

A SEA OF SCRUB RHODODENDRON.
(*R. NIPHARGUM* AND *ABIES DELAVAYI*).

THE ROMANCE OF PLANT HUNTING

BY

CAPT. F. KINGDON WARD, F.R.G.S.

Author of "The Land of the Blue Poppy,"
"The Mystery Rivers of Tibet," etc.

ILLUSTRATED



LONDON

EDWARD ARNOLD & CO.

1924

[All rights reserved]

43.0

HIMALAYAN CLUB
LIBRARY

CLASS NO. 581.9

BOOK NO. W04 - 6

PERSON TO BE

Acc. NO. 146

17. 8. 59

Made and Printed in Great Britain by
Butler & Tanner Ltd., Frome and London

To
MY DEAR FRIEND
SIR ARTHUR E. SHIPLEY, K.B.E., Sc.D., F.R.S.
MASTER OF CHRIST'S COLLEGE,
CAMBRIDGE

PREFACE

For the experiences and scenes described here I have drawn on three plant hunting excursions before the war (1911, 1913-14) and three since the war (1919, 1921-22) ; but more especially on the journey of 1922. To carry out this last expedition I received grants from the Government Grant Committee of the Royal Society, and from the Committee of the Percy Sladen Memorial Fund, which together covered most of the expenses. The journey so financed was therefore undertaken primarily for scientific purposes.

My thanks are due to my wife for compiling the index. For the benefit of those who are raising my plants, I have indexed all the seed numbers referred to in the text.

F. K. W.

LONDON, 1924.

CONTENTS

CHAP.	PAGE
I LOVE OF FLOWERS	I
II PLANT HUNTERS AND PLANT HUNTING	14
III THE START FOR CHINA	33
IV THE VALLEY WHERE NO MAN COMES	48
V YUNNAN, LAND OF THE SOUTHERN CLOUD	66
VI THE INN OF GOLDEN HAPPINESS	87
VII THE VALLEY OF BEAUTIFUL FLOWERS	104
VIII THE LAND OF THE YELLOW LAMA	122
IX GLACIER LAKE CAMP	148
X PLANT HUNTING ON THE CLIFFS	170
XI PLANT HUNTING ON THE SCREES	192
XII THE RHODODENDRON MOORLAND	208
XIII IRIS MEADOW	222
XIV HARVEST	234
XV THE DREAM OF A PLANT COLLECTOR	254
GENERAL INDEX	271
INDEX TO PLANTS AND FLOWERS	272

LIST OF ILLUSTRATIONS

	FACING PAGE
A SEA OF SCRUB RHODODENDRON	<i>Frontispiece</i>
FORDING A RIVER IN WESTERN YUNNAN	36
A HIGHWAY IN WESTERN YUNNAN	66
THE SACRED LAKE OF YUNGNING WITH PINUS YUNNANENSIS	106
MULI	125
RHODODENDRON SOULIEI }	162
CAMPANULA CALCICOLA }	
A MANTZU WARRIOR IN FULL DRESS	170
ALPINE MEADOW WITH RHEUM ALEXANDRÆ	228
MAP	<i>at end</i>

THE ROMANCE OF PLANT HUNTING

CHAPTER I

LOVE OF FLOWERS

Our England is a garden, and such gardens are not made
By singing "Oh! how beautiful," and sitting in the shade,
While better men than we go out and start their working lives
At grubbing weeds from gravel paths with broken dinner-knives.

RUDYARD KIPLING.

Every one loves flowers. But how many people realize the forethought, knowledge and care bestowed on them, the time and labour, the money, aye and the risk to life and limb, which is paid gladly to maintain and to increase the stock of beauty in English gardens?

It is possible that the English, more than any other people, appreciate flowers for their own sake; at least they think they do. Every Englishman who has a home of his own, has a garden, be it only a yard; otherwise he has a window box, or at least a pot plant on his mantelpiece. In cities there are also communal gardens.

City children who have no gardens of their own to play in, pick the People's flowers to brighten the

tenements. Even the exile on the frontiers of the Empire cultivates roses ; flaring Cannas brighten his compound, under the heavy shade of the Banyan.

Remember, reader, that many of our best known garden and ornamental plants are aliens. One need only mention such familiar and thoroughly acclimatized plants as lilac and laburnum, or such universally grown flowers as Chrysanthemum, Dahlia and Phlox, to make this clear. Our greenhouse flowers—Calceolarias, Cinerarias, Schizanthus and other favourites are all aliens. Innumerable foreign trees and shrubs are cultivated in our parks. Even the horse chestnut, from which we derive a vague festival, known as ‘chestnut Sunday,’ is an exotic. So also are the sycamore, the Lombardy poplar, and the holm oak. Many of our foreign plants are invaluable, for we have introduced those of economic as well as those of ornamental value. The potato, the tomato, the walnut, even wheat itself come from overseas.

More are introduced each year—chiefly ornamental plants nowadays. We rarely hear of a new vegetable or a new fruit, for these things come from the haunts of men, and the haunts of men have been pretty thoroughly investigated ; it is from the remotest mountain cores that our modern introductions are being drawn. They crowd in on us, faster than we can absorb them. The Rhododendron has come to stay. The bilious-looking purple-flowered ‘ponticums’ which were used with such devastating effect in the prim and ugly shrubberies of Victorian days are being replaced by hybrids, or by Chinese and Himalayan species of real beauty.

Whence have these foreign plants come and how ?

In the answer to that question partly lies the reason for this story.

Some plants are sent by residents abroad, by missionaries and by Government officials. A few have been sent by travellers. But most of them have been found and sent home by men who went abroad for that particular purpose, and for no other, by specialists in fact. Plant hunters are searching the world, patiently, intensively, for new plants, strange or beautiful. Sheer curiosity is partly responsible for this.

Thus one of the services performed by the plant collector is to open the gates of the world to a wider vision ; to bring home plants undreamed of by our insular English, and add new freshets of colour to swell the tide of England's beauty. The vast majority of our countrymen can never hope to see these plants growing in their natural surroundings, through the crystal atmosphere of the mountains. Never may they know the vague vast sweeps of colour on the Tibetan moorland ; ten thousand flower bells swinging to the breeze in the Burmese meadow ; or tropic tree trunks mantled with a purple and ivory mist of orchids. This background no traveller can bring home. But such plants as can adapt themselves to conditions under an alien sky add to the enjoyment of the English flower lover ; and these the plant hunter sets himself to introduce.

It would, however, be absurd to pretend that the English have a monopoly in their passion for flowers. What they have almost a monopoly of is opportunity.

Two factors contribute to this inherent love of flowers—the English climate and the roving dis-

4 THE ROMANCE OF PLANT HUNTING

position of the people. Most temperate plants can find suitable conditions in some corner of these lucky isles, and the English love of high adventure has resulted in every corner of the earth being explored and made to yield up its treasures, gold and precious stones, and what is more precious still, beauty. And there is yet another factor. Horticulture in England has reached an amazingly high standard. English, and perhaps even more Scotch gardeners have an uncanny skill, which has put them in the first rank.

The result is, English gardens are the envy of the world. There are no gardens in Europe, or on the continent of America, or anywhere else to compare with our own. In France, Italy, America, gardens are the plaything of the rich ; and all the wealth of the United States has not availed to instil a real love of flowers into the people.

Japan is a garden, but the Japanese are not gardeners. Nurtured amidst beauty, they have a *flair* for colour and landscape. They worship trees in their temples ; the contrast of colour in the cherry tree, the grace of Wistaria, the elegance of willow, they understand. Form and colour—these appeal to their artistic sense. Cherry blossom time is a national festival, and every month of the year has some plant dedicated to it. The people, dressed in their best, take holiday to see the Irises in bloom, or the Lotus, or peach. These enter into their art and their poetry—these, and the pæony, the maple and the Chrysanthemum ; and who will impugn their taste ?

But as gardeners they are futile. So far from loving plants for their own sake, they loathe them with so intense a hatred that they can bear to torture them !

Well do we know the dwarf trees of Japan,—the twisted cherry writhing in agony, the gnarled and stunted *Arbor vitæ*, the starveling plum ; Magnolias, Kerrias, even the pine, undersized, wizened and squat. These heaven-sent trees they would rack and crucify to suit a whim. There is no beauty in such fustian.

But as the Japanese admire form, so their most adored plants are trees. You cannot find much tortuosity in a Primula, nor expect the frail and proud lily to be plastic in the hands of the inquisitors. But trees are made of sterner stuff. They can be bullied into shape. The landscape gardens of Japan are neither landscapes nor gardens. They lack the atmosphere which makes a landscape, the flowers which make a garden. But the perspective is perfect. For elegance, for witchery and restfulness there is nothing to compare with them—except the same thing in China. It may be art ; but it is not horticulture. Finally, the Japanese are content—and rightly so—with the beauty of their own flowers. They have not searched the world for more beauty with which to deck their islands. Perhaps the difference between them and the English is that they are content with the beautiful ; the restless English, only with the most beautiful. Or is it that they realize better than we do that beauty comes from within ? Nevertheless the Japanese are not gardeners, and it would be impossible to name a score of plants widely cultivated in Japan.

What Japan knows of garden art she copied and adapted from China. But as horticulturists the Chinese are far behind Europeans. Sinologues may gnash their teeth at this. The Chinese, they will blandly inform you, with that withering assumption

of esoteric knowledge so galling to the laity, cultivated plants many centuries ago ; always have done so, in fact. There are gardens, temple gardens, private gardens, in every city in China. China is the Flowery Kingdom ; the Chinese flora is the richest in the world—though their researches are not likely to have taught them a fact to which the Chinese themselves are so completely oblivious. What profits it? No keen appreciation of flowers is connoted by sticking certain plants formally into pots, by pruning the roots of a shrub, till it grow lean and monstrous, by curbing the mannerism of a tree to a dull uniformity, or inviting its limbs to anarchy. The Chinese, though they excel in the practice of a standardized plant socialism, whereby plants are turned out to a pattern, are totally ignorant of what may be achieved by helping rather than hindering nature.

However, to do them justice, they have preserved in the temple gardens many trees which might otherwise have been exterminated ; and such plants as they have considered worthy of notice have received full meed of praise at their hands. Hardly a poem of note has been written, scarcely a picture has been painted, in which one or other of the chosen plants is not portrayed—often it is the bamboo, the pæony or the rose, perhaps the lotus, or maidenhair tree. No doubt there should be other things in a garden besides flowers. The common—or garden—lawn comes not amiss ; perhaps a pergola ; though that too has roses sprawling over it. But in a Chinese garden there appears to be everything but flowers. The inanimate object is so conspicuous that there is little room for anything else. A pond, with rustic

bridge, there must be, and a tea house. There are pierced walls, leading from one courtyard to another, a seat or two, a pagoda which looks like a lighthouse, and a clutch of long-legged iron birds. Probably there are lotus leaves floating on the pond, maybe flowers. There will be the long tassels of *Wistaria* for sure, and a submissive plum, trained over a balloon-shaped trellis ; and a tuft of bamboo perhaps. And it will all be very pretty and refined and soothing ; only, it won't be a garden, ever.

Less cultivated races, living in the mountains, are almost always fond of flowers, in their own way. They do not need private gardens—the world is their garden. The Gurkhas of Nepal, the Lepchas of Sikkim, the Tibetans and other hill folk, love flowers, and give names to the principal ones.

On days of festival you may see the Tibetan women and children picnicking in the alpine meadows. Picnicking is not confined to Suburbia, nor picking flowers to botanists. At dusk they return to the village in procession, singing, with bunches of flowers ; and they dance in the mule square till the stars come out.

The maidens of Burma deck their hair with flowers, and offer them at the pagoda ; and the Indian garlands those whom he delights to honour.

But when we come down to bed rock, horticulture is a western science, and plant hunting which supplies nurserymen and plant breeders with raw material, as well as filling our gardens with novelties (and our rubbish heaps with trash), is peculiarly English. For horticulture implies far more than gardening, or the raising of plants.

It is perhaps unnecessary for me to remind my readers of the three principles employed to *breed* plants—selection, crossing, and grafting.

Selection and crossing go hand in hand. To patient selection we owe many decorative flowers, such as the Chrysanthemum and Petunia. Grafting has given us the perpetual flowering carnation, and, to name something less ugly and more useful, the eating cherry, and hardy plum; while crossing has introduced us to the most refined shades of colour it is possible to conceive, as well as to whole new tribes of Calceolaria.

This is the nurseryman's craft. His ambition is to produce something new, regardless of consequences.

The plant breeder aims at a different result. He is a Eugenist. His object is to construct a plant which shall be immune to certain diseases, or ripen its fruit at a more convenient season, or give a bigger yield per acre. Rust-proof wheat and other disease-resisting cereals we owe to the scientific agriculturists.

There can be no denying that the nurseryman, in his frantic efforts to breed something new at all costs, is running serious risks. Constant crossing, artificial selection, petting, and forcing, weaken plants. They become prone to disease; and once disease gets a grip, it goes through them with devastating effect. Tulip disease is a case in point. Nurserymen tell you they never heard of it. The fact is they are frightened of it; they are afraid to mention it. The havoc wrought by this one disease alone is tremendous.

Similarly with imported plants. Rhododendrons alone are being raised in this country by tens of thousands. In western China they are remarkably free

from disease ; indeed I know of only one certain case of a species attacked by fungus—and it has yet to be proved that it is not really a case of commensalism, of equal benefit to both parties, fungus and host. The capsules frequently supply food—the young seeds—to grubs ; but that is another matter—the individual is not injured, though the species may be.

But what happens in China and what may happen here are two different things. A species of *Rhododendron* may be proof against any parasitic fungus so far evolved in China, and fall an easy victim to the battalions of this country. Or, before it is fully acclimatized to our whimsical climate, it may in a despondent moment lay itself open to attack and catch anything that is about.

Many problems of disease in the plant world remain unsolved. There is no known cure for silver leaf except the pruning knife.

So that it is as well there is growing up a school of plant doctors, mycologists, and others whose business it is to learn all about disease in plants. At present they are chiefly concerned with food plants ; but one day they may turn their attention to flowers. And since prevention is better than cure, we look to them for disease-resisting strains of our pet plants.

But this is too serious a note.

What are the most popular flowers of the day in England ? The test of popularity must be variety ; and since there are more people without gardens than with them, any such statistical inquiry, if profitable, would need to confine itself to cut flowers. It is easy to say the rose, iris, tulip, daffodil, narcissus, violet, chrysanthemum, and sweet pea. But there are so

many many more. Only this is certain—there is a far greater variety of popular plants to-day than there was even twenty years ago. In our public parks and open spaces the flowers grown in massed formation are astonishing in their range of colour and form. Even cheap and contemptible things like stock and sweet rocket are used with effect. Heliotrope, Calceolaria, Anchusa, wallflower, lupin, are all popular. And not one quarter of them are natives of this country.

All this the plant hunter stores in his memory. He is ever dreaming of a new plant which shall hold its own in private gardens and public parks, in flower shops, on the rich man's dinner table or on the poor man's shelf. The nurseryman judges the value of a plant by its rarity : the collector by its abundance. He knows that the most valuable plant is the commonest, or one that may become the commonest though *he* will never make money by it. It will become the heritage of the English-speaking people. It is easy to serve the rich man ; but to serve the poor man—*that* is his ambition. He knows that common plants are the rarest in England. There are hundreds of species, hybrids, and varieties, buried out of sight in the catalogues, and in exhaustive and exhausting tomes on gardening, which only occasionally see the light of day. But there are maybe only a few score really popular plants—flowers for the million.

With what joy does the collector look forward to his return home in the spring ! To one who has been long buried in the echoing silent places of the earth, there is no joy like that of mixing again with the multitude—one's own people. London is like a dream city ; scenes pass so quickly that everything is

mixed up, a synopsis of long-forgotten sights and sounds half recalled, all in their wrong order. A 'bus ride on a March morning, when the sun is punching holes through the mist and the city shows grey and green under the quickening flush of spring! He sees thus the Assyrian grandeur and simplicity of the modern big buildings, the tarnished domes and bloody keeps whose very stones are cemented with the romance and legend of our race, and catches a glimpse of grey old Thames—the drab road to the vivid East.

And in all this beating heart which is London there is no more wonderful sight than the street flower sellers. In no other city in the world are there so many flowers, so many flower sellers. They stand at every important street corner in the West End, with baskets of blossom; and fill the quiet vortex of the Circus with colour while the typhoon of traffic roars round them: I never go overseas but I think fondly of London and her flower sellers!

But there is another side to the picture. The wanderer soon finds that he can be more lonely in the teeming streets of London than ever he was in the mountains. As he watches the endless stream of preoccupied men and women hurrying, hurrying by with averted heads, and listens to the shuffle of tired feet, a sense of loneliness is apt to steal over him. The great, bustling world of London—yes! But each of those harassed persons lives behind closed doors in a world of his own, and those doors do not open to the stranger's knock. In high Asia you of course speak to every caravaneer you meet on the road; but there are no caravaneers in Piccadilly—only rude taxi drivers.

And now to our plants. There is no denying the fascination of raising new plants from seed. New forms may come up amongst old friends ; more intriguing still are 'rogues'—that is chance seedlings. It is a game all by itself. And the complex problems involved in the cultivation of plants!—why the common musk, which twenty-five years ago was sweetly fragrant, has lost its scent the world over ; why *Incarvillea grandiflora* is easily raised from seed, while *I. lutea*, which grows in the same Tibetan meadows, cannot be persuaded to flower ; why the seeds of that incomparable rock plant, *Myosotis Hookeri*, germinate like mustard and cress in England, and the seedlings, having taken a peep at the New World, dislike the look of it so much that they incontinently die ; and a thousand similar problems.

Or take the question of hardiness and acclimatization, the former bound up with a plant's constitution, the latter with its adaptability. All hardiness is relative ; there is no such thing as an absolutely hardy plant. A plant which survives a winter or two is proclaimed hardy. There are nurserymen who, when asked if a particular plant is hardy, will reply, "Oh yes, we find it quite hardy, if planted in the right place." They may consider such a reply oracular ; dishonest would be a better word.

Acclimatization properly refers to perennials, and implies something more than survival ; but it may apply equally well to biennials. If the new conditions throw out of gear any normal function of the plant, though it survive, it is not acclimatized.

It has often been observed that Chinese plants introduced into this country die out because they fail

to set seed. This is probably due to some effect on their constitution. It has been suggested that in some cases at any rate it is due to the stupidity of our insects who, confronted with an unfamiliar flower, pass it by. This is rather fanciful, because it is impossible to believe that the most insular insect, in the presence of a new flower, nevertheless of familiar shape and colour, would have the wit to recognize it for a new species botanically ; or recognizing it as such, would fail to—in the classic phrase, explore every avenue. Moreover *Primula Littoniana* has been cited in this connection ; but in Ireland, as I am informed by Mr. H. D. M. Barton, *P. Littoniana* seeds itself profusely, and since we have no reason to suspect that Irish insects are more sagacious than English ones, we can only conclude that the Irish climate is more suited to the plant's constitution. The problem of *Incarvillea lutea*, quoted above, is doubtless another case in point. The plant will not flower, because of some internal disturbance consequent upon changed conditions ; and if a plant will not flower, or flowering, is incapable of setting seed, the suspicion that it is not acclimatized becomes a moral certainty.

Much might be said under this head ; but my object is rather to touch lightly on the more interesting aspects of plant hunting and plant raising than to write a treatise on horticulture.

And if I seem to jump unexpectedly from one aspect to another, it is because the life itself is one of swift surprise.

CHAPTER II

PLANT HUNTERS AND PLANT HUNTING

Since brass, nor stone, nor earth, nor boundless sea,
But sad mortality o'ersways their power,
How with this rage shall beauty hold a plea,
Whose action is no stronger than a flower ?

W. SHAKESPEARE.

That anyone should earn his bread and butter by looking for new plants is, I suppose, news to many people ; it seems to strike them as curious, to judge by their remarks, and yet more by their scepticism.

“ What *are* you ? ” they ask me, curiously.

“ A plant collector ! ”

“ Yes, but what do you *do* ? ” in a tone of exasperation.

“ Why, collect plants,” I say brightly.

The introduction of new foreign plants into England on a large scale is a comparatively modern development, and may be said to have begun with the Victorian naturalists. The outstanding figures perhaps were Sir Joseph Hooker and Robert Fortune. Charles Darwin of course introduced several notable plants, as did others. Douglas was a pioneer in North America ; von Siebold in Japan. Hooker first brought home to Englishmen the glories of the Himalayan Rhododendrons. To Darwin we owe the discovery of *Berberis Darwinii*—a plant which in flower

is far superior to any of the dozens of Asiatic barberries—and other Andine plants (though *B. Darwinii* was actually introduced by Mr. Lobb later). Fortune and Henry were pioneers in the vast treasure house of China.

The Victorian naturalists were succeeded by a generation of hardy plant collectors. By the opening of the twentieth century, plant hunting had, like everything else, been commercialized. Thus came about the professional plant collector of to-day. When I joined the ranks, plant hunting was still an adventure : now it is a trade ; presently it will be a trade union. Yet incredibly huge and difficult mountain regions remain untrodden by the foot of the collector. It is indeed certain not only that we have as yet only skirmished on the fringes of botanical Asia, but that by far the most difficult part yet remains to be taken in hand. We have been up to the barriers which fence off the garden ; we have yet to climb over the wall.

But the craze for the new, merely because it is new, is only a whim. It will pass as surely as did the frenzy for orchids in Victorian times.

The worship of new species is mere idolatry. A beautiful flower is still beautiful, whether millions have seen it, or one or two, or none. In any case 'new' is a comparative term. There can be few plants introduced into England which have not been seen, and probably remarked, by the people of their native land. The true collector derives just as much joy from finding a plant which is new to him, whether it has already been 'discovered' or not. In any case he is bound to keep on introducing old friends, which

are continually dying out in England under the ill-treatment of our presumptuous climate.

The greedy scramble for new species, new varieties, new strains, and new hybrids, just because they are new, is both pathetic and vulgar. We all suffer from the disease,—the nurserymen who want the plants, and the botanists who want to name them, just as much as the collectors themselves. Every collector rejoices in a 'new' species; he would be less than human did he not. They are the brokerage on his dealings with Nature. But the inquirer into Nature's secrets, and the creative mind, do not greatly concern themselves with such dubious small change. Besides, the nurseries turn out better ones. Of course the hardened hucksters of England love that sort of false currency. It glitters; and we are a commercial people.

Plants, like politics, are best left, and ultimately must be left, to the judgment of the public. If the advocate can make out a good case for his pet plant before the bar of public opinion, the public will listen. If they condemn it—so! They are right. Popular plants are the best plants. Those who dwell in their little shrines, prostrate before rare exotics, worship false gods.

The most universally grown flower in England is the rose. The National Rose Society has, after the Royal Horticultural Society itself, done more than any other horticultural society in the country to promote simple, unaffected happiness, to spread good, to create sheer joy; for what joy is there in the world like that of living amongst beautiful flowers?

The rose is England's flower and ever will be.

The Chinese plant craze is less crazy than was the

thirst for new orchids, and in far better taste than the modern madness for manufactured orchids. The Chinese importations are, many of them at any rate, beautiful. Very few orchids, least of all laboratory orchids, are beautiful. Some are quaint, uncouth, more are monstrous, or downright queer, but beautiful—no! Their blurred and blotted colours, smudged on their misshapen faces, are vilely contrasted; they lack all grace, they have no vitality, rarely have they even fragrance. There is something altogether sinister, a cold and ruthless hate, about them. They personify, in their egotistical success, the ferocity of Nature. They are the snobs of the flower shows. Whatever else may be said, you cannot *love* an orchid, for it has no soul. Finally, orchids are the rich man's toy. That there are some lovely orchids I will not deny. I have been lucky enough to have seen many, both in the steamy jungle and in the Temperate Rain Forest; but I never yet saw one at a flower show. To have seen masses of gaily coloured orchids high up on some giant tropic tree is to have seen a wonderful sight—for a glimpse of which one may be humbly thankful. But that spectacle cannot be even remotely reproduced in England. That is where the hardy plant scores.

When we consider the number of new plants pouring into this country, and the expense involved in finding and raising them, it seems only just that there should be a law of copyright applicable to every certified new plant, destined for the market. This should operate for a short period only—say for three years after the first benching of the plant by its legitimate owner. The matter is perfectly simple. It is not

possible, and certainly it is not desirable, to prevent other people from cultivating a certified new plant—if they can get it. But it is possible, and reasonable, to prevent other firms from exhibiting a copyright plant at flower shows, and they could also be restrained from advertising it in their lists and in the gardening papers during the existence of the copyright. Only by some such means can the original finder, or owner of a new plant, hope to reap his just reward. Were breach of copyright made a civil offence, outside firms would not grow the plant at all until it had established a reputation for itself, or shown signs of popularity. For it is a fact that in the horticultural world money is made only with the commonest flowers—those which are sold in countless thousands ;—roses, tulips, daffodils, chrysanthemums, and in fact florists' flowers in general. Money is not made with the rare exotic, however beautiful. It costs too much to introduce it, to raise it, and to publish it. The owner, whether he is the collector or the collector's supporter, even under the most favourable circumstances can never hope to see his money back, until there is a law of copyright.

The original owner would of course be at liberty to transfer the copyright at any time during its existence. From time to time lists of copyright plants might be published in the gardening papers, with the year of their introduction, and the year of expiration.

As things are at present, outside firms frequently get both the credit and the cash for new plants which they had no hand in introducing. On the other hand, to do them justice, they are often instrumental in placing before the public a plant which, but for the

publicity thus afforded, would perish miserably in some private garden, or hide its light under a bush in Botanic Gardens.

The last person to be considered is the plant hunter. Unless he is in the fortunate position of being able to raise his own plants, which he seldom is, he is in danger of losing sight of them altogether. On his return to England he tries to keep in touch with them, for are they not his very own, his children? Some, he is told, have died; some did not come up at all; others were driven out of the garden, as undesirable, or given as a gift to Botanic Gardens, or to chance acquaintances. Collectors at home, though most generous in giving away plants, are selfish in this respect—they are indifferent to the fate of a plant after they have enjoyed it for a season. They forget that the plant hunter does not easily lose interest in a plant he has been at some pains and risk to secure. The future of his introductions is a matter of deep moment to him, their flowering a cause of deep joy. The resurrection of a lost favourite is sometimes brought home to him in a rather shocking way. Thus one day his attention is drawn to a paragraph in one of the gardening papers, to the effect that some complete stranger, having received a certain exotic plant from some one else, coaxed it into bloom on such a day. This same plant the collector perhaps recognizes as one he found himself in a remote alpine nook in high Asia; but he gets none of the credit here—he is not even mentioned in the dispatch. The man who raised it corrals the credit, and possibly *he* never saw the plant in his life till his head gardener showed it to him in flower.

The interest sometimes taken in the collector by his own firm is well illustrated by a remark made of me at Chelsea in 1923. A lady asked the man in charge of a certain firm's exhibit if he had seen me ; to which he replied that I was still in China. As I had been home three months, and was at that precise moment at the show, this young man was somewhat ill informed.

