seeds—this last being the most important of all.

Two days later he returned with some large branches of what was undoubtedly a Conifer, and an interesting one; but not the one we had asked for. In fact, we hadn't seen it before. It looked like a Podocarpus; but it bore several fruits—hard ovoid objects half an inch long. It was, in fact, a *Cephalotaxus*—probably the Chinese *C. Mannii*—and as we had not seen it, I concluded that it was as rare (down in the valley at any rate) as the "Taxodium". It proved to be, if anything, rarer.

At the end of August some villagers brought in leafy branches of a *Gordonia*, generously adorned with magnificent creamy white flowers four or five inches in diameter, with a central jet of golden stamens like a corn stook. *Gordonia* is closely allied to *Camellia* (which includes the tea plant), *Schima*, and other trees of the North Burma forests. Our tree may be *G. axillaris*, found just inside Burma all along the China frontier north of Myitkyina. But *G. axillaris* usually flowers three months later (December–January), so the Hkinlum plant could be different. It is common on Hkinlum Cliff at an altitude of 6000–7000 feet, where we saw it in fine bloom, though past its best, on the 24th September.

About the same time a pretty orchid had plastered the rock cliffs in the river bed with a moss of thread-like rhizomes. These bore the erect one-inch or two-inch flowering stems, each of which ends in a solitary snow-white flower the size of a florin. The lip is prolonged into a long slender hollow spur, at the base of which is a drop of honey. Its name is *Diplomeris*.

In North Burma, as elsewhere, the underlying relationships of whole groups of plants, from genera to families, is emphasized by their flowering all together; although, of course, with such a wide range of species, there are always some non-conformists. Nor will nature permit of hard and fast lines. A further tendency is for species of a genus to ascend as high as possible, thereby embracing a different environment, just as alpine genera give rise to species which descend as low as possible.

However that may be, the tendency for related plants to flower together is obvious, and some hint of a plant's origin may perhaps be inferred from its time of flowering and the sort of company it keeps. An outstanding example of group flowering is the display of early spring rhododendron. The species which flower in late autumn and winter mostly belong to one section—"Maddeni"—not all of which, however, are winter-flowering. Many *Acanthaceae* (especially *Strobilanthes*) and *Gesneraceae* (*Chirita*, *Aeschynanthus* and *Didymocarpus*) flower during the hottest and wettest part of the year. *Gentians*, on the other hand, are autumn-flowering.

The climax vegetation of Hkinlum may be called moist warm temperate evergreen forest. It is not sub-tropical, though sub-tropical species grow in

the deep shady gullies, including even a *Sterculia*. Nevertheless, whenever the sun shone, out came sub-tropical butterflies in considerable variety. Amongst them were scintillating swallowtails decked out with metallic kingfisher blues and emerald greens; a lovely *Leptocircus*, all dark gauze with a diagonal blue band, dazzling as it hovered over a marsh, while its long tails flickered like fast-revolving wheels; and powerfully-winged, fast-flying species. Either there were two species of *Leptocircus*, or else male and female are quite different. Yet another butterfly seen over the marsh was a *Junonia* with yellow-and-black wings, blue spotted. However, only one species of caterpillar seemed at all common—a dark spiny creature, very like the larva of a peacock butterfly. Perhaps it was just that; it was feeding on a non-stinging plant closely allied to the sting nettle.

Many of the summer birds too, as honey-suckers, minivets, and spider-hunters, might be described as sub-tropical, not just for their vivid colours or unfamiliar shape, but as being on the whole more at home, say, in the valley of the Mali Hka than around Hkinlum. Most of the sub-tropical birds and butterflies are no doubt summer visitors. When conditions become unpleasant they can leave. Plants, on the other hand, have to stay; it is not enough for them to be able to enjoy the sub-tropical summer temperature; they must be able to endure the cool temperate winters too. After all, for three months, from mid-June to mid-September, maximum temperatures were usually in the eighties, while it rarely fell below 60°, and was commonly between 65° and 70°.

From our hut we could see a short bit of the Hkrang Hka valley—not the river itself—below the confluence of its four main headwaters, as it swings to the south-west. A bulky spur, thrusting down from the north, blocked the view in that direction. Its level crest line was about 9000 feet and it filled the whole western horizon. This spur was a landmark in the direction of Sumprabum, and I looked at it every morning, because it stopped a lot of cloud from drifting over Hkinlum, and staved off some of the rain. Normally the monsoon current swept up the sub-tropical valley without a check; but I am of opinion that on reaching this high barrier, so close to the main peaks, it was thrown suddenly upwards and was carried swiftly, and at a high altitude, by an upper air current to the main divide. This would account for the fact that one commonly saw a high bank of compressed cloud peeping over the top of the spur, with blue sky over Hkinlum, and beyond, Tama Bum as usual muffled in cloud. Sometimes storms even bounced back into our valley off Tama Bum, though the sky overhead remained blue. This insignificant local phenomenon did nevertheless throw some light on possible climatic variation, or on microclimates, within the high hills.

On the 10th August Tha Hla, growing tired of Hkinlum and feeling energetic as ever, set out for Putao with the object of buying *Fritillaria* bulbs (machit) from the Chinese shops there, to try growing down country. It was certain we should get none on Tama Bum. The villagers had told him there was a used path, and that it would take only five days to Putao. This sounded to me rather optimistic, as it is eight stages from Sumprabum by a good bridle path; and starting from Hkinlum, following the other leg of an isosceles triangle, there is at least one range of mountains to cross. However, Tha Hla was a fast walker and could go on all day tirelessly. We expected him back within the fortnight; but when he didn't turn up, I did not feel alarmed. He might easily have decided to do some collecting round Putao.

He got back on the 30th August, rather tired, having halted only one night at Putao.

There was practically no path at all, he said, at least during the rainy season when it was quite overgrown and nobody used it. He had crossed a pass 9000 or 10,000 feet high at the source of the Hkrang Hka, and it had taken him no less than ten days to reach Putao, in spite of long marches. As for *Fritillaria* bulbs, they never came to Putao, the shopkeepers said; nobody there had ever heard of them. He brought me back a bottle of Wex salts to try and cure me of my mysterious liver complaint, or whatever it was.

Tha Hla had collected a few plants. There was nothing of particular interest amongst them; but it was a measure of his enthusiasm that, after a long day's march under trying conditions, he still had enough energy left to sit down and put specimens in the press. He took no tent, and when they did not (as sometimes happened) reach a village before nightfall, they slept in the open. Luckily the weather was mainly fine.

On the 12th August, in glorious weather, Jean and I walked to Hpo-ome bridge. It was some little time since I had walked even that far, and it was perhaps unfortunate that I should have selected the hottest day of the year for an endurance test. The shade temperature seached 90°, and the sweat ran down us. Nor did we find anything unusual enough to justify the effort required. On the way back we wilted like plucked flowers. About four o'clock a thunderstorm came up from the south and the temperature quickly dropped 10°. After an hour's heavy rain the sky again cleared like magic, and the apricot-coloured thunderheads in a navy-blue sky were awe-inspiring. After dark there was a gorgeous tournament of lightning in every direction.

Between the middle of July and the beginning of September there was a very real interlude in the monsoon. Twice previously in North Burma I

have recorded a similar August break, so I think it must be a routine event in the hills—and peculiarly welcome. The rains begin early and often finish late, so it seems only fair that there should be a lull at half-time. In 1953 most of the fine weather came in August, when I recorded twenty-six fine days, the entry in my diary for most of them being, "A fine sunny day." Very often what rain there was fell at night, or in the form of short sharp thunderstorms, near and far—the usual accompaniment to a break in the rains.

From the 7th to the 23rd August we saw the whole of Tama Bum almost every day—sometimes all day. How we longed to be up there amongst alpine flowers, in the fresh aromatic air, instead of in the foetid heat of the valley! Unfortunately, at that time I could not have done the long marches, though had I felt confident that the fine weather would continue for the best part of a month, I would at least have made the attempt.

A very large, spreading *Ficus*—a *nat* (spirit) tree just below the village—was in fruit. Every branch and twig had erupted in a solid crust of coral-red figs like some frightful disease, not pleasant to look upon. One night a large limb broke off. It gave me some idea of the extraordinary wealth of epiphytes which made their home in the wide crown, from ferns and orchids in great variety, to large shrubs like *Fagraea* and *Heptapleurum* (which are almost small trees themselves), and small shrubs like *Aeschynanthus* and *Pentapterygium*, and the root-climbing *Pothos*. Clumps of *Hedychium*, fringes of succulent-leaved *Gesnerads*, pendent like seaweed from the almost horizontal branches, and many other plants, add to the confusion of this hanging garden. But though I searched diligently wherever I could get a view of the tophanper, I saw no lily, though it looked the ideal tree for one.

At the end of the month our Aladdin lamp, which had served us so well, was destroyed from within by fire. It had been filled too full. Henceforth we were dependent on the ordinary storm lantern for light after dark.

August passed into September with no change in the brilliant weather. For almost another week I was able to write monotonously "fine sunny day" in my diary. It was still suffocatingly hot. However, on the 8th the monsoon returned, at first to our relief, and the temperature dropped 10° or 15° from a maximum of 85° on the 2nd to a maximum of 68° on the 10th. Although the 10th September was one of the wettest of a succession of wet days, the Christian villagers held a sort of harvest festival in the school-house. Many of them brought flowers.

The crops were ripening, and this drew the skulking mammals from the depths of the forest into the open, though not into the light of day, for they only came after dark. Not infrequently one heard the report of a gun in the night; but the people were indifferent shots and rarely hit anything, otherwise we should certainly have had news of it and been invited to buy some

of the meat. Actually we were offered some deer meat on one occasion, but didn't much care for its bright green colour and disgusting smell; so we refused it. All the time we were in Hkinlum I saw few mammals larger than a bat—or a rat. The big animals, of course, would all be well known; but it is quite possible that amongst the smaller and more nocturnal fauna—voles, rats, shrews and the like—there might be new species.

The rain now was not only continuous day and night, but heavier than anything we had experienced so far. It streamed like a waterfall from a sky of tarnished pewter. It looked as though it never had been fine, nor ever would be again. Pago Pago couldn't be wetter.

The 14th was a real red-letter day. The lily came into our lives again when I found plants growing on a big forest tree close to the village. As this episode is fully described in Chapter 19 I need not refer to it here, except to say that had the lily not been rediscovered, the tree would still have been notable for a beautiful epiphytic fern, and for the first specimen of *Dendrobium fimbriatum* actually in flower. And what a magnificent plant it was! Round our camp this orchid was still only in bud, and I was not a little surprised to find specimens growing in the deep shade of the forest in flower before those growing in the open pasture.

Now one couldn't go anywhere without seeing one or the other or both the orange Dendrobes in flower; it might be high up in a tree, or low down. The size of the inflorescence, no less than its brilliant colour and the startling contrast of the sepia-spotted cheeks, made them extraordinarily conspicuous. Indeed, one expected them to be waited upon by hordes of brilliant sun-birds and be vies of the more iridescent swallowtail butterflies. Actually I don't recollect ever seeing a single visitor; not even the common bee.

The number of plants in flower began to increase in September, slowly at first, then more rapidly. Rather rare was a large Ophiopogon bearing a long spike of snowdrop flowers, always epiphytic. Much more common was a Clematis very like our English old man's beard. A bird cherry, like the English *Prunus Padus* but with longer spikes like tall tapering candles, was not uncommon by the river, growing on the fringe of the forest; and a Symplocos, with snow-white clusters of flowers which opened while the fruits of the common Symplocos were beginning to turn violet. One or two rampagious climbers, with long dangling festoons of violet or purple pea flowers, threatened to strangle whole thickets with their eager shoots and coarse leaves. Finally a tree Hydrangea was conspicuous for its white sterile flowers and coarse leaves. But as horticultural plants, none of these was more than second rate.

The Climb to Hkinlum Cliff

WE intended to make a short visit to Hkinlum Cliff in late September, if the weather showed signs of improving; and it had turned so much better by the middle of the month that we provisionally fixed the 19th. Unluckily I was still suffering from the mysterious internal complaint which made me abhor the very sight or thought of food, other than a little plain milk pudding (always rice) twice a day.

Tha Hla went to Arahku on the 11th, returning on the 13th. He could hardly have chosen worse weather; nor was it surprising that he found very little. He was bitten on the ankle by a leech, and by ill luck it went septic, so that for several days he could only hobble. He too was out of action.

Finally Jean got another sore throat, and Maru La, our most reliable assistant, whom we must have with us, developed boils on his leg. Jean looked after these, dressing his leg at his own house up in the village; but it was several days before he could walk. The Hkanungs seem to be able to take sulphur drugs, not only without any bad after-effects, but even without distaste!

With so much inertia we postponed the trip up the mountain till the 24th, having meanwhile sent men up to improve the precipitous track and clear the cane thickets. It had been a very tough climb in April; after the rains it might prove *too* tough.

At this time, with the rain teeming down, and day and night of almost equal length, the temperature scarcely altered during the twenty-four hours (one degree only on the 29th). The average maximum and minimum for the whole month were about 72° and 64°. The lowest recorded was 57° on the 13th September; highest, 85° on the 2nd. The average for the month was about 71°. This compares favourably with an average of 58° for September 1954 in the London area, though that, of course, was in a particularly bleak year.

The object of Tha Hla's quick trip to Arahku and back was to get seed of the *Cephalotaxus* and the "Taxodium", if possible. In this he was not successful, since he found neither tree. He did, however, bring back a clue: he was told that the headman knew of a full-grown *Cephalotaxus*, and would show it to us on his return from a tour. And with that we had to be content. These two Conifers were proving even more difficult and elusive than the epiphytic lily had been.

Our choice of the 24th September for the first autumn climb proved to be of good omen. So clear were the days from the 21st to the 28th that we began to think the rains were over!

After reaching our old camping ground on the ridge, we sat down for a rest and a snack, then continued the ascent to 6000 feet, chiefly to see the *Gordonia* in flower. The tree was quite common here, on the steep slope; but it did not ascend much above, or descend much below, the 6000-foot contour. Some trees were smothered in blossom, though many flowers lay on the ground. Fruits were harder to come by. We found a few on the tree, and picked up several. The hard woody capsule, shaped like the spike on a London parks railing, takes nearly a year to ripen.

Though better, I was still uncertain whether I was completely recovered from my internal trouble. In any case I had lost about 20 lb. of weight, and strength. Much, therefore, depended on the next day's climb, and how I got on.

In the evening we received an English mail, brought up from the village. Jean complained that almost none of our backers had written, either to congratulate us on the results achieved so far, or to encourage us for the hard weeks ahead, and wondered whether horticulturists were really in the least interested as to the outcome of the expedition.

"Perhaps nobody thinks we deserve the first, or need the second," I said cynically. But in actual fact several of our backers had been good correspondents; at least they always answered our letters, however briefly.

Starting at 8.30 on the 25th September, we climbed 2200 feet, reaching the main crest of the ridge, which, could we have followed it to the top, must have brought us close to the summit of Tagulam Bum. The important thing, however, was to show Maru La all the trees of which we wanted seed in November, and this we did on the way up, blazing each trunk and leaving other marks. We collected a few things in flower: *Schima* (a poor relation of *Gordonia*), an oak, and a second species of *Helicia*. The big winter buds of *Rhodoleia* were almost bursting with joy, but they would remain like that in a state of suspended animation for several months yet. An *Agapetes* and a *Euonymus* were also in flower; and already the leaves were off the epiphytic *Eriobotrya*, which would shortly erupt into a froth of meadowsweet flowers.

We got back to camp at 3.30, feeling no more than pleasantly tired. I was immensely relieved; neither Tagulam Bum nor Tama Bum would hold any terrors for me now, I thought.

Back in Hkinlum we noticed the arrival of parakeets, but I never managed to get a close-up view, though we occasionally saw (and heard) them in twos and threes, flying swiftly across the valley. Pied wagtails were also seen.

Local information was to the effect that it would now rain continuously

for nine days, then the fine weather would begin. We did, in fact, have some very wet days at the end of September, and during the early days of October; but we also had some fine days with welcome sunshine. We provisionally fixed the start of the autumn seed harvest for the 10th October, later altered to the 9th because the first day's march towards Tama Bum was so easy. We wanted two fine days to dry the track first. If the 9th and 10th were both dry we should get off to a good start.

Tantalizing signs of autumn came and went. Unfamiliar birds called once; then ceased and retired behind the iron curtain of high summer. The setting sun shone on scarlet trees and gamboge trees high up on the flank of the mountain, where the forest was parading its autumn fashions.

We watched with amusement several unfamiliar black-and-white birds, the size of wagtails, wandering round the buffalo wallow close to the hut. They seemed absurdly tame. But when a boy noticed them and tried to capture one by hand, it kept just out of harm's way. Other school-children arriving, joined in the game, but the bird still eluded them; whereupon, nettled, they began to hurl missiles at it, tried to shoot it with bow and pellet, or to knock it over with sticks. Continuing to take evasive action, it flew round in circles just over their heads, from time to time settling in the mud, just under their noses, ready to become airborne at a moment's notice, but refusing to be driven away from its chosen pond.

It was during another very wet spell at the end of September that Tha Hla decided to visit Arahku again, and if possible see the *Cephalotaxus*. He left on the 28th and returned on the 1st October, having done invaluable work.

The headman was at home, and took him to the tree. It had fruited well, and they picked up a lot of seeds from the ground, of which Tha Hla gave us a generous share. They appeared to be in good condition.

Secondly, and even more important, a woman told him she knew of a fully grown "*Taxodium*", and showed it him. It was a mile or two from the village. Tha Hla described it as being 60-80 feet tall, with a straight trunk, and seven to eight feet in girth four feet above the ground. It grew at the end of a jutting cliff on a precipitous and thickly forested slope. He managed to climb it, but found neither "flowers" nor fruit; it wasn't the sort of terrain on which you could expect to pick up dropped fruits, unless they were as large as coconuts. Anyway, he brought back mature foliage, which differed somewhat from the juvenile foliage of the saplings I had found in April; and he reported that there were trees at Lajā.

I reviewed what we now knew of this mysterious conifer, and drew certain conclusions. To begin with, my first knowledge of it came when a small boy brought me a branch in April. Village children, having tumbled to the fact that you are looking for plants, invariably start by bringing you

those with which they themselves are most familiar; that is to say, common village weeds. Those having large showy flowers are amongst the first. The fact that the "Taxodium" had no flowers made it certain that it was at least unfamiliar.

Anxious to see the tree growing, I had set about searching for it, and within a couple of days had found half a dozen saplings growing in forest close to the village, not far from a main path. It was clearly a place much visited by man. I also found one or two larger specimens inside the village; these were growing next to the water supply, but were shrubs, not trees.

Then there was the woman who knew of one big tree; perhaps it belonged to her. Also, the report that trees could be seen near Lajā. Now Lajā is almost opposite Arahku, but on the other side of the river. It is on the main path up the valley, and until the discovery of the galena mine, and the improvement of the left-bank path, the easiest way to reach Arahku from Ningma Daru was via Lajā. It would be natural for people from Lajā, founding new villages on the more inhospitable left bank, to take with them any known valuable plants which didn't already exist there. But, of course, it is most probable that the tree had always grown on both sides of the Hkrang Hka, and throughout the district.

My thoughts turned at once to *Taiwania cryptomerioides*, the Chinese coffin tree. This also grows in North Burma, along the frontier ranges. At one time it was common round Htawgaw, and all along the China frontier. But in the course of the last fifty or sixty years—almost since I first visited Htawgaw perhaps—all easily accessible trees have been cut down. Except for a few planted specimens in villages, not one remains. Within my lifetime a fine tree has been locally exterminated—or would have been but for the fact that some of them grow in such impossible places that, even if they could be cut down, they couldn't be extracted. Some years ago I went into the history of this tree—its discovery in Formosa and North Burma, its distribution, and its occurrence all along the Burma-China frontier from Htawgaw northwards. Forest officers, paying quick visits to the frontier, had found it without even knowing it. An individual Maru or Lisu family may own perhaps a single tree.

If one assumed that the "Taxodium" had once been abundant, but had since been almost exterminated because it was useful, it would exactly parallel the story of *Taiwania*.

Enquiries confirmed that the "Taxodium" was once common, and had been much sought after. It was valued, so we were told, for hut building (for posts and beams), the timber being tough and resistant to the climate. Most of the older Hkanung men knew the tree and remembered when it was common.

Finally, the remaining trees were widely scattered, generally in very

inaccessible spots, and known apparently to a very few persons only, who were not eager to divulge their whereabouts.

This was the story of the solitary full-grown coffin tree which the Marus had shown me before the war, over again; and I felt confident that the "Taxodium" had been well-nigh exterminated during the last fifty years or so. It was curious—or wasn't it?—that both trees were conifers. I wondered whether the Chinese had had any part in exterminating this one, which might be as much sought after for coffins as *Taiwania*. Anyway, the latter had been saved for posterity, and the British might claim some credit for that.

Would anyone save the "Taxodium"? We have done our best to draw attention to it at any rate, and were most unlucky not to have got seed of it. We learnt that it fruited in April, but without fruit or flowers it seemed unlikely that we could identify it.