If a newly discovered plant is fortunate enough to create a mild sensation at the flower shows, the discoverer may be heard of, more especially if the botanist who described it named it after the collector ; hardly otherwise. People will show new plants, pocket first-class certificates for them, and leave the public to imagine that it was found on the top of Scawfell if you like. At any rate no mention is made of the country of origin, or of the collector. The bare facts are reported in the gardening papers, and the person who raised it gets all the credit there is going, besides the hall-mark of excellence, F.C.C.

But do you not think it odd, reader, that although our countrymen are more permanently interested in, say, roses than in the Mudford murder, yet pains will be taken to direct our attention violently to the latter, lest perchance we be distracted by the former ?

We take flowers for granted. Murder is rarer. Therefore it is more interesting. The real excitement of life is centred in murder and divorce. If a poster hurls at you the joyful message, ' Sensational Developments,' do not think it refers to the development of the rose. It does not. Roses appeal to the senses ; but they are not sensational. It requires the murder of a woman you never saw in your life by a

man you never knew, at an obscure village you never heard of, to create a sensation. All that. 'Fresh Revelations' does not imply that new plants have been brought back from the untrodden paths of Asia. It means hoary old tales of ugliness, sorrow and sin. For in England to-day only the mean, the sordid and the sorrowful are revealed ; beauty never.

After the murder, sanity returns and we strew flowers over the wreckage. Had we thought more of flowers to begin with, there might have been less wreckage at the end.

A still worse infliction from which the plant collector suffers is the misnaming of his plants at the flower shows. He is in good company here, for every one else suffers too. Almost every nursery firm at one time or another sends out plants wrongly named ; for the most ghastly confusion already reigns in the land of synonymy. But the best firms make few mistakes ; and a firm which habitually sends out plants under an alias, however becoming, is wisely left alone.

A rule exists that plants shown at Chelsea shall be named. A firm knows long beforehand what plants it intends to exhibit, and has plenty of time in which to name them correctly. And yet there was at least one glaring example at Chelsea in 1923, of a *new* plant masquerading under an honourable alias, thereby dishonouring both.

But this question of copyright. Is the system in vogue fair ? It comes to this. Under present conditions, the plant hunter sees his pet introductions sold all over the country for profit, while he himself receives not a penny royalty. If he is privately employed his

employer too—unless himself a nurseryman—sees others reap the reward of his enterprise ; he gets no return on his outlay except the right to grow his own plants ; and though no one grudges the widest possible distribution of his discoveries—indeed the plant hunter welcomes it, since it gives his plants every possible chance, the fact remains the spoils go to others. Needless to say there are always plenty of sharks cruising in the offing, ready to snap up what those who ventured out to sea secured at some peril.

Of course, if the collector is employed by a firm, that firm has only itself to blame if it misses a coup with a popular plant in the first season of its introduction. As things are at present, every nursery has equal opportunity—theoretically. But it occasionally happens that a firm not concerned with the introduction of a new plant corners the stock and is able to reap the entire profit for a season. Then it drops off gorged, leaving anyone who likes to pick up sucked grapes. The horticultural public does not wait for the price to tumble. If the plant is a popular one, they buy at once ; and all the firm has to do is to work up a stock sufficient to meet the probable demand, and ask their own price. At the end of a year the bottom is knocked out of the trust, and the price drops with a crash. Every one has the plant now. If the plant is an easy one to grow, graceful and pleasing, setting good seed, no ill, but a service has been done. The plant has been ‘published.’ Anyone can now buy it cheaply. But the number of popular plants is really extraordinarily small. I utter this word of warning in case any enthusiast should think that a fortune is to be made by the discoverer of

a popular plant, or a dozen popular plants. Whoever makes a fortune, it won't be the plant hunter.

It may be objected to the copyright scheme that it too would tend to keep up the price of a plant. And so it should. The same objection might be levelled at any other copyright ; the fact remains, if a thing is worth having it is worth paying for. No one has a greater right to a share in the profits than the collector, and at the expiration of the copyright the public can buy cheaply, just as they can buy cheap editions of the classics.

Botanical Gardens, though more skilful at raising seeds than private persons, are also more callous in concealing their offspring. They have an unkind habit of bringing up plants which no one else can rear, and then quietly assassinating them. After the post mortem, the episode is decently forgotten. Years later, the collector, who has perhaps been mourning the mysterious loss of a beloved child of the alps, comes across a paragraph in a scientific publication. In the cryptic language of expert science it tells the pitiful story. It is an epitaph to his dead plant. He learns now that it actually flowered from seed ; that it was subjected to vivisection, that it was painted by some person facile in technique (he barely recognizes it) and that it is now to be found as a mummified corpse in the herbarium, as dead and buried as a government confidential report. It is very sad.

Horticultural firms, in their zeal to promote other people's pet plants, represent one end of the scale,—the utilitarian ; botanic gardens, in their Olympian aloofness, represent the other end—the academic. And the collector generally falls between the two.

Horticulture, like any other art, has its cranks and faddists. The public, who have formed no tastes of their own, and are compelled to live in a world surrounded by the evils of other people's bad taste, naturally look to the flower world for beauty. On the whole they find it ; but there is a danger of regarding all florists' productions as beautiful, simply because they are flowers. Yet plants too have their failures, though much may be forgiven a flower ; some plants have certainly gone to the dogs—they are evil livers, and ugly as sin. The putrid *Amorphophallus*, the vulgar toad flax, for example ! What could be more dishonest than the bee orchis, more dowdy than the dead-nettle, more mean than the common groundsel !

And horticulturists, who are responsible to the public, are too often themselves cubists, or futurists, people who, for the sake of attracting notice, will commit any unæsthetic outrage. They, like other prosaic people, must live ; but also like other prosaic people they too often forget that man does not live by bread alone. This is not to say that art cannot improve the appearance of a wild plant ; it is only to maintain that it rarely does. Debarred by the march of civilization from disfiguring children to perpetual laughter, that as mountebanks they might provoke the mirth of others, our modern *Comprachicos* disfigure plants. The flower show has taken the place of the booth. Yet perhaps flowers, even in a flower show, never do evoke laughter ; some might surely call forth tears.

As for the modern bastard orchids, most of them look as though they were cut out of lard and dyed with aniline colours. They are amazing examples of the plant breeder's skill. But skill misapplied may

be a crime. However, so long as people are obsessed with the passion for new things, so long will bastard orchids and similar atrocities disfigure our flower shows ; till, with the improvement of taste, a complete change of heart takes place.

The introduction of new hardy plants is not open to the same objections, because after all, as already pointed out, many of them are beautiful. At the same time no one can deny that many useless and hideous plants have been foisted on the public, simply because they are new. There is no virtue in newness, as such.

Public opinion, so faulty and artificial in many things, is generally right as far as flowers are concerned. When the public takes a flower to its bosom, you may reckon it is a good one. It may not be first class—according to a certain rather arbitrary standard ; but there is not much wrong with it. Certain plants are grown by the million because they have life and colour and constitution, and can look after themselves. It is the established plant which counts. The old favourite will be a favourite always ; and entry into the august ranks of everyday flowerdom is not easy. Their privileges are guarded with a jealous zeal. The credentials of a new comer will be very carefully scrutinized. As for the parvenu which tries to force his way in with a blaze of vulgar colour, he is quickly shown his proper place in the background, if not on the rubbish heap.

It is probable that not 5 per cent. of a collector's introductions will ever be absorbed into the aristocracy of garden plants—whose dearest boast it is to be in a sixpenny packet of seeds.

I was amused at the Chelsea flower show by a remark made to me by a nurseryman. He said :— “ We had expected great things of one of your plants. You wrote home a glowing description of it ; but when it flowered it turned out to be only *Primula Bulleyana* ! ” Only *Primula Bulleyana* ! Reader, if you came across a meadow full of *P. Bulleyana* for the first time, would not you write home a glowing description of it ? I think you would. Curiously enough my ‘ glowing description ’ was in fact a description of *P. Bulleyana* and nothing else, though I did not name it ; but of course if you describe say *P. Bulleyana* to the average nurseryman’s assistant glowingly, or botanically, and send him seed of it, he always expects to raise *P. uniflora* or something equally remote.

I said to this young man : “ I’m sorry. I do not know every *Primula* in China by name. Do you ? ”

For my own part, I prefer primroses in a Kent hazel copse to the glory of Yunnan. I would rather see the purple and gold of the Grampians through a veil of mist than all the colours of the Indies. In the length and breadth of China, in all the tropics, there is nothing so beautiful as a Surrey wood carpeted with bluebells, or as an English beech wood in spring, splintered with sunlight, eager for life, trembling with beauty. We are so anxious to peer through a telescope at remote places, that we forget the use of our own eyesight. Beauty is at our doorstep the whole time, and we hold the world in fee for it ! Truly the kingdom of heaven is within us ! And afterwards ? Some day I shall retire to a cottage in the country,

with a wee garden. There will be hawthorn trees and dog roses and sweet-scented violets ; in spring there will be snowdrops and daffodils in the grass, and in summer brown wallflowers along the hedge-row. . . .

An important duty of the plant hunter is that of making an herbarium ; he should always, if possible, collect dried material at least of those species of which he intends to take seed.

The immediate object of this as a guide to the horticulturist has owing to various causes lost much of its significance. In the first place, the collector's judgment has come to be more and more relied on. If he knows his flora fairly well, and has a shrewd idea of a good plant ; and if, further, he can describe his plant in botanical jargon, it should, theoretically, be possible to identify it from that alone (if previously known), or to name it, if new to western science. In practice this rarely happens. Either the description is incomplete, or the original type reposes in Petrograd, or Tokyo, or New York, thus rendering comparison—the acid test of identity—difficult. But this is an academic dose. To return to realities.

In the second place, the material sent home by your modern commercialized collector is so enormous that it is a matter, not of months, but of years before it can be sifted, catalogued and described. The herbarium material will, of course, be greatly in excess of the seeds, since every interesting plant met with by the collector will be added to his collection ; whereas seed will be collected only of those plants which hold out hopes of being either useful or ornamental.

In the third place, the members of a horticultural

syndicate, or a big nursery firm, or whoever it is finances the collector, are not themselves interested in dried plants. They are not prepared to enumerate the papillæ on the pistil of a *Primula*, or count the glands per square millimetre of leaf surface on a *Rhododendron*. What they want are live, vivid, virile plants. The corpses are gladly bequeathed to the herbaria attached to our great centres of botanical lore—Kew, Edinburgh, London, or Cambridge; and in the dungeons of those feudal institutions are held the necessary inquests for purposes of identification.

That takes time. With the best will in the world, these places—which in England are chronically hard up, and therefore understaffed—cannot do more than a certain amount of work in a given time. They cannot identify a thousand species of plants from the interior of Asia offhand; nor do they, as a matter of fact, exist solely for the benefit of the collector and the nurseryman. In short, they have other fish to fry, and the describing and naming of new species is often the hobby of some overworked enthusiast, who does it in his spare time with no thought of extra remuneration. At least the impatient collector, anxious to see labels attached to his discoveries (despite the philosophic epigram of Juliet) will always meet with the utmost kindness, courtesy, and assistance from the headquarter staffs of our famous gardens. If the collector can himself name and describe his own plants so much the better. But the collector home on a year's leave is easily galled by the yoke, and makes but a poor student. Worse than that, he is generally a poor man, with his living to earn. Even a plant hunter must live; and since no one pays him for

describing plants, he is forced to describe plant hunting. That is why I am writing this book.

For these several reasons, then, it is usual to raise plants from all the seeds sent home by the collector, and it must be confessed that a terrible lot of trash has been raised for the rubbish heap along with the good stuff ; in some cases owing to bad judgment, or to ignorance, or to over-enthusiasm on the part of the collector, sometimes owing to the misplaced zeal of native collectors, and sometimes owing to the peculiar tastes of nurserymen. The impatient horticulturist simply sows the seeds which are sent to him, trusting to the collector's glowing description, or to luck, or to the possibility of a good new variety or a 'rogue' coming up in his seed pans. The collector then amasses an herbarium as he goes along. The collecting and drying of specimens is an art in itself. I do not propose to go into that ; there are books which deal with the subject, and experience will teach the collector more. I merely wish to impress upon my readers that the whole art of plant hunting is not quite so simple as it sounds.

In order to assist him in this arduous labour, and in the routine work, the collector naturally engages six or eight native assistants, whom he trains to the job. That number he can conveniently supervise and direct. They are taught to collect everything they see in flower, and as far as possible to sort the sheep from the goats ; seed is required of the former only. When a native assistant finds a good plant on his particular peak, or up the valley where he is working, he is told to take you by the hand next day and show it to you, growing ; for to the naturalist no

second-hand information is as good as seeing a thing growing wild in its own haunts. It also gives him a chance to photograph it.

Of course the native collector is blind compared with the trained European ; just as the untrained white man is blind compared with the expert collector. You, reader, might see one flower for every two seen by me ; the callow native might see one where I saw ten ; and even after much practice he would still miss two-thirds of the flora, however carefully he went over the ground. But that is in the nature of things.

Cultivation has endowed us with many lovely plants. Good feeding, selection, grafting, crossing, pruning, all the ingenuity and vision of generations of clever horticulturists have left us a legacy which is the pride and glory of England. Let us not squander it. Let us not allow commercialism to swamp our sense of beauty. It is astonishing how many things horticultural baffle us. No one has given us a yellow sweet pea, or a yellow aster, or even a blue rose. But do we want a blue rose ? Imagination jibs at it. We have never seen a blue rose ; therefore we do not want to see one. Our innate conservatism, inherited through generations, revolts at so startling a change. Yet there could be nothing hideous in a blue rose, except that it outrages our idea of a red one ; neither is there esoteric virtue in it. Blue is not a rare colour in the garden. *Lithospermum*, *Cynoglossum*, *Anchusa*, forget-me-nots,—in fact the whole 'Borage' tribe, with gentians, larkspurs, and *Campanulas*, supply us with a liberal ration of assorted blues. So why worry because we have not produced so monstrous

a thing as a blue rose? But as I have already pointed out, the craze for a new thing simply because it is new is deplorable. If our emotions are so wilted that it is necessary to apply a violent shock before they will respond, it were better to let them perish outright.

While an unbiassed person can see no intrinsic merit in a blue rose, such a thing would not necessarily be unæsthetic. Nay, it might be beautiful, once our prejudices had been bludgeoned into acquiescence. But there is a limit. All colours to all flowers may be the ultimate goal; but to double every flower that blows is a persecution which can beget only one thing—a vile and shameful uniformity. The cultivated rose is a great and astonishing improvement on the wild one, though the latter is no mean thing; but a double Rhododendron is hideous. A rosebud is in itself beautiful. It has form. But a double Rhododendron has no form; it is an amorphous mess. It has lost the clear-cut outline of the Rhododendron corolla, the sweep of the stamens, which is so charming, and thereby its individuality. And it has nothing to offer in its place. The cranks and cubists are now straining every nerve to produce a double sweet pea, thereby degrading one of the most lovely forms in Nature, to the level of a common flounce. It is bad enough for the plant breeder to tighten up the already fat Rhododendron truss, with yet another rivet, and to inflate the harmless Calceolaria till it is as turgid as a shire hog; but indiscriminate doubling is sheer crime.

When every flower is turned out to a uniform pattern as our villa residences are turned out of a mould, street by street, maybe we shall turn in anguish

to that infinite variety of Nature which is God's charter of omnipotence. Cranks lead us by the nose. This deplorable plant socialism is a constant menace. Disguised under the sonorous term 'novelty,' they have jilted God, ever unfurling new beauty as the expression of His wisdom.

All flowers are to be reduced, like vulgar fractions, to a lowest common denominator ! When they have committed this mean outrage, the cranks will pat themselves on the back, and find ten thousand other fools like themselves to buy their ugly wares.

But men will laugh at them.

CHAPTER III

THE START FOR CHINA

Beyond the East the sunrise, beyond the West the sea,
And East and West the wander-thirst that will not let me be,
It works in me like madness, dear, to bid me say good-bye,
For the seas call and the stars call, and oh ! the call of the sky !
G. GOULD.

Look you, reader ! Suppose you, being legitimately employed, received a letter from a fanatic, asking you to make a journey to Szechwan, or to the Atlas Mountains, or the Chilian Andes, to look for new plants, what would you say ?

The request is a veiled ultimatum ; you are given twenty-four hours to make up your mind. Refuse, and the chance is gone for ever. You would accept first, and sit down to think it over afterwards. Presently fermentation would begin, and a mash of thoughts would froth and bubble in your mind. When the effervescence had died down certain questions would persist. "*What* plants am I to get ? *How* am I to collect them ? How do I get there ? What do I take with me ? What about servants, transport, an unknown language and climate and mode of life ? Is the country inhabited ?" And so on. If, reader, you are as old as I am (I hope you are not), you will have learnt geography at school. You will have learnt the counties of England, the capes

on the east coast, the bays on the west coast ; possibly you know the longest river, the highest mountain, and the largest lake in the world. And even all that won't help you now ; and you call yourself a fool to have accepted so preposterous a commission. Later the flame of adventure in you, which has burned like a vestal fire in our race for a thousand years, will flare up, and you will decide to carry on.

Let us examine the proposition carefully, and let it be granted, as Euclid says, that you are asked to go to Szechwan.

Where is this sneeze situated ? It is a province in the far west of that vague region marked China on the map. Now you have probably heard that there are, to put it mildly, several dialects of Chinese. In any case you have no time to learn one of them. If you go at all, you must start at once—you have to be there within three months, for the spring flowers. Already it is February. So you make what provision you can to procure an interpreter.

Subsequently arrived in Szechwan, you learn that, though several cacophonous languages allied to Tibetan are spoken in the neighbourhood, none of them bear any closer resemblance to each other than they do to Cockney or Chinese.

Other interpreters are therefore added as required—if procurable. So much for the map—but we anticipate.

Your instructions tell you that you are to seek out first-class hardy plants, preferably new, collect seed of them, and send them to England. “ What,” you ask yourself, “ is a hardy plant, and above all what is a first-class plant ? ” These are technical matters, and

will be discussed later. For the time being we will assume that the future collector understands by a hardy plant one which might be expected to grow out of doors in England, and by a first-class plant one with pretty flowers. He is not likely to understand very much more than that, because he has not been educated to be a plant hunter. Nor has anyone, in fact. Plant hunting is one of the queer trades, and plant hunters are not as common as, say, undertakers, because there is not the same demand for them.

But if they are not made, as certainly they are not born. Plant hunting has been thrust upon them.

What then are the necessary qualifications? It is useful of course to be a linguist, but it is not absolutely essential. Neither a knowledge of geography nor a grasp of botany can be regarded as indispensable. No. The most useful and practical equipment is common sense combined with general knowledge, and a capacity for acquiring more; and unlimited adaptability; and the only essentials, health and strength.

Some training in horticulture is no doubt useful. It is certainly an advantage to know what sort of plants are grown in the herbaceous border, or in the rock garden. It is as well to know the plants in common circulation, since only in this way can new plants be recognized. It is helpful to be able to define obscure trade terms like 'hardy,' 'half hardy,' and 'first class'; or esoteric botanical terms like 'monocarpic'; and certainly some of the most successful plant hunters have, as a matter of fact, been trained as gardeners. Others were great scholars—and men.

But they were several other things besides. Possessed of the necessary qualifications as defined above,

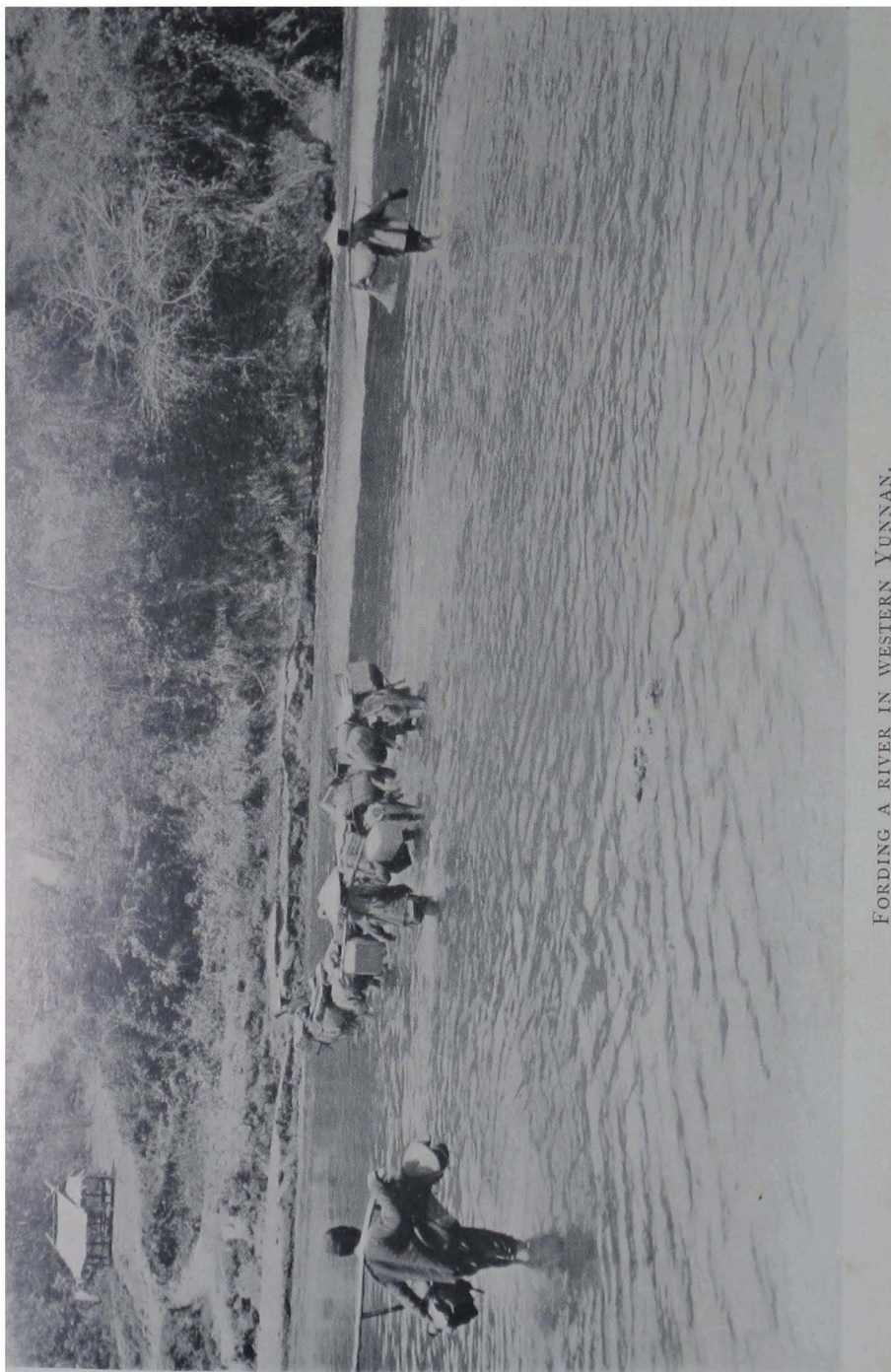
with or without a grounding in horticulture, a man may succeed as a plant hunter ; without them, he will fail as a traveller. For plant hunting, like any other form of activity, is a serious business, an all-time job, which can only be learnt by experience. It cannot be learnt even in the garden, still less in the herbarium, or in the laboratory ; and the first requisite of the successful plant hunter is that he shall be a good traveller.

Yet without previous experience of horticulture, of which plant hunting is obviously the offspring, to learn takes longer. For, as in all branches of field work, the plant hunter needs not only to be an observer, but to know what to observe.

My own qualifications were somewhat vague. Up to the time when I first embarked upon plant hunting as a career, horticulture was one of the things I had *not* studied. I was more interested in engines than in how to cultivate plants. And my principal qualification for the job I undertook was, that I happened to be on the China coast—almost as far from Yunnan as is London ; and that I had made a journey on foot across the width of China. Incidentally I had studied botany at Cambridge. But botany is not horticulture, and plant hunting is neither.

Now the plant hunter visiting a mountainous country in search of alpinists must be prepared to spend six or seven months in the chosen area ; in the northern hemisphere, from April, when the plants begin to flower in the valleys, till mid-November, when the last shrubs have ripened their seeds, and snow puts an end to mountaineering.

The plant collector must see his plants in flower,



FORDING A RIVER IN WESTERN YUNNAN.

in order to know which to take and which to leave ; he must see them in fruit, in order to gather seed. It is not till he is more experienced that it is worth his while to collect seed ' blind '—that is, without first seeing the plant in flower ; though curiously enough, *Primula redolens*, one of the first—and certainly not the least delightful plants I ever introduced, I never saw in flower.

There is also to be considered the time consumed in reaching the scene of action. This of course varies according to the part of the world it is proposed to visit ; but from England it is never likely to be much less than three months. That is to say, a plant hunting expedition occupies about a year, including the journey there and back. If the collector stays out two years, he has a couple of months to play with at the end of his first trip, and will probably return to the plains in order to send home his collections and converse once more with his fellow countrymen, in Burma, India, or on the China coast.

Into the question of outfit I do not propose to go, for obvious reasons. It varies of course for different parts of the world, but still more according to the collector's resources. Therefore beyond saying that he needs tents for himself and his men, cooking pots, and both summer and winter clothes, I need not say any more. Most men have camped out as boys ; and plant hunting is only an ambitious form of camping out.

One must however eat to live, and the question of what stores to take with him at first puzzles the collector. It will not help him to know the capitals of Europe by heart, and even the knowledge that

Brazil produces coffee, rubber, cocoa, cinchona, and diamonds is of small consequence since these are but a scurvy diet. Besides, our destination is China, and the products of China are soya beans, silk, ground nuts, rice, cotton, opium, and tea, most of them indigestible. It is here that common sense comes in. Plants—the best plants—do not flourish in the desert ; therefore the country we are bound for must be to some extent inhabited. Therefore food of some sort must be procurable in the neighbourhood—it may be a week's journey or month's journey to the nearest market ; but since the geography books inform us with surprising unanimity that there are 400,000,000 Chinese there must be food somewhere in China. The country must be either agricultural or pastoral ; since it is mountainous it is probably both. At any rate it is not industrial. Arguing thus, you arrive at the conclusion that the staples of life, flour (or maybe rice), fowls, eggs, and probably meat, can be obtained. The rest is easy—jam, Worcestershire sauce and a case of whisky, are the first choices of a limited purse. Why ? Because jam makes any pulp palatable, and whisky is antiseptic.

The start is always the most interesting part of the journey, especially the first time of all. Bound for far western China, Upper Burma is a good place to start from.

People sometimes ask me how I go from Burma to China, as though these countries were in different hemispheres. Having studied geography at school of course, I know better. The answer is : “ You take the train from Rangoon to Mandalay, and China is the first turning on the right.”

Let us therefore imagine ourselves being hurtled northwards at 30 miles an hour in the Mandalay express, and finally deposited at Bhamo, which is as far up the Irrawaddy as the flotilla boats ply.