At 8 p.m. on the 1st October, just as we were going to bed, an unexpected mail arrived. It contained, amongst other things, a bottle of medicine and a box of aureomycin pills sent to me by Dr. Chanda who had relieved Dr. Lal at Sumprabum. We, of course, had not met him yet, but it soon became apparent that he was a very able doctor, as well as a kindly natured person.

A few weeks previously, Jean, worried by my loss of weight and appetite, had written (unknown to me) to the Medical Officer, describing my symptoms (or lack of them) minutely. She asked if he could say what was the matter with me, and could he send out any medicine? Here was the answer, though Dr. Chanda didn't say exactly what the trouble was.

We were now within a few days of starting for Tama Bum; and though I had weathered the short trip up Hkinlum Cliff well enough, I had had another hunger strike since we got back. I now went straight on to Dr. Chanda's medicine—a vilely bitter concoction which was, in fact, gentian root, and the pills. It speaks volumes for his knowledge and intuition that within three days I began to feel better! The result was also a tribute to Jean's masterly description of my symptoms and treatment. From that day I hardly looked back.

We were all excitement on the 8th. When the sun came over the ridge at exactly 7 a.m.—minimum temperature 60°—the sky was almost cloudless; and though it became heavily overcast in the middle of the day, no rain fell. Before ten, and after four, when Tama Bum was brilliantly lit by the setting sun, the sky was as blue as the Mediterranean. Maximum temperature 76°. The outlook for the morrow was promising, and we packed quickly.

CHAPTER 23

Rhododendrons in North Burma—I. The Lower Zones

IN North Burma, rhododendrons are found at all altitudes. They occur from the lowest valleys 800 to 1500 feet above sea level, where *R. Simsii* (formerly called *R. indicum*) grows, to the mountain tops 15,000 or 16,000 feet above sea level. In the Triangle no mountain exceeds 12,000 feet; nevertheless, dwarf rhododendrons grow on their summits. This indicates the paramount importance of wind, exposure, and snow-drift to the dwarf habit. In fact, no description of the country which failed to mention rhododendrons could do justice to it. They are a dominant feature.

I propose, therefore, to write a fuller account of the Burmese rhododendrons, and the part they play in the forest, than I have as yet attempted; and to describe in more detail some of the forty species (several of them new) which we collected in the North Triangle. I deal with them in the order in which we found them, whether in flower or not; but it must be understood that this order is not sacrosanct.

It is quickly borne in on the explorer that the plants found on the summit of a mountain 12,000 feet high are not those found at 12,000 feet on a mountain 18,000 feet high in the same region. On the lower mountain there is almost certain to be an upward shift and compression of the zones, which on the loftier range are more drawn out. Moreover, the species peculiar to the lower zones may appear in almost any order within that zone, according to local climatic conditions.

It may seem strange to the layman that a creeping, prostrate under-shrub, carpeting the rocks and bearing solitary trumpet-shaped flowers—the whole under six inches high—and a tree of sixty feet, bearing globes of large bell-shaped flowers, should nevertheless both bear the name of rhododendron. However, one consoles oneself with the knowledge that mere size is not of much importance so long as we are dealing with one type of vegetation, the emphasis here being on woody plants. There is no need to strain at this gnat; the camels are coming.

When, however, we note that the leaves of the mat plant are naked, without either scales or hairs, while those of the tree are covered beneath with a thick felt or soft fur—or maybe with a crust of interwoven hairs ironed as flat and sleek as sealskin—one cannot but be mildly surprised.

Then we remember something we learnt long ago, namely, that the vegetative organs of plants are of secondary importance in classification; it is the structure of the flowers which is significant. We therefore dismiss this extreme contrast, and lowering our eyebrows once more, turn to glance at the flowers.

Imagine our astonishment, therefore, when we observe that the solitary flowers of the prostrate plant invariably have a 5-lobed corolla, 10 stamens, and a 5-celled ovary, whereas those of the big tree have a 9-10-lobed corolla, about 18 stamens (though the number varies), and a 12- to 15-celled ovary, the exact number again being uncertain. Moreover, the flowers, far from being solitary, are arranged in a compact truss, or raceme! And as though that were not enough to mark the divergence, the seeds of the tree are oval, flattened, with an irregular-shaped wing all round, while those of the creeping plant are spindle-shaped!

After that, it is perhaps unnecessary to add that it is not possible to cross the two species and produce a hybrid.

As a result of the variable and fluctuating conditions in the region wherein it has made its principal home, a group of genera have been evolved, the links between which have not yet snapped, so that it is difficult—and even impossible—to say where one ends and the next begins, so close and continuous are the relationships.

The great majority of Burmese rhododendrons are widespread over the whole region, wherever the altitudes are comparable; few species are peculiar to North Burma. In the mountains rhododendrons are closely stratified. Certain species and groups of species are confined between particular levels, or to a particular zone of forest, and do not occur above or below that zone; just as plants are confined to certain belts of latitude—tropical, temperate, and so on. These zones are, of course, climatic ones, and it is not difficult to make a shrewd guess at the altitude from which a given species comes if you have a working knowledge of the rhododendrons of South-East Asia.

There are, however, two main zones in which rhododendrons occur, either in the largest numbers, or in the greatest variety—or both. These are, first, the upper forest zone between 8000 and 10,000 feet, where certain species are usually gregarious, sometimes forming pure stands or even rhododendron forest; the second is the alpine zone, above the normal limit of tree growth, which in latitude $25^{\circ}30'$ N. stands at approximately 12,000 feet—lower where the mountains do not exceed 12,000 feet. The upper limit of rhododendrons here is the altitude at which flowering plant life ceases, since rhododendrons ascend nearly as high as any other plant. Many, but not all, the alpine species are dwarf, and they are almost always gregarious.

Below 8000 feet the species are scattered at every level, though on windy

ridges they may be locally concentrated, thereby emphasizing their tough constitution.

The first species we found, since it occurs in the lowest river valleys, and is, moreover, one of the earliest to flower, was *R. Simsii*. It is a small shrub with golden silky leaves and bright brick-red flowers, with a dash of carmine in them. It grows on exposed rocks, or in sand, in full sun, at, or just above, high-water mark, and is inclined to be social. I have seen it as low down as 800 feet, almost on the edge of the Myitkyina plain; and as high as 5000 feet in the rocky beds of the river north of Myitkyina. It is common in both the main valleys above the confluence, but is not found on the sandy or muddy banks of the Irrawaddy south of the confluence. It is a tough plant, since it will stand annual submergence by mountain torrents during the rainy season; and that implies also a fair age, otherwise a plant rooted in sand would be torn up by the roots, as indeed sometimes happens during severe spates. It flowers in March and April, before the rivers rise and occurs throughout China. *R. Simsii* is not hardy in Britain. In Burma a clump in good bloom amidst the river rocks is a fine sight, visible from far off like the glow from an active volcano at night.

It gives one a shock to find a rhododendron growing amidst tropical surroundings. Rhododendrons, whatever else may be said about their adaptability, are not tropical plants—though they no doubt have, in true pioneering spirit, ventured down the valleys from colder regions, and seem to have firmly established themselves on the edge of the plains.

The second rhododendron did not appear till we had reached an altitude of nearly 4000 feet, when an epiphytic species became common. Unlike *R. Simsii*, this *R. dendricola* cannot endure the hot breath from the plains, and so it does not appear until we reach the foothills of the main range; it was useless to look for it round Sumprabum even.

R. dendricola is an epiphytic shrub of the sub-tropical forest, nestling like a milk-white cloud in the green crowns of the trees. Had it not been in flower, however, it would have been so mixed up with other epiphytes as to be invisible, or rather, unrecognizable. The flowers are large, pure white, with a yellow plume like a candle-flame, or a single Prince of Wales's feather, spreading upwards from the base over the back lobe. Sometimes the outside of the corolla is banded with purple, sufficient to give a distinct rosy flush to the inflorescence when seen high up in the tree; then it tantalizingly suggests another species.

About the same time that we met with *R. dendricola* we came across a second, closely related species in bud. This was much rarer; in fact, we found it once or twice only, and since we never saw it in flower, I am unable to describe it, except to say that the flowers might be pink—an impression I derived from dissecting a flower bud. As we have no flowering

specimen in our herbarium, and no seed, I need do no more than mention it in passing. Like *R. dendricola* it, too, is an epiphyte; but it must not be confused with pink forms of *R. dendricola*. It is quite distinct.

It is possible, either that *R. dendricola* flowers twice a year, in spring and autumn, or more likely, that some plants flower in the spring, others in the autumn. To settle this point it would be necessary to watch a number of marked plants over several years. Certain it is that at Hkinlum we found one plant flowering in April which also bore half-ripe capsules. We collected ripe seed seven months later.

There are no more rhododendron species between 4000 and 6000 feet—or rather, we found none. This is the zone of cultivation. At about 6000 feet, however, the nature of the forest changes, a number of new trees taking the place of those which have now disappeared; and amongst the newcomers is the first tree rhododendron—*R. stenaulum*. This species is conspicuous from outside the forest for its purplish pink flowers, borne at the tips of the shoots, making a low dome of colour; and from inside the forest for its glass-smooth reddish trunk, uncontaminated by moss or lichen. The flowers are a peculiar shape, the narrow tube abruptly widening out like a cake salver; while the colour can only be described as pale pinkish purple, although a broad plume of cadmium yellow imprinted on the inside sharpens the tone.

R. stenaulum is an unusual species in several respects, not least in its capsule, which is two or three inches long and almost as thin as a knitting needle. It is not hardy in Britain, and very few people can ever have seen it. Nevertheless, in the forest, two hundred-year-old trees in full bloom are a wonderful sight, and though scattered, far from rare.

A little higher, *R. tanastylum*, a less exotic-looking tree with morose purple flowers freckled with black, puts in a first appearance, but can be found up to nearly 8000 feet. Both species are widely scattered in a forest composed largely of oaks, chestnuts (*Castanopsis*), Magnolias (or their nearest kith and kin), birch, Sorbus, laurels, maples, and less familiarly, *Gordonia*, *Eriobotrya*, and *Rhodoleia*; with thickets of cane and bamboo to make the going more difficult. Only towards the crest of a ridge do the rhododendrons tend to crowd upon one another.

Like *R. stenaulum*, *R. tanastylum* is definitely a tree, though not a very tall one, living for maybe two hundred years, but probably for longer. (It is a curious fact that dead rhododendrons in the forest are almost as rare a sight as dead elephants.) The flowers of *R. tanastylum* are much less conspicuous than are those of *R. stenaulum*, being partly hidden by the leaves; but they are much more like the conventional rhododendrons of our public parks—like *R. ponticum*, in fact.

If *R. stenaulum* is not a conventional rhododendron, still less so is

R. genestierianum, the next species met with on our ascent. This is a slim shrub, not a tree, with willow-like leaves snow-white beneath, as though powdered with talcum. The flowers, borne on long pedicels in loose heads of twenty, thirty, or more, are tiny, plum-purple, and in bud look like large black currants. It is not a beautiful plant, having a solemn, rather funereal look; but like many other departures from the normal in this immense genus, is undeniably interesting.

So far I have been briefly describing species which have been known to botanists for some years, though more in the dried state than as growing plants, perhaps. The next species appears at the same level as the last three mentioned—that is, around 7000 feet—where it is associated with the first *Sorbus*. We found it on several occasions, but it is not really common. The flowers are comparable with those of *R. dendricola* in a general sort of way, but the leaves alone distinguish the two species; nor is this beauty known as *R. ciliicalyx* usually an epiphyte. On the contrary, it is more often a slim shrub ten or twelve feet high growing on the open ridge, though it needs strong support from the surrounding thicket to keep it upright. Out of bloom, its shining plum-purple bark betrays it. This bark peels off in flakes as thin as gold-beater's skin. Very occasionally it is an epiphytic shrub, appearing as a pale summer cloud in a big tree. It likes to grow where it has a good chance of reaching the light without having to make too much effort. The flowers, three or four to a truss, have a distinct yellow tinge like Devonshire cream. Though it ascends to nearly 8000 feet, *R. ciliicalyx* is (like all the "Ciliicalyx" group) hardy only in the mildest districts of Britain.

Up to 7000 feet altitude we have been in warm temperate rain forest, and have met with only four species of rhododendron. Between 7000 and 8000 feet, however, another change takes place in the forest; many trees disappear, others take their place, and for the first time rhododendrons begin to assert themselves, especially shrubs. We are approaching, but have not yet reached, the true rhododendron forest.

Amongst the first species we noticed above Hkinlum were the brilliant blood-red *R. euchaïtes*, a diffuse shrub ten or fifteen feet high; the late-flowering *R. crassum* (also a shrub, but growing more erect than the last); and *R. bullatum*, a gawky shrub, nearly always epiphytic, and then at its best. That is not necessarily the order in which they normally appear, but it is something like.

R. euchaïtes was in flower on the 22nd April, but only because it was growing low down—little over 7000 feet—where the forest was rather thick, with few open perches. Its slim bell corollas, dangling in small clusters amongst the narrow leaves, are glossy crimson-scarlet, but their fleshy texture lets through only the strongest sunlight, and their rich deep colouring is best seen by reflected light. In full bloom, this rhododendron looks as

though it were lit up by twinkling points of fire. At 9000 feet, however, *R. euchaites* may become a small tree, and though not itself gregarious, is an active partner in mixed thickets along the steep windy ridges, where its average flowering period is May to June. Here the colour varies from deep meaty red to coral. The leaves, long for their width, pearl-white beneath, have neither scale armour nor protective fur. Curiously enough, this under surface dries a sort of buff-honey colour in pressed specimens.

We first met with *R. crassum* in flower at about 9500 feet, in the last week of June, its long silver-white trumpets stiff and starched looking, but tarnished nevertheless owing to numerous rusty scales with which it is coated. It is a most stately shrub, rather ungracious in manner, perhaps, but that may be only because it suffers from grubs which, brought up willy-nilly inside the young capsules, destroy the ovules before they have a chance to develop into seeds. These motherless predators make a shambles of the capsules, which are denied even the pleasure of opening, and get completely gummed up inside. *R. crassum* flowers late—later, perhaps, than any other species in North Burma—in July. Though we first saw it below 8000 feet, it ascends to nearly 10,000 feet, without becoming hardier.

When we first saw *R. bullatum* in May it was already a thing of the past, even at 9000 feet. It had been battered to death with a blunt instrument—wind and rain—and its lovely white corollas, gaping widely, strewed the jet black mud of the forest track. Even out of flower, a branch of *R. bullatum* is a joy for ever—or for as long as it survives, whichever is the longer.

On their upper surface, the olive-green leaves are puffed up between the graven veins, giving a blistered effect; but the under surface is felted with soft red-squirrel fur. A tarnished crimson calyx encloses the domed fruit. Of course, when the outward-facing twinned or tripled flowers are open, the beauty of the foliage is greatly enhanced.

Though I have seen *R. bullatum* flowering in the tops of the stunted silver firs with snow on the ground (and on the trees) in the North Burma alps, it is reputed hardy only on the western seaboard of Britain, where its magnificent white or pink-flushed flowers, deliciously scented, are greatly admired; *R. euchaites* and *R. crassum* are much hardier. All three have been in cultivation for some years, but are rarely seen in gardens, even in the south.

R. bullatum, called the Chinese “edgeworthii” (though it occurs a long way west of China), is not with certainty distinguishable from the East Indian *R. edgeworthii*. It seems to be much the commoner of the two.

At about 8000 feet altitude we reach the cool temperate rain forest, where deciduous trees, some of which bear familiar names like oak, birch, and maple, increase in number. It is now that the big-leaved rhododendrons begin to make their presence felt, and seen. During the next 1500 or 2000

feet of ascent, not only do they attain their maximum size and age, but also become for the first time gregarious, forming true rhododendron forest. All round Tibu Camp, as narrated, the dense rain forest was dappled with the colours of rhododendron trees, shrubs, and epiphytes, not less than ten species being collected here.

But before passing to the big-leaved tree rhododendrons, I must mention two more shrub species found at 8000 feet, near what is probably their upper limit. The first, flowering in May, was *R. megacalyx*, a not distant relative of *R. crassum*, though far more beautiful. We noticed a magnificent specimen growing in a close thicket on the ridge near our camp. Though not more than ten feet tall, its enormous marble-white trumpet flowers, up to six rigid blooms in an open truss, are borne at the ends of the leafy branchlets with a stately elegance rarely surpassed by any species. I counted nearly a hundred massed flowers on this plant, and yet they did not seem to be crowded. A delicious halo of nutmeg fragrance enveloped them.

R. megacalyx, which often perches itself like a dove of peace on an isolated rock (whence it can gaze out over the valley), but is sometimes epiphytic, was one of the finest species I discovered on my first journey in North Burma over forty years ago; since then I have found it in Tibet and Assam. One could wish for nothing better than a really hardy form. The oval leaves and milky white buds are unmistakable. It thrives wonderfully in Northern Ireland.

The other rhododendron, a smaller plant than *R. megacalyx*, we found growing on a rock beside the path. It was not in flower, nor did we ever find another like it. However, leaves, capsules, and coffee-brown seeds suggested that it was *R. chrysodoron*, or a close relative of that species, which (as the name indicates) has golden flowers. It bore many ripening capsules—they take at least six months to ripen—and must have been a gorgeous sight in March or April. As it grew close beside the path, I was nervous lest one of our coolies, slashing lightheartedly at the vegetation with his knife, might decapitate it. That is just the kind of fate which does overtake one's best finds; yet I was loath to draw attention to it by clumsy camouflage—after all, out of flower it was no more conspicuous than any other shrub. In the end I left it alone. Luckily nothing happened to it, and it survived until November, when we stripped it bare of capsules, obtaining plenty of seed. The globular flower buds, with red bud scales conspicuously fringed with stiff silver-white hairs, are charming.

It is easier to describe a rhododendron than it is to give any impression of what the forest looks like with ten thousand trees and shrubs in flower at the same time. But as a matter of fact, it is comparatively rare to see thousands of rhododendrons at once, except, of course, in the alpine region. In the forest zone, too many are hidden. Only when looking across a

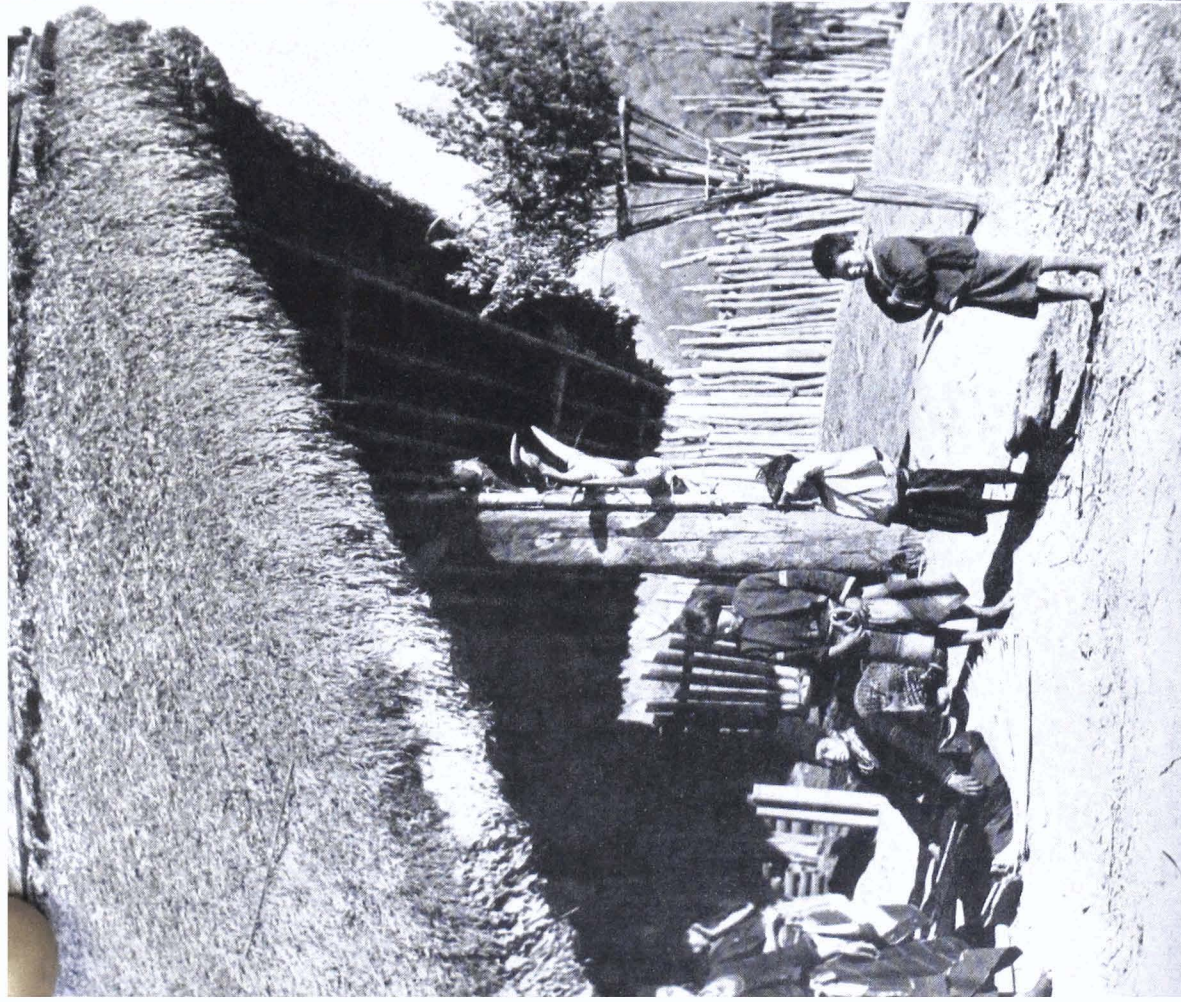
valley to the opposite slope does one see a pattern of rhododendron colour covering square miles.