It is evening. The last caravans have come jingling through the teak jungle, and the dust has settled down again over the long white road that leads to China. In the bazaar the oil lamps are already lit, and the doors of the little wooden houses stand wide, emitting a pungent complex smell of paraffin, durian, and dirty linen ; and the alleys are choked with *charpoys* on which semi-naked figures lie outstretched. A glutinous atmosphere presses like a hot poultice on the whole native quarter, and through it the terrifying throb of a war drum sounds deep down and far away, like a hurt artery.

Outside the bazaar the air blows clean and sweet from the hills, which are dimly sketched on the faintly luminous sky. The pagoda bells tinkle ; and from far down the river, comes the hoot of a steamer. There is a suspicion of mist, just enough to thicken the air, so that the stars shine without lustre ; and insects are ticking loudly in the scrub—sure signs that the hot weather is approaching. Under the trees by the placid river—so calm and still that the water appears to be motionless—the Panthay muleteers sit round their fires. Some are talking and laughing ; others, rolled up in their blankets, are asleep. The mules are tethered alongside in rows.

The start is always late, and it is ten o'clock next morning before the muleteer arrives with half a dozen moth-eaten mules, which he hobbles inside the bungalow compound. He says the others are

coming. Then he proceeds very leisurely to tie up the loads.

Most of the heavy stuff—tents, collecting and instrument boxes, and so on, was tied up the previous evening, so there is not much to do ; and at last all the mules, with the muleteers and the owner, are assembled.

The loads are lashed one on either side of a wooden frame, with such a multiplicity of bends and hitches that you feel it can never be undone again. This frame, or pack-rack, fits into the grooved saddle, and can be lifted off without untying the loads separately ; a useful enough method when short halts are called, and there is not much to unpack at the journey's end, but exasperating when you have to camp each night, or the marches are long. For the tying and untying of each load takes much time.

The harness of the Chinese mule is a simple affair—a wooden pack-saddle made in two halves hinged like the covers of a book, with a flange in front and another behind to keep the pack rack from slipping off on the steep ways ; a chest band of raw hide ; and a wooden crupper. There is no girth.

The Indian Government mule harness is provided with two iron hooks on each side, and the loads are attached by slings, so that each can be unhooked separately. But the leather and iron harness of a Supply and Transport mule would crush in the ribs of a knock-kneed, flea-bitten, prick-eared mule of Yunnan ; it weighs about as much as the ordinary Chinese pack mule can carry. However, when it comes to the mountain paths on the roof of the world, the transport mule is about as nimble as the Fat Boy

of Peckham on a tight-rope. He falls down ; and when he falls down, he falls off ; so do your boxes.

It is better to use three mules to carry 360 lb. safely, than to employ two and watch them fall over a cliff. They never do it when you happen to be looking, and unfortunately are rarely able to repeat the performance.

And now we are ready to start on our big journey into the cold heart of Asia. The last load is tied on, the last chest band adjusted, and the mules file out and—head for the bazaar, with their tails pointing towards China. A well-aimed stone, flung by an incensed muleteer, turns the leader, and a volley of oaths whistles round his ears as he trots along mulishly in the right direction. We are off.

Five minutes later half the loads are, too. A race by the leading sections, and in a moment there is a jam. Jostling mules kick out valiantly, packs are shot out of their saddles, and everything given over to two minutes' sabotage ; there is dust and heat and blasphemy ; and then, with triumphant leer, out of the turmoil gallop two mules,—empty, while the remainder dance on the wreckage.

Half an hour elapses before perspiring muleteers lead the truants back by the nose, with blood-curdling threats as to what will happen next time ; and harmony is soon restored. The loads being salvaged, the caravan proceeds on its way without further incident ; and we soon settle down to the two miles an hour of Asian progress. What a contrast to the hurry and roar of modern tourist travel ! We are back in the Middle Ages. Travel in Yunnan has not changed in a thousand years. It will never change. Opium, cotton,

and walnuts were being shifted from place to place on pack saddles, similar to these, on equally skinny and galled mules, when the Ming emperors sat on the Dragon Throne ! They will be so carried a thousand years on.

Because of inevitable delays, the first march is never a long one. The setting sun flares across the plain, where a string of slow-moving bullock carts is raising clouds of dust. In the gilded twilight a golden haze envelops the tamarind trees, and we enter a Burmese village at the foot of the hills.

Night comes down with a run ; a hot, still night, our first night alone. It is very quiet in the bungalow. After dinner we sit out on the veranda, and listen to the strident rasping of cicadas, and the occasional croak of a big bead-eyed lizard in the thatch who breaks in with his monotonous *tuck-too ! tuck-too !*

Here, reader, you will perhaps perceive a hint of solitude. Plant hunting is not like big-game hunting. It is a job, undertaken for bread and butter as well as for love of flowers, and its less pleasant aspects have to be faced as well as its advantages. The plant hunter does not make up a cheery party of congenial spirits, and go off for three months on full pay. He goes alone, and for a year or two ; he goes not days, but weeks and months without seeing or speaking to another white man. And sometimes it hurts.

But next day we are up in the hills, ascending towards the plateau of Yunnan. It is a scalding hot day. The river slurs over the boulders below. Very still is the blistered jungle. A shrivelled leaf rustles down, and a sudden zephyr breeze releases a storm of winged fruits. Deftly they float down through the

tangled branches, spinning, swaying, twirling, dancing, like a flight of butterflies ; the clumsy winged nuts of the great Dipterocarp trees, the silver films of *Aspidopterys*, the leafy heads of *Sphænodesma*, the neatly tailed fruits of *Ventilago*.

There are few flowers awake in this furnace, which will grow hotter and hotter, till at last the pent-up lightnings are loosed, and the rains roar down with the bursting of the monsoon. Here and there a shy orchid, perched up in the fork of a tree, and sucking water from the reserve stored in its viscid bulbs, has opened its buds. A streak of lilac, lacing the skeleton background of white stems, marks the fragrant *Bauhinia* ; and waves of furious purple break along the edge of the forest, where the persistent *Congea tomentosa* ebbs.

At dusk the steep hillside is lit up with the glow of forest fires ; yet not for clearings is the jungle being burnt—there is no trace of cultivation on these forbidding cliffs. No, it is the rasping of the stony bamboo haulms which, bursting at last into fire, have set the whole forest ablaze. But some say it is the dancing fireflies which have kindled the brushwood.

For several days we march through the jungle, before emerging into the open country beyond ; days of sunshine and an ever-receding horizon as we climb step by step up the huge flights of the stairway which leads to Tibet.

The luncheon halt is the best hour of the day, when reclining on the grass under some shady tree, while the mules graze, you watch the birds. One day I watched a kingfisher. He sat motionless on a bough overhanging the stream. His rigid eye probed the

water, his bayonet beak was a mere black line against the brazen sky. Beneath him, unconscious of this baleful sentinel, fish darted to and fro.

Suddenly the watcher dropped like a stone. There was a glint of peacock blue, and then he was back again on his perch while the idle current slowly shook out the creases which had ruffled the surface. One noticed a slight movement of that terrible beak, before he resumed his watch. There was no struggle, no blood, no horror. It was sheer annihilation. The kingfisher struck hard, grabbed his victim neatly, and swallowed without effort.

Again he assumed the mask of a passionless image, hardly visible now that his brilliant colours were furled. But his eye must have been cocked at a different angle, for a few minutes later he was off the mark like an arrow. That is the astonishing fact. In a moment of time that quaint little statue is moving at top speed, as though propelled from a gun. Nor does he know when will come the signal which is to release him. His eye is fixed on a patch of mottled water beyond the next bush, his brain alert for the call. Then thought is changed into action. He slips into top speed at sight, and is skimming up stream before the surface ripple ahead has definitely shaped itself into a circle. The swiftness of the attack is amazing, ruthless.

Yet this time the kingfisher was at fault. Flying low, he stabbed the water, while moving at top speed, then checking himself, lit on a bough overhead. Missed! Was it fancy, or did the little bird hang his head a degree or two—this time in shame?

Again he changed his mode of attack, still working

the same reach. Now he swooped to the surface and brought up short, all fluttering, as a yacht, sailing too close to the wind, is caught in stays by a careless helmsman. For some seconds he hung thus poised, a flickering blue flame, then dived so quickly it was impossible to follow his movements in detail. You saw the splash indeed, but he was up again before the last ring was opened to spread with the first across the stream. This time however you could distinguish the fish, grasped between the chaps of that dangerous beak, head and tail protruding. When the little bird had perched itself once more, it gulped down the meal, and presently flew away to another hunting ground.

On another occasion, while basking in the sunshine, I watched a wee bird—a flycatcher I think—who had built her nest in a bush at the foot of a cliff and raised three fledglings. Great was the distress of the little parent, therefore, on approaching with a fat moth, to see a human being seated hard by. She dared not fly across the path to her home, lest she should thereby discover her secret to me ; so she hopped backwards and forwards in the bushes on the other side of the path, crying out in alarm. This brought on the scene, not only the father bird, likewise clasping a green caterpillar firmly in his beak, but several other tiny feathered friends, curious as to what all this coil might be about ; and beholding the situation, out of sympathy they joined in the chorus of distress. Such a chatter was toward, all piping at once, as is the way of birds. But having no solution to offer, presently they went their ways, one by one, leaving the unhappy parents to their dilemma. “ Wee, wee, wee, r-r-r-r ” they cried, and again “ wee, wee, wee-r-r-r.” To

and fro in the bushes, greatly agitated, they flit, and always that plaintive "wee, wee, wee," ending on a rolled 'r.' But they would not eat the babies' food ; and indeed it was remarkable how they managed to keep up their signals of distress without either dropping or swallowing those morsels.

At last the note changed. The mother's quick brain had devised a plan. "I am coming," she purred to the hungry mites, who, with gaping beaks, snuggled down in the nest, unconscious of the turmoil outside, and wondering, perhaps, what had delayed their meal.

Now the mother flew into a patch of long grass and disappeared from sight, and I saw the grass shaking. A minute later she scrambled across the open under cover, and came round to the nest from behind ; scarcely could I see her, though it was not difficult to follow her route.

Presently she emerged warily, flew off, and returned to repeat the manœuvre ; but the male bird, lacking that spur of love which had given the mother this insight, still flitted to and fro, timid and indecisive. When at last he screwed himself to follow the same course, his courage failed him half-way, and rending the air with his danger cry, he returned to his starting-point, having accomplished nothing save to betray to a keen watcher that which they were both most anxious to conceal.

For you must understand, reader, that though plant collecting is your aim you will come upon many interesting things in the course of your travels ; and if you are at heart a student and a naturalist, as I hope you are, you will profit by them. You may

even decide, eventually, to abandon plant collecting in favour of some other study ; or at least to relegate it to a secondary place. I shall have occasion, in the course of this story, to refer to other interesting subjects, of which our knowledge, so far as it concerns this part of the world, is still very incomplete—I mean geology and geography, and the customs of strange men.

CHAPTER IV

THE VALLEY WHERE NO MAN COMES

There are roses fair at Chelsea, there are daffies down at Kew,
And the primrose many a Richmond lane's adorning ;
But the flower I hold most sweet is the blossom that I meet
Down Vauxhall way upon a summer's morning.

SONG, *Down Vauxhall Way.*

A small loose-walled room at the end of a long low hut on stilts, the overhanging eaves of which, descending to the level of the raised floor, shut out all but a glimmer of daylight ; in the centre of the room an open hearth, where a log fire smokes evilly ; and from the bare, blackened rafters, pendent festoons of soot.

On the other side of the partition, in the lofty porch which juts out like the fiddle-bows of a steam yacht, a couple of mop-haired pudding-cheeked almond-eyed Maru girls are pounding the evening's supply of maize in a wooden mortar, grunting at each blow ; while a third, singing in a low voice, turns the heavy handmill.

In the next room an iron cauldron bubbles and splutters over the family fire, and every movement, even far down the hundred-foot hut, is communicated to me by the resilient split bamboo floor, from directly beneath which rises a healthy but pungent odour of pigs.

It is my base camp on the North East Frontier of Burma—a hut on the wind-swept spur, 5,000 feet above sea level. Outside, volumes of clammy mist are rolling up the valley, twisting like smoke through the sago palms and the clumps of elephant bamboo which shelter the village. The whole world seems to be sighing and sobbing. Through the dense mist the roar of the torrent, a thousand feet below, sounds thin and far away. Listen to the wind! The bamboos are grinding and groaning, and the banana leaves flapping like torn sails.

So I sit on the edge of my cot, gazing into the fire, listening to the trickle of rain from the thatch, and to the querulous voice of the beck. It is evening. The day's work is done; soon I shall call for supper. I put a few pieces of split bamboo on the fire, and it burns up more brightly.

“In England,” I think to myself moodily, “they grumble at twenty-four hours' rain! Why, it has scarcely ceased raining here for twenty-four days and nights, and there is another three months of this yet!” A dog barks hoarsely outside, the resentful futile bark of the hill village pariah. There is a step in the passage, the door creaks, and my Maru interpreter enters.

“Sir, the Lisu runner has come with your letters.”

I jump up, all excitement. “Splendid fellow! But why has he been gone so long? It is eighteen days since he left; he should have been back eight or ten days ago. It is but a few days' journey to the post office.” At this moment the runner himself enters—a tall, loose-limbed, lantern-jawed highlander, wet to the skin. The rain is still shining on

his coppery face, and sleek black hair. He deposits a bag full of letters, and stands waiting.

“ He says he had fever, sir, and could not travel, and the rivers are so big he was unable to cross ; the path was quite washed away.”

The Lisu grins feebly, and passes his hand across his fevered brow. He drops his eyes, and leans for support against the bamboo partition. A groan bursts from his tortured frame, but is instantly suppressed ; sure signs that he has dallied at every village en route, and would have me believe otherwise. I pay him for his journey, and an instant cure is effected, so that he goes his way jauntily.

Well, well, here he is with a month's mail anyhow—letters from friends in Burma and at home, and illustrated papers with pictures of England, which land I have not seen for nearly two years. It is midnight when I blow out my candle and lie down to sleep, and dream of home, 10,000 miles away, brought back to me.

Next day it is time to start for the high peaks again, after a week in the village drying specimens, writing up notes, and resting. Twelve stalwart Lisus, recruited from the topmost villages in the valley, parade to carry the baggage, which comprises tents, bedding, and food for ten days. Our path lies up the valley, across fallow *taungya* overgrown with dense bush, up and down over precipitous hill clearings where the maize stands 8 feet high, and so into the rain forest.

Here is everlasting twilight. The only sound is the steady patter of rain on the leaves, and the ceaseless drip, drip, from the great trees. Sometimes the

patter on the leafy canopy changes to a hollow drumming sound, and then we know that we stand under a tree of the huge leafed monarch, *Rhododendron sino-grande*. A foul musty odour rises from the sodden leaf mould underfoot, whence in the last few days have sprung up many gaudy-coloured toadstools. Even the bamboos are smirched with pale, sickly-looking fungi, and the tree trunks are swathed in moss.

There are many curious plants here in the temperate rain forest. Epiphytic orchids abound. The rare *Habenaria ophiocephala* with its 2-inch sac-like spur grows here, and the white-flowered *Cælogyne leucantha*—both new species. And what could be more odd than the yellow-flowered *Aristolochia*, shaped like a meerschaum pipe! The flowers are borne singly on the old wood. The bowl of the pipe is bright orange with a triangular border of purple plush; but the kinked stem is a dirty white, veined with brownish purple. Presently, pencils of blood-red light are seen filtering through the trees as though from a chapel window. It is a glorious *Rhododendron* swimming in scarlet blossom, *Rh. ombrochares*, which rivals 'Ascot Brilliant' itself.

In a steep-sided gully are two species of thin-leaved 'Obconica.' Primulas, one above, the other a little lower down. They are entirely distinct. Their territories just meet but do not overlap. The seeds of both are washed green out of the open calyces, and can only be carried down stream. Yet the upper one never intrudes on its neighbour's territory!

After three hours' climbing up the steep and slippery path, we emerge from the dim forest on to the open

granite ridge. Here Rhododendrons of all colours—scarlet, ruby, coral red, claret, and purple, pink, yellow, cream and milk white, dabble the slopes with gladness. The path is strewn with their fallen corollas, as though there had been a battle of flowers here. It is a triumphal march over carpets richer than those woven at Teheran.

But now we feel the wind. We are soaked to the skin, and gelid with cold from the blasting gusts which sweep up from the valley. The air is raw, and a pall of mist hides everything. A spot is selected for our camp, and the tents are pitched. Then for the next hour nothing is heard but the ring of *dah* against wood as the Lisus chop down bamboos for their snug shelters, roofing them with great slabs of Rhododendron bark, or with leaves ; and by the time the fires are lit, and tea brewed, I have changed my wet garments and feel better.

Dusk falls, an early dusk here, though it is mid-summer. The rain ceases for a time, and the fire kindles more brightly. From the Lisus' shelter comes the mournful wail of a bamboo flute, and away out in the forest an owl hoots. At nine o'clock—half-past eight by the sun, but I keep diluted daylight-saving time—I blow out the candles and go to bed. Gradually the combined chatter of ten thousand brooks fades out of memory, and I fall asleep.

Dawn comes sulkily. Long before the sun can top the lofty wedge of mountains to the east, the mist is rolling up out of the valley, where it has lain for the night like a wad of cotton wool. Slowly the noises of the forest are injected into my dreams, the drip of the rain, the splash of the torrent in the gully

below, and finally the twitter of birds in the bamboo brake.

Enters my interpreter with a bundle of spluttering bamboos, and lights a fire at the entrance to my tent. "Tea is ready, sir," he says in his sticky Chinese. I tumble out of bed and go over to the warmth of the fire, for it is wretchedly cold and damp. But after a cup of hot tea and some freshly made chapatties, I feel better.

By the time I am dressed the Lisu porters have had their breakfast and are preparing to return to their villages in the valley. One of them is retained for his knowledge of hunters' trails and jungle lore—a lithe hatchet-faced fellow who can quickly rig up a bamboo shelter, cut a path, pin a squirrel at thirty paces with a cross-bow arrow, or light a fire on an iceberg during a snowstorm.

After breakfast we set forth into the white mist. An extraordinary sense of remoteness overlays me; we seem to be in a new and injurious world, cut off from all that is dear and familiar by this impenetrable void. In the immense solitude which overwhelms us, even the roaring waters sound unreal; and the dripping trees loom phantom-like through the murk.

Our object is to prospect a path up the ridge to the summit of the mountain which bars the way to China; and as we can see nothing through the reek, our difficulties are magnified. We may not be able to make our way through the dense jungle which swamps the ridge; we may find ourselves cut off from the summit by an impassable gulf. Who knows? We can but reconnoitre.

Above the reeking rain forest we step out into

drenched meadows, struggling to hold their own against the advancing hordes of bamboo. Only where the ground is marshy does meadow prevail ; it gapes in wide glistening bands of drastic green, freckled with many colours. Stop ! what is that ? Through the rain mist we see, as though through a lens, spectre-like and magnified, a new flower. Surely it must be imagination, a sudden image in the whirling rain ! We have seen all the meadow flowers !

A breeze rips open the veil for an instant, and we see clearly. Then a fresh exhalation seethes up from the valley, and everything is blotted out again. It is like the opening and closing of a shutter. But that glance was enough. The hillside above us is sheeted with lovely flowers, graceful, delicate, alluring in colour. We peer through the engulfing mist, rubbing our eyes as the vision passes. Yet a few minutes later we are in the meadow, wading knee-deep through them. They are real enough now. They cover the summit of the ridge, shyly embroidering the bamboo thickets, hiding behind the raspberry bushes ; they grow in dozens, in scores, in hundreds. In the driven rain they hang their heads, leaning over to the cruel lash of the wind. The flowers are rose pink outside, aglow with health ; but inside, they are dappled and speckled with royal purple. Each leafy stem, which is 12 or 15 inches in height, bears one, two, or more of these nodding flowers, large as teacups. The petals curl back elegantly ; gem-like drops hang from the leaves. Such is *Nomocharis Farreri*.

Plunging into the forest of Rhododendron and bamboo, we follow the ridge, where there is not so much undergrowth, and make good progress. Two

natives, armed with short straight knives, lead the way ; from time to time they stop to cut a path through the obstructing bamboo. As we ascend, new and rare plants thrust themselves into my notice at ever-decreasing intervals.

On wet mossy rocks, in the depths of the forest, where the light is always subdued, the aristocratic-looking *Primula calliantha* challenges us coldly. It is tall and proud, but lovely beyond belief, with an aloof and icy pride. The flowers are large and mauve, with yellow eye, and delicately fragrant, which so few Primulas are ; and the silver meal lining the calyx glistens between the purple teeth like moonlight through a slit in the clouds. The dark green leathery leaves project stiffly from the fat onion-like neck, which rests upon the ground, and must be protected with a covering of snow through the long winter, lest under the influence of damp it deliquesce into pulp. A fine plant for shady nooks on the rock garden, *P. calliantha*, but temperamental I fear.

The most conspicuous Rhododendron was *Rh. arizelum*, a handsome tree growing 20 or 25 feet high. The flowers are creamy yellow stained with a purple blotch at the base, and the large leaves are covered below with a rusty red fur. It is closely allied to the well-known *Rh. Falconeri* of Sikkim, and is here a feature of the middle conifer forest, occurring abundantly between 9,000 and 11,000 feet. Indeed the steep slopes are often covered with this species, which above 10,000 feet forms a sort of gnarled elfin wood. It has one property which might make it a more useful plant than *Rh. Falconeri* itself in this country—that of breaking very late, about the middle of June in fact.

In places the narrow ridge was starred with the large white flowers of *Rubus potentilloides*, a tiny creeping raspberry whose thread-like stems are woven in and out of the moss. It is a new species.

The granite ridge was hacked like a saw, and for several miles we went up and down without gaining appreciably in altitude. Gradually however the ascents became longer, the descents shorter. Grass formed a carpet under the bamboos on some of the long slopes, and here we found low-growing bushes of the beautiful *Viburnum Wardii*, whose leaves turn such gorgeous colours in the autumn. The flowers are chalk white, with purple anthers, and the fruit, scarlet at first, turns suddenly black and alas! disappears in a night. No fertile seeds of this pretty shrub were obtained, and it still remains to be introduced.

Rhododendrons now began to appear in ever-increasing numbers and variety. First *Rh. brachystylum*, with spindle stems and lemon-yellow flowers, disfigured by a rash of greenery-yallery spots at the base. It is a new species of the dowdy 'Trichocladum' Rhododendrons, with deciduous foliage.

Next, *Rh. herpesticum* (K.W. 3392), which forms tight tangles a foot deep hugging the sheltered side of the slope. The fleshy trumpet flowers vary from a fiery red to flaming orange. *Rh. aperantum* (K.W. 3301) forms shallow thickets like the last under the bamboos, with crimson-scarlet flowers, and leaves gathered into tight rosettes at the ends of the branches, giving the plant a rather bald and scraggy look. The former belongs to the 'Sanguineum' phylum, the latter is one of the closely allied 'Neriiflorums.' They

mark a definite stage in the approach to Alpine conditions, and on sight of them I felt that we were on the right track.

Pushing through thickets of *Rh. aiolosalpinx* (K.W. 3300), one of the early flowering 'Thomsoni' Rhododendrons—long since over, though the pale sea-green foliage, waxy white below, made amends—we emerged from the overwhelming forest on to the bare ridge.

That was enough for the day. The rain poured down harder than ever. The wind stung our faces, and froze our swollen hands ; and clouds of tiny biting flies tortured us. So back we went to our dripping camp. Few things are more depressing in a mountain camp than ceaseless rain day and night. The rattle of the rain on the tent becomes maddening. It beats into the brain—and that is bad. Despite all precautions, the camp gradually becomes a quagmire, with mud everywhere ; inside and out ; and our clothes are perpetually damp. A ponderous humidity oppresses us. There is something peculiarly malevolent in the ceaseless drip, drip, drip from the trees, punctuated by spiteful showers as a gust of wind cuffs the drenched bamboo grove. The outlook is dismal and depressing. Nothing is visible. Even the trees are hidden or loom up vaguely through the blinding sheets of rain.

The jungle absorbs water like a sponge ; but there is always more, and more, and more. Then at last the water oozes out, and spills over. The mountain scuppers fill and overflow, and the whisper of the beck grows to a whimper and the whimper to a whine. Louder and more strident grows the voice of the waters ; and still the rain continues.

At last every beck and channel is full and the muffled thud of angry waters is borne to us on the wings of the wind. An opaque ashen grey mist envelops everything, and from behind the veil comes the soft sound of weeping, as the whole world sobs out its heart.

And then in a moment the weeping changes to laughter. Suddenly the mist curdles overhead. Far down the valley, the clouds flock. Between the glistening tree trunks a warm unctuous blueness replaces the flat lather which has so long suffocated us ; it is the indigo blueness of the mountains. The setting sun drives golden spokes through the dank forest, and the camp fires burn brightly under the clear dome of heaven.

At dusk the last rays of cloud boiled up from below, and the valley lay at our feet, violet in the gloaming, with the clouds forming a silver band round the brow of the mountain. In the west the placid sky was apple green ; and we could count the villages crowning the spurs all the way down to the main river. Night came, and ' all clear ' was the glad cry.

A radiant dawn, liquid sunlight spouting between the peaks, and splashing amongst the branches ; it kissed the trembling feathers of the bamboo and gilded the mat leaves of the Rhododendron. The dew-drops glittered like diamonds, and every spider's web looked as though it had been spun from silver wire. The tips of the trees glowed with green fire.

After an early breakfast, I raced up the ridge. The bamboos flung water at me, the little porcelain gentians with wonderstruck blue eyes stared after me, but I stayed not. On and on, till the forest came to

an end, and the mountain ridge grew steep and difficult, and the wind caressed like the blade of a razor. Now I was leaping from rock to rock on the shattered cliff, till brought up short by the hassocks of dwarf *Rhododendron* which covered the northern slope ; only then did I fling myself down to explore and collect.

First we note *Rh. charitostreptum* (K.W. 3302) suffused with fragrant lemon yellow flowers which have brick red anthers ; the leaves too are aromatic. With it, *Rh. myrtilloides* (K.W. 3172), a dwarf which deserves attention. It is one of the 'Campylogynum' series, an elegant little plant with boxlike foliage, aromatic, dark green above, and bright silver below. The twin flowers are hoisted well above the foamy leaves on slender pedicels, and in sunshine are the colour of port wine, though with a slight bluish bloom on the outside. Extensive cushions, bristling with these little pouting flowers, may be seen amongst the rocks.

In September I found what appeared to be the same species, flowering for the second time ; but in this case the corollas were tinted a delicate flesh pink. Are these two species or one ? Seed of both was collected under one number—K.W. 3303 ; and anyone who raises the flesh pink form may count himself a lucky man.

A third dwarf species has deep purple flowers with yellow stamens—an odd combination for a 'Lapponicum' *Rhododendron*, if such K.W. 3304 is. A fourth, forming tuffets no more than a few inches deep, with clots of bright pink flowers, answers to the name of 'Cephalanthum' (K.W. 3365).