Up about 7000 feet in the Triangle, rhododendrons, whether trees a century old or shrubs twenty-five years old, occur more or less casually (as cherry trees or crabs occur here and there in English woods), though they display a strong tendency to avoid the deep gullies and to crowd on to the steep ridges between. In the early months of the year, when these down-mountain species are in flower, you can pick out the mettlesome colours amongst the genial greens, purples and yellows of the young foliage, for a thousand feet or more up the slope, as easily as you can pick out the brighter stars in the dusk sky.

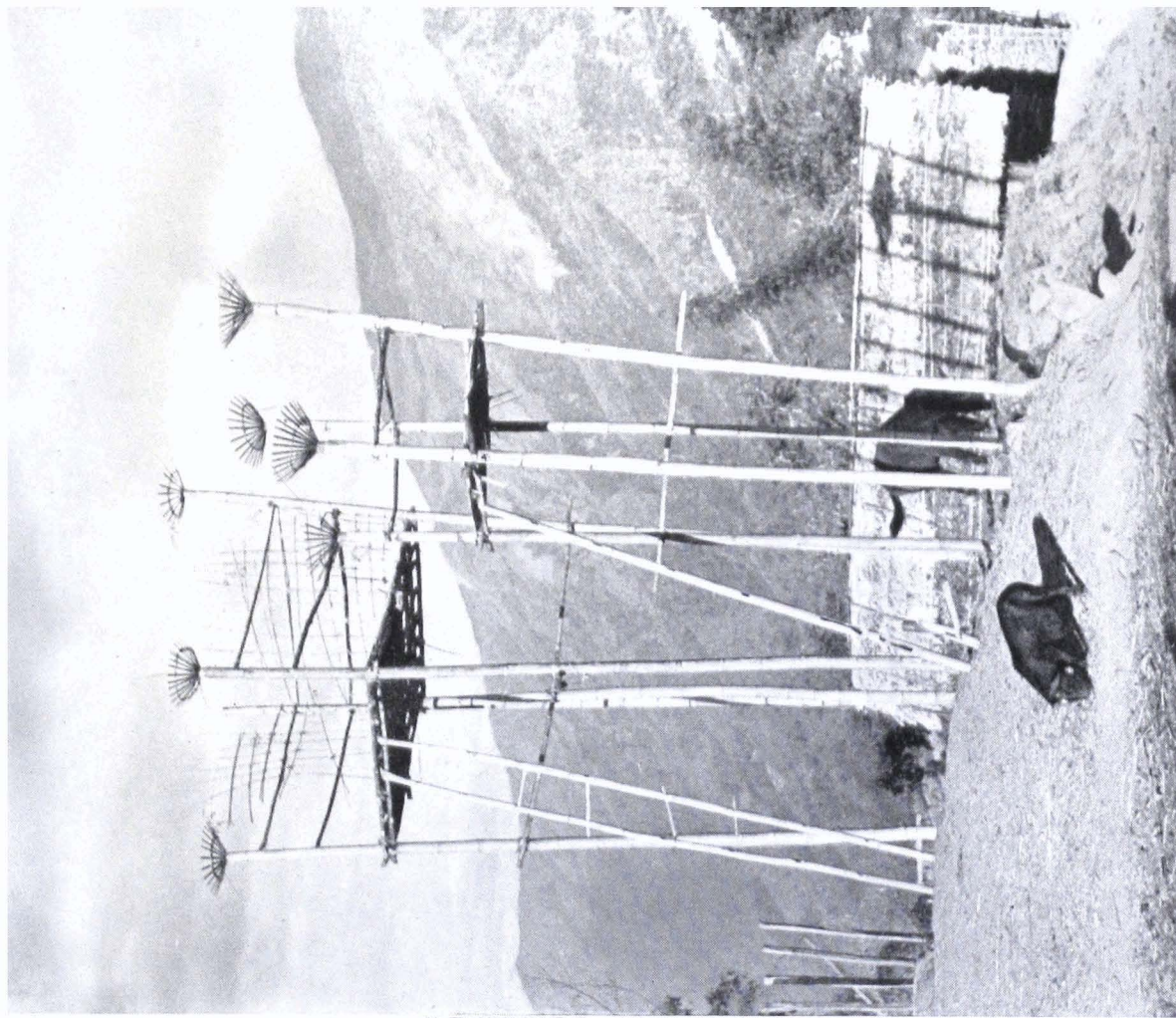
Besides those mentioned there are many other species in this zone of evergreen broad-leaved forest, omitted only because we did not meet with them in the Triangle. In fact, there are to be found in North Burma more species of rhododendron than are known from Sikkim and Bhutan together.



38. Warm, temperate forest, North Burma. Banana, tree-fern, and climbing plants—all typical of a moist, warm or mild climate



39. Overhanging front of a Kachin hut, North Burma



40. Kachin village shrine—with offerings of food to the *nats*

Rhododendrons in North Burma—II. The Big-Leafed Tree
Rhododendrons

WHEN we left Tibu Camp (8000 feet) on the 14th May, as already recorded, the most glorious sight for the next thousand feet of the climb was certainly the yellow "Grande" in full bloom. It is a rather stumpy tree, gnarled and rugged, the short, stocky bole supporting a wide crown. The silver-backed leaves are decidedly small for a "big-leafed" rhododendron, but not otherwise peculiar. This species was abundant, especially along the ridge, where it formed clumps of three or four trees but never pure stands, like *R. ariyelum* and *R. sinogrande*, for example.

What an excellent name is "Grande", for grand trees they are! The flowers, too, are large, gathered into magnificent hemispherical trusses. Their chief glory is their colour—a shining daffodil yellow, very sure of itself. Between 8000 and 9000 feet the yellow "Grande", which though not unlike *R. sidereum* may well be a new species, was extraordinarily abundant; and in spite of the rain throughout May, it threw a glow on to the forest roof as though spring sunshine were spearing through the cloud veil in all directions. It was one of the two most conspicuous trees in the forest, the other being *Magnolia rostrata*. Curiously enough, a month later on Tama Bum, which is barely twelve miles distant, we did not see a single specimen; nor could this have been entirely because it was long since over. If we missed it for that reason, at least it must have been rare.

The yellow "Grande" will not flower in Britain for fifteen or twenty years—perhaps in 1970; but it is worth waiting for, and it should live and flower for the rest of this century and far into the next.

It was not the only big-leafed species at 8000 feet. *R. sinogrande*, which has milk-white to palest cream flowers, with or without a purple splash at the bottom, also grew here, scattered; and with it a third species with buff-coloured hair well plastered on the under-leaf surface. Neither of them appeared to have had a successful season, and common though they were, it was long before we found a tree bearing capsules. In the same way another big-leafed species from the Naga Hills—*R. Macabeanum*—once gave us a lot of trouble. Though very common on Japvo peak, it set practically no seed in 1949, and one or two trusses was all we managed to find in a day's search.

At about the same altitude, or a little higher, on Tama Bum we found a

fourth "Grande" species; but again, we were too late to see it in flower, though the great leaves, hairless underneath, suggested *R. magnificum* or *R. giganteum*; gigantic it certainly was.

Between 8000 and 11,000 feet altitude one usually finds a belt composed almost entirely of rhododendron, sometimes of one species, more often of a mixture of species, but always big-leaved. It may comprise *R. sinogrande* alone, or *R. arizelum* alone. In the valley of the Seinghku, a headwater stream of the Irrawaddy further north, occur almost pure stands of *R. Beesianum*, which has good-sized leaves but is not strictly speaking one of the rather exclusive "big-leaved" species as understood here; and above 12,000 feet, mixed with *Abies*, a "Grande" species in splendid isolation. The fact is, the big-leaved rhododendrons, from about 8000 feet upwards, extend to the tree line—wherever that may be—and a bit more.

They are highly susceptible to direct sun and to wind, preferring the shadier flank (where they often become the dominant trees, especially along the crests of the ridges). But as the main ridges of a great mountain chain (such as the watershed between the two Irrawaddies) radiate from the summits in every direction, there are many degrees of exposure and shelter, each of which favours one or two species in preference to others.

The biggest of these rhododendrons are rarely over fifty feet high, and often little more than half that height. But all of them, whatever their stature, are massive trees, whose gnarled and knotted limbs indicate their great age. It is as though the weight of their years had bowed them down. The small-leaved tree species met with at 7000 feet cannot compare in size and splendour with these big-leaved gregarious species of the higher zone. The bark, often purple or tawny in colour, peels off in strips of tissue paper thinness, or flakes off in polygons. No epiphytic shrubs make use of these venerable trees; not even moss or lichen or filmy fern gain a footing. The coloured trunks are the brightest and barest things in this dim, weird forest.

On the precipitous flanks and narrow crests of the high and hostile ridges, their trunks grow out at any angle between the vertical and the horizontal—often at about 45°. This is curious, because they presently turn erect and bear proudly aloft the great weight of their crown, burdened in spring with an immense load of flowers. At this season there is a tremendous up-surge of water to expand the fat winter buds (formed the previous summer) to twenty or thirty times their resting bulk. I noticed a strong tendency for the trees to slump, particularly *R. arizelum*, when I was trying to get some idea of how old these veterans really were; but it is equally true of other big rhododendron species in this super-wet zone.

The most slanting trunk I measured (apart from a few which were practically horizontal) leaned 60° from the vertical; and two of them had girths of 40 and 41 inches respectively. The girth was taken at a height of

something less than ten feet above the base of the trunk, and below the first branch. The greatest girth actually recorded was 65 inches, but this massive tree leaned at only 45°. It is interesting to note that a cross-section of the trunk or of a main limb always shows the annual rings to be eccentric, the section being usually an ellipse.

But since there must always be an equal number of rings (however obscure they may be) cutting every radius, any transverse section can be regarded as a circle, and thus the average number of rings per inch of radius will be constant. By counting the number of rings on any sample, therefore, it becomes possible to calculate the age of a trunk of any known circumference—assuming, of course, that the rings are on an average the same width apart. On a branch of *R. arizelum* eighteen inches in circumference, I counted 75 rings. This gives for a specimen 65 inches in circumference an age of over 250 years. No doubt older trees exist.

The wood is fine-grained and hard—sufficiently so, one would have thought, to grow erect beneath whatever weight it had to support, as do other trees under like conditions. But clearly strength of timber has nothing to do with it; even on exposed and precipitous slopes the trees may eventually bend upwards and solidify in that attitude. The reason may perhaps be found in the fact that rhododendrons have no tap root—they are surface rooters. A strong tap root *does* grow straight down towards the earth's centre, whatever the angle of slope.

It will also be realized that wind is an important factor, and that these large leaves, in their constant battle with the wind, do not always come off best. It may even be this that makes the branching of the tree rhododendrons so abruptly angular. While the shoots are young and supple, it seems that they must become permanently twisted by the force and persistence of the blast, and it is remarkable how they put up with it.

One other possible cause of this erratic growth is their quickness to respond to the stimulus of light—an astonishing agility to turn abruptly and follow up swiftly any slight opening in the forest canopy; for rhododendrons need light, though not direct sunlight—they are only shade lovers while young. Growing thickly amongst taller trees, many of which are evergreen, these determined plants monopolize the steepest slopes and thrust themselves out more or less horizontally between the trunks of their rivals to reach the light by the shortest possible route. Of no tree known to me is it less true that "as the twig is bent, so the tree is inclined". This adage simply does not apply to big-leaved rhododendrons. Tree rhododendrons in this country over fifty years old show little trace of the gnarled habit and zig-zag branching they display on the mountains.

Thus we found no less than five big-leaved species, all belonging to the upper rhododendron forest. They fall into two groups or series, called

“Grande” and “Falconeri”—so named from the first described species of each group; and of these five described above, four belong to “Grande” and one (*R. arizelum*) to “Falconeri”. A sixth tree—*R. eclecteum*—found chiefly mixed with *R. arizelum*, is not one of the big-leaved kind at all—though its leaves are far from small. But it is a tree, and definitely belongs to the aristocracy.

Apart from the daffodil-yellow “Grande” and *R. arizelum*, we did not see any of the big-leaved rhododendrons in flower. One may surmise that *R. sinogrande* had cream flowers with a purple smudge at the base; but the other two are beyond guessing, and until they flower in this country—or are collected again, in flower—I cannot name them with certainty. Twenty years on we may know.

Had we reached Tibu Camp a month earlier, we should have looked across the ravine to a broad face which soars upwards for 3000 feet under its mantle of forest; and the whole slope would have been dappled with clots of coloured foam from thousands of rhododendrons.

The last of them to flower was *R. arizelum*, which also goes highest—it hardly begins till the 9000-foot contour is reached. At 10,000 feet it is practically trunkless, or one may say that several equal trunks spring from the base, like limbs which thrust themselves out horizontally in all directions, forming an inflexible tanglewood. The leaves are more rounded, wider in proportion to their length, than those of the “Grandes”; and when the wind blows, many of them, twitching over, display their under surface with its deep foxy red woolly felt. The flowers are pale yellow, or, less pleasantly, a cold pinkish purple, like a boreal sea-shell.

With *R. arizelum* at 9000 to 10,000 feet altitude grows a fine reddish barked tree “Thomsoni” species, with large trusses of flowers which we did not see and big leaves. The flowers are probably pink, or perhaps white.

Above 10,000 feet the silver firs make their first appearance—the only conifer forest we saw in the North Triangle. Big-leaved rhododendrons of several species are still common on the flanks of the ridges; but the windy crest is now crowded with smaller shrubs. There are of course, many other species which belong to this same zone; several of them grow so thickly along the ridge as to give a display comparable with the big-leaved trees. One, *R. euchaites*, has already been described. Here, 2000 feet higher, it is a shrub when fully exposed, a small tree in the shelter of the forest, its flowers crimson or cerise.

Another—and this perhaps the finest species we found—was a shrub or spindly tree fifteen or twenty feet tall, and belonged to the “Triflorum” group. Our first sight of it, on the 14th May, did something to buoy up our drooping spirits. It was in full bloom, a brave sight through the curtain of

rain. The foliage has a film of white on the scaly under-surface, and is somewhat blotched, as though the white were easily rubbed off. The flowers hang in twos and threes (like *R. triflorum* itself) well clear of the leaves, and are so large and plentiful as almost to smother the bush. The most frequent colour is a delicate primrose-yellow, but white is also common, and a few are almost salmon. Some have at least a shade of violet in the white. On the 10,000-foot ridge, bleak and windswept, the plants are dwarfed, and the flowers possibly of a different colour. This was certainly one of our best discoveries, and a species I had never seen before. A third shrub of the high ridges suggested a deep purple "Oreotrephes".

Another good species is *R. tephropeplum*. It was a dwarf hilltop form of this which I collected on the pass on the 16th May, and should it grow no bigger than that, with the same rich colour, it would be a first-class plant for the rock garden. A more common form, however, is a shrub six or eight feet high with clusters of bell flowers amongst narrow smoky grey-green leaves, the colour of the flowers a less brilliant purple. As if that were not enough, a third form was found in the forest at well over 10,000 feet—a small tree with emperor purple flowers. I have never before seen *R. tephropeplum* so variable in one locality.

A species which first appears in the silver fir forest at 10,000 feet, as a low dome-shaped spreading bush, and infiltrates slyly into the alpine zone below 11,000 feet as a humble undershrub, looks like *R. telopeum*. Its small, smooth leaves are circular, but for a shallow nick in the base suggesting a weak heart; and the limpid corollas, like diminutive porcelain tea-cups hanging upside-down by their handles, are a translucent sulphur yellow. In autumn the scimitar-shaped capsules, five or six in a truss, stand stiffly at the salute.

Finally I must mention two species which, though they are at the other end of the scale from the big-leaved trees (being in fact small epiphytic undershrubs), undoubtedly form a part of this hobgoblin forest. One of them we did not see in flower—it was over by the time we got there; but its fruit, with short button-hook style crowning a small almost barrel-shaped capsule, proclaimed its association with the "Boothii" series. I am curious to see what the flower is like; and as we collected seed, we should know before long.

The second was *R. micromeres*, which flowered in the last week of June. The small flowers are a dim, almost dirty yellow smudged with brown spots, not so much offensive as insignificant. Nobody would bother to grow so dull and dowdy a plant were it not for one redeeming quality. In autumn the little leaves turn the most gorgeous colours—orange, gamboge, crimson and scarlet—and a solitary plant perched on the dismasted trunk of a fir tree adds something to the winter colour of the forest. Both

species first appear at about 10,000 feet, where *R. arizelum* is still a dominant tree.

Before passing on to alpine and dwarf rhododendrons, I must mention that the tree "Thomsoni" and *R. telopeum*, and even *R. arizelum* itself on Tama Bum, after gradually dwindling in size with increasing exposure, cross the threshold into the alpine zone, where they form low, prone tangles difficult to penetrate. This, no doubt, is a habit induced by the physical conditions—altitude, snow, wind, and perhaps lack of food—as the solid rock comes closer to the surface.

The true big-leafed rhododendrons (of series "Grande" and "Falconeri"), and with them the rhododendron forest, are confined to a comparatively narrow belt between 8000 and 10,000 feet, and very few species transgress these limits. In North Burma I have found *R. protistum* at about 7000 feet, and *R. praestans* at 12,000 feet; but these were exceptional.

The rhododendron forest is unique—a nightmare of spectral and distorted shapes in the flowing mist. The leaning trunks which support the rigid, tortured limbs stand apart from the friendly clasp of climber, and from the confident fondling of mosses, orchids and ferns. These humble epiphytes do but seek refuge from the seething stews of life below; yet the rhododendrons deny them refuge. Instead, the bare, fleshless, intertwining branches remain sleek and immaculate, a cold indifferent chalky purple or a mean sandy red, unloved; where all other trees are festooned with life. The thick, heavy leaves, on which the raindrops drip with a dull monotonous dirge in summer, line the forest like a padded cell; and in the awful silence of winter twist themselves into tubes which hang in rows like buccaneers from the yardarm. It takes a good hard frost to turn a rhododendron leaf into the likeness of a cigar, hanging stiffly down from the branches.

So open is the dark forest that no animal—not even man himself—makes any noise as he passes like a dim shadow between the trunks, slinking this way and that to avoid contact.

So we leave hobgoblin wood and seek the open alp, climbing higher; for the rhododendrons have now taken the bit between their teeth and are dominant everywhere.

Rhododendrons in North Burma—III. Alpine Rhododendrons

THERE are probably more species of rhododendron in the alps of North Burma than in any zone below. The majority of them are the so-called dwarf rhododendrons (pygmy would be a better word), including mat weavers and creepy-crawly undershrubs, heather-like brooms and tufts, like the one on which Miss Muffet is alleged to have sat. But some are larger, forming low gnarled bushes and tangled scrub.

In 1953 we collected eleven species of alpine rhododendron; but it must be emphasized that the highest peaks on the backbone of Burma were under 12,000 feet, with the result that whole groups of alpine species were missing. Northwards and eastwards the ranges grow progressively higher, till they exceed 18,000 feet, and at least as many more dwarf species occur between 12,000 and 15,000 feet as we found at 11,000 feet.

Continuing the long ascent of the ridge, changing direction again and again, with many descents which have to be made good once more, we notice another change come over the forest. Already we have passed from sub-tropical to warm temperate, and from warm temperate to cool temperate forest. Now the first silver firs (*Abies*) appear, with a filling of dwarf bamboo (*Arundinaria*). This woody grass grows no taller than many reeds found in abundance in the foothills, but the stem is far tougher. Wherever it is encountered, dwarf bamboo is a devilish obstacle. So thickly does it grow along the ridge that it is impossible to force one's way through it, and a track must be cut—a fearful job. The silica-hardened stems can only be sliced through diagonally with a heavy blow of a knife, some inches above the ground; and the resulting spike which remains is sharp and hard enough to pierce the instep of a leather boot! One can slip over the edge of the ridge and literally impale oneself, as I did on one occasion when a bamboo spike pierced my armpit, thereby holding me up! The native porters, however, go barefooted, a thing no European would dare to do; but accustomed though they are to avoiding such booby traps, nevertheless these sometimes inflict ugly wounds.