All these *Rhododendron* brooms grew mixed up together, so that the colours formed a chromatic foam tossing on the surface ; and entwined with them were lesser plants which, growing amidst this perfection of beauty, made one impatient. Such were dwarf willow and juniper, and *Potentilla fruticosa* and Cassiope, and a starry froth of *Spiræa*. But the steep north face of the mountain offered no route to the summit, and the back of the ridge was broken ; so I crossed over to the more exposed flank, and struggled through a screen of dwarf bamboo.

Almost spread-eagled on the scree was a tiny rose bush, studded with bright yellow flowers and scarlet hips, a form of the ubiquitous *Rosa sericea*, but a form worth having. And there were flowers here amongst the endless confusion of bamboo and boulders and *Rhododendron* scrub. Little bogs full of *Primula Dickieana*, lush meads strewn with yellow, white, and pink *Cremanthodiums*, and along the margins of the bamboo, and in and out the *Rhododendron* brushwood, the rich violet flowers of *Primula (Omphalogramma) Farreri*, which is best described as being very closely akin to *Primula (Omphalogramma) Delavayi*.

Coming out of the shelter afforded by the deep gullies which furrow this slope (where the snow melts quickly and rampages down), I found the barer rocks above meshed with flowers nestling in pockets ; or forming drifts of colour over the gravel ; or peeping from niches in the cliff. *Primula bella* forms little mats of crimped foliage out of which the wee flowers crystallize one by one like violet stars ; and the striped orange and lemon flowers of *P. serratifolia* spread a wall-paper pattern over the meadow. Clumps of

Polygonum Griffithii, with shining green leaves and erect red-hot pokers, clothed the nakedness of the scree. Poking their heads up through the thinly woven carpet of scrub, or in the meadow, or on the rocks, are many species of lousewort, with brilliantly coloured flowers. *Pedicularis nobilis* and *P. birmanica* both have bright crimson flowers, though otherwise they are very different plants; *P. siphonantha* has purple flowers; in *P. Viali* they are rose. It is a pity the louseworts do not lend themselves to cultivation, for they contain some of the most brilliant, bizarre, and glad flowers, and come of a race of garden favourites. Under cultivation they might perhaps put on airs, or they might substantially appreciate. But one cannot with decency encourage parasitism; and the louseworts are at best hangers on, the less admirable in that their dependence is concealed under a cloak of genteel poverty.

The most exciting plant found on the south slope however was the pigmy Rhododendron with the giant flowers, *Rh. calostrotum* (K.W. 3390). This odd and tricky plant I had discovered in 1914. In 1919 I secured seed of it, and the plants are due to flower in 1924. The thin wiry stems sprawl flat on the stone, forming a thin mat whence rise the 1-inch flower stems in pairs, each stem ending in a large flower of brilliant purplish crimson hue. The five-lobed corolla, which exceeds an inch in diameter, stands on edge, and is flattened till there is scarcely any tube left. Altogether a remarkable and brilliantly showy plant, one of the curious 'Saluenense' Rhododendrons, which are plants for the rock garden or nowhere.

As last I reached a far shoulder, and looking east-

wards, saw the frontier range of China stretching from end to end of the horizon like a bastion. A tremendous gulf separated me from it. Westwards the ranges which enclose the boisterous 'Nmai kha blocked the view ; and to north and south peeped up ridges and peaks in endless confusion. I looked out on a world twisted and wrought into fantastic form, its wounds everywhere soothed by gushing brooks and swaddled in fragrant forest ; a beautiful world, all steeped in sunshine and quick with colour and life.

Below I caught sight of an emerald green lawn, set in grey granite—' the valley where no man comes ' ; and there close at hand was the giants' stairway, a succession of steep slabs, cracked at intervals with ledges just wide enough to give foothold, leading down to it.

I was contemplating the descent, when my attention was drawn to the next ridge, a few hundred yards distant. There I saw a curious and unusual sight. Standing and lying amongst the dwarf Rhododendron scrub, drinking at the pools of peaty water and grazing, was a herd of takin, fourteen strong. Six of them were lying down, their stumpy fore-legs thrust straight out in front of them, their heads moving slowly from side to side as they scanned the open slope for possible enemies. Their attitude reminded me curiously of a sphinx. Several calves were with their mothers and an old bull stood sentinel on a rock.

Presently the alarm was given, not urgently, but with the admonition to stand by. Those which were lying down rose cumbrously to their feet, bow first, and the herd started off in single file across the scree, slowly at first, then more rapidly, with a queer rolling

gait. Clumsy as they appeared with their short legs and rather bulky bodies, they nevertheless leaped nimbly from rock to rock, and with a last glance back over their shoulders, they disappeared one by one over the brow of the ridge.

It would seem, however, that whatever had startled them, it was not me, for in the course of their journey, they passed even closer to me, and I could make out distinctly their coloration. Head, face and legs were coal-black, while belly, flanks, tail, rump, and lower part of the neck were dark chocolate, not far off black indeed. Only the back, extending thence a little way over the flanks, was pale fulvous, and even that was divided by a sharply defined black line down the spine. That at any rate was the adult coloration.

But the takin does not wear his final coat till he is several years of age ; young animals—at least in the Bhutan species (*Budorcas taxicolor*) show less black and more yellow. The Shensi species from the Yangtze valley (*B. Bedfordi*) alone retains a yellow coat throughout life. Is this Burma species—which extends all up the China frontier—*B. taxicolor* or something else ? The coloration certainly is not that of the Bhutan species, but it is something like it ; and *B. taxicolor* is found in the Mishmi Hills and in S.E. Tibet.

It is only during the summer that the takin is found so high up, on the open mountain tops clear of the forest. As the snow creeps down after October, he descends to the shelter of the bamboo jungle.

Now I clambered down the granite stairway. A stream tinkled down the gash, frayed out, and laced itself around the bog. At the far end, the threads drew together again, and the stream rushed through

a slit in the ring of cliffs, and fell into the valley far below. A clump of fir trees filled the gap.

There was no sign that any man had ever been in this amphitheatre before ; so I called it, whimsically, ' the valley where no man comes.'

In the bog were violet irises, with golden tracery on the falls, the ivory cups of grass-of-Parnassus, mauve Primulas, and other flowers. Splintered tree trunks lay about, half-buried in the peat ; they had been flung from the cliffs above, when the snows melted and rushed down the mountain side. Here and there in the rock were shallow basins filled with dark water, their rims planed smooth. Glaciers ? Possibly ; but deep snow, long abiding, graves its own marks on rock.

At last it was time to turn and face again the crags above, and I climbed up to the ridge, traversed the face of the mountain, and so to the home spur where the wind-clipped trees began. Down below the afternoon sun shone white on the tents.

What a glorious crowded day it had been ! I sat by the fire drinking cup after cup of hot tea, while I catalogued my new plants. There were a score of which I should have to secure seed. Towards sunset a flurry of cloud tumbles off the peak, and sinks into the valley, where it floats like cotton wool. There, right over us, clear of the mist, above the bamboos and the torn silver firs, towers our mountain, its dark sides still streaked and freckled with snow. It seems one might toss a pebble on to it.

The men chatter round the fire in their tent. An owl hoots ; and the voice of the torrent muffled by the forest comes up to us as a steady roar. Down in

the village the Maru girls will be pounding their evening meal again, crooning the while. I turn in early, and am quickly asleep.

I dream that I am listening to soft music. One refrain rings in my head, on and on and on, unceasingly. Suddenly I wake with a start ; but it is some minutes before I can collect all my faculties. Listen—drip ! drip ! drip ! It is the steady beat of the rain on the North-east Frontier.

CHAPTER V
YUNNAN, LAND OF THE SOUTHERN
CLOUD

Oh, to be in England now that April's there,
And whoever wakes in England sees, some morning unaware,
That the lowest boughs and the brushwood sheaf
Round the elm-tree bole are in tiny leaf,
While the chaffinch sings on the orchard bough
In England—now !

ROBERT BROWNING.

We had just broken camp. The men were tying up the last load when a caravan emerged from the woods, approaching us. At the head rode the *lao-pan*, an automatic pistol strapped round his waist ; three men, armed with antique rifles, stalked beside the mules.

The *lao-pan* reined up.

“ Whither away, squire ? ” he asked me courteously.

“ To Shunning, I thank you.”

“ Let us ride together. I too am going to Shunning. There are brigands about, the road is dangerous.”

I assented gladly, and we joined the armed caravan for the twelve days' journey to the city. If they themselves were the brigands, we entered very meekly into the plot !



A HIGHWAY IN WESTERN YUNNAN.

Yunnan, we are informed by the geologists, is a plateau ; cut to shreds, it is true ; but, in geological jargon, a plateau's a plateau for a' that. I would as lief call a ploughed field a lawn. You need more than a geological hammer to smooth the creases out of Yunnan ; you need a geological eye.

At the end of a day's march up the valley, we turned into the mountains, and for the next week found ourselves crossing a succession of steep ridges and troughs. The former were wooded, the latter cultivated. Squalid villages, which compared unfavourably with those in the British Shan States, lurked in the boscage, as though ashamed to show themselves ; their cover was the most alluring feature, groves of bamboo, palm trees, Bauhinia, and Buddleia.

Hidden away in this network of valleys were quantities of opium poppy, which perhaps was not unconnected with the impoverished state of the country. At night we usually camped, since such villages as there were held out small inducement to us to seek shelter under their wing. One night, however, we reached a village called Chen-kang and sought shelter in an ancient and shabby temple.

A writer, named Mr. Horse, was staying there too : he earned his living not by writing books but simply by writing. It would be an exaggeration to say that ten per cent. of the Chinese can write their own language. Therefore the letter-writer flourishes. The temple had long since ceased to function as such, and was degraded to the meanest hostelry. Nor was that all. Ten ragamuffins of soldiers were billeted on the place ; their job it was to patrol the road and protect travellers from the scourge of brigands. A

few days prior to our arrival, a caravan had been held up, and several men killed. The soldiers smoked opium and gambled till the small hours, wrangling acidly over brass cash. How they proposed to deal with brigands no one knew. Their weapons stood in a row against the wall, and a more job lot it would be hard to imagine. Anyone could have had them for the trouble of walking in and taking them ; but probably no one but a Chinese soldier would have been seen dead with any of them, though certainly they were as appropriate for killing their owners as the enemy, since you never could tell which end would go off first.

No two were alike. Every reasonable size of bore was supplied, but *only one* warrior had any ammunition, and that was an outsize. There was even a Tower musket. Altogether an interesting collection of obsolete small arms.

These warriors did not patrol the road. Whenever news of a particularly outrageous hold-up arrived they sallied out leisurely, and arrived on the spot in time to discuss the situation. By that time the brigands might be in the next prefecture ; more probably they would be looking on from the next hill.

This sort of soldiery are of course locally recruited by the district magistrate. They are not always so completely inefficient. On one occasion—in another district—we were marching up the road when, rounding a corner, we noticed a uniformed soldier kneeling beside a mud watch tower with a rifle in his hand. It was very nearly at the ‘present.’ Half a mile further on, we met another, similarly employed. They said the district was full of thieves, and they had been

posted there to protect travellers. Their complete immobility caused me a certain amount of scepticism, and who can tell how they distinguished friend from foe? Moreover I fancy they had seen us coming, and wishing to impress us, had taken on a military pose for the time; only to relapse into oblivion the moment we were out of sight. No brigand who knew his job would hold up a caravan just there, with a big river, the Yangtze itself, immediately in the rear. There is only one way to deal with the brigands on the caravan routes of West China, and that is with fast mounted patrols and plenty of them.

Western China is full of parasites. To the peaceful citizen or trader, the brigands must be nearly as great a nuisance as the soldiers. Poor sheep! They are easily shepherded by the wolves. It is no uncommon thing for a post-house to be built at the highest point on a road, and stocked with soldiers; as though there were some strategic virtue in altitude as such. The local magistrate is responsible for the soldiers; but he does not pay them. Oh no! the travellers do that. If there is much traffic their commission is proportionately large; if not, it is small.

You may see ten men lounging round such a post, sleeping, smoking opium or squatting on the ground gambling. There is no one on guard, and their rifles are at the mercy of any sleuth who happens along. But there are more sloths than sleuths in Yunnan. Five resolute men would hold up such a post in as many minutes. But resolution is a virtue left out of the Chinese character. The exceptions are so notable that they become historic—and we take off our hats to them. Chao-Erh-Feng was a resolute man. . . .

I saw a hundred coolies passing such a guard-house. The soldiers came buzzing out like a swarm of bees to collect their impost, for which the trader in charge of the coolies was responsible. There was some demur about payment—the trader, it appeared, could not be found, whereupon one warrior went rushing along to the head of the column, rolling up his sleeves as he went, and shouting belligerently. Arrived at his post, he dared the men to come on, scowling like a brigadier ; whereupon the coolies put down their loads, smiling amiably, and chattering aimlessly. It wasn't *their* affair. Every one knows the Yunnan soldier wouldn't dare hit a dent in a pat of butter for fear it might retaliate ; but the cooly is at least as mild, and any display of authority cows him instantly.

Mule caravans do not pay on the road—the tax might be more difficult to collect. But sooner or later they have to cross a river and then they pay toll at the bridge. That is easy to enforce. To do the authorities justice, the bridges are kept in sufficient repair to function adequately ; otherwise traffic would cease altogether. A bridge is likewise a good stance for the *likin* ramp, *likin* being a local customs levy. It has nothing to do with the Chinese Maritime Customs, which is an efficient foreign-controlled organization ; indeed the two are in opposition, not to say conflict. *Likin* is an arbitrary affair, the number of *likin* stations and the tax levied being at the indiscretion of the local Prefect ; or perhaps it goes higher, within the orbit of the Tsuchun himself.

There is a notorious *likin* station at the Salween bridge on the main road to Tali. Here you may observe the officious Oriental in his element, bullying

the common people and cringing to officials higher than himself.

There is a jam of mules coming down the steep cobbled approach which leads to the bridge-head. Muleteers are shouting, fuming, and running about. The mules march blithely on, impervious to the fact that there is no room for them below, where already an inextricable tangle of fractious animals are kicking and heaving. Two helots stand coolly by, each armed with a long skewer, and bayonet the loads of cloth as they pass. They are searching for opium. Opium is contraband. You are not discouraged to grow it—quite the reverse; you merely pay a tax for permission to cultivate it; and another for moving it about, and another for smoking it. It is an ingredient of life, a necessity, a long-felt want. Men buy opium before they buy food and raiment. Soldiers are paid in it. Money is dross where there is opium; consequently the mandarins have a fat and luscious time. At the *likin* station a merry hunt goes on all day for opium. Where there is a doubt, loads are ruthlessly cut open, boxes smashed. Everybody derives a measure of joy from damaging the goods and the skewers are very busy prying into every corner. Some loads I saw deliberately skewered by two sets of seekers. I saved one unsuspecting consignee myself by opening a locked tin box with one of my own keys; unfortunately I was unable to lock it again. If opium is discovered it is confiscated, and consigner, muleteers, consignee, everybody, mulcted in fines. If it is declared, it pays a small tax.

Likin stations are established arbitrarily where the impost can be conveniently collected; it says much

for the value of opium that it can profitably be carried across Yunnan into other provinces. Indeed it is the chief export of the province. In the bad old times of the Empire, the annual fair at Tali attracted people from half a continent to buy the best opium in Asia : but in these enlightened republican days, Tali is not of much account, and its fair has sunk to the level of a village treat. Nevertheless Yunnan opium has not lost its savour. The bulk of it is absorbed by Canton, whereby Yunnan, which produces no cotton, is able to import sufficient to clothe her motley seven million odd inhabitants. The last expiring edict of the Manchu régime, abolishing opium, had at any rate one effect ; it abolished opium. Now the atmosphere is so charged with people issuing edicts, ukases, pogroms and other worthless scrip, that there are hardly any subscribers.

A field of opium poppies is one of the fairest sights on earth. Not so an opium den. In the spring of 1922, the Yung-chang plain was under opium. As far as the eye could reach waved a sage green sea crested with suds of blossom. Here and there a purple or claret flower rocked on the surface. Everywhere, from the Shan States to the Szechwan frontier, the poppy of sleep flaunted itself. On the Tali plain it formed an herbaceous border 10 miles long. In the hills every available pocket and shelf was frosted with it.

In the Shan States green capsules, burst and empty, strewed the path ; for the natives eat the white seeds, as a protection against fever.

To return to our temple quarters. The hospitable Mr. Horse invited me to take a cup of tea with him,

and we sat round the fire while he set the little earthenware jug in the hot ashes. As each cup of tea was poured out, he filled up the jug with hot water : " for," he said, " our Chinese tea can always be used again, but the foreign tea only makes tea once." True, no doubt. But tea as the Chinese understand it consists of tea leaves, old and young, twigs and bits of stick and bark, none of which are much affected however long they are soaked or macerated.

So he continued to add hot water to the parenchyma in the jug, and to pour out cup after cup of straw-coloured fluid.

The road from Lashio to Shunning, and thence on to Meng-hua, is not much used by caravans, which trade chiefly between the Shan States and Mengtzu or Puerh-fu. Nevertheless efforts are being made to convert it into a good high road. Some excellent sections have been made. I rubbed my eyes when I woke up one morning and noticed the broad road contoured skilfully round a hill, to dip over a low saddle further along the ridge. Most roads in Yunnan take the nearest mountain by frontal attack, and no nonsense.

" What is the meaning of this ? " I asked myself. " Has the corporation of Yingpan-kai gone mad in bulk, and threatened to decapitate the Chief Engineer unless he produces a road fit for motor traffic ? " At any rate, with the exception of certain sections, where road making is more arduous, or the Urban Council less advanced, the road from Kun-long to Meng-hua is remarkably good ; which is the more surprising, in that it passes through poor, pinched, sparsely populated country, to the north of the Nam Ting Valley.

Up this latter, by the way, lies the proposed route for the extension of the Northern Shan States Railway; which has nothing to recommend it except a comparatively easy gradient.

South-Western Yunnan consists of a tangled skein of ranges which spread out like the fingers of a hand from the sharply defined river walls in the north. These are tied together and re-tied by ridges so that the country is pressed into little dimples of arable land, ringed round with wooded hills. But through all the apparent confusion of mountain and valley, it is possible to trace the outline of the great river divides—those separating the Irrawaddy from the Salween, and the Salween from the Mekong—which jut down from the northern plateau like groins, and fray out into endless wavering hills.

At first the vegetation is sub-tropical. In the low-lying hot valleys of the Salween basin, which lead gradually up to the Yunnan plateau, are forests of Indo-Malayan trees. The flat sandy debouchment of the Nam Ting is covered with high grass and scattered cotton trees (*Bombax* sp.), and a dense growth of bamboo surges over the lower hill slopes. Thickets and hedges of *Capparis*, *Englehardtia*, *Clerodendron*, *Trypterigium*, *Hiptage*, *Cæsalpinia nepalensis*, and *Ficus cunia*, take up much of the ground, with an occasional cabbage palm marking the site of a concealed village. The higher slopes are clothed with bracken and alder, and an inextricable confusion of brambles and shrubs, prominent amongst which are species of *Osbeckia*, *Luculia*, *Buddleia*, *Schima*, and large-leaved *Araliaceæ*.

The first *Rhododendron* met with was the fragrant

white-flowered *Rh. ciliicalyx* (K.W. 3776), growing on the lee side of the limestone escarpment which forms the northern wall of the Nam Ting valley. Like many of the 'Maddeni' Rhododendrons, it flowers late. Ascending the Mekong divide, we met with *Rh. Delavayi* (K.W. 3784) or some form of it, with flowers of hot crimson, and with *Rh. decorum*, which was over. The vegetation too became more Chinese, less Indo-Malayan, in appearance. The hills were covered with oak and pine, the valleys were more cultivated, terraced with narrow rice fields, like flights of malachite steps. Nowhere did we ascend to great altitudes. Every day we crossed a valley and climbed the opposite ridge, but no pass exceeded 7,000 feet, and the highest mountains we saw—those at the source of the Nam Ting—were but 12,000 feet.

But how beautiful is the country beyond the Salween ! In places the banks are silver and mauve with the tresses of *Primula malacoides*. Jungle fowl are scuttering in the bamboo undergrowth, the crow of the cock, exactly like that of the domestic bird, sharply truncated at the end ; then, as we dive deeper into the pine forests of Yunnan, we leave the squealing jungle behind us, and the familiar call of the cuckoo, and the harsh cry of the pheasant jar pleasantly on our ears.

Most entertaining of all were the markets. There was a five-day market in a mellow valley where we halted for lunch one day. A wayside temple was the nucleus.

The rice fields swept in **S**-curves down the vale, and, where a shiny-leafed peepul spread its plump branches, a stout wooden bridge with carved joists

and a tiled roof spanned the river. Half-way up the opposite ridge, which was woolly with tufts of scrub like a French poodle, stood the temple, an unwholesome-looking barn, grimy with the encrusted dirt of generations. An attendant priest, as grey and mean as the house of worship, lurked in the background, waiting to wheedle what alms he could from the profane.

When we arrived, the booths were not yet open. A few coolies squatted on the ground by their baskets. But over the hills from every direction came strings of shuffling men, each carrying a pole over his shoulder, with a basket suspended at either end. Now and again a more prosperous farmer would canter up on a cob, which he would stable in the temple courtyard. One or two simple folk sheepishly burn a few sticks of incense before a black and greasy image, to the secret delight of the decrepit priest.

The hucksters rapidly gather together, and presently a brisk trade is in progress. Men shout, dogs snarl, pigs grunt ; and I come in for a good deal of attention.

“What wonderful boots !” says one man to a crony, pointing a grubby finger at my walking shoes.

“Yes, and look at his socks !”

“That’s a watch on his arm !” volunteers another, anxious to show off his intimate knowledge of foreign devils and all their black magic.

“Does he drink *hsiao chiu* ?” says the first dubiously, eyeing me sip a bowl of the more palatable and less inebriating *pai chiu*.

“And does he smoke opium ?” chimes in the second, not to be outdone in speculative catechizing.

(I often wonder what a Roman would have done when prefacing a question, to which he expected the

answer 'no,' with a confident 'Num,' and the answer turned out to be in the affirmative !)

"He must be fifty years old—look at his beard !"
(Alas ! I do not shave when travelling ! The insult went home !)

One yokel, addressing my head muleteer, asked him if he was a Yunnan man.

"Yes," replied that worthy.

"Why, you are a Chinaman !" said another, lifting the man's broad-brimmed bamboo hat and peeping beneath ; though what he found there to convince him that the muleteer was a son of Han, and not a tribesman in disguise, passes my comprehension. We saw other markets from time to time, the people buying and selling, arguing, expostulating, pleading, begging alms, telling fortunes, arranging marriages, pronouncing spells, and getting through the business of life with as much talk and as little work done as possible.

At the bigger meetings there would be booths, and perhaps a theatrical performance ; but at the smaller places, especially east of Shunning, business was conducted under immense yellow paper umbrellas, which looked like rows of gargantuan mushrooms.

The first Chinese village we arrived at was Yingpan-kai (i.e. the market fort), and it really was fortified ; for it was surrounded by a moat, and partly by a wall. The people were inclined to be hostile, though they received us under protest. But indeed the people of Yunnan are just now not too well disposed towards Englishmen ; which, considering the fantastic bones they consider we have to pick together, is not altogether surprising.

The young student class one meets on the road—Republicans and sinners—if they condescend to address you at all do so with an air as much as to say, “And who the hell may you be?”

The country folk are generally more polite. “Will you, sir, please tell me where you are going?” or “Please tell me your name, fair sir, and what you are doing in our poor country.”

But why the studied impertinence of students, soldiers, and other advanced thinkers? I stumbled on a clue in Likiang when discussing the Chung-tien *débâcle* with a shopkeeper. He considered he had a grievance against the English, and aired it frankly.

It appeared that he was a shopkeeper in Chung-tien in the days when that strip of country east of the Yangtze was under Chinese control—as it had been, indeed, for over a hundred years. Then came the Sino-Tibetan frontier war, and the overwhelming success of the Lhasa troops against the Szechwanese, followed by independent risings amongst the Mantzu who drove the Chinese out of all the Tibetan country bordering on Yunnan. In the course of these skirmishes, Chung-tien had been besieged, and the Chinese expelled, garrison, traders, officials, and even the local Tibetan tribe, who were either compelled, or chose, to throw in their lot with the Chinese. My shopkeeper friend told me that they were overwhelmed by the tribesmen, several thousand of whom attacked Chung-tien, which is a small village on an open plateau, defended by 200 men at the outside. (It is safe to say that this was sheer imagination on his part. Had it been so, not a Chinaman would have remained alive to tell the tale.) He had been hit in the leg by a

bullet, and complained bitterly that the Tibetans were much better armed than the Chinese soldiers.

“Better armed?” I asked incredulously. I knew well enough that the Chinese troops were hopelessly armed and could not shoot; but surely even Sniders and Martini-Henrys are more effective than gas-pipe guns!

“Yes,” he said viciously. “Magazine rifles—new.”

“Where did they get them from?” I asked innocently, not believing.

He looked at me curiously for a moment, a sinister smile on his face. Then: “From England,” he replied. “From India, from Shanghai, everywhere.” Another man standing by nodded his head sagely. “Yes, that’s right,” he said; but as for me, I said nothing, because I realized as soon as he said it that it was true—though not in the way that he thought.

All the big lamas and chiefs in the Marches now possess, or soon will possess, modern weapons. I had seen them. Nay, I had used them. I had been requested several times to try, or to clean, or to take down Mauser rifles and pistols.

“Where did you get this?” I had asked of an influential lama, after firing a few rounds.

“I bought it in Lhasa,” said the owner simply.

And there was the explanation in a nutshell; yet to what dangerous misconceptions it might easily give rise!

But it is only the Chinese soldiers who are ill-armed, and that surely is the Government’s fault. Not so the brigands. The *Lao-pan* with whose armed car-

avan I crossed the Chinese Shan States complained bitterly about it. "The brigands are well armed," he said, "but if we merchants carry arms, we are fined by the officials."

We were not yet quit of brigands ; and the day before we reached Tali, we came more nearly within their orbit than at any previous period. A barren sandstone range separates the plain of Meng-hua, where the Red River has its source, from the Tali basin. We were approaching the foot of the hill along a dry watercourse, so that for half a mile we could not see what was happening around us.

Suddenly we saw a soldier running towards us. The mules stopped. A knot of excited coolies, coming down the slope, halted by us, and began talking excitedly.

"Look ! look !" they cried, pointing. The soldier stopped too, out of breath, and cursed venomously.

"What's the matter ?" asked my muleteers, bursting with curiosity.

The coolies jabbered almost unintelligibly, and we stared across the dusty hills. A down-coming caravan blocked the road.

"What's the matter ? What's the matter ? Curse and blast your mother, you tortoise, what's the matter ?"

But the cloud of dust, moving across the undulating landscape half a mile distant, spoke for itself. Brigands !

Were they coming towards us or fleeing from us ? The demeanour of the Chinese left me guessing. They would stand still and do nothing in either case. Only the small number of the opposition, and the

time of day, with so much traffic on the road, suggested hasty retreat.

“ Came down in the night . . . robbed the village . . . yes . . . running away. . . .” I heard no more, and the crowd slowly dispelled.

That a band of robbers could have successfully attacked the village where we had just passed the night, and escape, was surprising enough ; but that we should actually be able to stand there and watch them escaping was almost incredible. Yet here the incredible action was happening under our very eyes.

The road is in constant use, many caravans passing to and fro between Tali-fu and Meng-hua. There is a guard-house up the hill, garrisoned by a dozen soldiers whose duty it is to protect traffic. Here are the brigands. Yet nothing happens. Could anything be more farcical ?

If the Government will do nothing, why not the merchants themselves ? Why not a private organization of patrols ? Why not insurance of cargoes, or a system of compensation ? The answer can be given in a few words. In China to-day there is never any question of combined action. No man is to be trusted. It is every man for himself.

The sceptic may well ask himself whether he does not see in action that very same disruptive force which, centuries ago, burst asunder and scattered the once mighty Tai (Shan) race ; who, defeated and driven west and south, laboriously and bravely built up one empire after another from Nanchao (Tali) to Burma, Assam, and Cambodia, yet were so lacking in cohesion that, not till they reached the sea and could go no

further were they able to found a power—Siam—sufficiently stable to last till the present day. What everybody in China thinks of to-day is money. If he thinks of anything else, he thinks of it in terms of money, or converts it into money, or calculates it on a money basis. One has only to listen to the conversation of one's own muleteers and servants to be convinced that this is true of the poorer classes ; and the actions of the officials speak for themselves.

“ What big trees ! ” remarked Loi (my personal servant), as we passed through a grove of magnificent Conifers !

“ Yes ! How many planks could you cut from that one ? ”

“ Very many ! They would fetch two *taels* each. The tree is worth a hundred dollars.”

“ More in Tali.”

And so on. It is the same with the merchants, who as a class are friendly with foreigners.

“ Please tell me what you are doing in China.”

“ Collecting plants.”

“ How much money do you get for collecting plants ? ”

“ Not very much.”

“ What is this ? ”

“ That is a watch.”

“ How much did it cost ? ”

And thus through the list of your property, beginning with your trousers and boots, and ending—at least we fondly so hope—with your camera and folding bath. So weary do you get of pricing your belongings, as though you were conducting an auction sale, that you become reckless, and set the wildest prices on

articles, for fear people might want to buy them ; which indeed they often do.

The plight of Yunnan may be illustrated by an account of the kaleidoscopic changes which were taking place at the provincial capital in 1921-22.

A short time previously Yunnan was waging a private war with Szechwan. At first success was with the southern province. Then the tide turned. The Yunnan troops were defeated and driven back over their own frontier. The situation was desperate.

In this extremity one T'ang-chi-yao, war lord of Yunnan, played his last card.

Infesting the highways of the province are large numbers of brigands, who prey upon the caravans which come and go.

Now of all the bandits the most famous was Wu-t'ien-fu, a suave ruffian whose word was law to a thousand stout outlaws. This Wu-t'ien-fu achieved fame by capturing an American missionary, and holding him to ransom. It reads like the wild west : but the Orient in fact can be as wild as the westest fiction.

T'ang-chi-yao then hit upon the bright idea of offering the outlaw a free pardon and rapid promotion if he would come in with his legions and fight on his side. The offer was accepted, and Wu-t'ien-fu, erstwhile bandit, became a general, with the prospects of a field-marshalship at least.

However it was now too late to do anything heroic, and T'ang-chi-yao fled southwards to his friends in Canton.

But General Wu-t'ien-fu, late bandit, did not follow his leader. He preferred risking his life at home to

venturing amongst the southern barbarians. Secure in his pardon, he strutted abroad in the capital.

Now enter the hero, a stout warrior named Ku, one of T'ang's lieutenants. Quick to seize an opportunity, he hastily seized the reins of government dropped by his superior officer, staved off the northern enemy, and made himself master of the province.

Ku, whatever his faults, was no friend of the bandits. Besides, their rôle was over. Of course there may have been private reasons besides ; he may have regarded Wu-t'ien-fu as a dangerous competitor. Anyhow, whatever his reasons, he had that budding field-marshal put up against a wall and shot out of hand. That frightened the bandit battalion. They fled to the mountains, well equipped—for naturally they took with them the quartermaster's stores.

Meanwhile T'ang, though an exile in an alien province, was not idle. Being joined by a few faithful adherents, and collecting round him most of the local ruffians—who gravitate towards a local celebrity as naturally as scum round an impediment in the stream—he turned his face once more towards his own province. In this he was assisted by the local soldiers, who did not want him, and the local bandits, who did not need his pardon. Anyhow T'ang led his harassed troops back to Yunnan's capital ; and it was Governor Ku's turn to bolt.

Just what Ku had done in the course of his meteoric career is obscure ; but apparently nothing to justify a change of government in the eyes of the people, if T'ang chose to return. They resented his arbitrary treatment of Wu, and besides T'ang was obviously the

stronger man. In China, if you back the wrong horse you lose your money, and your head too.

Meanwhile the garrisons whose duty it was to watch the Tibetan frontier were withdrawn, and sent to fight ; for T'ang's troops were reported to be nearing the capital.

To fight for Ku, you say, under whom they were now serving ? Not at all ; for T'ang, under whom they used to serve. It sounds like mutiny ; it is merely politics.

Ku had been governor for such a short period that he had not yet had time to change the commands in his provincial prefectures. Naturally a brand-new governor places his own friends in authority everywhere ; but it takes time. Here we had the ludicrous spectacle of Ku's ' ins ' still out, and of T'ang's ' outs ' still in. Naturally the latter preferred to eat T'ang's salt to Ku's ; but they also preferred to eat Ku's to none at all.

I met one of the frontier garrisons on the march. They were deserting their post to go and join in the fray some 500 miles hence. The commander was fast asleep in his chair. A man followed behind—far behind, with his charger ; the charger was also asleep. Some one was carrying his pistol, and some one else his sword. Miles behind plodded a company or two—small boys and old men. They were armed with magazine rifles, but appeared to be singularly deficient in ammunition. Some carried two or three rifles, others none. Several of them possessed bayonets. Had a troop of Tibetan cavalry charged down on them at that moment, they would have mopped up these lead soldiers like a shoal of herrings.

In the sequel Ku fled, and T'ang signalized his return to power by a big dinner and a comic speech. Ku must, of course, remain a constant menace, unless he is killed—in action—an event which only occasionally happens in Chinese warfare.

And so the game goes on. Who shall say that China has not within her the germs of that fatal disease which, time and again, burst asunder the Shan Empire as fast as it was reconstructed elsewhere? I mean the deadly germ of disintegration, of mutual repulsion of parts. Of the rights and wrongs of this or that quarrel, I say nothing. The honesty of a nation, as represented by its government, cannot be greater than the average honesty of its individual parts; nay, in practice it is always considerably less. Small hope then for poor China!

CHAPTER VI

THE INN OF GOLDEN HAPPINESS

A garden is a lovesome thing, God wot !
Rose plot,
Fringed pool,
Ferned grot—
The veriest school
Of peace ; and yet the fool
Contends that God is not !
Not God ! in gardens ! when the eve is cool ?
Nay, but I have a sign :
'Tis very sure God walks in mine !

T. E. BROWN.

Lest the optimistic traveller fears he is going to find a snug hostelry waiting for him at the end of the day's march, I hasten to reassure him. There is nothing so prosaic. Native inns in western China are the last thing in dirt and discomfort. Romance triumphs and we breathe again.

Every village on a caravan road boasts at least two or three inns. Nay, every wayside hovel will open its communistic doors to the belated traveller, at a pinch. The pinching is the worst feature of it. Not, however, after dark. Good men are afraid to go home in the dark. Only the robber, the cut-throat, and the cattle-thief roam abroad after sundown. Especially does this axiom hold true in Tibet ; prob-

ably because there are in Tibet very many solitary farmhouses, and very many brigands.

It is exasperating, after marching till nine o'clock at night, to arrive tired, cold, and hungry, at an empty house ; empty, that is, judged by external symptoms.

But we know better. Half an hour ago, after a long march, we at last saw a light ahead, and gave a whoop of joy. Stumbling along in the darkness, drenched to the skin (for it had rained heavily) and footsore, we had just contemplated giving up the search, and camping by the roadside. It would not be pleasant, without water or firewood, or supper ; but it would be more alluring than an endless night march with the prospect of falling over the cliff at any moment.

And then suddenly we catch sight of this beacon ahead, just across the next valley ; some one carrying a torch perhaps, or the kitchen fire seen through an open window. Anyway, a house in the offing.

The men immediately give tongue to the glad greeting of Tibet, which starts high up and trills down the scale. The tired mules hoist their ears, and lower them again as they accelerate ; lights twinkle ; dogs bark ; and with the muttered words ' heaven ' and ' mother ' on our tired lips, we stumble forward the last two miles.

Darkness. The house looks ghostly in the wan moonlight. An ominous silence wraps it in a cloak of mystery. No smell rises from the pigsty ; a house of the dead—but a thoroughly disinfected one !

Was it after all a hallucination ? But no—the mules saw the light and heard the sounds no less than we. Besides we could not all have been hypnotized ;

and anyway here is the house, as big and solid as a donjon. What then has become of the defenders ?

A fleeting memory of youth comes back to me. What was it—that phrase, familiar yet elusive, the open sesame of closed doors ? Ah ! I have unearthed it from the grave of the past, slightly rusted perhaps, but sovereign still. ‘ Knock, and ring also.’

I knock ; we knock ; they knock, loudly and unceremoniously, and at last angrily, and even peevishly. Nothing happens. I shout : all shout ; and presently, when we are growing tired of such buffoonery, a window high up in the fortress opens cautiously, a piece of gas pipe is thrust out, and from behind it a low voice growls : “ What do you want ? ”

“ Open the door ! I am a foreign nobleman ! ”
(Thud, thud.)

“ Go away ! You are a robber.”

“ We want lodging for the night, you tortoise ! ”
yells a muleteer rudely, dancing with rage. (Thud, thud.)

“ Go away, you rascals. You will get nothing here.” The gas pipe waves up and down suggestively, as though to belie that remark.

The invisible defender then informs us blandly that he is going to shoot ; and the gas pipe waves spasmodically, seeking a target. But before he can do anything so dreadful, there is a noise ‘ off.’ Some one has unostentatiously taken the fort in rear. Several men in fact have climbed over the wall and dropped into the stable yard. They shout back to us to beware of the dog, who is in support ; but we can hear him reviving quite plainly ourselves, thanks. He had played ‘ possum too. Luckily he is tied up ;

though the scramble for back seats when the boarding party almost fell on top of him would have made the most hardened modern playwright blush with shame.

After that episode all is well. The wooden doors swing open, and several grinning defenders, armed with torches, appear, put out their tongues at me, and invite us all to enter.

We pass through the stables and pigsty—not so hygienic as it seemed, and up a notched log through a square hole in the roof to the storey above. Tongues still protrude somewhat in my direction, apologetically ; and I signify that all is forgiven and forgotten. Whereupon they are withdrawn ; and sniggering, rosy-cheeked women prepare buttered tea for us in the gloomy kitchen.

I have a faint recollection that in my nursery days, which geologically speaking was recent, undue exposure of the tongue called forth a rebuff ; sometimes in the shape of a well-aimed book. Other places, other manners. In Tibet it is regarded as a polite and humble thing to do, a mark of respect. After all, why not ! The tongue is a very beautiful and delicate instrument, and it is mere prejudice which engaols it for ever inside the mouth. We are quite conceited about our white teeth, which some novelists tell us are luminous ('the heroine flashed her teeth on him'—doubtless to his discomfiture if he happened to be engaged in malpractices after dark).

Usually, however—to return to the subject of inns—if there are no villages we camp for the night. But this takes time ; and on main roads, especially when Chinese mules with their preposterous pack saddles are used, we stay at the inns.

The journey is divided into definite stages, and at the end of each stage we find our inn. In cities and big market villages of course there are a number of mule inns ; but sometimes there is only a single hostelry, and if several caravans are halted there for the night, there may be overcrowding.

The comfort of the inn varies inversely as the size of the city, the largest and richest cities boasting the meanest, dirtiest inns. Imagine an unclean farm-yard, with a second one budding off it, and at the end a tiled barn approached up a flight of low steps, and divided into several rooms. Surrounding both yards on three sides are sheds, and in a far corner of the inner one is the open cook-house with its mud range. The distinguished foreigner is given the best room available. If it is already occupied, the occupier is politely requested to change into another room. I had often felt something more than a qualm when the innkeeper beseeched a Chinese gentleman to move into another apartment on my account. Such insecurity of tenure must be very humiliating ; and after all China happens to be their country, not ours. But my anxiety was superfluous. The Chinaman is turned out not because of social distinctions, real or imaginary, but on economic grounds. He does not pay as well as the foreigner.

The best room in the inn is about 10 feet square, and lugubriously dark, despite the fact that the paper window is in tatters. The walls are black with smoke, dirt, and cobwebs ; the floor boards undulate like a choppy sea—sometimes they rise up and smite you, when trodden on. The fixtures include ticks, fleas, bugs, spiders and other athletic and voracious insects ;

and for furniture there are a rickety table, filthy with vegetable oil, which forms a glutinous pelt over the surface, a hard, straight-backed chair ; and some boards laid across a couple of trestles and covered with a straw pallet. A block of wood serves for a pillow. At dusk, the inn servant—a ragged raw-boned rascal, goes round to light the lamps. He pours pea-nut oil from a bottle into the saucer, which he tilts on a stand ; soaks a pith wick in the generous fluid, and lights the tip. It is all the illumination we get.

But after all, can we expect more ? A night's lodging, without food, costs about thirty cents—say sixpence. It is not exorbitant.

The traveller, if he is wise, will hire an upstairs room, away from the more dynamic smells of the yard, and free of the touts who infest every inn where distinguished foreigners are staying. Curiosity is the besetting vice of the rustic Chinese, an excessive, unreasoning, hungry curiosity. They do not profit by it, because they do not watch to learn ; they watch to be amused. So far as they know, they already possess all knowledge ; but there is little enough amusement in the drab routine of their existence. The foreigner to them is simply a circus ; and there is no entrance fee.

Yet it would be churlish to deny that, boorish and dull as they appear to the European, the gossips who collect to stare are generally good-tempered ; foolish indeed would be the victim if he did not make the best of it and bear scrutiny with resignation.

There is no privacy in an inn ; and it strikes the traveller as curious that the innkeeper should have no authority to turn undesirables off his own premises.

If he has, he never exercises it. It is one result of the communistic principles of the Chinese, that a public inn should be completely public. But it carries with it certain obligations on the part of the innkeeper.

It is an unwritten law that he is responsible for his guests' property. If anyone can gain admittance to an inn, wander about at will, and stroll out again, obviously the bad character may find it profitable to draw such coverts ; and indeed, in the cities, it is a general rule that the police search every inn after dark.

If therefore in the odour and excitement anyone purloins your shirt, redress is at hand. On slight pressure, the innkeeper will yield up a new one—or at any rate another one.

In the back blocks, and off the main caravan routes, inns are rare, but private homes usually have a spare room or two. The upstairs room may be only a loft used for storing grain, or a secret chamber, behind whose locked and silent doors none know what villainous webs may have been woven by innumerable spiders. But the accommodating housewife can usually be prevailed upon to clear and sweep a corner where the distinguished foreign guest may set up his camp cot, table, and chair. A little fiscal reform will work wonders ; even the village school house is not proof against this insidious propaganda, while the local temple has long since derived more revenue as a barrack, hostelry, or booth, or sometimes as a stable, barn, or in a static capacity as a warehouse, than as a cloister. Indeed the one measure which sustained the old temples when on the point of collapse was the famous edict of the last Manchu Emperor Kuang

Hsi, who with potent stroke of pen converted village temples into village schools. But the same stroke of the pen failed to provide either books or pedagogues, and subsequent strokes have not rectified the omission. I have frequently found comfortable quarters in a temple. It is cleaner than an inn, and more exclusive. Moreover many temples are situated in peculiarly beautiful surroundings, and stand apart from the villages in a more salubrious atmosphere; or, if inside the city wall, are hedged in with peaceful courtyards which keep them dreamily remote from the bustle of the main streets.

Often too they hang like swallows' nests on some cliff face, or perch themselves on the apex of a sugar-loaf mountain, and secrete as it were round themselves a shell of forest which is jealously guarded. I have taken up my abode also in school houses. One such village school was quite new, complete with rows of desks, new ink pots, a blackboard, a playing yard,—everything in fact that a modern and up-to-date academy for young gentlemen should possess except one—an usher: there was no usher—consequently the school did not function. But they were very proud of it nevertheless.

The muleteers sleep in the sheds, with their beasts. Some of the large inns accommodate as many as a hundred mules, and in the busy season there will be three or four camp fires burning round the yard, each with its complement of rice-eating muleteers, squatting round the family pot.

After dark come the police. They are discourteous, but quick. They put on airs, mistaking brusqueness for efficiency and rudeness for smartness. They are

succeeded by the military, who come on my account, having received a report that there is a foreigner in the place. A person with the rank perhaps of a lance-corporal—though one might be excused for regarding him as a particularly boorish recruit, pokes his head into my room, and seeing only me, enters without knocking, closely followed by two other ruffians, one of whom carries a lantern. After staring rudely at me for a minute, and peering suspiciously round the room, he speaks.

“Where the hell are you from?” he asks, in effect. I tell him, boiling.

“Well, what are you doing here?”

“Collecting plants!”

“Collecting plants? The man’s crazy!”—this to his cronies.

By this time, in order to rid myself of such fustian, I have opened a box and taken out my passport, which I hand to the rude warrior. He looks at the large printed characters laboriously. Then, as some inkling of its authority penetrates his dull brain, he hands it back more politely. He is crestfallen. He pushes his companions out of the room, and withdraws himself, bowing awkwardly. It is always the same in Yunnan; the soldiery bully when there is no fear of retaliation, and cringe when there may be unpleasant consequences.

Yunnan, though a long way south—part of the province lies within the tropics—is a mountainous country, and in winter it can be bitterly cold on some of those knife-edge ranges. No provision is made for warming the inn: consequently the traveller must provide himself with a *ho-p’an*—that is an iron

tray set in a low wooden frame which supports it a foot from the ground. The tray is filled with glowing charcoal.

In North China, where the winters are long and bitter, every inn has its *k'ang* or mud range running the length of each guest room. Under the *k'ang* fires are lit, and the traveller spreads his bedding on top, having the choice between death by suffocation (with the possibility of slow combustion) and death by cold. He generally chooses the former.

Guests usually take their two daily meals with the establishment, host and servants all feeding together in a corner of the cook house ; for there are no caste distinctions in China. However, those who profess to admire them for their democratic ideals, have only to look at the chaos and ruin throughout China, where effective authority has ceased to exist, to see the futility of it.

But though there is no caste amongst these jarring peoples whose one trait in common is their apathy towards religion, actually social distinctions are real enough in a country where slavery and polygamy are tolerated, and bureaucracy—imperial, republican, or militaristic, triumphs ; it is merely that they are less clearly defined and perhaps less rigidly enforced by a profane autocracy than by a religious one. If any one doubts the religious indifference of the people, it is only necessary to indicate the humble lot of the priests themselves, who are without money, influence, or position ; the complete lack of ecclesiastical authority and the corruption of the hierarchy ; and the decay and misuse of the temples. Beyond the possession of a few disconnected shrines, whither the

pious make pilgrimage, China is bankrupt of faith. The only people in China who are quite sure of themselves and their religion are the Mohammedans.

Towards dusk, for the Chinese take their evening meal early, the innkeeper stands in the dirty yard and calls up to his guests on the balcony, "Come, friends, the rice is cooked." Whereupon ensues much bustle as guests, servants, muleteers, all the flotsam and jetsam of the inn, troop down to the wooden benches and the rickety tables in the corner ; while the pariah dogs, with lowered tails and raised lips, stand round in an expectant ring, snarling.

But whatever the shortcomings, dirt, and idle conceits of the Chinese inn may be,—and it is a twice-told tale,—there can be no question that after a day's march across these unrelenting ranges, we look forward to it as to a haven of refuge. It is so when there is but a stinking hovel in sight by supper time ; and it was so when we found ourselves housed in the amazing hostelry which I am about to advertise.

We had crossed the Mekong by the Bridge of the Green Dragon—a fine chain suspension bridge in an excellent state of repair. The green dragon is said to live in the river—I did not notice any on the cliffs. Then followed endless cobbled steps leading up out of the gorge and so into pine forest, above. There came a sudden shock of wind, which sent a pine tree on the other side of the ravine sprawling. A flood of rain followed, lashing us with whips. The wind hurled it in our faces, almost blinding the mules, till they slipped and faltered on the steep path. We were miles from anywhere, it seemed—nothing for it

but to go on and make the best of it ; though the path was now a torrent bed.

Such brutal storms out of a clear sky are not uncommon in the terrifically deep river gorges of Yunnan ; they do not last long, but they are distinctly unpleasant while they do.

The path turned a shoulder of the hill, and there, a quarter of a mile ahead, was a house. We urged on the jaded mules, and ten minutes later I was staring at a white plaster wall on which were painted in three large black characters, this legend : The Inn of Golden Happiness.

Passing through a circular opening in the wall— itself significantly unusual, though we were too mizzled to remark it at the moment, we found ourselves in the courtyard. This was of the usual type. So too was our greeting. So was the mud. Dogs barked, and snarled truculently. Glum pigs impeded progress, and grunted in a syncopated chorus of lamentation ; and our super-saturated solution of men and mules entered into combination and residence.

It was quite a small inn. Two sides of the yard were occupied by the stables, the cook-house filled a third side, and on the fourth was the guest-room, its lattice doors provided with paper windows.

I requested an upstairs room, was told there were none, and was politely invited to step inside the only guest chamber. The little old lady of the inn, hobbling about on live stumps—for her feet had been crushed into line with her ankles in the good old style, as though God-given feet were an affliction not to be borne—was sweeping and dusting ; and I followed her up the steps into the apartment.

As yet I had not realized what it meant to be a guest at the Inn of Golden Happiness. Next moment I stepped inside the apartment.

I was in a small room, in size not unlike the ordinary inn cell. There the resemblance ceased. The floor was, it must be confessed, of mud ; but it was hard, smooth, and swept clean. The wooden ceiling was actually papered. Light entered through the paper windows, light—and air ! but though torn, or at any rate perforated, they were clean. The walls were hung with scrolls, on which were inscribed moral maxims and obvious epigrams ; and even they were clean.

Dazed with the luxury of the place I could only stare, and take it in bit by bit.

Then there was the furniture ; an excellent table, with four complete legs, stood in the middle of the room, and ranged stiffly against the wall was a row of haughty but very solid chairs, resplendent in red and gold lacquer. It amused me to picture the stiff-necked people who had sat in those stiff-backed chairs—what magisterial wrath, what bigoted opulence, what suave intelligence, what pompous indigence !

I gasped. The solid wooden bedstead must have weighed a hundredweight. One end was carved into a scroll-like pillow, and the whole resembled a catafalque. Not even Robin Hood himself, or even Richard Cœur-de-Lion, ever slept on anything so sumptuous. Of that I felt convinced.

Nor was that all. An oil lamp hung from a rafter. It was magnificent ; but there was no oil. The most staggering article of furniture, however, I have kept secret till the last. It was a dresser—I think that is

the name, though it has nothing to do with a dressing-room. In this case it was the family altar, and on it were arranged pens, ink, and paper, as the French book says. Well, not ink and paper, but pens ; not real pens of course, because the Chinese do not write with pens, but brushes. They stood in a bamboo tube. There were other bamboo tubes, full of paper flowers, and a stone jar, full of fragrant grey ash, and an incense holder, and some sticks of incense.

And over the door hung a fringe of scarlet and black visiting cards, showing the distinguished visitors who had spent a night at the Inn of Golden Happiness, and had not entered their names in the complaint book, or uttered threats ; but had, on the contrary, left their cards and names, any one of which you might find in the *Pai-chia-ming*, which is the Chinese De Brett.

And as I stood staring round me, I felt dazed. It was as though you encountered the Hotel Cecil in Rotherhithe, or stayed at the Carlton while on a walking tour in Spain. True the floor was of mud, the windows of paper, but floor, walls, even the ceiling, were clean ; moderately clean ; at any rate not dirty ; not really dirty.

There was only one drawback. The sun came out, and immediately the guest chamber of the Inn of Golden Happiness was flooded with flies. They came in from the unsavoury courtyard in clots. But the storm was succeeded by a clear sky and it was a gorgeous evening outside.

Two soldiers had been thrust upon me as escort at this time. An officer had burst into my room at Shunning, taken off his cap and made a sweeping bow in approved military fashion.

The burden of his petition was, "Feed my soldiers." I declined in the hope that they would be withdrawn ; and we did in fact start without their august presence. However, it was not to be ; in the afternoon they overtook us. I was not a little surprised at the completeness of their military equipment, but alas ! this was but a temporary disguise. They were dressed in white cotton uniform and dark puttees, with belt, bayonet, canvas cartridge bag, rifle, and blanket, slung over the shoulder—in a word the complete soldier, in full marching order, except for a few unimportant details such as entrenching tools, haversack, tin mug, ammunition, field dressing, emergency ration, and cash to buy any other less critical food. In the afternoon they took off their puttees, as it was rather hot ; and on the following day discarded their belts, which I thought was rather sensible of them.

We crossed the Yang-pi River by raft, since there is no bridge here. It flows in a deep gorge, and the heat, trapped between barren slate cliffs, was most oppressive. Climbing the mountains on the other side, I noticed that my escort had abandoned their blankets, which had been left at a wayside house, to be called for on their return ; after all, they did not really need them in such warm weather.

However, I thought it rather unwise of them to hand their rifles over to a cooly and compel him to carry them. After all, suppose we *had* met brigands, and my warriors happened to be separated from their rifles by only half a mile or so !

On the sixth day only one of them finished ; the other fell by the wayside. My man still had his tunic and trousers on, but had left his rifle with his sick

companion. I gave him money to buy food, and told him to return to the city ; which he did after thanking me profusely, with a deep bow.

From Meng-hua, where the Red River rises, we crossed the intervening range to the north, and looked down on to the Tali lake. The tired Greeks, returning with Xenophon from Asia Minor, could hardly have cried out more joyfully at sight of the Hellespont, than I did at sight of the great lake at the foot of the mountains.

At Tali it was necessary to change all my Indian rupees for Yunnan dollars, and an arduous affair it proved. At last I found a merchant who was willing to open conversations on the subject. And a conversation it proved. We drink cup after cup of debilitated tea, and discuss the matter thus.

“ Well, we will change it at fifty dollars per hundred rupees.”

“ A short time ago it was sixty and a half dollars.”

“ Yes, but now silver is cheap again.”

“ You are calculating the rupee at three *ch'ien* ; at Bhamo it is four *ch'ien*. However, no matter ; we will call it *ch'ien* 3.50. It is very nice weather, though it is too hot. Please take some more tea.”