In the silver fir forest tree rhododendrons are reduced to a few species only; two or three here. A furious wind assaults the ridge, which is becoming ever steeper, narrower, as it becomes more exposed. The wind lifts the dark leaves of the only big-leaved rhododendron left, and flicking them over reveals the rich orange pelt of *R. arizelum*. The flowers of this species,

however, are no longer yellow, but a rather grievous purple, as though afflicted by the cold.

One other tree species—the smooth-barked “Thomsoni”—also survives, but has already changed into a crouching shrub, as though afraid to stand up to the wind; while the round-leaved *R. telopeum* has dwindled to little more than an undershrub, though the flowers remain as beautiful as ever.

Besides these one-time trees still lingering on the frontiers of the forest, there are a few shrubs, some of which appear for the first time. These may be regarded either as alpine species which have trespassed a little way down the ridges, or as forest species whose soaring ambitions have led them to invade the alps.

To one or other of these belongs *R. Martinianum*. It is a small bush, something like a miniature *R. Thomsoni* in appearance, with neat oval leaves, hairless except for bristles on the petiole. The flowers, in loose trusses of three or four, are pink, with a tinge of cold purple in it. Rarely does it exceed three feet, at least as we saw it.

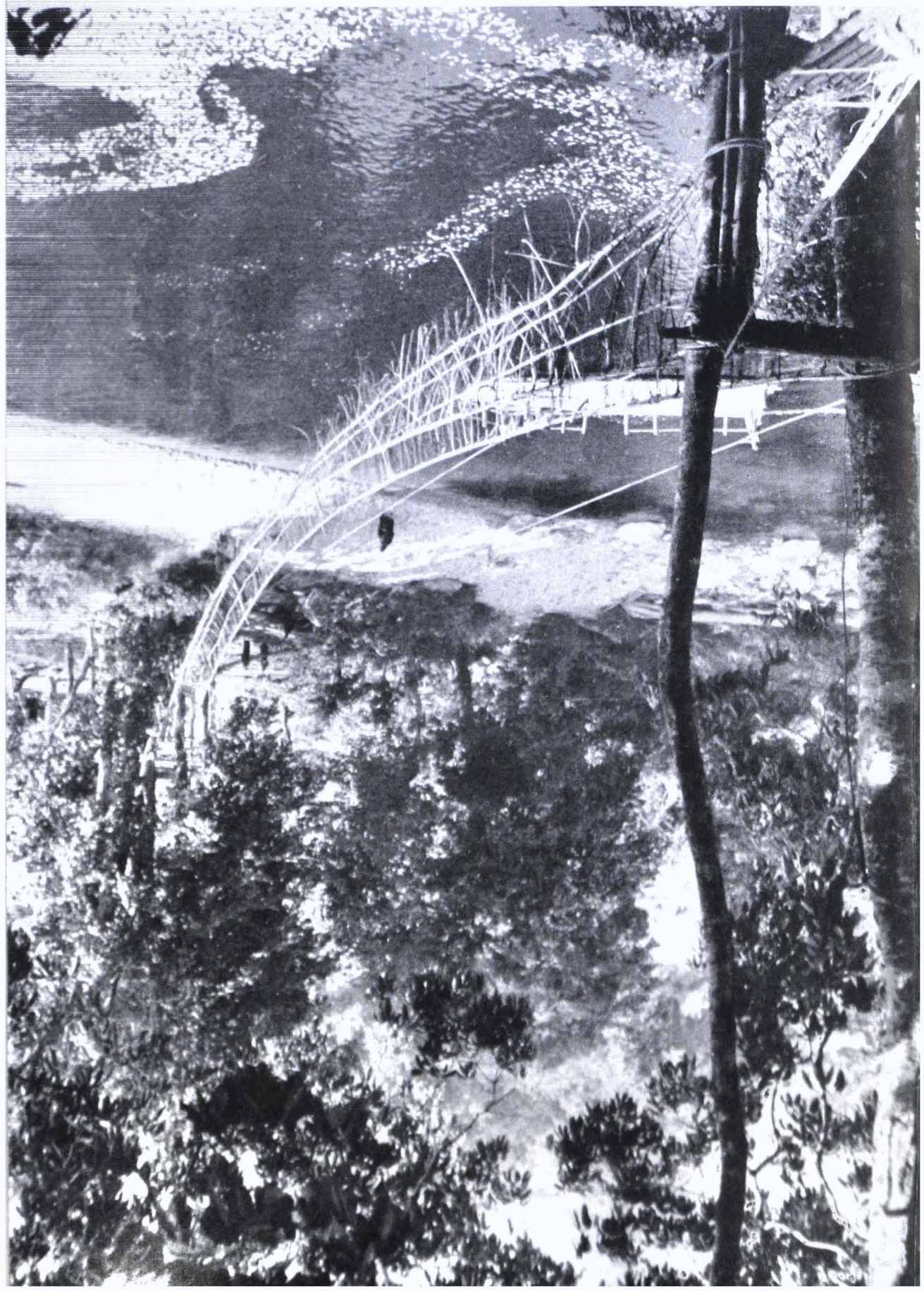
More exciting was another rather portly little shrub with remarkably aromatic leaves, snowy white beneath, but with a glaucous sheen as though someone had daubed luminous paint on it to produce a faint phosphorescence. I took this to be *R. glaucophyllum* (*glaucum*), a pink-flowered shrub well known in gardens. The flowers, however, were over. My surprise, therefore, was great when the bright November sunshine so warmed the fat winter buds of this little plant that they blurted into brief flower, revealing golden corollas! It was a brighter and better *R. brachyanthum*.

Old acquaintances too, like *R. tephropeplum* and even a deep purple-flowered tree of the “Oreotrepes” type, reach the upper edge of the fir forest, though they appear to be in reduced circumstances—until they flower.

And now, just as broad-leaved forest has given place to needle-leaved Conifer forest, so—but more abruptly—Conifer forest in turn runs out into treeless alpine slopes, bare or thinly clothed with scrub. One expects to see heather-covered moorland, purple in the pale mist; but there is no heather in the Sino-Himalayan alps. Its place is taken by heather-sized rhododendron. The first new rhododendron which comes into view is *R. trichocladum*. This species looks like a deciduous Azalea. Though no dwarf, it is certainly an alpine. The flowers, small and whiskered, are butter yellow, and come out well in advance of the thin leaves; and it grows along the crest of the ridge, attaining a height of four feet, more or less.

Most of the above-mentioned species are in cultivation, and I will therefore pass them over lightly. None the less, we collected seed of all rhododendrons met with, since there is always the chance that our gathering

41. It takes a clear head and a steady foot to cross these swinging bridges. Cane bridge and raft (just passing below) in North Burma





42. The long festoons of fruit on
Engelhardtia spicata. North Burma

may turn out to be a finer colour form, a hardier variety, a better "doer", as gardeners say, than any in cultivation; nor can this be determined in the field.

At the tree line, rhododendrons are the dominant woody plants in sight; but not even they dare lift their heads more than a foot or two above ground level, for fear of the constant raging wind. In any event they are so crushed beneath the weight of snow for a third of the year, and their growing season is so brief, that they can make little growth each year.

The majority of alpine rhododendrons in North Burma belong to three groups: "Neriiflorum", "Lapponicum", and "Saluenense"; but the two latter are entirely absent from Tama Bum, which is not high enough for the top alpine. "Neriiflorum" is represented by four species out of eleven present; but this group has near relatives in the lower zones too, which few true alpine rhododendrons have.

The first prostrate species we met with appeared on a sheltered top above 10,000 feet, where it formed an Oriental carpet in a pattern of scarlet, green and black, as lovely to look on as it was uncomfortable to walk on. This "bloody" rhododendron—*R. sanguineum* is perhaps its name—keeps cropping up on sheltered summits where nothing else has forestalled it. The leaves are cloaked with a closely woven buff pelt on their lower surface, which presently turns dark chocolate or almost black. The tubular flowers, borne in nodding trusses of three or four, and large for so humble a plant, are blood red. It flowered magnificently in June, and seemed to have been spread just to welcome us; but all we could do was to trample it underfoot, though never did we spurn it.

Yet this was not quite the first dwarf rhododendron we encountered, for in May I had come upon the dwarf royal purple form of *R. tephropeplum* 500 feet lower down; though *R. tephropeplum* is not normally a dwarf.

A pair of un-Siamese twins, their angular branches rigidly twisted and bent, covered many a precipitous rock slope just below the crest of the ridge and above the crests of the trees, wherever a fold of the ground gave a hint of protection from the wind. Both were flowerless by the time I found them on the 27th June, but the handsome thickly felted leaves attracted me. Nevertheless, so outwardly similar were they, it was with difficulty I distinguished them.

The first had sturdy narrow-oval leaves, broader towards the apex, thickly felted below with honey-coloured fur, which was more thinly spread over the upper surface too. Both surfaces had the unctuous feel of wash-leather. As the leaves grew older, the under-fur gradually deepened in colour till by the autumn, though still thick, it had become a dusky brown or rusty black—a slow colour change which also might be due to the presence of a fungus. The flowers are borne in fours, and appear to be some

shade of pale purple-carmine cupped in a large fleshy calyx. As for the summer-weight clothing on the upper surface, that rapidly sloughs off, exposing an olive-green leaf. Its name is *R. chaetomalium*.

The other near-identical twin had almost ermine fur on the under-surface, sloughing mangily, to be ultimately reduced to a deep buff-orange-coloured cobweb—a threadbare garment. One could not altogether rely on leaf characters to separate them, however, since at certain seasons they looked so much alike.

In November, when the fruits ripened, there was no confusion; the first-mentioned species had capsules well covered with fox-red fur, while those of the cobweb-leaf species were naked except for a sparse smattering of short gland-tipped hairs. A stray bud, opening at the caress of November sunshine, showed the flowers to be deep crimson, and of typical “*Nerium*” texture and shape—a wide tube crimped at the base, and flared slightly at the mouth, where the five short lobes spread outwards. I formed a high opinion of both species, which for the present must remain anonymous.

R. repens, the third species of this group to show itself, clung to the sloping slabs of almost bare gneiss, which here and there blistered the flanks of the mountain. It lay flat as a mat, not daring to raise itself even six inches above the surface; and though out of flower, was easily recognizable. Its prostrate habit, small rounded leaves (purple beneath), and large, erect, rocket-shaped capsules, are unmistakable. When in flower, this dwarf rhododendron, flowering along the joints in the rock, recalls the cracked crust of the earth giving glimpses of the molten rock within.

The only other dwarf species to share the slags with *R. repens* was a more bushy plant, a pouff-like undershrub from which the one-flowered pedicels, slender, erect, spring to a height of three inches. Each pedicel was capped by a solitary plum purple flower with pouting lips—much smaller than the fiery trumpets of *R. repens*. The tiny dark-green leaves, paler below and without scales, are close set like box leaves. This *R. myrtilloides*, though somewhat gloomy in appearance, has a certain cold charm combined with dignity about it; and when thickly studded with its cowl-shaped flowers hoisted up on long stalks, it has a most unusual appearance.

There is another closely allied species, very similar in appearance to *R. myrtilloides* but larger, bearing three or four flowers inside each bud, instead of a single one. It grows, too, in rather more exposed places, on the steep sandy screes, occasionally mingled with true *R. myrtilloides*, more often alone. Possibly it is a sumptuous form of the latter; but until I see it in flower, I cannot say for certain. It has a heather-like growth.

Very different in appearance was the next species we met with, cowering amongst thin vegetation under the lee of the ridge. Almost as flat as *R. repens*—yet not prostrate; almost as wiry and wizened as *R. myrtilloides*—

yet not bushy; it is a dwarf undershrub which has the appearance of immemorial age. The flowers are of a very different shape from anything hitherto met with—salver-shaped—and are much smaller than those of *R. myrtilloides*. Indeed, were they borne singly, we would scarcely notice them. Instead, a dozen flowers are tightly crushed together to form a pompon, in appearance not unlike the truss of a tree rhododendron in miniature; and they clot the ends of the twigs like frozen foam. What makes one inevitably notice the plant, however, whether it is in flower or not, is the aromatic scent of the crisp leaves, gluey with a secretion which issues from the under-surface crust of chocolate-red scales. The mountain air is fragrant with this health-giving scent. Far from common, *R. crebreflorum* clings to the grey cliffs, or snuggles down amongst the rocks above the tree line, cramped and forlorn, curling up still more in the brilliant November sunshine before the snow comes to cover it up; but sprightly and gay under the rolling mists of the monsoon.

The last and highest of the dwarf rhododendrons we found here is *R. megeratum*, the perfect pouff. As usual with the high-born, the small hard leaves are rounded, dark green above, silver-plated beneath. When I found it growing on the brink of a sheer cliff at 11,000 feet in November, the capsules were already split, the seed already ripe and being blown about like dust. The twigs were crowded with next year's flower buds, the silver-lined scales wrapped tightly round each other. But I have no doubt the flowers are yellow; and they are borne singly. Sometimes this undershrub grows on trees, but it is equally at home on mossy rocks; and this form of it from 11,000 feet ought to be thoroughly hardy. It was, in fact, the highest species we collected in 1953.

Here, then, I will end this account of the rhododendrons found in North Burma. I have divided them into three groups: lower, middle and upper. But though one can dimly perceive a certain regular stratification, there is a good deal of overlapping, and a faulting of the strata, so that this arrangement must be taken as somewhat arbitrary. The important point to note is that rhododendrons are temperate plants, and that in countries like Burma, Assam, and even Malaysia, the higher we go the more we find.

How are all the millions of rhododendron flowers pollinated—for the great majority certainly are? Not that these mountains lack the smaller forms of life; birds and insects, for example, abound. But it must be remembered that in the spring, when the rhododendrons are flowering, the weather is usually wet, which is discouraging for insects at any rate.

I have seen certain birds regularly pollinating certain species of tree rhododendrons in North Burma, though not above 7000 feet. At the other extreme, in Tibet, at 14,000 feet I have found rhododendron corollas, in the

rain, stuffed with scores of small flies; though I cannot vouch for the fact that they were pollinating them. In fact, they were too small for the purpose; but they might have acted as bait for birds capable of doing so.

Amongst regular pollinators are the Beautiful Sibia, which I have watched pollinating *R. tanastylum*, and the jewel-like Dabry's Sunbird, which regularly visits *R. Delavayi*—the Chinese form of the Himalayan *R. arboreum*. *Parus monticola* (which is a tit) and a parrot-bill may also be regular visitors for all I know—they certainly visit the flowers of April rhododendrons. Occasional visitors at least are a spotted woodpecker and a nuthatch, and probably many other birds. I do not think our English birds are trained yet to rhododendron flowers; but no doubt they will learn in time. Still, it is difficult to think that any bird would stoop to pollinating *R. repens*, for example, while most other alpine species are ill-adapted to this method of pollination. However, one would like to know a great deal more about the pollination of rhododendrons in the wild, before jumping to conclusions.

Autumn on Tama Bum

TO continue: on the 9th October we set out for Tama Bum in high spirits. We had been looking forward for months to this autumn journey. Would it come up to expectations?

The minimum thermometer registered 58°, ten degrees lower than on the 15th June, the first time we left home for Tama Bum; the altimeter registered 3950 feet, as against 4020 feet in June. That too was a good sign.

From Hpo-ome village we had an excellent view of the jagged main range between Tagulam Bum and Tama Bum, due east of Hpo-ome. This view included a deep U-shaped glacier gap, and a sugarloaf rock called Chan Sa Chet Su, about 11,000 feet. It is not its height, however, but its terrific western precipice that is imposing. We had gazed at it, horror-struck, from Sumprabum. A little further north was another of those astonishing towers, isolated from its neighbours and apparently vertical on three sides, which are a feature of this range.

In the second-growth copse round our lowest camp, a mile beyond the village, the aromatic laurel (*Litsea*) was now covered with small black berries which when squashed almost anaesthetized us with their strong but pleasant lemon grass scent.

Amongst plants which had recently come into flower, forerunners of the fine weather, the most conspicuous was the climbing gentian (*Crawfurdia* sp.). We had already collected the last dying flowers of it at Sumprabum in January; now, with the onset of the cold weather, its long streamers of pinkish purple trumpet flowers again fluttered from every bush, and for the next three months it would decorate the valley. It is one of the most exuberant and widespread perennial climbers in North Burma.

At dusk crickets were thrumming like lovers tuning up their guitars before a starlight serenade.

In June, the second march on Tama Bum had proved exhausting in the rain, partly owing to the state of the track; and I wondered uneasily how we should get on now. However, in spite of an unexpected and sudden shower after dark, and steady rain for an hour just before we were ready to start the next morning, the path was in fair condition and we reached Camp II no more than pleasantly tired.

A number of trees in the temperate forest were in flower, but one of them—which I did not recognize—to my great disappointment proved

unreachable. However, we found the epiphytic *Wightia*—a very remarkable tree by any standard. It belongs to the Scrophulariaceae, a family of plants which are predominantly herbaceous—in England entirely so. Trees are very rare. *Wightia gigantea*, to give it its full name, is a large deciduous or semi-deciduous tree, which begins life as a harmless epiphyte and presently sends out aerial roots, some of which reach the ground, while others clasp the trunk of the host, and eventually strangle it. But by now it need no longer cling like the old man of the sea to its host's back; it can stand upright. Thus it exploits the habitat like some of the figs, which also strangle their hosts and thereby achieve independence. Having got away with murder, it passes for a respectable denizen of the forest, standing on its own roots.

It seems strange that this vegetable monster should be a not-distant relation of the almost harmless English rattle and cow-wheat, which (though not epiphytic) are part-parasites.

In North Burma *Wightia* flowers in the cold weather. The tiny corollas, which can be picked up in dozens beneath the tree, are dull purple and no bigger than those of, say, the common toad-flax. On flowering branches the leaves quickly drop off in November; but on non-flowering trees, or even branches, they remain throughout the winter; a tree may have naked flowering branches, and leafy flowerless branches at the same time.

Another tree in full bloom was a tall slender Schefflera with large digitate leaves on long stalks. The inflorescence is an erect spike of greenish ivy-like flowers, resembling the spike of a bird cherry, but stiffer and longer.

But the most astonishing sight round Camp II (7000 feet) was our epiphytic *Eriobotrya* in full flower. It was leafless, but the leaf buds were just beginning to open, and the tree, for a few days, was virtually bare; in a fortnight or less it would be fully fledged.

It was pleasant to reach camp dry, and find the tents pitched. Yet we were hardly under canvas than it rained hard for nearly an hour, then ceased as abruptly as it had begun. A clear evening followed; for the first time we had a view through the trees to the south-west.

Next morning, 11th October, we started at 8 a.m., determined to take the hardest climb leisurely. It was a warm night—minimum 54°—and we had slept well in our alpine tent. As in June, the track was slippery at the start, and the bamboo forest after we left the ridge was particularly unpleasant. While we were struggling to regain the ridge higher up, one of the girl porters was stung on the eyelid by a bee. The pain and shock made her cry, but Tha Hla and Jean came up and rendered first aid, and presently she was able to go on.

At eleven o'clock we were still below the point where we had halted in June; nevertheless we sat down for a snack. Then on again through

rhododendron forest, and so to the traverse, where we began to meet with brilliant autumn tints. Camp was reached after five and a half hours' climbing—actually we had taken almost exactly as long in June, but I had had to strain every nerve then; this time I had not seriously exerted myself, and felt much better at the end. There had been more to see and to collect too.

That night the temperature dropped to 44°—about the mean average temperature for the whole of March in the London district.

A fine dawn. After morning tea I walked up to the first alpine top to get a view, and on the way down met Tha Hla striding out for the summit; he was wasting no time. Jean and I, with two men, taking it more leisurely, followed up the ridge an hour later, our immediate objective the gully in which grew the big-flowered *Caltha*. Here we met with a disappointment, for the plant had set no fruit; but we spent an hour collecting other seed.

Though much better than in June, the weather was not settled yet. There was a lot of cloud about, which hid the mountains except for occasional tantalizing peeps. A few drizzling showers swooped across the ridge. We got back to camp at 3 p.m. with a fair haul of seeds, besides plants for the press, all of which kept us busy till Tha Hla's party returned at six, having been to the summit.

His news was not good. There were, he said, hardly any seeds of the plants we most wanted—the round-leafed *Primula*, for example, and the *Androsace*; but he brought us three full capsules of the *Nomocharis*. It was only too clear from his report that some of the alpines were going to be troublesome.

As there seemed little prospect of an all-round view just yet, I decided to devote the next day's outing to the *Nomocharis* gully. I wanted to make sure of that plant at any rate.

The maximum temperature in camp (9400 feet by altimeter) was 56°.

We had a look at Tha Hla's plants from the alpine region, which included two small *Saxifrages*, practically over; little else of note. Afterwards, with two of our men, I spent a couple of hours in the gully digging up *Nomocharis* bulbs—they were purple in colour and delightfully plump—and collecting various seeds. In this favoured spot there were a number of coarse-looking herbaceous perennials in flower, but nothing to excite the gardener's envy. However, with the *Nomocharis* bulbs, and four more capsules, I did not feel I had wasted my time; also, I noticed a handsome holly covered with scarlet berries, in the forest. The leaves were rather like those of *Ilex Hookeri*.

Meanwhile Jean had gone up the ridge seed collecting. The afternoon was wet, and we were not sorry we had set ourselves limited objectives.

The longed-for fine day came (or at least began) on the 14th October,

after the temperature had again dropped to 44° , though the altitude had risen to 9500 feet. There was much less cloud in the valley, and a heavy dew all round. A stupendous view awaited the coming of daylight; we could see the Kumon range to the west, and the mountains beyond the 'Nmai Hka to the east, as far as the frontier range.

We all left camp at 8.45 with four of our staff to complete the party. Travelling at a fair pace, I found myself going better than I had done hitherto, and we reached the "elbow" in an hour and a half. We had stopped frequently to collect seeds, but no doubt would have done so anyway to draw breath.

Alas, the promise of dawn was not fulfilled. By this time a lot of mist was coming up, thickening like milk into cream as it rose. Views were fleeting, and already the sun was hidden. From the "elbow" we went on through the last straggling forest. On either side of the ridge rose the trunks of stunted and crippled fir trees, whose flattened branches bore rows of dumpy violet cones, well knit and glistening with drops of solid gum. The broom-like junipers at the cliff edge, now somewhat tarnished, also bore a few black berries.

Presently we reached the two pools: temperature of the water 55° , of the air 59° ; altitude 10,400 feet. We had reached the alpine region.

From this point to the "buttress" there were many seeds, especially rhododendrons, to collect; consequently we went more slowly. It was distressing to find mats of *Androsace* with its pretty flower heads, like powder-puffs, shrivelled up, the flowers unpollinated.

Arrived at the "buttress" (10,640 feet), we crouched behind it to shelter from the chilly wind while we drank some hot soup, and I steeled myself for the ascent of the short cliff which had baffled me in June. I knew that the longer I thought about it the less likely was I to climb it, so I got up and faced it immediately. This time I felt more confident. I went straight up, looking neither to the right nor to the left, balancing myself in the footholds rather than trusting to the thin vegetation to assist me; indeed, one tuffet I laid hold of to steady myself came away in my hand, so that I almost overbalanced. Clinging close to the cliff, practically spreadeagled against it, I climbed fast, not bothering to think about how I should get down again. I was more than a little relieved when I reached the top sooner than I expected, and crawled over the lip on my stomach as the slope eased.

I now thought about the descent, and shouted down to Jean not to follow, because that mightn't be so easy. Consequently I was surprised—and proud of her—to see her head suddenly appear level with the top. Quickly she hauled herself over the edge on to the easy slope. She had followed almost immediately I started, with Tha Hla, who radiated confidence, at her elbow to give her a hand as required. I need only add that

neither Tha Hla nor the other men had any qualms about what *I* thought was a nasty place!

We were on the last grassy top, and close to the summit—perhaps 800 or 900 feet below it. Now came another elbow joint in the ridge, with a considerable descent to the bottom of a chasm about 200 feet down before one could set foot on the final slope beyond. I wandered about amongst the dwarf rhododendrons, which included *R. trichocladum*. Its leaves had turned orange, yellow and red. There were also two clumped grasses, both unfortunately in fruit, and a prostrate *Pleurogyne* (first cousin to a gentian) with charming cobalt blue flowers; but no true gentian, or any other exciting alpine.

The south side of the ridge was piled at the top with enormous angular blocks of granite strewn amongst cliffs, and began to drop in abrupt and unexpected precipices, bare as a child's school slate. The first cliff was about fifteen feet high, and a steep narrow ledge ran diagonally across its base, with a second precipice below that. Nothing would have induced me to cross the ledge but for the fact that a dense growth of cane-brake separated the two cliffs, making an impenetrable fence through which there wasn't the faintest fear of falling.

When I first saw Tha Hla's round-leaved primula growing on the rock face, I was astonished. It is a moderate-sized plant, with long-stalked leaves three inches across, and it was firmly wedged into cracks which, for sterility, aridity and exposure, suggested *Arabia Infelix*. The leaves were still green, but the rich purple of the under surface had changed to puce, and in the centre of the leafy collar squatted the fat, pointed, pinkish bud—next year's everything. The few crumbling brown cup-shaped capsules I found, empty of seeds, suggested "Nivales"; but I have no idea what the flowers are like, except that they should be large. The only other plants I noticed here were a very small *Lloydia* bearing aloft its three-angled club-shaped capsule; some tufts of dead-looking grass; and a few miserable shrivelled-up rosettes of what may have been *Primula bella*; nothing else but cold, bare crystalline rock.

As for the peak of Tama Bum itself, it looked gaunt and stony. There was no lush meadow, no purling stream, not even a scree; yet I have no doubt that on more sheltered slopes, in nooks and crannies, and under the shadow of rocks, grew many enchanting alpiners. And during the next few days we *found* several of them. Given a few more varied habitats than one windy ridge, we might have found many more.

The mist was now thick enough to hide the view, but not the terrific precipices all round us. It was a lonely place. Even the few birds were silent, as though awed by their surroundings. One rather perky small fellow wore a cockade on his head; another, smaller than a sparrow, and dark, displayed

a very short tail and had a horizontal white streak behind the corner of its eye. These went about in flocks and seemed unafraid; but they were restless little fellows, hopping and flitting through the thickets of rhododendron so quickly, in a somewhat jerky follow-my-leader movement, that I never had time to note their chief characteristics before they were gone.

No sooner did we start down than it began to rain. The time was 1.30, and it rained the whole way back to camp. We arrived soaked and rather cold, having taken only an hour and a quarter.

On the 16th we again climbed the high ridge. The dregs of the monsoon had at last drained away, and for the first time we enjoyed almost continuous sunshine. So clear was it, that at some little distance below the crest I spied the scarlet berries of a *Cotoneaster* growing under a rock. I also found a small *Omphalogramma* in fruit, and a *Cremanthodium*. None of these had we seen in flower. I was not going so well as on the 14th, but well enough; we had started too soon after breakfast. However, we reached the "elbow" in an hour and a half, as before, and for the first time had a view of Hkinlum school 6500 feet below, bearing 325°. This gave us our general direction. Incidentally, it agreed perfectly with the bearing of Tama Bum as seen from our base camp—a little south of south-west.

On the 18th, for the third time, we repeated the climb. There really was hardly any choice; but this time I made several efforts to descend the screes and reach a valley below, but without success. All those I tried ended in precipices one or two hundred feet below the ridge.

Far to the north we caught sight of a great snowy range. It appeared to be at least fifty miles long and 20,000 feet high. Eastwards a dozen ranges ruffled the surface of the plateau, rising like waves one beyond the other. I wondered what plants would be found there; the country had never been explored.

Though the minimum temperature in camp had been as low as 40°, it was hot in the midday sun at 11,000 feet, out of the wind. The fine weather had at last set in, and the colours of the mountains at dawn and sunset had something divine in their serene beauty.

It was left to the very last day, when Jean, Tha Hla and I went off in different directions, to discover several hitherto unsuspected plants, and thereby finish up on a high note. Jean at last found fruits of a particular *Sorbus* we wanted. Tha Hla ascended again to the "elbow", then followed the spur which ran down eastwards. He must have found a new habitat, for he brought back a second much larger species of *Omphalogramma*, with abundant seed. This is probably *O. elegans*, a beautiful plant with large deep violet *Gloxinia*-like flowers, which occurs at high altitudes in North Burma, as well as further east. But *Omphalogramma*, of course, has nothing to do

with *Gloxinia*. It belongs to the primula family; its name has in the past oscillated between *Primula* and *Omphalogramma*—the latter being the first name it received, as a matter of fact. It has now definitely settled down to this baptismal name. Tha Hla also found a Saxifrage like *S. Fortunei* or *S. diptera*.

My own excursion was equally successful. Taking one man with me, I descended the east slope of the ridge immediately below our camp, and presently reached a gully and (following it down) running water. Here, where it was the merest trickle and there was a certain amount of mud, colonies of rather ungainly herbs occupied the ground; but as the volume of water grew, bare rock and large boulders appeared, and the coarse herbs disappeared, leaving mossy rocks high above the torrent.

On a low cliff I found a considerable colony of *Begonia* in ripe fruit—probably *B. Josephi*; and a prostrate gentian with small purple or dusky violet flowers like tassels at the ends. These, unfortunately, were not a good colour, though the habit was striking. It flowed over the cliff like those pieces of material you see draped carefully over pillars in a furnishing shop. It was not a twiner like *Crawfordia*, but a really prostrate species, its long annual stems preferring to hang curtainwise over a vertical rock face, bearing an irregular fringe of flowers. It was a pity these were not a good colour.

We must have descended several hundred feet, for the forest was changing. *Rhododendron arizelum* had disappeared, its place taken by *R. sinogrande* and the low-level *Sorbus* and a *Viburnum*. Sooner or later these torrents, whose sources are high up, plunge over cliffs and cannot be followed further; and so it was with this one. But at the point where I had to stop, a short sluggish tributary stream joined in. At the confluence there was a patch of boggy ground, and here, to my delight, I found a colony of robust-looking primula, one of the “Candelabra” type, with several tiers of flowers. At this season, however, it was tiers of capsules, and most of the seed had fallen or been sluiced out by the rain. I collected all I could find—it wasn’t much—and dug up a score of plants, wondering what colour the flowers were. Later I dug up a number of the “Petiolares” primulas, whose fat winter buds looked ready to burst open with the first breath of warm air—as in fact they did. These plants flowered in England in 1954, and were identified as *Primula taliensis*.

Twilight that evening was short but delicious; the air seemed to sparkle. After sunset the western sky turned a beautiful ruddy orange, which lingered on after it should have faded. At dusk the porters arrived; we were to start down next day. We turned in early, cheered by our success.

Tama Bum: Camp II

THE temperature, which had fallen to 39° on the 29th, rose a degree on the 21st. Immediately after breakfast I went up to the first top to take photographs; later the sky became overcast and the sun ceased to shine. On the top I saw a multi-coloured woodpecker, no bigger than an English robin; it was probably a piculet.

On the way down we collected seed of all the small epiphytic rhododendrons, including *R. bullatum*, *R. micromeres* and especially the unknown "Boothii" species; also the high-level Rehderodendron, from 8000 feet.

The epiphytic *Eriobotrya* was still in full bloom, and now well fledged with bright green leaves, fresh and soft. It was abundant in the 7000–8000-foot zone, and one of the fairest sights in the forest. Though the leaves are hardly off the tree for a week, this must nevertheless be classed as deciduous.

Another conspicuous tree in flower was the *Schefflera*, its tall smooth unbranched trunk suggesting a palm, though there are no palms, not even climbing species, here.

With so much collecting to do, it took us most of the day to reach Camp II. Next day, the 22nd, the sunshine returned and we had an enjoyable march. Descending a very steep part of the ridge, we found ourselves looking into the crown of a tall tree, where roosted, like a flock of white birds, the creamy trusses of a rhododendron in full bloom. It looked easy to get, and I pointed it out to Maru La. But when we got down to the base of the tree, the trunk was so big, and the crown so high above our heads, that I thought he would never be able to climb it.

Maru La looked at the tree, noted the many stout lianas embracing the trunk, drew his knife from its scabbard, and making a slash or two at the thick growth round the base, began to climb. Then up he went, twenty, thirty, forty feet, till at last he was well amongst the rhododendron blossom. A large branch covered with flowers was hacked through and fell with a crash; another followed. Soon we had abundant material. What is more, we collected many capsules which, though green and hermetically sealed, must have been a year old, and probably contained ripe seed. Anyway, we dried them, and they cracked open.

At first sight this species looks identical with *R. dendricola*; but then it flowers six months earlier, at the end of the rains, instead of at the beginning, so it seems unlikely that they are the same species. Later I compared the two very carefully, and detected certain minor differences which, however,

appeared to be constant. It was very like Tha Hla's plant of April. But again there was a gap of six months between the times of flowering. Nor was Tha Hla's species always, or even generally, an epiphyte. More often it was a forest undershrub.

About half-way between Camps I and II I noticed a blazed tree on the ridge. The blaze was white, and on it had been written in large letters with a black-lead pencil the following:

To
MR. F. KINGDON-WARD
WHO KNEW AND LOVED BURMA
C. K. K.

So this was Chit Ko Ko's tribute; his way, perhaps, of thanking me for having taught him some botany. He must have spent time on the work, and it gave me an inward glow of pride. I felt proud that I should have helped to teach my young friend to appreciate the magnificent mountains of his country—for very few Burmese have any inkling of what their mountains are like, or even that there are *any* over a few thousand feet high. I hope the *nats* saw this notice and will remember.

Just before we reached Hpo-ome village I walked straight past the longest snake we had seen in North Burma. It was lying amongst weeds beside the path, and there was no special reason why I should have seen it, unless I happened to be looking that way.

People who have never lived in the tropics sometimes ask:

“What about snakes? Do you see many?”

I must confess that when I was a small boy, very anxious to go to India (about which I used to hear a lot), but frightened at my own thoughts, I used to ask myself—perhaps less crisply:

“But what about snakes?”

I don't think I ever quite came to terms with myself over that particular fright; I am still terrified of snakes, even small ones—when I see one, which is not very often, my answer to the question, “What about snakes?” is usually:

“Well, one doesn't often see them, you know”; or perhaps, “Oh, they're usually harmless, but of course you mustn't tread on them.”

One tries to allay anxiety in others, and both replies are true; but that doesn't prevent a cold shiver running down my spine every time I *do* see a snake.

Jean, who was just behind me, saw this one and drew my attention to it, though I suppose fifty people might have walked past without noticing it, and without being in the least concerned. When she spoke, I looked and

saw a reptile a good five feet long, moving sluggishly. It realized it had been seen, I think, and tried to slink away; whereupon, much to Jean's disapproval, I stirred it up, and it suddenly came to life, moving very fast across the path into the jungle on the other side. Both our boys, who were now closest to it, went bare-footed; hence Jean's disapproval. But the snake had only one idea: to get out of everyone's way as quickly as possible. Jean described it as being dark brown, with a row of more or less diamond-shaped black-edged yellow blobs down its back. The head was not viper-like, and quite likely it was as harmless as a grass snake, though of that I cannot be sure. Anyway, it was a horrid-looking serpent. But then, is there such a thing as a serpent which isn't horrid-looking? The Pigeon, you will remember, in *Alice in Wonderland*, had strong views about the horridness of serpents—and told Alice so in no uncertain terms.

Between us we didn't see a score of snakes all the time we spent in the Triangle. I am not likely to forget this one, because it was the biggest; not the brilliant green and black one, because it was the ugliest. The majority belonged to a third, rather dull-coloured species.

At the suspension bridge an epiphytic rhododendron which grew far out over the river in the summer, but was now accessible, was in flower. I had supposed it to be *R. dendricola*, but apparently it was the same species as the one we had collected a thousand feet higher the previous day.

On the selfsame tree Jean observed the olive and yellow flowers of an orchid, peculiar for its narrow-pointed petals arranged starwise. The long thin stems, interrupted at regular intervals by pseudobulbs which bore the flowers and paired leaves, looked like masses of guts, and the flowers themselves like unmentionable digestive organs. Nevertheless, this visceral mass was an orchid, and a sweet-scented one at that. It looked like a *Coelogyne*, but was actually a *Dendrobium*.

Going home across the pastures we noted the common *Porana racemosa* in flower everywhere, trailing long white ribbons over the bushes; the silvery heads of *Clematis* now in ripe fruit; and the purple-flowered *Crawfurdia campanulacea*. All three are climbers, though only the *Clematis* attains some permanent size, the other two dying down to the ground each winter. (However, a somewhat similar species of *Porana*, also white-flowered—*P. paniculata*—covers the crowns of big trees in the Myitkyina district.)

Even now that I was quite fit again and the weather set fair, I found the march downhill from Camp II to base camp quite enough for one day—at least, when we had to stop often and collect.

That evening a tawny moon as big and round as a soup plate rose over the mountain behind Hkinlum into a serene sky, flooding the valley with

light. It was the end of Buddhist Lent, and for the next two nights Tha Hla and Chit Ko Ko lit rows and rows of tiny candles all along the front of their veranda. The bright flames flickered and fluttered in the breeze and the whole effect was charming.

By evening next day we had all our seeds sorted, numbered, and spread out to dry; orchids put out on trees in the wood; Arisaemas and other things planted. By an unfortunate mischance, instead of planting the *Nomocharis* bulbs, I left them to dry slowly, thinking they might start into growth if planted in the warmth. It would have been better to risk that. As it was, three months out of the ground, combined with the heat of the plains, proved their undoing; and when they reached England in the sub-arctic cold of January 1954, they decided it was the last straw. There were no survivors. The lily bulbs, dug up a month later than the *Nomocharis*, arrived in excellent condition. Happily the *Nomocharis* seeds germinated well, and should flower—some day.

It was pleasantly warm in the valley, maximum temperature 70° – 75° , the temperature of a hot summer's day in England; minimum 50° – 55° , which is about the average mean temperature for June and October at home.

On the 24th October, Gang Shim Gam arrived from Ahkail to see if there were any pickings. We decided to have a track cut from the pass over Tagulam Bum, up the ridge to the summit. We intended to start on the 1st November. This contract, and the clearing of Dismal Camp (which must be done properly this time) we gave to Gang Shim Gam. Nevertheless, a row between the Ahkail people and the Hkinlum people, abetted by Gang Shim Gam himself, developed. The Ahkail people said that as Tagulam Bum was situated in their territory, they and they alone should carry for us; the Hkinlum people maintained that because we lived in their village, *they* ought to carry.

It was a pleasant thought that all the villages were queueing up to carry loads for us, but it made for embittered relations. Eventually we cut the Gordian knot by ruling that Hkinlum should carry as far as Ralu, and the Ahkail-Ralu people should carry the rest of the way, and back to Hkinlum. Our intention to start on the 1st November was frustrated when it was discovered that the 1st was a Sunday, and the Hkinlum Christian women refused to work.

The village children brought us a most delightful dwarf orchid—a white *Pleione* with a yellow lip. I had already recognized two distinct species of *Pleione* here, both growing in the forest. One of these, collected in flower on the way down from Tama Bum, had purple flowers. This white-flowered species was new to me, and it certainly was charming. It grew in solid colonies on rocks, and the children had peeled it off in large mats, or rather slabs, like peeling the bark off a tree. One such slab contained more

than a hundred plants, touching each other, many of them in flower. The flower stems are less than an inch tall.

Not to be outdone, Maru La went to get seed of the red Begonia, and returned with a wonderful Clematis. The sepals, long and narrow, were of an indescribable rich fluorescent nigger brown, but magenta purple by transmitted light, surrounding a fascis of shining ivory stamens. The contrast was startling; yet one felt that no more perfect colour combination was possible. The leaves were quite ordinary—trifoliate, glabrous, polished, and tough.

A whole crowd of new flowers were opening now—plants which preferred the drier colder weather, the sunny hours and shorter days. One of the most handsome was a yellow-flowered Hedychium, clumps of which were often seen in the trees. Hedychiums are, unfortunately, not hardy in Britain; for massive colour they are quite first-rate, like Cannas. They belong to the same family (Zingiberaceae, or ginger family).

In rough, sour ground beneath the *nat* tree (*Ficus*), where the village pigs rootled hopefully and stinging nettles congregated, a colony of *Polygonum* had found sanctuary. It bore curious long whip-like spikes of small dark-red flowers. We had first met with it by a forest stream near Ukhrul, in Manipur State, in 1948.

On the 27th October Tha Hla with two men climbed Hkinlum Cliff again. It took them just eight hours to reach the top of the first cliff, collect seed of all our marked plants, and return to Hkinlum. Several of these plants Tha Hla himself had discovered on his memorable climb on the 16th April when he got "lost"; others we had found on the 22nd, when we stopped short of 8000 feet. Then on the 25th September we had marked those plants of which we required seed, and I had pointed them out to Maru La, so that he could collect them later when fully ripe. However, when Tha Hla volunteered to go too, I was much reassured in my mind, knowing that we should be certain to get everything.

In the forest, trees might be doing anything; some were fruiting, others flowering, or dropping their leaves, or putting out new ones. Altogether it was a season of considerable plant activity.

Kaw Dang Gam, who had been away in Burma for several months trying to raise funds for his school, returned about this time. There was a meeting of all the village elders and bigwigs to discuss village education. A good deal of nonsense was talked by all, but that didn't really matter, because what usually happens at these parochial assemblies is that everybody talks and nobody listens. How a decision is eventually arrived at, I don't know; probably it isn't. It appeared that no more funds could be expected from Government, and the meeting was at any rate unanimous on one

point: the need for more money—a need it shared with every government on earth, from the most forgotten village to the greatest empire in the world. Someone—Kaw Dang Gam perhaps—suggested a capital levy, or at least a household tax, of a rupee or eight annas; this suggestion was received coldly.

Kaw Dang Gam, who was quite illiterate, sent us two begging letters. So far as these were concerned, I was equally illiterate; but through the school-master and Tha Hla their meaning was made clear, and when we gave Kaw Dang Gam—in the presence of Hkinlum Gam and other dignitaries—Rs.10/- for the school, we suddenly became immensely popular. I wondered how much of the several thousand rupees we had spent locally had gone to the school.