“ You shall have it at *ch'ien* 3.40. Never mind the ten *fen*—I will lose that.”

“ Oh ! please come down a little, to *ch'ien* 3.45. There, that is settled.”

“ Sir, I cannot. I lose money. *Ch'ien* 3.40 it shall be.”

“ It is too much.”

The merchant rises, bows, and glides over to the door, hesitates a moment on the threshold, then passes

out. He creaks down the stairs, crosses the yard, and passes out into the street. The sleepy janitor—for the city inn is provided with such a functionary at night—closes the wooden door behind him.

Five minutes later you hear a thud, thud on the door. The gatekeeper starts up and unbars it. Some one crosses the yard, and you hear the stairs creaking dismally again. The door opens and in steps our friend. He is in no way abashed. He has not lost face.

“Sir, I will exchange at *ch'ien* 3.45. I lose five *fen*, but it does not matter. I will say nothing more about it.”

From his voluminous sleeves the merchant produces large numbers of dollars, like a conjuror. Then ensues a great counting out of silver coins which are stacked in piles on the table. Now and then the merchant rings one, as he slides them through his fingers, extracting several doubtful ones. At last this tedious operation is finished and, both sides being satisfied with the bargain, the merchant withdraws once more ; this time not to return even with the charitable object of presenting you with five *fen* for every rupee exchanged !

The inn is asleep, except for a party of opium-smokers in the next room. The horrible reek of the fumes steals in on us. The night watchman passes in the street below, with a monotonous dong, dong, dong which grows louder and more resonant, then fades away into the distance as he goes his rounds warning thieves not to ply their nefarious trade until he is safely out of sight.

CHAPTER VII

THE VALLEY OF BEAUTIFUL FLOWERS

When the hounds of spring are on winter's traces,
The mother of months, in valley or plain,
Fills the shadows and windy places
With lisp of leaves and ripple of rain.

A. C. SWINBURNE.

It is a far cry from Ava, that once Royal City, on the banks of the spacious Irrawaddy, to Muli. Thirty-five marches bring us to the lip of the Yungning basin ; and approaching from the south, over wooded limestone ranges, there leaps into view, with a blunt unexpectedness, the holy lake of Yungning.

Southwards, range beyond range, rise the mountains of Yunnan, neatly creased and folded. Their flanks are clad with forest, their ridges furred with pine. Wide vales gape between the ranges, where cultivation is ; there are villages, too, though you cannot see them. That is China.

Northwards the scene changes violently. Rough-hewn towers of white limestone and jagged crests are silhouetted against the porcelain sky. It is a barren, dour land, tilted on edge. The whole region is prickly with snow peaks, the most conspicuous being the twin pyramids of the Gang-ka-ling range.

Crossing the pass we plunge down into a forest of Rhododendrons, and maples, and big Conifers. We

turn a corner, and the ground drops away swiftly to a flank ; then looking over the dark heads, and between the bronzed trunks of the pine trees, we catch a first glimpse of the sapphire lake. It lies at our feet, blue as heaven itself. The yeasty clouds are surging over the high ranges of Tibet, advancing in long grey waves ; the wind is snoring through the forest ; torrents are shouting and laughing down the cliff ; and far, far below, at the bottom of a vast bowl, lies this jewel, a flake of lapis lazuli, caught up and held in the folds of mountain building. In the offing drowned peaks poke their heads above the surface, one of which is capped by a white monastery, where dwells the grand lama of Yungning. Waves are cuffing the cliff, and a boat dances in the bay. Here and there a strip of cultivation edges the shore, like green braid.

Right opposite us, from the far angle of the lake, Lion Rock lifts its head proudly, rising sheer from the placid water for 3,000 feet.

As we descend through the scented pine forest, flowers appear. Between the trees are billowy clumps of *Rhododendron radinum*,¹ with clots of shell-pink or milk-white flowers nestling amongst the aromatic foliage. It belongs to the 'Cephalanthum' series,—small undershrub Rhododendrons, found on the Alpine slopes and moorland, and in open pine forest at moderately high elevations. Like the closely allied 'Lapponicums,' the 'Cephalanthums' are essentially plants of the limestone plateau of Yunnan, though a few species have been discovered on the lofty ranges

¹ The botanist would hardly distinguish between *Rh. sphaeranthum*, *Rh. ledoides*, and *Rh. radinum*, in the field.

west of the Mekong. In the Muli country, they form a characteristic association, composed chiefly of *Rh. radinum*, with tufts of a purple-flowered 'Lapponicum' and of *Rh. racemosum*, covering hundreds of square miles of lofty country, round about 10,000 feet altitude. Like the 'Lapponicum' association, this woodland undergrowth mistrusts shade, and is not found where thick oak forest replaces pine forest. The species demand a light sandy loam, with good drainage, and in cultivation would doubtless flourish best if grown on a slope. They flower in May and June.

Throughout the endless variety of *Rhododendron* there runs a family likeness. Few of them in flower, from forest tree to prostrate undershrub, depart widely from the type, or could be mistaken for anything but a *Rhododendron*; but this little undershrub, with its long tubular corolla, with distinct flattened limb, and tight spheres of flowers, is perhaps one of the few.

Presently we found more flowers—tangles of *Androsace sarmentosa*, scattered slipper orchids, and, more rarely a beautiful *Nomocharis*, with satiny white flowers having a rash of purplish red spots in the centre.

Nomocharis is a genus of *Liliaceae*, with large, flattened, nodding flowers. Several species have been described, but the only one with which we need concern ourselves here is *N. pardanthina*, which has been raised in England. As grown in England, however, it is but a poor ghost of its real self, and clearly we have not yet learnt its ways.

N. pardanthina is a plant of the moist alpine meadow. It is found as far east as the Tali range; but it is more at home on the Mekong-Salween divide, or even

on the Salween-Irrawaddy divide, where it flourishes in the patches of meadow which wage unceasing but hopeless warfare with the all-devouring bamboo brake.

The mere difference of habitat—dry pine woods, as opposed to open meadow, suggests that the Yungning plant (K.W. 4000) is not *N. pardanthina*. On comparing them further we find that *N. pardanthina* has the petals rose pink, not white; with smooth edges—not frilled; rounded—not pointed. *N. pardanthina* bears three or four flowers on the scape, the Yungning plant never more than two. It grows in scores, in hundreds, colouring the hillside, under the lash of the July rain; the Yungning plant is rarer, widely scattered in the boscaje, and flowers in May, before the rainy season begins. Many a plant has been christened on less legitimate grounds.

There is one thing which applies equally to *N. pardanthina* and to its understudy: they both grow in sandy loam, and the bulb is always deep down, sometimes eight or ten inches underground; so that the plant is not likely long to feel happy in the shallow pans in which we habitually raise seedlings in England.

Other notable flowers in the pine forest are, as remarked, species of slipper orchid. These form big clumps, and are very showy, though a patronizing tolerance is all that is conceded to them by orchid fanciers.

In the Muli country there are at least five species, of which three, *Cypripedium luteum* (sulphur yellow), *C. tibeticum* (chocolate red or maroon), and another are found in the pine forest. Then there is the curious *C. margaritanea*, a survival of moister conditions. It is found only in a few particularly well shaded gullies,

and is distinctly more grotesque than beautiful. The stemless flower, sombre chocolate in tone, lolls between two large, glistening, spotted leaves which lie flat on the ground ; and the big pouch protrudes like an obese chin overflowing a cravat.

There is a point worth noting with regard to the irrigation of all these May-flowering plants of the pine forest. Growing as they do at the foot of the limestone escarpment, their roots are kept moist by deep-seated water coming to the surface. There is no stagnation ; on these steep slopes the drainage is perfect, and the water now derived from melting snow is perennial. Thus many plants are enabled to flower before the summer rains break—which is not till the end of June.

For some distance our path skirts the lake side, climbing up and down over pine-clad bluffs, and through groves of maple, whose leaves in winter turn a bewitching champagne colour. Finally leaving the lake basin where the rim is lipped, we proceed down a narrow winding corridor, between dry shale hills, whose slopes are chequered with dwarf *Rhododendron* and prickly scrub oak. Once upon a time this corridor afforded passage to the waters of the upper lake, which overflowed to the plain of Yungning, lying a few hundred feet below ; but the surface of the upper lake has long since shrunk below the level of the lip, and the lower lake has been gradually silted up. This is strong evidence in favour of diminished precipitation throughout the Marches—a theory well supported by the tremendous retreat of the glaciers east of the Yangtze.

The corridor is very marshy in places, and the bogs

were all gay with flowers—yellow flag Iris, and the tall crimson chandeliers of *Primula Beesiana*.

The corridor opens on to the cultivated plain of Yungning, an irregular-shaped basin, fringed with villages hidden under willow trees. A merry river, the Kai-chi-ho, issuing from a defile at the western end, is checked in its stride, and twists sulkily across the plain, to a gap at the far end, where it resumes its frolic. The river is spanned at its exit, where stands the village of Kai-chi, by a wooden bridge, and by the ruins of an arched stone bridge, which collapsed in a flood some years ago.

On the west side, under a conical hill like a volcano (called by me the 'cone'), stands the ramshackle monastery, a strange blend of Tibetan and Chinese architecture. Opposite it, separating the plain from the lake, rises the bald cliff of Lion Rock, which bears no merely fanciful resemblance to a crouching lion.

Northwards rolling hills furred with pine forest buttress the white towers of the Muli range, whose profile shows harsh against the curdled sky.

This formidable bulkhead, which separates the Yungning basin from the Litang River, also links the main divides, like the crossbar of the letter H ; but the Yungning drainage too, at last, finds its way tortuously to the Litang River (Li chu).

It is approached through long ice-worn corridors between sky-scraping cliffs ; and on a lovely June day we set out for Muli. Skirting the plain, past the hot spring where the water wells up from beneath a limestone cliff, into a natural basin—we entered the hills. By mid-June the marshes which fringe the plain are a tumult of blossom. Here *Primula Poissonii*

grows to perfection, and it must be confessed that, despite its aggressive colour—screaming magenta purple—in mass formation it is a gay sight. There is something in the velvet texture of the corolla which gives a purer colour value in the sunshine. Nature, too, comes to the rescue. Boldly she meets violence with violence, loud colour with louder contrast, outdaring man. Thus she plants with *P. Poissonii* the marsh kingcup, whose hot gold serves as a foil to belligerent purple. The effect is wondrous; and when to these are added splashes of sky-blue *Cynoglossum* and of pink lousewort, the wild bog garden is an unforgettable splendour.

About this time the smouldering cones of *Primula Littoniana* are beginning to scorch through the meadow, and before the end of July they will have reached their full stature.

Leaving the plain we ascend into the clay foothills, where pine and oak trees stand ankle-deep in a surf of dwarf *Rhododendron*. Then, crossing a low pass, we come down on the north side into shady woods, with an undergrowth of tall, leafy herbs. Here grow species of *Astilbe* (which is not unlike meadowsweet), lily, *Arisæma*, *Rodgersia*, and rose pink *Androsace*.

Below lay a green valley into which a swift little river from the north emptied itself, and flowed away to the east. This river, the To-lo-ho, had its source in the range to the north, and up its cramped valley lay our route. At first we found a few strips of cultivation and rich pasture land on its banks; but after leaving the derelict monastery called Ren-chong, where a stream galloped in from the east, the valley narrowed rapidly. The monastery was the last habitation met

with till we were far down on the other side of the range.

The meads were crimsoned with *Primula Beesiana*—vulgar thing—and in the woodland glades a pallid *Strobilanthes* flowered feebly. Later in the season a climbing gentian (*Crawfurdia* sp.) corkscrews neatly up the bamboo haulms, and in the autumn dangles its little polonies by slender threads. The flowers, though large, are dull. On the stony bank of this stream I found a single plant of *Primula werringtonensis*.

Presently the gorge grew narrower, and we were forced to leave the stream, and climb. There were bushes of bright gamboge-flowered *Piptanthus* in bloom here. No sooner were we a hundred feet above the water, than all the poor little luxury of vegetation that had crowded so confidently into the gorge came to an end ; we were in the pine forest again.

Towards evening we reached a steep meadow, on the flank of the ridge. All round us was the forest of evergreen oak and fir, shrouded in pale green lichen. It moved gently in the breeze, like seaweed in a tideway. Bordering the forest were bushes of *Daphne calcicola*, a cumulus of golden blossom, scenting the air. It is a gorgeous rock shrub, 2 to 3 feet high and as much through, so smothered in bloom that not a leaf is visible ; yet when we came to collect seed of it three months later, not a single one could we find. Either they had all fallen, to ripen on the ground, or the birds had stolen them ; probably the latter, for a search under the bushes drew blank.

Above the timber line rose the fleshless rib of the Muli range, stark as an atoll ; but the meadow itself was lemon yellow with *Roscoea cautilioides*. *Roscoea* is

a pompous flower. It looks artificial as though cut out of paper, or cheese ; I would recommend it as a design for the more flamboyant types of wall paper, but not for the garden. However, in this region there is no getting away from it. There are a dozen species on the limestone uplands—jaundiced, like *R. cautlioides*, or blatantly purple like *R. purpurea*; and they are nearly always overcrowded. Occasionally you see an ivory white one which is not so unpleasant. The Roscoeas and a solitary species of *Hedychium* alone represent all that wealth of Zingiberaceæ found on the North-East Frontier of Burma.

This meadow where we camped looked like an amphitheatre, with its tiers of parallel limestone outcrops—beaches such as might be left by a lake in process of drying up. Confined to these ledges was *Primula pulchella*, a dainty species of the 'Nivalis' section. It is however a variable plant, both in size and flower colour ; which is not surprising in view of the fact that it has an ample range of altitude, and grows both in the deep shade of the forest and on the open downs, wherever raw limestone crops out. The lilac shades are washy and uninteresting. A form I found on the moorland, east of the Litang River (K.W. 5157), with dusky violet flowers, is the best I have seen. The pale silvery green meal, like tropic moonlight, on the under-surface of the narrow leaves is charming.

West of the Yangtze this species is represented by a smaller plant, *P. pulchelloides*, which suffers somewhat by comparison with its richer cousin. Both are in cultivation.

June is a good month for exploring the knife-edges,

the talus slopes, and brittle crags of the Muli range, for it is the month of Primulas. Most of the Rhododendrons are over ; *they* were in flower a month or six weeks ago, drawing their water supply from melting snow, which has long since disappeared. A few I found, such as ' Snowy Dwarf ' (*Rh. cephalanthoides*, K.W. 4160) and ' Lemon Bell ' (*Rh. Wardii*, K.W. 4170). The former, in its most alpine form, is a compact shrublet, about 2 feet in height, smothered with clots of snow-white bloom. The corolla has a very distinct tube, with flattened spreading limb, a little unlike the Rhododendron of commerce.

The short and narrow leaves, covered below with a surf of rust red scales which slough off, are highly aromatic. It grows by cliff and scree ; but when seeking shelter beneath the forest it is apt to develop into a gawky bush ; also the flowers sometimes are faintly flushed. It also belongs to the ' Cephalanthums.'

East of the Litang River *Rh. Wardii* is replaced by *Rh. puralbum*, a very similar species, whose citron-yellow flowers are irregularly flushed and streaked with rose pink ; but it was not flowering at all freely (K.W. 4410).

' Lemon Bell ' is a June-flowering species, one of the most delightful Rhododendrons met with. A small, loose-limbed tree, it haunts the coppices, scattered amongst larch and oak, maple, fir, and birch. The buds are streaked and flushed with crimson, but when the bell expands it is a pure lemon yellow as seen at Muli, very regular, with a wide throat. West of the Yangtze however occurs a form having a purple blotch at the base of the corolla. This I introduced some years ago under the number K.W. 529, and

it flowered in several gardens in 1923. The truss carries few flowers, which hang freely.

It may be noted here that in the high Alps east of the Yangtze, the vegetative season, lasting nearly eight months of the year, is marked by two chief flowering seasons, spring and autumn. Within the former are included an early *Rhododendron* period, (April to May) ; and a later *Primula* period (June to July) ; the former dependent upon snow water, and the latter upon the first rainfall.

The second flowering season comprises September and October, from the latter half of the rainy season to the beginning of the cold dry season. The seasons of most intense flowering activity are May–June, before the beginning of the rainy season, when the *Rhododendrons*, *Primulas* and poppies flower ; and September–October, at the end of the rainy season, when the *Campanulaceæ*, gentians, and saxifrages hold the stage. But the three seasons, warm dry, cold dry, and rainy, are not very regular. The highlands to the west, and the great area of elevated country to the south of Muli, do more than merely decrease the amount of precipitation, prolong the drought, and shorten the moonsoon ; they confuse it.

From our camp in the meadow we made a preliminary ascent to the white cliffs above, on a day of driving rain. Between us and the open scree was a belt of forest, horribly stuffed with bamboo ; and making our way deviously through this rude obstruction we found promise of many flowers above. In the shadow of the forest snowballs of *Rh. cephalanthoides* were melting away under the onslaught of wind and rain, though they still made a brave show.

Tucked into crevices of the cliff, delicate lilac and purple Primulas, variously powdered with white meal, were opening their tiny eyes (K.W. 4153, 4154); and spiny cushions of Caragana, whose yellow pea-flowers are enveloped in silken foliage, filled the hollows.

Other flowers there were, tussocks of *Aster staticifolia*, and bushes of Lilac, neither lilac, nor white, nor pink, but with an unclean flush, yet as fragrant as any other.

Next day we resumed our march. Above the Roscoea meadow came gullies filled with big trees, Tsuga, oak, and birch; then the gaunt cliffs on our left closed in, and the forest dwindled, till nothing but spruce fir remained. The road was hewn out of the solid rock, and so steep that the mules made but slow progress. On our right, far below, the torrent growled, and a chain of naked peaks rose on the far side of the valley.

The ramp below the cliff was gaudy with the crimson trumpets of *Incarvillia grandiflora* and occasional plants of the tall and stiff *I. lutea*. The latter sends up a sheaf of spikes bearing dull yellow flowers, usually more or less stained with reddish brown streaks. But *I. grandiflora*, despite its aggressive colour, and a certain freakishness due to the large size of its pouting perianth, and the shortness of its stalk, is really quite a fine thing. Maybe it is pert. It struts. Yet it is undeniably fascinating. As for being tropic, far from it; it is an alpine which does very well at 13,000 or 14,000 feet, though there is no denying it comes of good family, tropic in sympathy. It has connections south of Cancer, and has itself never lost that

elusive air of good breeding we associate with equatorial birth.

I found some white-flowered specimens of it which were lovely beyond belief.

These two are not the only species. There is a second dwarf, found on the open hill tops, with flowers of a curious dusky plum purple ; and another, intermediate in size between *I. grandiflora* and *I. lutea*, with pink flowers. This last is less common than the others, and is confined to limestone, which indeed all seem to prefer.

Entering on a defile between rugged cliffs, we saw the pass ahead, high up on the brow of the mountain. Suddenly we stepped into a perfect garden of flowers, glowing with all colours of the rainbow. A stream from a hanging valley shot over the lip of the cliff on our left, and tumbled at our feet.

Here glimmered flowers never dreamed of in Covent Garden. *Primula* (*Omphalogramma*) *vincæflora*, and the large yellow globes of *Meconopsis integrifolia*, floating like buoys on a green sea of grass ; the chubby flesh-pink flowers and blotched leaves of *Podophyllum*, frail meadow rue, and purple Aster, clumps of bright gamboge *Draba*, rather leggy in figure, and the nodding violet-blue flowers of *Meconopsis lancifolia*, their short scapes almost smothered by the surrounding vegetation. One pasture was dyed purple with *Iris chrysographes*, a beardless species of the 'sibirica' type, with flowers the colour of a Munich stained-glass window. (It grows no more than a foot high, flowering in June.) Above all an amazing wealth and variety of *Primulas* crowded the bogs, frilled the streams, and scattered themselves over meadow and lawn.

In the marshes, and standing knee-deep in the vexed streams, were the stately *P. secundiflora* and *P. pseudosikkimensis*, like giant cowslips. They bear dangling clusters of trumpet-mouthed bells, claret in the former, in the latter citron ; a faint efflorescence of meal silvers the umbels. Under the willows they form drifts of pale sunlight. *P. brevifolia*, though it too brandishes a cluster of violet bells, is otherwise a very different thing. It is one of the 'Amethystina' section, more familiar in its Himalayan connection. *P. brevifolia* scorns to get its feet wet in bog or stream, yet insists on ample water ; it is a thirsty soul. So it haunts the turfy slopes where its roots are kept moist by seepage.

Another marsh Primula is *P. Wardii*, the west China form of the Himalayan *P. involucrata*. This had long been confused with *P. sibirica*, under the name *P. sibirica* var. *chinensis*, until the late Sir Isaac Bayly Balfour pointed out the essential difference between the plants.

P. Wardii, when well grown, is a better plant than either of its cousins. Unfortunately it rarely is well grown, though in Mr. H. D. M. Barton's garden in Antrim I have seen it at its best—a delightful sight.

Its distribution in the Tibetan Marches is fairly definite. It occurs as far west as the Mekong, but does not appear to cross that river ; so that the Sino-Himalayan breach, where the great rivers roar through, separates it from the area of *P. involucrata*. It appears to be equally isolated from the area of *P. sibirica*, Jacq., which is a Siberian plant only.

As might be expected, the species themselves which

have been isolated from the aggregate are variable ; and *P. Wardii* is no exception. It varies considerably in stature and in flower colour, from palest lilac to purplish mauve ; there is also a pure white-flowered form on the Muli Mountains. It is very free-flowering, sweetly fragrant, and easily grown in moist open situations ; moreover it has the advantage of firing off a second barrel of flower in the autumn. There is much to admire in the starry white-eyed blooms clustered at the summit of the erect 10-inch scapes ; and a marsh full of the teasing shades of lilac, mauve and purple, is charming.¹

From my tent, which was pitched on the edge of a shallow basin, already half marsh, I could look out upon all these drifts of colour ; and on other *Primulas* besides. There was, for example, ugly *P. szechuanica*. When I first set eyes on the foliage of this plant—the crown of sea-green leaves delicately veined with alabaster ; and again when I saw it in fruit, the tall scapes bearing a double whorl of thin, cylindrical capsules, with the clutch of green seeds showing through the white parchment, I thought I had found a treasure. But it was a treasure best left buried. The squinny flowers are but a rancid yellow, and in order to be thoroughly dowdy it reflexes the small petals on the narrow tube. The ‘*Maximowiczii*’ section, to which this disappointing plant belongs, are the frumps of an exalted family. They come mostly from Kansu, and only appear so far south in this species, which extends still further west ; for I found it again on Damyon, across the Mekong River.

¹ For a discussion of the relationships of these ‘*Farinosa*’ *Primulas* see Bayly Balfour in *Notes, R.B.G. Edinburgh*, April, 1915.

Fringing the forests of silver fir which clothe the mountains to the foot of the scree were yet other Primulas. *P. apoclita*, one of the smaller violet-flowered 'Muscarionids,' was coming into bloom on the shady loam-covered slopes ; and there were startling patches of a handsome 'Nivalis' Primula, called *P. Coryana* (K.W. 4181).

The 'Muscarionids' are huffy in this country. The mild English winter, followed by our irascible spring, disquiets them. A fortnight's sunshine in genial March, and out they come, blithe as a kitten. Then in May, spent winter, with a wicked leer, turns on them as did the Normans on tricked Harold, and rends them. Whereupon, in high dudgeon, they miff off.

No doubt the same distressing symptoms occur at times in their own home ; for though covered with a quilt of snow throughout the winter, it is stripped from them without ceremony in early spring, and severe snowstorms are not unknown in May. I have seen *Rh. yunnanense*, when in full bloom, blasted beyond recognition by such practical jokes. It looked as though it had been scorched to death.

The 'Muscarionids' therefore will never be popular plants. Apart from their uncertain temper, with the exception of *P. Littoniana*, *P. cernua* and the lovely *P. violacea* (K.W. 4386), they are not showy enough. Their beauty is of the finikin order.

P. Coryana (K.W. 4181) forms clumps in the moist dips of the fir forest, a tall stately plant, the powdered stem rising erect from a crown of strap-shaped leaves, bottle-green above, brilliant silver below. It bears loose umbels of five or six remarkably large flowers,

gathered to one side, and thrust obstinately forward, after the manner of an 'Omphalogramma.' Sometimes there are two whorls. In colour they vary—lilac, purple, mauve, violet, in opulent tones; but the deep 'eye' is always ash grey, due to a sharply defined band painted over the cuplike entrance to the tube. This clear-cut division of the corolla into limb, pouch, and tube is a thing not often seen in any *Primula*.

Grown in the twilight of a copse or in a ditch—it is no plant for the rock garden—this handsome species ought to prove an acquisition, marred only by a rather unpleasant odour. However, this is but a slight drawback after all, and need not discourage the prospective grower; for though rank, it is not strong, and is indeed hardly perceptible, unless you come to grips with the flowers. But the fat-necked 'Nivalids,' their collars flush with the ground, are awkward customers in our exciting climate.

The capsule of *P. Coryana* opens by an apical lid which, carrying with it the style, comes away as cleanly as though it had been sliced off with a razor; and it is only after the lifting of this operculum that the characteristic teeth make their appearance. Also the tall thin capsule is apt to be slightly curved, like a sausage. The result is that the seeds at the bottom are trapped, and are not easily shaken out of the small aperture, especially as the capsule is terete.

Thus when I first found the plant I was able to send home a sample of the previous year's seeds.

Such was the valley of beautiful flowers, when I first saw it, in June. I have seen it several times since, silent and bare under a mantle of snow, or

prostrate under the lash of rain. But I always shall remember it with the mountain eddies ruffling the spring flowers, amidst the babble of brooks, and the harsh cluck of pheasants while white wings of cloud sailed across the vast window of the sky.

CHAPTER VIII
THE LAND OF THE YELLOW LAMA

If thou of fortune be bereft,
And of thy store there be but left
Two loaves—sell one, and with the dole
Buy hyacinths to feed thy soul.

(From the Persian.)

Yungning, or more correctly Yunglin, is the generic name for the whole basin, including lake, plain, and several dozen small villages, inhabited almost entirely by Moso. It is perhaps a corruption of some earlier Tibetan appellation such as Yulling, meaning 'country place'; 'ling' is a common termination to Tibetan place-names, as in Darjeeling, and especially so in the Marches, e.g. Gang-ka-ling.

The native chief, a bottle-nosed monkey with a superfluity of wives, lives in a yamen at the village of Kai-chi; there is also a wooden bridge across the river. A hundred yards upstream the derelict stone piers of a real bridge testify to the force of the river in flood, and to the feeble-mindedness of the Chinese, who have never troubled to rebuild it.