At this season we were able to buy more vegetables, including excellent pumpkins, spinach of a sort, and miniature tomatoes, rather acid. But the village was already short of its staple food, rice. It appears that a considerable proportion of the annual crop is earmarked for *zu* (or *zaku* as the Kachins call their rice beer), while a comparatively small proportion is retained for spring sowing. This *zaku*, though sour, is probably nourishing, and is drunk by men, women and children alike. However, the balance of the crop is not enough to last the village a whole year. Many people have to live for part of the time on maize, which is not used for *zaku*, nor is it so nourishing a food as rice. The Kachin State Government makes good at least part of the shortage.

On the 29th October Tha Hla and I went down to the river below the long bridge. A very fine Schima, covered with its beautiful tea flowers, was in full bloom. The big *Elaeocarpus* was now dropping its fruit; they were almost the size and colour of Victoria plums, but much less juicy. However, our boys picked them up, to roast and eat.

We saw a remarkable sight here. On a large rock by the rushing river, hundreds of butterflies, all of one species, had gathered. They were drinking from one or two rock pools, the water in which may have been fouled by animals, or may have been there so long that it was foul anyway. Butterflies are dirty feeders. So tightly were they packed, there was standing room only for the first comers, while scores hovered close by, flying round and round, quick to take the place of any who had drunk their fill, or even trying unsuccessfully to wedge themselves in between the drinkers. They were reluctant to move, and we had much ado to stir them up. Seen with closed wings, these butterflies were a rather dusty yellow, but on the wing they looked mainly pure white, like a shower of white and pale yellow confetti. I suspect that it was the urge for salt which had attracted them to this pool of Siloam.

On the way back, in old second growth, I found a very striking species

of Ilex, hardly more than a shrub, bearing along every branchlet tight clusters of very small vermilion holly berries. This was berried treasure with a vengeance.

It was not till Sunday the 1st November that we learnt the Hkinlum people had refused to carry on a Sunday—or rather, to *start* a journey on Sunday. They didn't call for a rest day if Sunday fell during a carry of several days' duration. I sent Joi Wa Naw post haste to Ahkail to tell the people there not to assemble till Tuesday, as we were starting a day later than arranged. He was away all day, but was easily spared.

Half a dozen long-tailed birds with short thick crow-like beaks and smoky grey breasts, which I took to be magpies, sat up in a tree. They opened their beaks wide and cawed monotonously, and hoarsely. Unfortunately I did not get a clear view. It might have been a grey tree-pie.

The minimum temperature dropped to 49° for the first time at Hkinlum, and this suggested fine weather. Next morning, though the minimum had risen to 51° again, heavy dew lay over the pastures, and the sky was cloudless.

Our porters turned up in good time from the village; but had hardly begun to tie up the loads before Gang Shim Gam appeared at the head of his little coterie, and a row between the Hkinlum and Ahkail factions began. At first we supposed that Joi Wa Naw had mixed things up, given the wrong instructions; then that Gang Shim Gam had refused to abide by the agreement reached a few days earlier. But when presently Tha Hla had got the trouble sorted out, it appeared that not only was Joi Wa Naw innocent, but the wily Gang Shim Gam also. For once the Ahkail villagers themselves were guilty. Hearing, on Sunday, that the Hkinlum people wouldn't carry, they got together, and early next morning routed out Gang Shim Gam. They then informed him that they would make a forced march to Hkinlum, in the hope of beating the local people to it and carrying the loads after all. As it turned out, they arrived just too late to seize the loads. Their argument, very reasonably, was: "Why did you refuse to carry for the foreign people yesterday? We would have done it, and we're going to do it now."

There was some shouting, personal abuse, and an escape of gas all round; but gradually the heat was turned off and we persuaded them to stick to the original agreement. After all, they were getting five days' work, as against only one day's work for the people of Hkinlum. So they backed down with a good grace, realizing that it was only common sense, having agreed to a particular line of action, to stick to it. In the end we got away peacefully, the Ahkail people going home ahead of us.

Tama Bum: Near the Summit

WE reached the pass over the spur (4780 feet) in an hour and a half, and descended 800 feet to the torrent on the north side. This is the smallest of the Hkrang Hka's four tributaries. The temperature of the air here was 71°, of the water only 58°. By the time we reached Ralu (altitude 4640 feet) we had climbed 1440 feet in two chukkers, and descended 800 feet in one.

Just before we reached the village we noticed a laurel with large thin glaucous leaves coming into flower. We had met with this tree on several occasions, but November was its flowering season, and we were pleased to collect it in flower. Before that, from a point near the pass, we had caught sight of a slope high up on Tagulam Bum, whose bare southern precipices just showed up above a ridge; it was sheeted in scarlet. It might, I thought, be one of the alpine barberries, many of which are brilliant in autumn; but if so, we never found it. In fact, we found no barberry the whole year—a disappointing omission.

At Ralu I watched a man dig out of a bank two outsize rats about as big as a guinea-pig. The fur was pleasantly soft, smoky grey on the back, white on the belly, and they had immensely long tails—longer than head and body combined. However, they had been banged on the head so hard that it was just a bloody mess, and I couldn't make out what sort of a jungle rat it was. They were for the pot, and would probably be roasted in embers, or possibly piece by piece on a skewer. These people rarely get the chance to eat meat, except when someone gives a feast and kills an ox. Then they always over-eat.

The following day I picked up a dead shrew on the path. It was so like our own shrews, both in colour—smoky grey all over, paler beneath, but larger—about seven inches in length including the tail, that it might have come from England.

On the 3rd November we started on the rather tiring ascent of nearly 3500 feet to Tibu Camp. First came the long grind up the ridge in second growth. The real forest begins at about 6000 feet. One of the first trees met with is *Quercus lamellosa*, to my mind the handsomest of all the oaks. In the same zone grow a maple with entire leaves (probably one we had seen down by the river), *Bucklandia populnea*, several tall laurels, and a bird cherry—like *Prunus Padus*—this last in flower. A common species of *Rhus*

bore bunches of blue-black berries which the village people suck, spitting out the seed. I tried it, but found it sour, and in fact beastly.

At the col by the slip we halted for lunch. All three species of *Gaultheria* were in ripe fruit, the turquoise-berried *G. semi-infera* being by far the most conspicuous; but then, it always grows in congested colonies.

Immediately above the col we entered the zone of *Manglietias*, whose cones and vermilion seeds lay scattered along the path. From here on, the ascent is rough and steep. We reached Tibu Camp at 3.30, and after a mug of tea went out again and collected some of our marked seed. From the look-out rock we watched the splendour of sunset behind a peak on the distant Kumon range, and looked down the long violet-shadowed corridor-like gorge dug by the turbulent Hkrang Hka. All round us grew the trees and shrubs of which we most wanted seed.

Tibu Camp in fine weather, when the forest was dry and even the moss on the tree-trunks shrivelling, was a very different place from what it had been in May. Through the trees we had glimpses of the mountains to north and south, and the autumn tints of certain trees took the place of rhododendrons in flower.

The contrast between the climb now and six months earlier reached a climax when, in brilliant weather, we completed the ascent to Dismal Camp in four hours, and later went on to the pass, reached in another twenty minutes. We left Tibu Camp at nine. Our first marked tree, the big spreading whitebeam at the top of what had been a 200-foot mud cascade in May, was now covered with small yellow crab apples.

After that came the mile-long exposed traverse, where in May the wind and mist flying up from the deep valley had chilled us so terribly. We turned a corner, and the whole north face of Tagulam Bum came into view. As for the deep mud holes in the bamboo cover, they looked as solid as an Irish bog, and had so far shrunk that we only sank in above our ankles instead of knee deep!

Nevertheless, it was on this pitiless traverse that the finest yellow-flowered "Grande" rhododendrons and *Magnolia Campbellii* grew. This latter was covered with slender cones seven inches long, from which dangled dozens of quivering seeds of a glowing pillar-box scarlet. The leaves were falling fast; they took on no autumn tints.

On the open ridge, though not in the forest, the autumn colour was dazzling. Scarlet, supplied by *Acer Wardii* and *Enkianthus himalaicus*, was the dominant, as it was the most prominent colour. The majority of deciduous trees, however, show no autumn colour, this including most species of *Sorbus*, birch, cherry, *Pyrus*, *Eriobotrya*, all the *Magnolias* and *Michelias*, *Zanthoxylum*, *Clethra*, *Daphniphyllum*, *Schima*, and *Tetracentron*.



43. Jean Kingdon-Ward takes a nostalgic farewell of the mountains



44. *Omphalogramma elegans*



45. One Expedition over, another is born. Jean and Frank Kingdon-Ward plan their next adventure into the wilds . . .

In addition, the large leaves of one *Sorbus* had turned honey-gold, like those translucent tobacco leaves you see in the advertisements, but can hardly believe; nor did they curl up as so many leaves do in autumn. When we dashed for the pass, shortly before sunset, we found plenty of colour in the near and middle distance. We also found *Rhododendron Martinianum*, hitherto overlooked. Better than that, the very aromatic rhododendron of Tama Bum, near *R. glaucophyllum*, thinking it heard the call of spring, had burst several buds. The unexpanded flowers were not the rather gloomy pink of *R. glaucophyllum*, as I had expected, but a pure bright lemon yellow! So it was neither *R. glaucophyllum* nor *R. tsangpoense*.

November is often a good month in which to ascertain the colours of rhododendrons one has missed seeing in flower; and this applies especially to alpine species. The snow is yet to come; the days are warm, with bright sunshine; the nights are not too cold; the soil is warm and still moist. So if the plant has formed many flower buds, some of them are certain to be so bursting with *joie de vivre* that they must open at all costs. On Tama Bum we had found one of the larger "Neriiflorums" bearing a truss of deep crimson flowers. The reason why these buds rarely open sufficiently in the autumn to display a complete truss may be because the November daylight is too short. It is a remarkable fact that the bud scales do not drop off.

The most lasting impression I carried away from this pass was the view south-eastwards across the deep fissure of the 'Nmai Hka, 7000 feet below, to the mountain ranges of the Burma-China frontier thirty or forty miles away. In May, on my brief climb to the pass, I could not see twenty yards ahead; I had no idea in which direction the track went, once I reached the top. Now I could see twenty, or forty, perhaps sixty miles over range after range. The colours too, now that the sun was low in the west, with the shoulder of Tagulam Bum intervening and the gorge of the Hkrang Hka in shadow, were wonderful. The high peaks still glowed like hot iron, cooling off gradually to violet and indigo in the depths of the valley. Westwards the sky was bright as the sun sank in a lake of gold. Dusk was upon us as we hurried back to camp to enjoy a short well-earned supper.

We spent our first morning in this camp clearing a place in which to dry the seeds, and found a convenient spot on the path a short distance from our tent; then we cut down several small trees to let in sunshine and fresh air. We were able to pitch the small tent here—though rather lopsidedly—in case of rain. Our summer camp site had been sufficiently cleared to allow of the big tent being pitched—just. This occupied a knoll immediately overlooking the notch in the ridge, at the very foot of the steep ascent to the pass. Below our tent, on the north side, a precipitous track descended a thickly wooded cleft in the ridge to a rocky gully, from which we drew our water. It was at least 120 feet down.

In the afternoon we ascended once more to the pass, and turned south along the ridge towards Tagulam Bum; this began with a quarter-mile descent, which was likely to prove an irksome climb on the return journey to camp after a long day on the mountain.

And, a long day on the mountain was in prospect for the following day, the 6th November. I wanted to celebrate this day with a climb to the alpine region; it promised to be the climax.

We were up and dressed by 5.30; minimum temperature 39°. At 7.40 our party of eight were ready to start. Within the first half-hour I felt I was going well; we reached the main ridge in only fifteen minutes. After descending a bit we faced the rather long ascent to the top of the first hump, which concealed a considerable part of the ridge. When we got to the summit—9175 feet—I felt I could do anything. Still, it took us another half-hour to reach the next hump, and I was disappointed to find that after an hour and a half travelling the altitude was only 9360 feet, or 600 feet above our starting-point!

The view now began to open out miraculously. It was in every respect a perfect day—the sky was cloudless, no wind worth mentioning, the air crystal clear. The stupendous skyline to the east was jagged with peaks. Only one to the north-east was snow-covered, but the ridge up which we had just come still blocked the view to the north.

So far we had followed the exposed slope, or occasionally the crest of the ridge, and there had been few obstructions. Now the track switched to the sheltered flank, which was thickly overgrown with a tangle of *Rhododendron arizelum*, not tall, but venerable, whose bare red trunks grew along the ground before they curved upwards. The almost horizontal limbs, about breast high and rigid as steel, were a sore trial, as difficult to clamber over as to duck beneath. They would inevitably have held us up a good deal had not some of the worst been cut through by Gang Shim Gam and his team. It was a remarkable feat on the part of Tha Hla to have reached the summit from Tibu Camp and returned the same day—before the track had been cleared. No wonder his unwilling companion had found it necessary to attend immediately to urgent work elsewhere, as soon as he got back to Hkinlum!

At one spot under the trees I noticed a small patch of *Primula taliensis*, the plant we had first seen on Tama Bum.

Along the crest of the ridge and on the exposed slope, the mixed rhododendron scrub was much the same as on Tama Bum, except that *R. Martinianum* and the "Oreotrepes" were both represented, the latter by a much dwarfer shrub than down below. Other shrubs and stunted trees mixed with them were a big-leaved yellow-fruited Sorbus—neither the whitebeam nor the beautiful honey-gold leaf, but a third species—Sym-

plocos, Clethra, Enkianthus, and yew. I managed to reach a scree visible from our camp, but found nothing new there.

By 9.55, after two and a quarter hours' climbing, we had reached the top of the third hump—the highest point on the ridge visible from camp. Uncompromisingly it had blocked all further view of the route along the ridge until the cliffs of the main peak were reached. The altitude was 9820 feet—over 1000 feet above our camp, but still nearly 2000 feet from the top. For the first time we could see over the heads of the peaks north of the pass, and so right round the compass, except along the ridge southwards, which Tagulam Bum blocked.

I know nothing so inspiring as a clear view of limitless mountains with snow peaks pricking the blue dome of heaven, and deep shadow-filled valleys. I gazed in awe on the scene, while I tried to recognize in various directions peaks I had visited, passes I had crossed, and valleys I had explored during thirty years of travel.

From north-west to north-east the horizon was now an almost complete arc of snow peaks; but Ka Karpo Razi, Burma's Icy Mountain, about 125 miles distant bearing 15° or 20° west of north, was outstanding. At the eastern end of what looked like a single range rose a dazzling white pyramid, while the western peak was more rounded. This cluster of somewhat isolated peaks, fused together by distance, looked superb against the cloudless cornflower blue of the sky. It dwarfed everything else in that direction.

Farther away, to the north-east, three sharp snow peaks stood up from a jumble of mountains, brooding and disdainful. They must have been beyond the Salween, perhaps on the Salween-Mekong divide, or even beyond the Mekong river. It was impossible to say for certain. Then, much closer, but in the same general direction, was another snowy peak rising a head above the supporting ranges. This was almost certainly on the Taron-Salween divide; it may have been the Gompa La, which rises above Chamutang on the Salween, pointing the way to India. I hoped it was that. I had crossed the Gompa La (pass) on my journey from China to Burma thirty years previously, and had an affection for it.

Westwards, about seventy miles distant, the Assam-Burma frontier range was clearly visible. It is not so high as the ranges further north and east, and was not yet snow-clad. So we were looking into three countries—China, Tibet, Assam—I reflected; but all we saw was mountains, range on range. We might have been looking at the moon for all the signs of man's presence that we could see. And yet, hundreds of beautiful trees, shrubs, climbers, and rock and meadow plants—especially alpinists—had been rescued from that savage but inspiring landscape, for man to study and enjoy. But hundreds still remained as yet unrevealed—of that I felt certain—and revealed they would be, one day.

At last we turned from the view and continued the climb. After a short descent we began to ascend yet another hump. But now we walked over wiry dwarf rhododendron and equally dwarf *Ilex Perneyi*. The dwarf rhododendron leaves were crisp with hoar frost and turning darker, but they were scarcely curled at the edges. As for the larger species—*R. arizelum* for instance—except that they drooped a little, they had hardly been affected by the cold as yet. Chit Ko Ko, who had never seen frost or snow before, was fascinated.

We were obviously very close to the alpine region. Even so, it took us another hour to reach the foot of the crags along that part of the ridge which was invisible from camp. We had taken three and a quarter hours to reach an altitude of 10,640 feet—not very fast travel! But besides contemplating the view, we had halted often to collect seeds.

On either flank was a steep gully, and the cliffs rose all round us, the ridge ending abruptly at their base; or more exactly, it was the ridge which rose almost vertically. The track slewed round to the east and traversed between the cliff and the gully on a precipitous face, mounting by steps kicked in the turf. I sat down in the warm sunshine to wait for Jean, who presently came along with Chit Ko Ko and other members of the party.

Jean and I debated whether to go for the summit or to explore the gullies on either side, both of which could be reached by traversing; and mainly because we felt that we would find more plants by exploring the gullies, we decided to halt and have some food. The cliff, and still more the high top, was covered with dwarf *Arundinaria*—a bad sign.

So we sat down to eat and rest for half an hour. Peanuts, Horlick's malted milk tablets, hot tea out of a thermos, cheese, dates and biscuits made an ample and sustaining meal.

Presently Tha Hla, who had stayed behind in camp to finish some work, joined us. He had taken only an hour and a half to do what it had taken us three and a quarter hours to do. He wouldn't stay more than a few minutes, as he intended to go to the top.

Jean and I now prepared to visit our respective gullies, she to the east, I to the west. The east gully contained a stream partly frozen, which slithered down a rock scupper. The western gully, on the other hand, was enclosed by high broken cliffs, and was filled with loose rocks piled on top of each other. Both looked tempting—the sort of place where one might come upon almost anything.

It was not difficult to get into my gully, and the first plant I noticed was *Bergenia*, its smooth leathery leaves now turned dusky red. This aged perennial grew in masses on the cliff, but I found no seed in the capsules, most of which seemed to have aborted. Also on the cliffs, wedged into cracks with tufts of grass, usually high up out of reach, grew clumps of

round-leafed primula, easily visible because the long-stalked leaves had turned a brilliant mustard yellow. These primula plants grew in exactly the same severe habitat I had seen on Tama Bum; but the plant was more abundant here, and presently I found some I was able to dig up. I also saved a few seeds from one or two capsules.

Climbing straight up the gully, which was extremely barren, I found a small larkspur; then reaching the top, I hauled myself up over the edge of the cliff and stood on the ridge again, a good deal higher than where I started. There was a visible track, like a rough stairway up the ridge, so on I went to within a short distance of the top. Tangles of stunted *Rhododendron telopeum* fringed the slope; but only dwarf juniper bushes clothed the crest of the ridge—though it was here that I presently noticed cushions of *R. megeratum*, and this at 11,000 feet! I felt I could have reached the top without difficulty; I was now within a very few hundred feet.

However, it was time to rejoin Jean. On the way down I stopped to collect several plants, including a small colony of *Gentiana phyllocalyx*, the dwarf *Rosa omeiensis*, Androsace, Pleurogyne, and round-leafed Primula. I dug up several plants of this last, growing on the grassy cliff, in the hope that even if they did not survive, they might have bequeathed a few dropped seeds to the clods, and that these might germinate.

Large mats of *Diapensia* also clove to the rocks, but these I did not collect. If this well-known alpine was not yet in cultivation, there seemed little reason to suppose it ever would be. It is certainly a charming mat plant, both in its yellow-flowered and pink-flowered forms, and would be ornamental in the rock garden even when out of flower—which of course would be most of the year.

Back at our starting-point, I found a very excited Jean, bursting to tell me her news. She had discovered a plant which she recognized as belonging to the lily family. It might be a new species, or even a new genus! And she had collected a lot of seed. As it was quite close, she took me to see it. Plants were scattered on steep grassy slopes and rock ledges, in the open, though there were patches of scrub nearby. There was no bulb, but the branched stem bore many capsules too small for a lily or a *Nomocharis*, but large enough for a *Notholirion*. Not recognizing the plant myself, I was almost as excited as Jean was. However, it turned out to be a species of *Veratrum*, which though a less epoch-making discovery than a new lily or *Nomocharis*, might nevertheless be a good garden plant. Anyway, it was an interesting discovery, a first record for alpine Burma. Jean presented it to me for a birthday present—did I say it was my birthday?

She reported the rock scupper rather bare, but even so I regretted I had no time to visit it now. It was after 1.30 and we had been on the go for about five and a half hours. It was not a question of getting down before

dark, but only of getting down before we had had more than enough; and whereas I could travel fairly fast, Jean was slow over this kind of ground.

But first we must have a last look at the extensive view and drink in every possible detail. Such an opportunity must not be missed. From here, for the first time, we could see both the 'Nmai Hka (that is to say, the actual river) and at the same time, if not actually the waters of the Mali Hka, at any rate the valley in which it flowed. The former was about eight miles away and 8000 feet below us. In places it was white with foam for a hundred yards or more, but no sound reached us. The Mali Hka was about thirty-five miles away, and 9000 feet below. We stood right on the watershed.

We could also look down the valley of the Hkrang Hka, till the spurs dwindled away and flared out into the wider valley of the Mali Hka, and the two rivers embraced one another. From here it looked a typical glacier valley.

At 1.45 Jean and I with our two men started down, to give Jean plenty of time before dusk, and the descent took us almost as long as the ascent had done when we were fresh! Chit Ko Ko, who with Tha Hla and the others had been to the top, caught up with us about half-way down; and Tha Hla, who had spent some time on the summit, arrived shortly after we reached camp.

He brought a good collection of seeds, but nothing new. Thus my birthday was a day to remember long, and I spent it as I should have wished to spend it. If I a little regretted not having gone to the summit of Tagulam Bum, I probably found more good plants, and collected more seeds by careful search, than if I had gone on. After all, I was sixty-eight, and had reached over 11,000 feet.

CHAPTER 29

Tibu Camp in November

THAT turned out to be my last long climb, for the next day I discovered the hidden gully from which we drew our water supply, and was so enchanted with it, that I returned there again and again. The stream was 100 or 150 feet below our camp, and was enclosed between precipitous cliffs. You scrambled down a mountain scupper—almost the only place where you *could* descend the flank of the ridge—and found yourself in a rocky ravine; a stream whose source was only a few hundred yards up flowed here. In summer it was not necessary to descend so far for water, as there was a trickle in the scupper itself; but that was now dry.

Pushing my way down the scupper—a shallow groove filled with lush vegetation—I came upon a large colony of *Primula taliensis*, so revelling in the damp undergrowth that it hadn't troubled to flower. Next minute I had clambered into the ravine. Here, on a short grassy bank, I saw plant after plant of the "Candelabra" primula of Tama Bum; but now the capsules were full of black seeds. What was more unexpected, beneath a small clump lay one solitary corolla which must have fallen quite recently; it was light orange. Thus it may perhaps be a variety of *P. serratifolia*, an old species rarely seen in cultivation.

The bottom of the ravine was almost level for the next fifty yards, and one or other flank not too steep to climb. There were grass banks dotted with the kidney-shaped leaves of a violet, which had turned a shrill saffron; bare smooth rocks with sand spits in which grew several plants; and a fringe of shrubs below which were more primula, and what appeared to be a *Veronica*, with long spikes of small capsules scattering tiny seeds. Higher up on the less steep slopes were thickets of *Gaultheria*, whose massed blue berries were particularly striking; and of shrub rhododendron.

I walked downstream over the exposed rocks, noticing a *Lactuca* with pale violet frilly flowers, very like those of the Mediterranean *L. Bourgae*, collecting primula seed, and several small herbaceous plants in flower. I went on to the brink of a cliff—not far, going over the ground with a fine-tooth comb.

Sooner or later streams which rise high up on the mountain take a flying leap, and this one was no exception. The hitherto moderate slopes became bare vertical rock walls; the stream dropped fifteen or twenty feet, and I could go no further. So I retraced my steps.

The following day, the 8th November, I decided to revisit the gully

and go up-stream. At one point the cliffs closed in, and I had to traverse across a difficult bit for some yards, descending again into the ravine higher up. I found much the same plants as on the previous day; but I continued to collect primula seed, which was plentiful. Nowhere did this primula form colonies; the plants were scattered. I soon found myself near the head of the glen, climbing over piles of boulders, beneath which I could hear the gurgle of water. At the last was a slip almost too steep to climb, with a few small scattered plants clinging precariously to foundations built on sand.

On the return journey, half-way up the scupper, not far away I caught sight of some bright vermilion fruits hanging from a bush. When I reached it, they turned out to be the hips of a rose, like *R. macrophylla* except that the fruits were perfectly smooth. I collected a number of these and returned to camp.

Next day Jean said she wanted to see the gully, and nothing loth, I went there a third time. We worked our way down stream, but high above it, collected more rose hips, and when we came to an open slip, I climbed down to the bottom of the ravine once more, reaching it at a point below the fall which had previously stopped me. It was very narrow here, and I could only get along for twenty or thirty yards, where I found nothing.

About this time a small party of women and girls from Rawang visited our camp, bringing fresh vegetables. We were surprised to find that, though they had brought their heavy baskets of pumpkins, cucumbers, beans, spinach, and so on, a day's journey, they asked less for these things than the Hkinlum people did. We bought several rupees' worth, and so did Tha Hla, and our servants; but it seemed a long way to come for about ten rupees. However, they were pleased, and so were we.

They told us that a Kachin woman of Rawang had beaten off single-handed, and eventually killed, a big cat. It was in the very act of stealing a pig from beneath her hut. She went out, and facing it boldly, smote it with the *dah* she carried. She wanted to sell the skin, and here it was.

This cat must have stood 20–24 inches at the shoulder, and its length, head and body (taken from the dried skin), was about 43 inches, with a tail $22\frac{1}{2}$ inches long. Thus it was about the size of a lynx, and it had pointed black ears about two inches long, also like a lynx. The colouring was peculiar. Perhaps the most distinctive marking, and the one I picked out first, were the three narrow black stripes, strictly parallel, down the spine—wavy over the neck, but straight elsewhere, and uniting to form a single black line down the tail; between these lines the fur had a bronze tint, repeated as a background colour on the head. Elsewhere, however—that is to say, on the back and flanks—the underlying colour was silver-grey with a network of black, something like a tabby cat; this resolved itself

into definite stripes towards the head end, and equally definite rosettes or half-rosettes, like a leopard, towards the rear end. Both stripes and rosettes showed up dramatically against the rabbitly silver-grey in full light, but would probably vanish completely in the jungle; while the sandy-yellow throat, chest and belly would be equally non-committal.

Tha Hla paid Rs.5/- for the skin, and later offered it to us as a gift. But much as we would have liked to take it, we felt it was wrong to deprive the Burma National Museum of the skin, and we refused the generous offer. The Rangoon Museum was destroyed during the war.

In this camp the minimum temperature varied between 39° and 42°, the higher temperature usually bringing cloudy skies, and even rain. There was no frost yet below 10,000 or 10,500 feet.

We did not wander far from camp on the 9th, as we were expecting the porters. However, they arrived so late that we did not start down that day. Instead we climbed up to the pass for the last time. The people told us the snow was waist deep here in the winter, and I could easily believe that the drifts at least were that deep. No one crosses the pass for three or four months; the first Rawang people had come over in April this year.

The most brilliant tree in the forest now was *Acer Wardii*. The leaves were scarlet, sometimes with undertones of gold. It is quite common between 8000 and 10,000 feet, and the only maple to reach 9000 feet. I never saw a big tree; in fact, one is much more likely to meet with it shrub-size along the ridge than as even a small tree in the forest, where it is easily outmatched in height by every other maple, and by most other trees also. But on the exposed ridge it becomes almost dominant in places.

By contrast, another species of maple, found between 7000 and 9000 feet, with three-lobed leaves, showed no trace of autumn colour. Most of the leaves had fallen by now, leaving strings of rather dim-coloured fruit hung up to dry. From time to time several of them would break away and fall spinning, like aircraft out of control.

So on the 11th November we went down to Tibu Camp in three hours; the end of the alpine tour was in sight. Had all the deciduous trees and shrubs turned, the forest would now have been brilliant; as it was, there were brilliant patches, chiefly confined to the crests.

We were spending only four clear days at Tibu, so we had to work fast. Every evening, shortly before sunset, we visited the look-out rock. Each time we had stayed here we set the men clearing the tree tops round this boss of granite, till now it looked as bare as Dunkery Beacon. From here we had an excellent view of the valleys which open into the Hkrang Hka, and down the main valley itself. We could pick out Arahku on the left bank, Lajā opposite it on the right, and one or two villages north of Lajā. Hkinlum

itself, nestling between two spurs, was invisible, and so were the villages immediately below—Ralu, Ahkail, and another.

There are, or there seemed to be (we spent a lot of time trying to sort them out), four big-leaved "Grande" rhododendrons here, and we wanted to get seed of them all. Two of them were unmistakable—*R. sinogrande*, a tree often planted in the milder parts of this country, and the wonderful yellow-flowered tree I have provisionally called *R. sidereum*, which is less well known. Seed of *R. sidereum* was easy to get; it was the one big-leaved species which flowered well. But *R. sinogrande* had scarcely flowered at all, though in the end we obtained a few capsules of seed. The third species also flowered very badly; it had leaves as large as those of *R. sinogrande*, but instead of the brilliant silver plating so characteristic of that species, they were bare and fresh green beneath—at least, when mature. It might be *R. magnificum*. We found a fine specimen of it on Tama Bum bearing many trusses of fruit—one of the largest and tallest rhododendron trees I have ever seen.

As for the fourth species, it had leaves similar in shape and size to No. 3, but the under-leaf surface was coated with a white or buff lining, which was apt to slough off patchily, leaving bare spots. However, Nos. 3 and 4 might really be the same species in different stages of growth. The recognition of these big-leaved species is notoriously difficult, even when in flower, owing to their variability.

In a given area, a "Grande" rarely flowers well over two consecutive years, probably because ripening the large trusses of woody fruits makes too heavy a demand on the tree; but there are always a few exceptions. Apart from that, there is a special difficulty in getting good seed of them: namely, their liability to be attacked by grubs. An insect borer punctures the young rhododendron ovary while it is soft and green, with a long stiletto-like ovipositor, and deposits one or more ovules inside. When the larva emerges, it feeds on the growing rhododendron ovules. The capsule continues to grow; when ripe it tries to split. But the mechanism does not work smoothly when there are grubs inside, and it usually fails to open. Anyway, the seeds are destroyed. Curiously enough, I have found this fatality to be confined almost exclusively to the more primitive type of rhododendron, characterized (among other things) by a large, many-celled ovary. Thus it is universal amongst the "Grande" type, and also amongst the "Megacalyx" type—*R. megacalyx* itself, *R. polyandrum*, and their kind. On the other hand, one does not find the capsules of, say, *R. repens* or *R. neriiflorum*, which have five-celled ovaries and a more advanced type of flower, attacked in that way. At least, not as a matter of course. Whether the associated insect has anything to do with the pollination of rhododendron flowers—thereby repaying in

some measure the hospitality of the "host"—I cannot say; I have never noticed anything of the sort, but I should be inclined to look out for something like that. At present we don't even know what is the guilty insect.

We intended to leave on the 16th November. On the 14th several men arrived on a hunting expedition, and were immediately successful. They snared two tragopan pheasant near Tibu Camp (*Tragopan blythii*). The cock is a very handsome bird, and again Tha Hla offered us the skin. But this also we refused, in the hope that it would find its way eventually into the National Museum.

Meanwhile the fine weather had broken. The rain began in the very early hours of the 14th and continued till 8 a.m. on the 15th. It was miserable in camp, and our seeds set out to dry got soaked. The damp cold was penetrating. However, after breakfast on the 15th the sun began to come through, and by evening the storm was over.

Next morning we started down. We intended to do it in two stages as usual, sleeping at Ralu. Down, down, down, like Alice when she followed the White Rabbit into its burrow. (Would the fall never come to an end?) We noticed a little snow on Tama Bum.

This was our last chance, so far as temperate plants were concerned, and we collected everything we could. Of the epiphytic *Eriobotrya* (which probably wouldn't be hardy anyway) we cut down the best part of a small tree, and filled a basket with so many of the hard brownish-yellow fruits—as large as Victoria plums but much heavier—that it made a man load, and we had to take on an extra porter for the last stage back to Hkinlum.

With frequent halts to collect, it took us well over five hours to reach Ralu; the sun was hot in the valley, and we arrived panting, though a mug of tea quickly revived us.

There were lots of flowers down here, but no brightly coloured autumn foliage below 6000 feet. The night was cold, and at dawn on the 17th the vegetation was drenched with dew. Yellowish-green bulbuls with black cockades were common, and we noticed many birds.

Now the temperature of the river was 53°, of the air 54°. So the temperature of the water had fallen only 5°, while that of the air had fallen 17° in about a fortnight! We reached Hkinlum before noon, and in a very short time had all our fruits and seeds out drying in the sun. They made an impressive and colourful display—the vermilion seeds of *Euonymus* and *Magnolia*, blue berries of *Symplocos*, yellow crab apples, and so forth. I foresaw plenty of work before we could finally pack and start back for Sumprabum.

Back in Hkinlum we got down to work, but the second night brought us a surprise. About midnight we awoke suddenly to what sounded like a

muffled explosion. It was a sudden blast of air which had hit the hut like a battering ram. Almost at the same moment, to north, south, east and west the lightning began to flash and dance over the hills; the stars went out, and the sky was filled with cloud. Then down came the rain. It poured till daylight, and our seeds, spread out on waterproof sheets to dry, and covered at night only by other light waterproof sheets, suffered a setback.

Following the storm, Tama Bum had a heavy snowcap next morning. So we had beaten the first serious snow by a few days only. Seed collecting in the snow is not just an uncomfortable occupation; it is also a difficult and sometimes a profitless one, especially with widely scattered alpines which are not abundant.

It was a cold and rather cheerless day, the temperature not rising above 64°—a drop of 6° in twenty-four hours. Towards sunset it looked brighter in the west. On Tama Bum the snow powdered the trees down to 8000 feet, but below 10,000 feet most of it had melted by evening.

That night we dined with Tha Hla—a treat we always looked forward to. His cook made the most delicious curries. Sometimes the *plat du jour* was the equally delicious noodles known as *kao swé*.

The 20th was a fine sunny day with a pleasant drying breeze. Jean had set out the seeds more compactly, and we got through a lot of work. The more useless of our servants, assisted by volunteers impressed from amongst the village children, were put to getting the seeds out of crab apples, *Eriobotrya* fruits, and similar time-consuming jobs.

In the evening I dug up the lily bulbs, in order to give them a few days' drying in the shade before packing them. They are a peculiar shape, which might be called depressed spherical, composed of a few very thick creamy yellow or off-white scales. The scales are angular, with a well-marked keel, and the bulb is no more than one or two inches in diameter. This seemed to be the end of the lily episode; but it wasn't.

On the 22nd Tha Hla went off to Arahku for the last time. (We were all returning by the "main" path through Lajā, down the right bank of the Hkrang Hka.) He returned late on the 25th, having visited Bunru, where there is a cave which he described as of some size. However, the only typical limestone plant he was able to reach was a species of *Sedum*. As described in Chapter 19, he brought us back seed of the original lily which had started all the trouble.

There were still trees in flower in the valley, including bird cherry and a *Sorbus* with very pale foliage like *S. cuspidata*, which is likewise an epiphyte. But the most tantalizing tree of all was scattered through the forest above 8000 feet. From our camp in the evening light we could clearly see white domes of blossom, faintly tinged cyclamen, 4000 feet above us. The day

after we left, Tha Hla tried to reach it, but inside the forest couldn't see the trees for the wood.

Time was fast running out. Whenever I thought the last packet of seed had been made up, numbered, entered in the list and packed, more appeared. There were also the orchids, both earth and epiphytic species, the *Arisaema*, the *Hemerocallis*, and other plants to pack.

Gang Shim Gam turned up to see what he could get out of us in the way of a parting present, but found us rather unresponsive. Kaw Dang Gam also called—we owed him some money for storing our rice, though the weevils had taken a fat rake-off. He brought us a present of eight eggs—the only present he ever gave us. Four of them were good. Hkinlum Gam, the village headman and a friend of ours, called too.

By the evening of the 27th November we were almost ready to go. Our cosy little hut, with Hkinlum Gam's black cat lying by the fire, looked rather forlorn.

CHAPTER 30

Return to Sumprabum

THE accommodation on the road was limited, unless we pitched tents; so we decided to march back in two parties, Jean and I to go first. Tha Hla and Chit Ko Ko would follow in two days' time, and rejoin us at Sumprabum.

The 28th November, therefore, saw most of the village gathered to bid us good-bye, just as they had gathered more than seven months previously to see us arrive. We had altogether thirty-eight loads (reduced from over forty by the ever-watchful Jean)—less than half the number we had brought from Sumprabum. Rice, kerosene, tinned stores and various other things had been used up or abandoned, and we were taking away in exchange bundles of dried plants, living orchids and bulbs, and tins of seeds.

The porters—all men this time—came early. Hkinlum Gam had forbidden any women to carry, partly because we had asked for porters who would go the whole way with us, and the women were required to work in the village. But that wasn't the sole reason; there was another one which came to light later.

A row exploded just as we were about to start. It appeared that Joi Wa Naw had coolly countermanded the headman's order, got rid of two of the men he had found for us, and given their loads to two of his girl friends whom he had frequently seen about the cookhouse. When Hkinlum Gam heard of this he was incensed, and told Joi Wa Naw to mind his own business. Joi Wa Naw flew into a rage and retorted that it *was* his business. The air grew sultry with abuse, counter-abuse, comments from some of the spectators, and chorus from all. It was clear that Joi Wa Naw was in a very bad temper. I had never seen him in such a state before, and could get no sense out of him.

When at last, with the invaluable help of Tha Hla, we had got to the crux of the matter, I told Joi Wa Naw he must obey the headman's order, and myself gave the two loads back to the dispossessed men, little dreaming that the girl in the dispute had technically become Joi Wa Naw's second, or rather third, wife. (We had met one wife at Sumprabum.) The row then quieted down, though Joi Wa Naw was almost beside himself, and continued to shout abuse.

A day or two before, Tha Hla had got hold of a man who knew of a full-grown "Taxodium" which grew beside the path to Lajā, and had gone

to see it. He told us it was easy to reach, and we were all agog to see it too; and in order to make sure we didn't miss it, took the man with us. It was 10.30 before we started, after saying all our good-byes, and the march began.

The path runs northwards to begin with, then curves gradually west to cross the northern branch of the Hkrang Hka and reach Lajā, on the right bank, below the confluence of north and south branches. The first five or six marches would be over new ground, and though we were only on the other side of the river, almost within hailing distance of the left bank, it was surprising how different the country looked, simply because we hadn't been over it before.

Beside the bridle path I noticed several circular pits about nine inches in diameter and eighteen inches deep, lined with leaves. These would presently be packed with bamboo shoots, which are left thus till they soften and turn sour; they are then taken out and eaten—one more example of food from the jungle.

When we reached the crest of the ridge which forms the divide between the two main branches, north and south of the Hkrang Hka, our guide turned aside into the forest, and fifteen minutes later, after a difficult scramble up and down precipitous slopes, we stopped at the foot of a tree. It was a fairly big tree, about 100 or 120 feet high, reaching the canopy but not rising clear above it; and it had a smooth straight pillar-like trunk, which kept the same diameter up to the first branch about fifty feet from the ground. That certainly was a thrilling moment, and I stood gazing in awe for almost a minute, silenced by the sight of a full-sized "Taxodium", the rarest conifer in these forests; it was the first time I had seen one. The crown looked a bit sickly, as though some of the limbs were dying; and there seemed to be rather too many epiphytes on them. But this appearance may have been only because the leaves had changed to a brownish-yellow before dropping—almost the colour of a larch in the autumn before it turns brighter yellow.

In the middle of the forest, and on a difficult slope, it was impossible to get an all-inclusive view of this strange tree. The girth near the base was eight and a half feet, giving a diameter of thirty-four inches, which for a 100-foot tree isn't much. The blaze is red, and without fragrance.

The crown was rather open, comprising a few thick, spreading limbs and branches. It was not so dominating as the solitary *Taiwania* I had seen (also in North Burma) some years previously; *that* stood up clear of the canopy. Nevertheless the "Taxodium" was an outstanding tree.

We seemed to have come to the right spot, for shortly after we got back to the bridle path, having spent three-quarters of an hour on the quest, about a hundred yards on I spotted another specimen close beside the path. It was only about fifty feet high, and not full grown; but it was no sapling. The guide seemed surprised at my success, and also pleased. As mentioned

before, it is a valuable tree, and he had not known of this one before. The Hkanung name for it is *di kum* or *di krum*.

It was not till many months later, when we had been home nearly a year, that the "Taxodium" was at last recognized. This was the result of comparing our dried specimens with a number of equally dried specimens, probable and improbable, including *Taxodium*, *Metasequoia*, *Taxus* and *Podocarpus*, in the herbarium of the Natural History Museum. Finally a perfect and unmistakable match was found in *Podocarpus imbricatus* (or *P. javanicus*.) Since *P. imbricatus* is a well-known Conifer (well known to taxonomic botanists at any rate; it is not in cultivation in this country), there the matter might be said to end, almost barren of romance.

But not quite.

True, *P. imbricatus* is a common mountain-top tree in Malaysia, and even occurs (though sparsely) in Tenasserim, the southern tail of Burma which runs down into the Malay Peninsula; Tenasserim, too, has a Malaysian climate and forest flora. But that was its furthest north. The Hkinlum district is a thousand miles north of Tenasserim; and to discover a Malaysian tree there is no mean triumph of botanical exploration. It is not known to occur anywhere in the intervening gap.