The basin is divided into two by a ridge of hills culminating in Lion Rock, which is the local Gibraltar, and indeed bears no fanciful resemblance to that fortress. The upper basin is occupied by the lake, an irregular sheet of water, divided almost in two by

a peninsula which juts out from the eastern shore. The lower basin, which is a cultivated but marshy plain, is even more irregular. The two are connected by the narrow winding corridor already described. The corridor is about 2 miles long. The lake belongs partly to Yungning, partly to Muli, and partly to Ningyuan. Separating the basin from the Yangtze is the high limestone range called Wa-ha. The highest peaks rise to rather over 14,000 feet, and at the summit are a number of curious flask-shaped glaciated valleys, whose necks open into narrow steep-sided ravines.

It is not difficult to get into the Yungning basin, and quite easy to get out again. There are roads in every direction. Due south along the edge of the lake, and so over the rim, is the road to Yung-pei, distant a week's march.

Eastwards, skirting the northern shores of the lake, is the road to Ningyuan-fu, a pompous but important prefectural city.

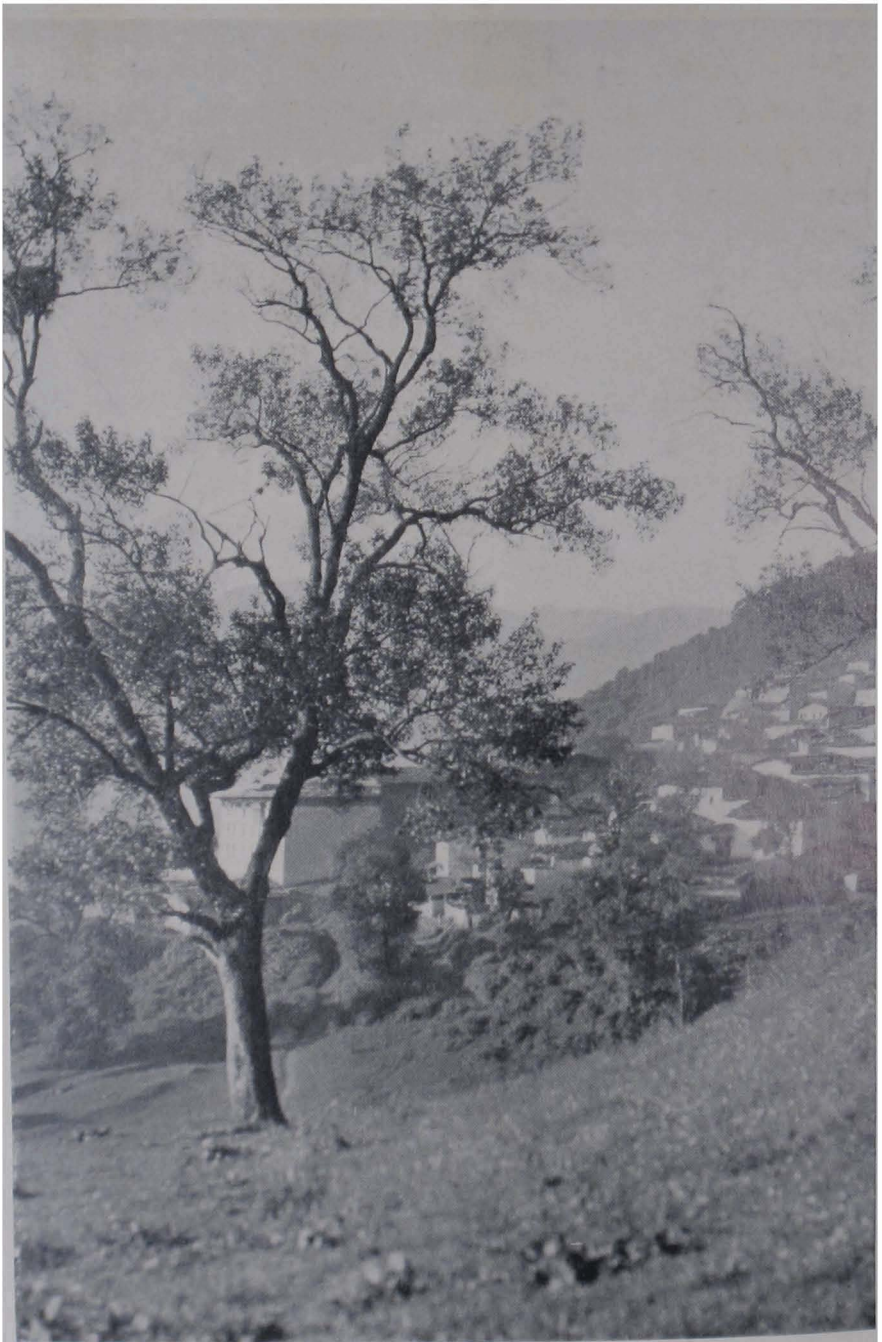
Northwards, on the far side of the limestone partition which chips the horizon from end to end, lies Muli. Westwards, three roads cross the range by the sources of the Kai-chi River ; two leading down to the Kinsha-kiang (Yangtze), and the third to its affluent, the Sholo River. This last road goes north-west, crosses the low foot-hills behind the monastery, and drops down again into the valley of the Kai-chi River near its source. It then climbs over the main watershed—a northward extension of Wa-ha—and descends steeply to Sholo. Or you may turn north, traversing along the flank of the range, and climb to the Kuja La, on the main road between Muli and

Chungtien. As this route to Muli is almost unknown it may be useful to say something more definite about it.

April showers and April sunshine quickly transform the drab wintry hillsides of Yungning. A flush of green tinges the foothills, and by the first week in May, many bushes are ruffled with blossom. Puffs of pale *Rhododendron yunnanense* and spires of golden barberry are tied with ribbons of white Clematis. The fresh, tense air is fragrant with the scent of *Rh. decorum* and oleaster. The ditches are packed tight with hazel, poplar, currant, and other shrubs which trail soft catkins on the breeze ; and the open gravelly slopes are covered with a dense mat of oak, and Rhododendron, amongst which are entangled a dwarf white-flowered form of *Rosa sericea*.

In May 1922 we left Yungning monastery, following a good mule path up the valley behind the volcano peak. Almost immediately we entered the forest, which throughout this region is always Conifer forest. Three belts may be distinguished, from below upwards : (i) Pine forest, (ii) *Picea*—oak forest, and (iii) *Abies*-*Rhododendron* forest. Other trees of course occur, and in certain favourable localities may even replace or at least dominate those mentioned ; but broadly, Conifer forest as above defined clothes the mountains of the Marches.

Rhododendrons are found at every altitude. Their sequence is as follows. Down below are the under-shrub species of the open pine forest. *Rh. radinum*, *Rh. racemosum*, and species of the 'Lapponicum' type ; also with *Rh. sinolepidotum* and *Rh. cuneatum* (both, be it noted, limestone plants) on the shaded



MULL.

cliffs. In the open is *Rh. yunnanense*. In the second tier we find, first *Rh. oreotrepes* and *Rh. decorum* on the open slopes : and thickets of *Rh. heliolepis* in the forest ; in drier places are thickets of *Rh. setiferum*, with pink flowers, darkly spotted. In the oak forest, certain rather leggy 'Cephalanthums' and 'Lapponicums' replace the big trees of the legitimate forest. Next, *Rh. Wardii* and *Rh. Beesianum*, the latter often forming forests almost by itself ; certain of the Souliei series, as *Rh. Souliei* and *Rh. puralbum* ; and *Rh. Traillianum*, which does form entire forests. *Rh. Clementinæ* also occurs here, and, last of the shrub forms, *Rh. coccinopeplum*. In the open are the moorland 'Lapponicums,' and in boggy places the lavender-flowered 'Lapponicums' ; while *Rh. cephalanthoides* keeps to the limestone screes. There are not less than fifty species of *Rhododendron* on the Muli ranges—far more than any other genus of woody plant.

If I were asked to choose the most beautiful species, I should unhesitatingly say, *Rh. Beesianum*, *Rh. Clementinæ* and *Rh. Wardii*.

Up to a certain point, the *Rhododendrons* increase in size as one ascends the mountain, the largest species being found in the forest belt, at 11,000–12,000 feet. After that they again begin to decrease in size. The biggest tree forms are *Rh. niphargum*, *Rh. Beesianum* and the big 'Falconeri' *Rh. fictolacteum* (K.W. 4509). In the hot drought of the valleys and in the cold drought of the alpine pastures they are always small.

When we analyse the Muli *Rhododendrons*, however, we find less variety than is suggested by the number of species. Forty named species which I

collected fall into only fifteen series—or, if we regard ‘Cephalanthum’ and ‘Lepidotum’ as phyla of the ‘Lapponicum’ series, which we are perhaps entitled to do, into only twelve series. In that case, Lapponicum absorbs no fewer than seventeen of our forty species, showing by far the most prolific development.

But regarding ‘Lapponicum’ by itself it still accounts for twelve species out of forty, or 30 per cent. ‘Lacteam’ comes next, with five species—12½ per cent. ; while ‘Cephalanthum’ and ‘Campylocarpum’ each boast four. No fewer than seven series are represented each by a single species.

The above figures of course are not exact, but the ratios are about right.

Thus though we find in the Marches many species of *Rhododendron*, and though most of these, growing socially, as forest scrub and moorland forming species, cover vast areas ; yet clearly we are only on the fringes of the great *Rhododendron maelstrom*.

Most of those we met with flowered in April or May : *Rh. Wardii* not till June. *Rh. racemosum*, *Rh. Mackenzianum* (a very fragrant species), and one of the *Irroratum*s with cream flowers speckled all over with dull crimson, were flowering in March. *Rh. Delavayi* is a winter bloomer. I have seen it in flower in mid-December, and by February it is a gorgeous sight.

At first we found few flowers. There were bushes of dusky red *Pæony*, and the fleering yellow *Roscoea cautlioides*. An open bog, at 10,000 feet, was lavender blue with *Rh. hippophæoides* (K.W. 5092). In the upper pine forest we came on scattered plants of *Primula pulchella* flowering early. Thickets of a slim-

stemmed bamboo made progress in the middle forest difficult. The ground was felted with the soft silvery mats of *Androsace sarmentosa*, starred with little carmine flowers.

Approaching the summit of the range, we found the alpine pastures clothed with scattered clumps of willow, Rhododendron, and other bushes, under whose shelter lay hidden various Primulas, just beginning to flower—*P. vincæflora*, *P. szechuanica*, and others. But *P. sino-pupurea* was in full bloom and abundant.

In damp hollows, under the Rhododendrons at the summit of the range, were blue seas of *P. sonchifolia*, that despair of the collector. Seed of it has been sent home a score of times. It generally arrives dead. Sometimes it has germinated but no more. Flourish and flower it will not, and if it ever does, the result is not likely to be encouraging. The Indian *P. Winteri*, rather like it in general appearance, is a fraud in this country. The finest plants of *P. sonchifolia* are those which we find flowering at 12,000 feet in April, either in the snow or standing in water which is flowing from melted snow, at a temperature of 32° F. They are an exquisite shade of deep turquoise blue. Under less Spartan conditions, the colour is far less intense and the flowers are smaller, with frilled lobes. What chance then have they of justifying their existence in this country? They might just exist in the north of Scotland; they won't even do that in the south of England. We waste too much time trying to do the impossible; it is better to recognize that there are some plants which cannot be grown in this country.

A charming little Primula of the alpine pastures is

P. gentianoides (happily named)—one of the Petiolaris section, with tubular flowers of a delicate bluish violet tint—another lost hope of the collector.

Crossing the range at 13,000 feet altitude, we descended by a precipitous path, towards the gorge of the Sholo River, till we saw a village below.

Four rivers meet at this point. The Sholo River flows from the north, and is joined by the Seku River from the north-west. The Loongta River, from the west, is a tributary of the latter, and joins it just above the confluence of the Seku and Sholo Rivers. All three rise amongst snow mountains in the unexplored region called Dö-pa north of the Yangtze loop.

The fourth is the Ichi River, which flows into the main gutter from the north-east. It rises in the angle where the Sholo range meets the cross-bar which we may call the Muli range. The spurs on both sides plunge down deeply to the Sholo River, and are broken off in cliffs and escarpments. Travel in such a country is difficult; and despite long hours, it took us three days to cover 20 miles.

Instead of descending to the Sholo River, we turned northwards along the divide, and for two days were committed to the hot, dry, deeply eroded gutters of the Sholo drainage. Endless pine forests clothed the flanks of the valley. Under-foot was the clotted foam of *Rhododendron radinum*, streaked and veined with dwarf blue Iris. Down in the stifling gullies there was not even that; only scorched shrubs of woolly leafed Buddleia, and straggling jasmine with flowers of husky crimson. We passed through several small villages and, crossing the Ichi River (here nothing but

a tempestuous torrent), started on a long climb to the crest of the watershed.

About this time the brain-fever bird—a species of barbet—opened its morning offensive, and flocks of green parrots screeched loudly from the mistletoe bough. We saw hares too, in plenty.

On the lower spurs of the range small villages were perched, and at Pi-ih, where we lunched, there was a small, shabby monastery. A stiff climb brought us at length to the Kuja La, overshadowed by a tooth-shaped limestone peak. There is a small glacier lake at the summit of the pass, and the high valleys have preserved some of their ice marks.

We were now on the main road between Chungtien and Muli, which used to be followed by all the Muli pilgrims going to Lhasa. Since the Tibetan revolt of 1918, however, and the destruction of Chungtien by the Mantzu tribes, the Marches have been considered unsafe, and pilgrims now take the much longer road via Likiang. From Yungning, the elect depart every year in small parties of ten to twenty. They take food and money for the road, and starting on their long journey in early spring, as soon as the passes are open, reach Lhasa in two months. There they stay for three years, living in the monastery, which provides for them. Consequently pilgrims from Lhasa arrive at Yungning every year, bringing all the latest news, generally false.

Muli does not send an annual contingent, but every few years a large party of monks, sometimes nearly 200 strong, leaves for the holy city.

The Mantzu themselves visit Lhasa ; and it is probably only a question of time before all the Tibetan

tribes acknowledge the political as well as the spiritual authority of the Dalai Lama. Their present contempt for, and hostility towards, Muli is probably based on the belief that Muli is tarred with the Chinese brush.

We spent a day at the Kuja La, whence I climbed the highest peak in the neighbourhood, obtaining a fine view of the Gang-ka-ling peaks in the north-west. By descending to the Sholo River, we could have reached Len-rang (Leilung)¹ in a day. Instead we turned north and followed the ridge towards Muli. The road was astonishingly good, considering that the world here stood on edge.

For some miles we kept along the crest of the divide, passing through forests of Rhododendron 'giant rose' in full bloom. On the following day, we crossed another high pass, and descending a narrow valley, reached Muli the same evening.

As long as the King is in residence, there is life and movement in the monastery. He lives in the high palace which fronts the cobbled terrace above the ramparts. Just behind is the temple, its heavy wooden doors draped with black curtains; and behind that rises the stark cliff. Every day villagers from the districts arrive at the monastery bringing supplies. Morning and evening the bray of the copper trumpets reverberates from cliff to cliff, and from the bowels of the temple issues the mournful wail of the band. Day and night, from dancing banner and smoking pyre, from whirling drum, and from droning monk, prayers ascend to heaven.

¹ On Davies' map of Yunnan it is spelt Lei-lung, which is obviously the Chinese pronunciation.

Along one side of the monastery a row of large leather prayer drums mounted on spindles were let into the massive wall. Pilgrims, making the circuit of the monastery, would give each one a punch as they passed ; and the drum, with its miles of paper and millions of prayers, wound inside, would wobble round with groans and squeaks, disseminating prayers by the bushel, none the less potent because inaudible. At least so I was told. A gramophone of course would do the job better. In a corner of the terrace under some trees was a strong room, without windows. It contained nothing but a single huge brightly coloured prayer drum. If you gave the attendant priest a trifle, he would open the doors for you. Then you walked round the cell, dragging the prayer drum after you by means of a rope, and at each complete revolution it automatically rang a bell. However, as the drum was 10 feet high and 20 feet in circumference and weighed about half a ton, it required great strength to ring the bell ; but no power on earth would make it disgorge the penny.

The King, accompanied by the whole of his household, moves his government annually, spending a year at each of the three principal monasteries in turn. These are Muli, Wa-ri-chen (La-Kang) and Kong (Ku-lu). There are of course other monasteries in the territory, but these are the most important.

The order is always the same—Muli—Wa-ri-chen—Kong, and so back to Muli.

The reason given for this annual exodus is that it tends to circulate the government. But as a matter of fact all three monasteries are situated within two days' journey of each other in the centre of the King's

dominions. The government in fact revolves round a small orbit. Moreover former Kings have held heterodox views ; the last monarch in particular being much less conscientious. Rumour says that he lived permanently at his country seat of Ko-pa-ten (of which more anon), where 'tis always pleasant : neither uncomfortably hot in the summer, like Muli, nor desperately cold in the winter, as at Kong.

The territory of Muli comprises about 9,000 square miles, that is roughly the size of Yorkshire ; but a Yorkshire stuffed with mountains more lofty than any in Europe. Its east and west boundaries are the Chien-chang valley, and the Sholo River, and from north to south it extends over about a degree of latitude. Thus the principality of Muli may be said to comprise the parallel gorges of the Sholo, Litang and Yalung Rivers, with their dividing ranges, between the parallels of $27^{\circ} 45'$ and $28^{\circ} 45'$.

Wa-ri-chen is situated on the left bank of the Li chu, a couple of miles back from the river, at an altitude of 10,000 feet. It is smaller than Muli, having accommodation for only 200 monks. There is a road through the gorge, but it involves crossing the river three times. Two of the bridges are temporary affairs which are washed away every summer, when the river road of course becomes impassable.

The main caravan road from Muli to Wa-ri-chen (which is also the direct route between Likiang and Tachienlu) crosses the Li chu by the permanent bridge below Muli, climbs a shoulder of the range, and descends to a stream flowing into the Li chu from the east. Passing through two villages, called respectively Na-ö, and Na-a, it reaches the moorland

at the summit of the divide, and turns north. Here there is a choice of routes. Either you descend by a long wooded ravine, which in May is simply lurid with the royal purple of *Rhododendron impeditum*, and, crossing a loud torrent, climb up to Wa-ri-chen ; or, keeping to the crest of the divide, you march over hill and dale (likewise through leagues of *Rhododendron* foam), to an alpine village called Sra-gen, and descend towards the Yalung. This is the road to Ta-chien-lu. If, however, instead of keeping north along the crest of the divide, you turn east immediately, and cross it, you come presently by devious ways to Kong, which also lies within the basin of the Yalung, and indeed but two days' journey from that river.

The government always moves during the summer, while the seventh moon is yet young (August) ; so that they must needs follow the main road to Wa-ri-chen. In the following year, they follow the same route back to the moorland, then turn east to Kong. In the third year, they return by another route through Ko-pa-den to Muli.

This monastery of Ko-pa-den is a delightful retreat situated in the pine forest. Unfortunately it is under a cloud. The breath of scandal has tainted it, and now the King passes it by with head averted and with lips shaped to prayer. Hear then the sad story, which is whispered with bated breath round the fire, behind closed doors. It is the story of King John and the Abbot of Canterbury without the merry jest.

The late King and his prime minister vied with each other in amassing wealth. Moreover they neglected their duties, and spent their time at ease in

Ko-pa-den—an exquisite monastery capable of holding some thirty or forty monks, which the King had built for himself. Here they laid up the treasures of this world, herds of yak and sheep, and much gold dust from the river ; for in the kingdom of Muli all the rivers run gold. Here neither moth nor rust could corrode it.

But the prime minister waxed rich, whereupon the King became first suspicious, then angry, and finally frightened. He ordered the prime minister to disgorge his ill-gotten gear, under threat of a horrible death. The miser tried to bluff. He offered the King a hundred *kin* of gold. It was not enough. More was demanded, more, and more, and more. The King's rapacity knew no limit. At last in despair the prime minister confessed himself beaten ; unable to staunch the flow of golden blood, the drain of which had left him flaccid, he committed suicide by the highly original method of swallowing what was left of his own gold. It is a discreditable story. Tactful people do not allude to it in the royal presence. The present King, in his journey from Kong to Muli, spends a night at Ko-pa-ten ; otherwise the place knows him not.

There is a fine suite of rooms, upholstered in the Chinese style and lavishly painted, surrounding a small courtyard, with a miniature tank, and steps, and carved pillars, and plants in pots. This is the official residence of the King's younger brother, who is earmarked as the future King. But he rarely lives there, and the few resident monks bestow little care on the place, nor heed it.

But Kong is another story. It is a fair-sized monas-

tery as large as that of Wa-ri-chen, situated where three valleys meet, at an altitude of about 11,000 feet. There is a fine palace and temple, and cells for 200 monks. Though we carried letters of introduction from the King himself, the monks of Kong at first flouted us. A surly guide conducted us to an out-house, dark, dirty and insanitary, with no roof to speak of, no windows, and no door. With a gesture of disdain I refused to enter such a dustbin. I demanded comfortable quarters.

“ They are all locked up ! ” whined the keeper of the keys.

“ Unlock them ! ” I said peremptorily.

The monk obeyed meekly ; by this time his hauteur was somewhat cooled. I swore that if we were not fairly treated I would return to the King and rouse legions. Eventually store rooms were unlocked, and the monks in charge made us fairly comfortable. But we were not popular.

The King himself was in residence at Wa-ri-chen, when I called, as he had been at Muli, the previous year. They were rebuilding part of the monastery by forced labour, and scores of men, women and girls were at work on the rickety walls and insecure roofs. The palace is a big bold block standing on a bluff by itself.

The monastery is situated on the open moorland, a thousand feet higher than Muli. The view westwards is restricted by the rocky Sholo divide, but southwards there is an uninterrupted view to the Muli range, 40 miles away. Just below Wa-ri-chen, an hour's journey distant, there is a permanent bridge across the Li chu ; this is the route followed by the

caravans during the dry weather, crossing the river twice more before reaching Muli. It is an important highway, because it is one of the three safe corridors through the Marches, connecting Yunnan in the south with Szechwan in the north ; the other two being the Mekong and Yangtze valley route in the extreme west, and the Chien-chang valley just east of the Muli route.

There are some very large fish in the Li chu, though I never saw anyone trying to catch fish there.

Of the outlying districts the King sees little ; at least he never goes far enough to see his subjects in Sholo, which is the comparatively populous district bordering the river of that name. Nor does he ever cross the Yalung.

Sholo, like Soho, is the foreign quarter. All sorts of queer people, speaking queer languages, dwell there. Rice is cultivated. There are two roads to Sholo, one each side of the cliff against which leans the monastery of Muli.

Follow the Chungtien road up the Rong chu to the crest of the spur, then turn off at right-angles up the valley, and hug the base of the cliff till you reach the top of the divide at 14,000 feet. Glacier Lake Camp and the slate range are now on your left front ; on your right are the chimney pots of the Muli cliff ; and in front of you is a valley which leads down to Sholo. The descent is easy at first. The valley however contracts to a mere slot just before the Sholo gorge is reached, and there is no way through. It is necessary therefore to climb a high spur, and turn south, following the left bank of the Sholo River. From the angle where the river first comes into view,

3,000 feet below, the path is distinctly nerve-racking. Looking up stream from this point, the view is remarkable; the river runs perfectly straight for several miles between lofty cliffs, and looks exactly like a canal. Across the river, the snowy tops of the Gangka-ling range are just visible.

In two hours the village of Jo-bu is reached, after a terrific descent. Some hundreds of feet below Jo-bu there is a bridge over the Sholo River; and here of all places, on the wet slate cliffs, I found in seed a *Primula* of the 'Malacoides' type, which has been raised in England, and was shown at Chelsea in 1923. It has been christened *P. effusa* (K.W. 4252).

Opposite Jo-bu, and, like it, some hundreds of feet up the cliff, is Mar-bu, where dwell a strange people who call themselves Dam-po¹ and speak an unintelligible language. Luckily there are only forty or fifty families of this breed. They talk to each other.

From Mar-bu the road follows the right bank of the river northwards; there is said to be no road, at any rate no mule road, down the river, on either bank, nothing but an execrable path. The bridge here marks a dead end.

The gorge is extremely arid, and there are no trees, except a few walnut trees in the villages. Higher up on the slopes the pine forest begins. Dry as it is, however, the rocks are by no means bare of vegetation. Several lilies, red and yellow flowered Sedums, and a delightful lavender blue anemone were found, also a tawny orange-flowered *Hemerocallis*, and species of *Arisæma*, *Iris*, *Pleione*, *Didissandra* and other plants.

¹ The river here is called the Dam-po Chu.

Most of them either formed tight rosettes, or were fleshy ; or else they possessed bulbs, tubers, or thick rhizomes. In some places were thickets of twiggy shrubs such as *Bauhinia*, *Quercus*, and *Cotoneaster*, knotted together with a tangle of climbing vines and *Clematis*.

A lofty spur divides the villages clustered about the lower bridge from Pen-ong and the villages round the upper bridge. The former district is called lower Sholo, the latter is known as upper Sholo.

Pen-ong is a large village with thirty or forty houses scattered down a wide sloping bay, which is terraced and cultivated. The people are said to have come from the south and colonized the valley over a century ago. In the old days the highlanders of the Marches were a constant menace to them, and numerous mud watch towers, called by the Chinese *Tiao-lo*, occupy prominent cliffs and hills in the valley. To this day the Mantzu raid these peaceful tillers of the soil, and the central span of each bridge is loose, so that it can be pulled across at will, breaking the bridge, and denying access to Muli. Both bridges were up and under observation, in the spring of 1922, when the Mantzu were restless ; and people were compelled to cross the river on inflated pig-skins. This of course gave a pleasant feeling of security to dwellers on the left bank of the river ; what they thought about it on the right bank I don't know.

But the Mantzu were nothing if not polite. They sent a note to the King of Muli, saying briefly that they proposed to come and burn the monastery. That was fair warning at any rate. Unfortunately they had said it before. They said it every year.

It would have been a useful sanitary measure. But beyond murdering one or two harmless yak-herders, they never took the threatened hygienic step.

Passing through Pen-ong, we reached the upper bridge and crossed to the left bank. We were now on the main road to Gang-ka-ling, which continues up the river for a few miles to the confluence of two streams, and then crosses the snow range.

On the left bank is another small village called Shida-tzam. A very steep path goes up the valley, and over the divide by an easy pass, whence it follows the base of the cliff again and, crossing a big torrent, reaches Muli.

Once a year while at Muli the King makes a pilgrimage round the cliff. He does not however descend to Sholo. The mountain is cleft from north to south by an ice-worn valley, and the circuit can easily be completed in two days, though the King, stopping at frequent intervals for prayer and refreshment, requires three. The track leaves the Lower Sholo road just below the pass, whence, winding through a narrow defile flanked by towering cliffs and scree, it joins the Upper Sholo road a little below the pass on that side. The scenery in the heart of the mountain is savage. Fantastic towers form a spiked railing along the summit of the cliff, and the grinding scree add a note of terror to the scene. From here a grand view of the Gang-ka-ling snow-peaks in the north-west is obtained. These peaks are named Gang-ka (the highest), Se-ni, and Nya-po.

In clear weather a lofty snow-peak is seen about 40 miles away, almost due east, probably on the other side of the Yalung.