It may be added that *Podocarpus imbricatus* is more closely allied to the yew than to the American swamp cypress, *Taxodium*, or to the Chinese *Metasequoia*.

Other trees I noticed here were birch, climbing palm, climbing bamboo, screw pine (*Pandanus*), tree fern, and *Castanopsis*—an almost sub-tropical, certainly a moist warm temperate type of forest.

A steep descent brought us to the river, that is, the northern branch of the Hkrang Hka. It was forty or fifty feet wide, with strips of boulder beach on either side; at high water it would be at least eighty feet across.

"How do you like the look of the bridge?" I asked Jean.

The "bridge" comprised three or four canes tied to trees on either bank about fifteen feet above the swift water. A cage suspended from two cane rings threaded on the ropes comprised the carrier. Jean, who was getting ready her ciné camera, said:

"It's just like the one in the Mishmi Hills. It looks all right," and went on with her preparations.

The cage would carry two persons sitting astride, leaving their arms free to haul on the canes. We attached a long length of rope to it, brought for the purpose, and two men worked their way across. The empty cage was then taken back by one man, filled with baggage, and with a man sitting in it and the second man pulling from the far bank, taken across again. And so it went on, to and fro, for an hour, till we were all across.

We sat down by the river and had a picnic lunch. The temperature of the water was 55° , of the air 64° . Less than a mile down stream the north and south branches united to make the Hkrang Hka.

Just as we were leaving the river for the climb up to Lajā, a man arrived from the village bringing a basket full of papers and magazines—no letters—for us. They had been sent on from Sumprabum, though we had long since requested Sumprabum to hold everything as we were on our way back, and in any case to send out only letters after September, as we'd be too busy to read any papers. There had been many occasions when we would have given a great deal for such a bundle of reading matter; today was not one of them. We had them carried back to Lajā.

From the river to the village was only a short journey once we had climbed up to the open hillside above; however, it took us an hour and a half, because we spent so much time looking back to the mountains. It was by far the finest close-up view we had had of the backbone range yet.

We took Hkinlum and Hkinlum Cliff—whose 8000-foot summit was covered with flowering trees—as our centre, and worked north and south.

Shortly before we reached the village we noticed a large level slab of rock set like a dolmen on two supports—a curious spot to find a dolmen. We rested there awhile, stretched out in the warm sun like lizards on a wall.

A flat-topped mountain with towering crags and a terrific precipice facing south-west, was probably Tagulam Bum seen from a new angle; and the long level ridge north of Tama Bum was easily recognizable. We immediately got the effect of two partly overlapping ranges, which would account for the arrangement in echelon, as seen from Sumprabum.

Lajā, 4500 feet, is a considerably larger village than Hkinlum, divided into two widely separated blocks, upper and lower. It would make an excellent base for further exploration in this district.

The 29th November was a hot day, and a tiresome march ended with the descent of a long steep spur between the Hkrang Hka and a big tributary from the north called the Htaneng Hka. This stream does not, however, rise on the rain range, like the true headwaters. Both rivers were half choked with enormous boulders of smoothed crystalline rock, and even at this season the rushing water made a great noise battering its way amongst them. A bamboo bridge spanned the Htaneng Hka, making use of a boulder near mid-stream; it was very slippery in the early morning when it was wet with dew. There was also a cane rope bridge over the Hkrang Hka.

The altitude of the river bed at the confluence is barely 3000 feet, so it is not surprising that the stony banks are lined with luxuriant forest. The damp climate, with hot summers, heavy rain, and no frost, is favourable to epiphytic plants, and especially to orchids, numbers of which adorn the trees. They also grow in large masses on the rocks between the fringing

forest and high water mark, together with thickets of shrubs, notably *Photinia Benthamiana* var. *salicifolia*, and a privet (*Ligustrum Massolanganum*).

The third day's march was a long and tiring one. It was cold when we started by crossing the Htaneng. At the confluence the temperature of the river was 50°, of the air 47°—very different from the previous afternoon; but by early afternoon it was most uncomfortably hot. After several long, steep ascents and descents over spurs, it was a relief to find ourselves in the river bed once more; we could at least go no lower. But it required another long ascent to get out of the deep valley. Early in the afternoon we reached a village, and would gladly have called it a day; but the full stage was another village two miles distant, and as the porters had gone on, we had to do likewise. It seemed the more stupid because the fourth day's stage was only four miles; the one we had just done, ten. To divide these fourteen miles into six and eight would have been far more convenient for everyone, and with a village at the eighth mile there was no reason not to.

That night it rained, and the morning of the 1st December had a damp wash-house feel and gloomy look about it. We had left the river behind us and were marching through the tumbled hills of a more populated country, with not infrequent small villages scattered along the low ridges.

We crossed another tributary of the Hkrang Hka, this time by a real timber bridge across which one could take mules; we were, in fact, on a mule path, though the only mules ever seen here are on the rare occasions when a government official from Sumprabum passes this way. There was less climax forest and more second growth; and the harsh contours seemed to be softening and running at the edges.

Though each day we seemed to cover only a very short distance on the map, the peaks on the main divide dwindled rapidly in size, and now seemed to be a long way off.

On the 2nd December we passed through two Kachin villages, and from the second, called Tagaung Ga, had a wonderful view of the main watershed from north of Tagulam Bum to south of Tama Bum. This view included practically all that portion of the range which fed the Hkrang Hka. It was almost our last view of the now familiar but ever unrecognizable peaks. For several days our eyes had turned towards a row of three sharp fangs, each apparently on a different and overlapping range. Actually, as we now perceived for the first time, they stood close to one another on a single range. It was not the main range, but another lesser range which ran parallel with it, but six or eight miles farther west. It was this, together with a third range (both of them truncated by the Hkrang Hka), that gave the appearance of overlap on a single range as seen from Sumprabum. Seen from the southwest, the three ranges are in fact arranged in echelon.

The three fangs in ascending order culminate in a flat-topped peak marked Kanikana Bum, 9674 feet, on the map; but the Kachins called them Kanani. Approaching them from the west, they form an outstanding landmark in this region.

So we trudged on, and that afternoon reached Kamajaw, there rejoining the road which follows the left bank of the Hkrang Hka to Arahku. I don't think one road is better, or more interesting than the other; and both are hard.

It was from Kamajaw in March we had had our first glimpse of the three fangs, but the weather then was so thick we saw very little indeed of the mountains towards the head of the valley, and did not even realize that they were not on the main range.

Next morning the sky was grey when we started, but we could still see the most distant peaks quite clearly. However, that didn't prevent it from raining hard most of the morning. In the afternoon the sun came out. The nine-mile march to Htingnam did not take us very long, nor was it unpleasant; but Htingnam had lost the bloom of youth it had in the spring; it looked part worn.

We had thought of resting here for one day, but the porters said they didn't need a rest, and that if we did, they would demand half a day's pay. So we decided we didn't need one either. A second mail awaited us here—more papers and periodicals, enough to keep us in reading matter for a month! If this went on we should require an extra porter to carry our mails alone.

We had finally turned our backs on the alpine range, and should not see it again until we were west of the Mali Hka and a couple of thousand feet above it. Since leaving Lajā we had never been above 4000 feet, and were generally below 3000. We had now put sufficient distance between us and the mountains to have got beyond their influence. Henceforth the forest was pure sub-tropical Indo-Malaysian.

The 4th December was quite a day. The porters, sleeping not far away—or *not* sleeping—kicked up such a din about 1.30 a.m. that they woke us up; and after vain attempts to get to sleep again, we decided that our prospects were finally blighted and we might as well make an early start. So about three o'clock I woke the boys and ordered tea. By sunrise we were dressed, packed, and had finished breakfast; and by 6.30 we were on the road.

The nine miles to Lungkang were soon covered; and now for the first time we looked directly into the valley of the Mali Hka, which, however, was full of cloud. The recent atmospheric depression was still hanging about. Here I picked up the orchids mentioned in Chapter 7—a hot-weather deciduous *Dendrobium* like *D. aphyllum* which flowered before the real rainy season began.

We sat down, waiting for the porters to arrive—it was only 10.30. Thanks to our early start we still had most of the day before us. Jean suggested we go on and do another stage.

“After all, the porters want to get on,” she said slyly, “and there’s nothing much to do here.”

“I don’t mind,” I said weakly, knowing that if she had made up her mind it was no use protesting. Actually there wasn’t much to do. The few species of plants we had collected were already in the light press carried by Pawt Ning Gam.

Joi Wa Naw and Lan Nye Naw arrived with several of the porters. They went into the rest house.

“We’re going on,” Jean said firmly, and got up.

The boys looked blank, but said nothing. One or two porters protested feebly, but were pooh-poohed down. They had said they were in a hurry to reach Sumprabum. Well . . . ! Jean drove them on, drove the servants on, finally drove me on.

“It’s only eleven more miles,” she said, “and all down hill,” which was—roughly—true.

Before we were clear of the village we met the Htingnam postman on his way up. He carried a third big mail for us, of which we grudgingly relieved him. We were past caring . . . never since we left Sumprabum had such meaty mails overwhelmed us with such unfailing regularity, and at no other season of the year would they have been so unwelcome.

The next three miles to Samaw Ga was easy going. We halted here for a drink of *zaku*, getting a whole bottle for six annas. I drank two mugs full and so did Jean. We also collected fruit of the “daisy chain” tree—a soft one-seeded berry rather bigger than an elderberry and the same shiny black, which when ripe falls at a touch. The orange bushes were covered with golden fruit, but they turned out to be more lemon than orange, though with a deceitful colour and shape; the sourness drew one’s mouth as though purse strings were attached to the corners.

For the next two miles I walked on air, so the *zaku* must have had some kick in it; but the last three or four were not so good and we began to flag. Arrived at Ningma Daru, after twenty miles, I threw myself on my bed and was immediately asleep, waking up an hour later feeling fine.

Ningma Daru should have been warm, but the deep wet night mist made it feel bitterly cold; the actual minimum temperature next morning, however, was 54°. I collected seed of the local tea trees here, and took some photographs of them.

We crossed by the ferry, and leisurely covered the six easy miles to Tanghku, reached early in the afternoon.

And so dawned the 16th December. It was thirty-seven weeks since we

had set out from Sumprabum to seek and to find. They had been good weeks on the whole. The valley mist reached up above Tanghku, but by nine o'clock we were clear of it, with blue sky overhead; we strode out for the col. Before we reached the top we could see, looking across the Mali valley, the wide horizon to north and east, and the long skyline of the range we had been exploring, white once more with snow. We bade it farewell, crossed the col, and turned the corner; and there was Sumprabum, with the Kumon range behind it.

We went straight to Sunder Singh's bungalow— as previously arranged. He himself was away, but was expected back that evening. Our room had been prepared for us. Then, after paying off the thirty-eight porters and unpacking a few things, we settled down to tea on the veranda, sitting comfortably in cane chairs. There was a clean white table cloth with a blue border, and lots to eat—including bread, the first we had tasted for eleven months. (Sunder Singh later said he'd bought it in Myitkyina bazaar ten days before, but it tasted none the worse for that, and was not even mouldy.)

In the middle Sunder Singh arrived in his jeep and we all talked at once. Later in the evening, sitting round a big fire, we had a tot of whisky and ate potato chips and roasted peanuts till it was time to have dinner—a magnificent curry prepared specially for us. After the frightful breakfast of old yams Joi Wa Naw had given us before we started that morning—perhaps the worst we had endured in the 260 days since we left Sumprabum—we enjoyed Sunder Singh's curry.

CHAPTER 3 I

Finale

OUR companions arrived on the 9th. Now we lost our two Hkinlum men, Maru La and Pawt Ning Gam, who wanted to return to their village. We were quite prepared to take them down to Myitkyina with us had they shown the least desire to come; but they preferred to go home. As there was so little home work to do, we paid off Lan Nye Naw, keeping only Joi Wa Naw for odd jobs. That young man, too, wanted to go home, and gladly would we have released him also, only we needed one man. When he showed signs of walking out on us, I reminded him that we still owed him a fortnight's pay.

It was pleasantly warm now, day temperatures rising to 70° or higher—up to 73° on two occasions; dropping to 58° at night. The daylight was brief, however, lasting barely eleven hours, compared with nearly fourteen hours at midsummer. In the latitude of London, however, midsummer day has about fifteen hours' daylight.

On the 14th Tha Hla and I left Sumprabum for the Mali Hka, this time by the Kijitu road which goes south-east. I wanted to see if there was any cultivated tea in this direction, and also whether I could find any more species of *Camellia*, known or unknown. We had seen neither *C. Wardii* nor *C. stenophylla*, both of which I had discovered in the valley of the 'Nmai Hka some years previously, and which might, I thought, occur here also. Neither had we found *C. drupifera*, which is so common in the mountains of Assam.

On the second day we crossed the Hsin Hka, a small river flowing in a deep rocky gorge, the cliffs lined with thickets. It was just the sort of place where camellias grow; but though several unexpected shrubs occurred here, camellias were not amongst them. The rocky banks of this small river afforded an excellent example of one of the limited areas in North Burma which is not covered with forest. The species we found have no place in the forest, but are free to wander up and down the open gorge, forming a permanent sere—a type of vegetation simpler than the forest climax, to which it could only aspire very slowly, as the river dug its bed more deeply, and the seral shrub species were gradually replaced by trees.

This day we met a large party of Lisus carrying wooden cradles and other gold-washing apparatus, bound for some alleged auriferous river. Most of the Irrawaddy tributaries carry gold dust, some much more than others; but it does not appear to be sufficient to justify large-scale dredging with modern machinery.

The Kachin villages where we slept—Maram Ga and Gumshen—were small and had nothing special to recommend them. Even the oranges were sour. On the 16th December we reached the Mali Hka again, about twenty miles below Ningma Daru, and crossed to the left bank. The travellers' rest house stood next to the only shop for miles and miles in any direction, and needless to say it was owned by a Chinese. The Chinese, who come from Yunnan, are by far the most enterprising race met with in the hills—and the most unscrupulous. However, leaving out that aspect, they do much good in the country as retail traders, and being generally successful, are not very popular. The Kachins are both lazy and inefficient as traders, regarding such regular humdrum work as beneath their dignity. If swashbucklers ever suffer from so sissy an infirmity as an inferiority complex, the Kachins might well look on the cultured Chinese—even the old-time pedlars—with disfavour. But more and more frequently are Chinese shopkeepers in the hills being singled out by dacoits. This particular shop, like the rare ones on the Putao road, sold a variety of dry goods—candles, cooking pots, rice, cloth, clothes garish in colour and dubious in quality, kerosene oil, and other things, besides more specialized articles like gold dust. Most of the profit came, however, from illicit trading in opium and liquor. Opium is undoubtedly an expensive luxury; the shopkeeper showed me a rupee's worth; it might almost have ranked as an invisible export. But it costs even more in Myitkyina, where it is directly under the eye of the exciseman.

We spent most of the 17th searching for tea. There is no difficulty in finding it, because it grows in every village. I was, however, rather surprised to be told of the existence of a different kind of tea, and to be shown—*Poinsettia*! The true tea differed not at all from that seen at Ningma Daru and already described; nor did we find any other species of *camellia*.

Gold dust, extracted from the river sand of the Irrawaddy and its tributaries, contains many impurities such as copper, silver and lead. I was told the Chinese sell it at Rs.124/- per tola—the weight of a rupee, two-fifths of an ounce avoirdupois. The dust is actually in the form of flakes; but tiny nuggets also occur, and weight for weight are slightly more valuable than dust flakes.

The southern Triangle is rather uninteresting country, mostly covered with second growth. There are few outstanding peaks, even on the main divide; however, it is entirely unexplored botanically, and one or two peaks over 10,000 feet on the watershed overlooking the Nmai Hka might have some good plants.

On the 18th we re-crossed the Mali Hka and set out once more for Sumprabum, where we arrived on the 20th. Trucks and jeeps were coming up at frequent intervals, but they were in great demand, and a day or two

passed before we could get transport to Myitkyina. The drivers were unreliable—not as drivers, but in business. However, on the 23rd everything happened at once and we got two jeeps and a weapons carrier. Both the jeeps, one carrying Chit Ko Ko, the other mainly our kit, left early in the morning, intending to reach Myitkyina late the same night. Several of us, and most of the kit, travelled in the weapons carrier, which starting at 2.15 from the bazaar, reached Maithang Ga, thirty miles down the hill, at five o'clock.

It was sad to leave Sumprabum, where we had spent so many happy days, but at least we were fortunate in having had an experience on which we could look back with pleasure for the rest of our lives.

On the second day, though we did not start very early, we travelled late, and by tea time had reached 'Nsop Zup by the river. On the way we met Sunder Singh in his jeep, returning to Sumprabum from Myitkyina. Shortly after leaving him we collided with a Land Rover on its way up. No damage was done, as both vehicles were travelling slowly, but the road was temporarily blocked. Luckily there was no *khud* to go over just here—one of the very few "safe" sections of the Sumprabum road. The accident wasn't our fault, but as we were in the larger vehicle, we got down and apologized to the driver of the Land Rover, who turned out to be the new Deputy Commissioner of Myitkyina. Just behind him, in a second Land Rover, were the Superintendent of Police and the Excise Officer whom we had met before—so we were in good company. They were all on their way to Sumprabum, which for the next few days would have to be on its best behaviour, while being inspected.

The weather had been getting perceptibly warmer as we left the mountains behind and approached the plains, and at the same time descended. When we awoke on Christmas morning 1953 at 'Nsop Zup, the minimum thermometer stood at 55°. The cloud ceiling was low, but well clear of the river; by ten the sun was shining. The temperature of the Mali Hka was 61°—surprisingly warm.

There had been a noticeable change, from white sandy soil in the hills, to a warm sepia-orange clay along the river, most conspicuous in deep cuttings where small bulldozers had recently been at work.

At Tanghpri we turned aside to take a last look at the confluence, and found several dozen people who had come from Myitkyina in jeeps and small cars picnicking. Many of them had remained stuffed inside their vehicles like potted meat. Clearly they were enjoying their Christmas holiday. What a magnificent setting for a public park!

The last twenty miles were covered at speed, and we were in the outskirts of Myitkyina before ten o'clock. It was curious that, without any intention on our part, we should have reached Myitkyina on Christmas Day. Just as a

year previously, after a rather aloof Christmas, we had said to ourselves that we had no idea where we would be spending the next one, but at least it wouldn't be in Myitkyina!

We preferred to make our own arrangements for food at the Circuit House, and Tha Hla, who was staying with a friend of his, lent us his cook Maung Ba Zan. Unfortunately we had been unable to buy any fresh food in the bazaar, and when evening came found ourselves with one tinned Christmas pudding, generously given us by Father MacManamon, one of the Irish priests stationed then at Sumprabum. However, half a Christmas pudding is quite a meal in itself, even if you've eaten nothing but oranges since early breakfast; and we were in no wise dismayed by the lack of conventional fare.

We had it heated up, and were just about to start work on it when Mr. and Mrs. Carter and their daughter Judy arrived. Mr. Carter—of America—was the local Agricultural Officer under the U.N.O. scheme for increasing food production, and we found them a charming family. We had brought a letter of introduction from Father MacManamon, who knew them well, and having sent it round that afternoon, they lost no time in calling.

However, the first effort in hospitality was up to us, so of course we invited them to share the Christmas pudding, pretending that we had already finished the main course. The Carters had had dinner, whereas (unknown to them) we had not had a meal since breakfast. They couldn't resist an offer of Christmas pudding, so it had to be cut into five portions instead of two! But there was no need to go hungry to bed, for they brought with them some tins of luscious Californian peaches, all wrapped in gay Christmas paper.

We spent the next five days in Myitkyina, making up packets of seeds and finishing off the botanical work. We had no reason to go into the town much; when we did, we noticed that it was full of young people—boys and girls—in semi-European dress, who seemed to have nothing to do. Chinese and Burmese girls, wearing conical limpet-shaped straw hats, rode bicycles—as shocking an exhibition to an older generation, no doubt, as the first girls dressed in bloomers were to Victorian matrons.

But the point is: Myitkyina, no longer the sleepy little riverside village it had been before the war, was now a bustling town, and riddled with thieves. The Catholic priests had been burgled three times; and while we were there, Tha Hla's clothes, hung out on a line to dry, were all stolen in the night, and with them Jean's expedition sweater which she had lent him. Are the young, who have nothing much to do, turning into a race of spivs; and are the thieves recruited from the spiv ranks? After dark the town becomes noisy, and is garishly lit up. Only at the northern end is it quiet; and such sounds as one hears (the slow squeak and creak of a bullock cart,

the cawing of crows, and after dark the shrill whistle of the train as it comes round the bend) are not unpleasant.

However that may be, we enjoyed our short stay; everyone was very kind to us. On our last day we had lunch with the Carters—a wonderful American meal with pumpkin pie, ham and green peas, hot rolls and cherry pie—the kind of meal one dreams about on an expedition, only to wake up to a bowl of curry and rice, ample in quantity but sometimes uninspired. Afterwards the Carters drove us to the airfield in their jeep, on our way to Mandalay and Rangoon. By 2.15 we were airborne; the mountains faded astern. The expedition was at an end.

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