The present King of Muli is a tall corpulent man of about sixty. The Kingship is invested in one family in perpetuity, for services rendered to the late dynasty of China. Ostensibly the Kingdom is subject to the suzerainty of Ningyuan-fu, a prefecture in the province of Szechwan. But nobody minds Ningyuan-fu. As a matter of fact that poltroon city lives in constant fear of the attentions of its neighbours, the Lolo and Mantzu tribes ; so that nowadays Muli pays tribute to no one.

The King appoints his own prime minister and other high dignitaries, secular and religious. The present prime minister is a pleasant-faced young man dressed in an expensive gown and long boots. He comes from beyond the Gold River, on the very confines of the Kingdom, and was doubtless selected for this important position on account of his cheery nature and good manners, rather than for his erudition. For alas ! he can neither write nor read.

As regards trade, it is rather with Yunnan in the south than with Szechwan. With Lhasa and the interior of Tibet, relations are friendly but of course loose. There is no direct trade, though every monk aspires to visit Lhasa, and all who would achieve distinction must do so.

The people of Muli, Moso, Lolo, and Hsi-fan, are poor and ignorant. No manufactures are carried on, and all the utensils and objects used in the monastery are brought from Lhasa or Derge. The only things made locally are the wooden *tsamba* bowls which every man, woman, and child possesses.

But the King is not insensible to the advantages of progress, and for the more exalted crafts, such as

carpentry, cobblery, and smithery, sends down to China and engages men to come to Muli and pursue these peaceful pursuits. There was even a Chinese bugler to train the King's heralds. They get free quarters in the monastery, and are paid by the job.

At the smithy they mended cracked cooking pots and fractured Buddhas. Not till the Mantzu sent their famous ultimatum was the arsenal mobilized.

One day, shortly after the King had left Muli, a courier appeared out of the north. He had walked steadily, but without haste, over the empty mountains, by forest and stream, carrying a letter which he presented to the lama in charge of the monastery.

He was a short, sturdy man, with matted locks which hung low over his forehead. His top-boots were shabby with much wear, his coarse *chu-pa*, hitched up round the waist, bagged below his deep chest and exposed his dirty knees. He had slipped a shoulder out of its loose sleeve, for it was hot in the valley ; his muscular body was bronzed by the sun.

These things were noted, because strangers rarely come to Muli. They attract attention at once, and are regarded with suspicion until they can give an account of themselves.

Fierce-looking, unkempt, he strode over the hill and up the path that led to the monastery. When he had delivered his note he disappeared as quietly and mysteriously as he had come ; but had you been on the road, you would have met him striding back over the passes with the easy Tibetan swagger that laps up the slow miles like the rising tide.

But now behind the walls of the monastery all was bustle and excitement. Messengers rode forth on

ponies ; men met in the council chamber ; arms were taken down ; supplies were requisitioned, and presently began to arrive from neighbouring villages—hide bags full of flour, borne on men's shoulders. In a dark hut below the palace, the forge blazed into activity, smiths hammered recklessly on trigger seers and cocking-pieces till even the half-dozen veteran modern rifles, which the monastery was able to assemble, must have shuddered. The forge flared intermittently as thin draughts of air suspired from the limp bellows, cuddled by a small boy.

The order had gone forth. The King was calling up his levies. Next day a hundred men had mysteriously assembled at the monastery. Others were rallying elsewhere. Six hundred would be mobilized, so it was whispered. The ragged courier who came so quietly out of the north had brought news. The Mantzu were coming, the *Mantz*u, the MANTZU ! and at the dread name people quaked in their boots.

Wild-looking men were these irregulars, with matted hair, sometimes twisted into a short horn which projected in front, or tied in a pig-tail, which hung down behind. Their faces were scarred by the kick of the long cheek guns they carried. Their clothes were scanty and ragged, and most of them went bare-footed. They spoke strange words in a viscous growl, and uttered uncouth oaths. Some carried swords, and some spears, but most of them were armed with the long gas-pipe matchlock of the hunter. They were themselves Mantzu, and Lisu and Lolo, fee'd to fight for Muli. Every man carried a skin bag made from the pelt of goat or serow, slung over his shoulder ; and when they had drawn their rations from the mon-

astery—*tsamba* and tea and butter, with a handful of gritty salt, they gathered on the slope above the palace. Then seven hill tops smoked furiously, firing columns of pearl-grey fog into the flabby atmosphere, while, to the thudding of drums and the clash of cymbals, the lamas prayed for success to their arms. Thus do men intercede with the gods !

It must not be supposed that our defenders were entirely bewildered, or even unprepared. As a matter of fact, this threatened invasion of peaceful Muli by hordes of dark-visaged freebooters from across the border was a hardy annual. It graced each drooping summer, before the crops were ripe, when time hung heavy on men's hands ; but it had not yet borne fruit.

Moreover almost daily had I surprised our local conscripts at firing practice, in the woods behind the monastery. They would set up a slab of rock as large as a paving stone, and withdrawing 70 or 80 yards, shoot at it deliberately. They never, to my knowledge, hit it ; but they got sufficiently near to make it unhealthy for anyone in the neighbourhood.

After ramming down the powder, poured like pepper from a horn castor, and dropping in a slug or two, the marksman would kneel down behind his *sangar*, and resting the gas-pipe barrel on the wall, take long and careful aim. What a pregnant moment was that, when, cheek to butt, he began to pull on the trigger, thereby depressing the fork which carried the end of a tinder rope ! Generally, after agonizing suspense, nothing happened ; the last spark in the tinder had impatiently gone out, while the man was taking aim. But sometimes there was a splutter, a

cloud of smoke rose, followed by a prolonged bang ! and, before you could say Jack Robinson, the bullet was well under way. The most impressive part of the performance was the echo which, after each shot, went bellowing up from the cliff and was tossed recklessly from crag to crag till it died away.

It was a brilliant morning in August, when the men, now armed and rationed, assembled above the monastery, on the path which leads to the Mantzu country. Then with a raucous cheer, interspersed with many a blood-curdling yell, the company moved off in single file up the steep path. In the van marched a man carrying a banner which he waved defiantly. Crudely depicted thereon was a much striped tiger, rampant, which doubtless by analogy kept up the spirits of the men. But there was no band.

Authority, if any could be said to sway such a motley, was vested in a Likiang man, who, with four or five ponies, representing the officers' transport, brought up the rear.

"There will be no fighting," this soldier of fortune courteously informed me, when I stopped him on the road, and notebook in hand, like a reporter, asked for the latest information.

"There will be no fighting. We are going up to the passes, five days' journey ; when the enemy see we are ready for them, they will not come !" He moved off, and so the party, straggling already, went down the narrow path which leads northwards, and disappeared over the brow of the hill.

That evening there was. The sun had just dropped behind the cliff, scattering a sheaf of golden shafts across the valley as it disappeared, when three maroons

were fired and crude music announced that the monks were busy again.

A moment later the procession issued from the monastery, where a pile of brushwood had been raised on the sward below the ramparts. Two small *tra-pa*, or novices, led the way. They wore leather jerkins, sewn together strip by strip and cunningly jointed—armour sufficient to resist arrows. On their heads were iron helmets, decorated with the long barred plumes of the Amherst pheasant. The monks who followed, two by two, were swathed in their yellow robes, and each wore on his head a crested felt helmet. It gave them a prætorial appearance.

Every monk carried either a drum or a tray of little images wrought in *tsamba*. Trumpeters made noises suitable to the occasion, and confused sounds arose from other unmusical instruments.

Arrived at the brushwood pile, the monks arranged themselves in a half-circle, and then the prior, in a sepulchral voice, recited the lesson.

I was standing by an upright iron cylinder which somewhat resembled a flower-pot without an inhabitant, when the choir gave a loud wail and the service ended abruptly. So engrossed was I, that I did not notice a man steal up behind me, and playfully touch my flower-pot with a coil of smouldering rope. There was a momentary fiz, followed by a bang which made me jump. It was a maroon, not a flower-pot at all. Two more were exploded in quick succession. How they love noise, these simple peasant priests!—but it is well known that the gods are deaf!

At the same instant, some one lit the brushwood pile, which flared up swiftly in a sheet of flame. Then

advanced the monks with their *tsamba* images, and cast them into the furnace, and fell back, and dispersed.

No sooner were these rites performed than a mob of ragged urchins who throughout had hovered on the outskirts, rushed forward and beating down the fire with sticks, snatched fragments of charred *tsamba* from the holy snapdragon. These morsels they ate, with appropriate gestures.

When they had retrieved and eaten as much as they required, their place was taken by a number of starved dogs, who wandered snarling through the remains, and picked up yet smaller fragments. Ten minutes later, children and dogs had all disappeared, and a flock of evil crows were hopping about over the smoking ashes, wrangling over the last crumbs.

And after all there was no war. The measure was purely defensive. The King, with infinite strategy, had so promptly despatched his levies to watch the passes, by which the enemy must approach, that they thought better of it. The levies came. They sat down. They went away. And nothing happened. It is an annual event. I do not think the Mantzu *are* really hostile to the Hsi-fan of Muli, who after all may be blood relations !

In September the lamas again visited their hill tops, which embrace and overlook the monastery. They had come to celebrate their reprieve. Once again they burnt pine branches, till the opaque columns swirled reeking up to heaven ! How the gods must have coughed and rubbed their smarting eyes ! When they came back, chanting, each monk carried a marigold, or some such flower. In rear of the procession skirmished a mob of noisy *tra-pa*, who sang

and shouted in very secular mood ; they had been picnicking again. These horrid little boys, who could neither read nor write, shied oranges and apple cores at us, uttering ribald yells.

The palpable insincerity of all this ritual is truly amazing. The monks themselves often seemed to regard the customary procedure as a joke, and even the King was bored. Life is a dreary disease for the Lama of Tibet !

CHAPTER IX

GLACIER LAKE CAMP

Your ghost will walk, you lover of trees,
(If loves remain)
In an English lane,
By a cornfield-side a-flutter with poppies.

R. BROWNING.

The plant collector, whether his personal predilections incline more towards the intensive exploration of a small area, or to rapid traverses of longer duration, skimming the cream of the flora as he flits here and there, will have one favourite resort in the mountains. Here he seeks sanctuary from the troublesome people of the village where he resides. Here he concentrates his labours. With this as centre, and any radius, he scours the surrounding country for plants.

Such a place was Glacier Lake Camp.

In June we set off into the mountains to find a convenient place for a high camp ; and traversing round Muli cliff on a long slant, found ourselves near a pass, which we crossed. Below lay an alpine valley, and at its head was a broad green pasture, divided down the centre by an old moraine.

Opposite us was a chain of high craggy peaks, between 15,000 and 16,000 feet high ; on the lower slopes grazed herds of yak.

Descending to the boggy floor of the valley, margined with bushlets of *Rhododendron hippophæoides*, we reached the foot of the moraine and pitched our camp. The range which overshadowed us to the west was slit by deep narrow corridors, mounted by natural stairways, with lakes occupying the treads. The water cascaded from one lake over the intervening cliff to the next below ; and at each level the valley turned almost at right-angles, giving rather the effect of a spiral stairway up the mountain. In the biggest valley there was a series of five lakes one above the other, decreasing in size as one ascended. All this was the work of glaciers ; though not a vestige of ice remained.

Another curious feature of the neighbourhood was a wide belt of slate which cropped out in the middle of the limestone. The slate peaks were flanked on either side by still loftier limestone peaks ; and it was this surface which had been most deeply engraved by the ice.

The median moraine, which started from the foot of a high peak in the angle where two valleys met, continued for half a mile down the valley in a good state of preservation ; after which it became broken up and involved ; though scattered fragments of it, overgrown with forest, were recognizable for several miles down the valley.

A lateral moraine could also be traced for some distance up the main valley.

On the limestone ranges, however, no such obvious legacies of glaciation were preserved. There were no moraines. They had been buried under the colossal accumulation of scree. The lakes were

usually drained, or silted up, and the splintering of the rocks had completely ruined whatever claim they once had to being *moutonnées* ! A common feature, however, was a broad smooth sill stretching across the valley with a lake on top of it and a lake at its foot, the two connected by underground drainage. Sometimes the scarped face of the sill was directed towards the head of the valley, but more often it pointed down valley ; but always the ice had flowed over the cliff. The cliff face, smoothed by ice, always showed a grooved lip where the water had once flowed, before it found a quicker exit underground. The 'jade lake' occupied such a sill.

In June, there was camped close to us a herdsman with his yak. Every morning before they were permitted to disperse into the alps, the cows were milked ; and every morning half a bucket full of frothing warm milk was brought to my tent, for which I rendered, in exchange, a quarter of a brick of tea. I had brought with me from the city of Tali half a mule-load of this tea, which is pressed into cones and wrapped in the stiff, crackling sheaths of the bamboo. Fifteen of these long packages, packed in a wicker basket, comprise a half-load, of about 120 tea bricks. These go a long way in the purchase of commodities from the Tibetans, to whom tea is a necessity, whereas silver is only a nuisance.

The tea of course is not good. The bricks are made of twigs, dust, and aged leaves, moulded while moist and doubtless held together with a thin film of rice water—a paste much used in China in the manufacture of inferior and spurious teas. However, any lingering flavour it may retain of the ash heap is dis-

guised by the addition of butter and salt. The butter is emulsified with it in a cylindrical wooden churn by means of a perforated piston which is worked violently up and down ; and salt is added. It now tastes of the scullery sink.

At night the yak were driven home and tethered by the tent where the herdsman dwelt : the cows and calves being kept in a separate pen. These ' woolly cows ' (as the Chinese call them) would form a ring round our tents, grunting to each other, and moving with infinite caution, one step at a time. At last one is close enough to thrust his nose through the opening of my tent and see what there is inside this odd bag. He does so, blowing loudly through his nose, and peeping cautiously. Then comes the alarm, and the investigators, standing about in attitudes suggestive of polite but innocent curiosity, instantly spin round, and waving their short plume-like tails high in air, scamper off.

But not far. Their curiosity is even greater than their timidity. Besides, when they find that no punishment follows discovery, they are more reluctant to retire, and do so only as long as the pressure is applied. The men were adepts at devising new and unexpected stunts. When putting one's head out suddenly and saying " shoo " in an astonished yak's face no longer held any terrors for them, they would lie low inside their tent till the cattle had gathered round, and then beat lustily on the canvas ; and when that too grew contemptible through familiarity, they adopted the ruse of stealing out and opening umbrellas suddenly in the beasts' faces, to their complete discomfiture. But whatever we did the yak always

returned. At night, when, as sometimes happened, they were not tethered, they were an unmitigated nuisance. Under cover of darkness they would renew their investigations, and tripping over the tent ropes, blunder half through the entrance. It was no pleasant experience to wake in the middle of the night from an unsound sleep, with the hot, fœtid breath of a clumsy yak snored over your cheek. For I must warn you here and now, reader, that sleeping even at such moderate elevations, say above 12,000 feet, is not easy. One's body may be tired out, but the mind remains active, and refuses rest. Six hours' sleep a night, sometimes less, is not enough. However, it is all in the day's work. But the yak is a useful beast nevertheless, and in this dour country one is thankful to have him. The cows supplied me every day with fresh milk and delicious cream cheese ; and when we were snowed up in October, unable to move, they came to our rescue with the only species of transport which could have got through safely. Once upon a time we bought a dead yak and had beef every day for a week. I did not discover till later that one does not buy live yak—they are too valuable. However, apparently this one died of nothing more infectious than old age.

We had some beautiful days at Glacier Lake Camp in June, and climbed all the neighbouring peaks. On the slate range we found hassocks of *Myosotis Hookeri*, which stands out in my memory as the most sumptuous cushion plant I ever met with. Imagine a bath sponge, a foot through, stuck on a rock. The fibrous part is coloured eau-de-nil, edged with silver, while the holes are plugged with the richest sapphire blue

imaginable. The foliage of this gorgeous forget-me-not forms a hemisphere of cloisonné, which on dissection is seen to be made up of tiny silver-lined leaves clasped in each other's embrace; and from this pedestal, the unwinking blue eyes, flush with the surface, stare at heaven.

Myosotis Hookeri was confined to the slate range; not a sign of it was ever seen on any of the limestone peaks. On the Mekong-Yangtze divide, limestone and porphyry meet. *Myosotis Hookeri* occurs on the porphyry, but not on the limestone a mile away. Lime kills it.

But there is not much hope for these high alpinists in our own country. Conditions at 15,000 feet in Tibet are as alien to the English climate as are those of the tropics; and these hard-bitten cushion plants can no more be happy with us than can the spoiled children of the equator.

In the first week of November we collected seed of this plant. The cushions were frozen hard, and we beat them off the rock with stones or kicked them with heavy boots. The deep calyx was completely embedded in the leaf tissue, so that the seeds were sunk well into the warm stuffing, and it was necessary to shred the plant in order to get at them. In fact it would appear that the seeds of many of these cushion plants germinate in situ, thus swelling the cushion. Even so, the calyx contained at most two fertile seeds out of four, generally one only, often none at all; and the most procreant cushions yielded but six or eight seeds. We brought down scores of cushions, and spent hours patiently stripping them, to obtain the few dozen seeds I eventually sent home.

But I was taking no chances. These silver domes tessellated with sapphire blue bulging on the rock gardens of England would be worth a year's labour. I removed the naked seed and sent that home ; I sent home seed still wrapped in the calyx ; I sent home sprigs teased from the stuffing, with the calyces intact, and the seeds still inside them. All were packed in hermetically sealed tins in an atmosphere heavy with carbon dioxide, and sent by special messenger to the post office at Likiang, twelve days' journey distant.

What happened ? The seeds germinated like mustard and cress. The seedlings poked their heads out into an alien world, sickened, and died. One little chap opened a blue eye, and stared miserably around him for a few days ; but so bewildered was he with what he saw that almost immediately he shut it again and went to his last long sleep.

So much for *Myosotis Hookeri*. It is obvious that we have not yet got the measure of these most efficient alpinses. But is it likely that we ever shall ?

There are too many ignorant folk at home clamouring for plants from above a certain arbitrary altitude ; who maintain that unless a new introduction comes from above 13,000 or 14,000 feet, it will not prove hardy in England ; and conversely, that if it comes from above that altitude (I am speaking more particularly of Asia between the latitudes of 25° and 35° N., whence most of the plant introductions of the last twenty years have been derived), it will probably be hardy. This is ridiculous. It is not any particular altitude, but the general conditions obtaining at that altitude which directly affect plant life ; and in the

mountainous interior of a continent, the most diverse conditions may prevail at a given altitude, in different parts of the country.

In the heart of a continent conditions are extreme towards sea level and on the tops of lofty mountains ; and more balanced at intermediate altitudes—between 10,000 and 13,000 feet say. But even so the broad climate of the region is an important factor.

The physical nature of the country is also important. The most casual observer cannot fail to notice that the flora occupying the summit of a mountain range which averages 13,000 feet high is quite distinct from the flora found at 13,000 feet on a mountain range 19,000 feet high, in the same district. At moderate elevations, such as 10,000 to 13,000 feet, plants have a much greater range of altitude than people imagine. A range of 5,000 feet for a species is by no means rare, and 3,000 or 4,000 feet is common. These plants are elastic. Their constitution is more adaptable than those which are sensitive to comparatively small changes of altitude. But it is just those plants which are not found above 5,000 feet or below 15,000 feet which lack the necessary resilience. Above a certain altitude, the number of species met with rapidly decreases ; old species die out, and few new ones appear—and those few are highly specialized. They are stereotyped ; their habits are fixed. Change kills them.

The presence of so many Himalayan alpinas throughout the Marches is interesting. And yet the alpine belt here must be comparatively a recent feature. When the precipitation was sufficient to support glaciers at 14,000 feet, it was sufficient to

support forest at the same altitude. Forest would have prevailed almost to the snow-line, and there could have been practically no alpine belt.

One of the most charming plants found on the high crags at Glacier Lake Camp was *Primula rigida* (K.W. 4081), a dwarf member of the 'Nivalis' group. The plant rises no more than 2 inches above the soil, but the flowers, which are all shades of purple and lilac, with milk-white eye, are exceptionally large; also fragrant, a property unusual amongst the 'Nivalis' Primulas. It flowers in May and June, and occurs indifferently both on the limestone and slate ranges, round about 15,000 feet. On some of the high limestone fells it was difficult at first sight to distinguish this *P. rigida* from another 'Nivalis,' which for purposes of reference we will call Primula 'Nivalis purple' (*P. melanops*, K.W. 5132). They grew in beauty side by side. But *P. rigida* always has a white eye (though the flower colour may be anything from lilac to purple) and is fragrant; *P. 'Nivalis purple'* has a dark 'eye' and no scent. The latter has also more flowers in the truss—four or five instead of two or three, and a larger capsule, than *P. rigida*. I thought at first that *P. 'Nivalis purple'* (K.W. 5132), was really a dwarf form of K.W. 5086, a much taller and more robust species found in the rich meadows below; but that was *P. sino-purpurea*. The best form of *P. melanops* was a rock plant from 15,000 feet with flowers of rich Tyrian purple and almost black 'eye' (K.W. 4080). This was confined to the slate range.

In the alpine pastures, under the shelter of willow bushes, where the ground was boggy, *Primula conica*

raised tall stems capped with milk-white flowers flushed lilac ; a charming scented, delicate creature, hardly fitted for the thrilling climatic dramas of Britain.

Along the sides of the streams and trimming the deep glacier lakes were many flowers such as *Pedicularis*, *Parnassia* and *Corydalis*—the latter with massive spikes of maroon flowers and frilly sea-green foliage on which beads of water rolled like quicksilver.

Of more familiar flowers, the caustic crimson of *Primula dryadifolia* occasionally caught the eye, sometimes from some crevice of the limestone cliff, sometimes gloating from a bed of moss beneath the shelter of *Rhododendron*.

On the open hill tops, *P. bella* formed little starry clusters ; and a *Lloydia* hung in festoons from the cliffs. *Primula Sinoplantaginea*—a pert-looking cad with anæmic mauve flowers—was common along the edges of copses, and in the lower pastures, in such doubtful company as *Pedicularis*.

The sequence of vegetation was something like this. Lining the main valley from the foot of the moraine down was forest, consisting of larch, silver fir, and *Rhododendron Traillianum* with occasional trees of the beautiful *Rh. Beesianum* (K.W. 4211). The valley floor itself was boggy, and the upper end became indeed a shallow lake during the rainy season. This was coloured lavender in early spring by scattered bushes of *Rh. hippophæoides*, and in autumn was chequered with the smashing blue of *Gentiana sino-ornata* (K.W. 4859). The streams were lined with willow bushes, shading the small violet-flowered *Primula apoclita* and *P. vincæflora*. Coming to the higher slopes, a thick growth of dwarf shrubs—species

of *Lonicera*, *Daphne*, barberry, juniper, *Cassiope*, *Caragana*, and bright yellow flowered *Potentilla fruticosa*, formed a transition between the forest and the alpine turf, where woody plants ceased altogether. The last *Rhododendron* encountered—apart from the broom and carpet forming species—was a twisted tangle of *Rh. coccinoeplum* (K.W. 4207), one of the *Roxieanum* series. In ordinary life he is a sociable fellow, growing as a stout shrub, 6 or 7 feet high, and bearing balls of white flowers, speckled with purple. The narrow pointed leaves, condensed into obvious rosettes at the ends of the branches, stand out stiff and sharp like the quills of a porcupine, and are covered below with a dense spongy cinnamon-coloured wool. Above the big glacier lake, however, he petered out, forming a dense 2-foot scrub, or cowering into pockets amongst the boulders.

This plant also was confined to the slate, while 'silver rose' grew indifferently on slate or limestone, though with a distinct preference for the latter. The median moraine already referred to was in perfect preservation, and scratched stones were plentiful. It was about 600 yards in length and perhaps 40 feet high at its origin.

The flank which faced north-west was covered with Conifer forest and *Rhododendron*,—*Rh. Beesianum*, *Rh. Traillianum* and *Rh. coccinoeplum*; and where there was no forest with species of the 'Lapponicum' series. The sunny side, on the other hand, was covered with turf only, sprinkled with flowers. So much for the sensitiveness of *Rhododendrons*.

Rh. Beesianum—a species with wide distribution on the dry ranges of the Marches, for it occurs on

Damyon¹—also is a magnificent specimen, 25 feet high, bearing generous trusses of large bright pink flowers amongst the dark green foliage. The leaves are large, and bronzed below. It flowers in May, and when forming forests almost by itself, as it frequently does, is a wonderful sight.

Rh. Clementinæ ('silver rose') is a small gnarled undershrub, not exceeding 2 feet in height on the open screes, but forming a handsome bush 5 feet high in the forest. The flowers are a beautiful shade of rose pink, with a few purple spots; but it is in its foliage that the species is so particularly charming. The under-surface of the leaf is covered with a spongy snow-white wool, compact and smooth; though on the older leaves this cracks, and stains to a pale buff colour. Personally I consider this one of the most charming Rhododendrons of its size met with, the silver-coated leaves and rose flowers showing off splendidly on the low compact bush.

The weather towards the end of June became very restless, thunder-storms heralding the approach of the wet season. One afternoon, with scanty warning, a terrific hail storm swooped down, so that in an hour the entire valley was whitened, giving it a very wintry appearance; and indeed on clear nights there was always a ground frost before dawn. At night I would lie in my tent listening to the slam of the thunder overhead, as the lightning flared across the sky, and the crash and clatter of falling rocks.

At the end of July we visited Glacier Lake Camp for the second time. The woods were full of yellow-

¹ A 20,000-foot peak on the Mekong-Salween divide in about latitude 29° 15'.

flowered Saxifrages (*S. macrostigma* and others), and the meadows were white and gold with grass-of-Parnassus and Trollius. The best plants, however, were found on the screes.

Meconopsis Pratii with sky-blue flowers and golden anthers was everywhere, though it infinitely preferred limestone to slate. The plants stand about a foot high. It was the exception to see any tendency towards purple in the flowers, which were almost invariably a clear turquoise blue; unfortunately, under cultivation in this country, pure blue is the exception. Apart from the fragrant *M. speciosa*, however, the prickly blue poppies of the 'Aculeatæ' group are not worth the trouble of cultivation. A much more interesting little plant was a *Meconopsis* collected under the number K.W. 4640, a plant of the slate range which at first sight I took to be *M. lancifolia*. It is, however, quite different, though the dark violet-blue flowers, each terminating a separate scape, are not dissimilar. The two plants, for all their superficial resemblance, never grew in company. *M. lancifolia* is a plant of the wind-swept alpine turf, and flowers in June; it is confined to limestone soils. *M. impedita* (K.W. 4640) is a plant of the rocks and screes, flowering in August, and does not grow in calcareous soil. Moreover, *M. impedita* has always eight or ten flowers, each with six petals, and orange or buff anthers with cream filaments. The capsule is quite a different shape to that of *M. lancifolia*, being ovoid, broader above, with short style and knob-like stigma. (See B, Fig. 2, p. 203.)

The Muli *M. lancifolia* (K.W. 4008) never possessed more than one or two scapes—though sometimes a single scape bore two separate flowers. The

petals numbered six or seven and the stamens were grey white. It was a much less robust plant than *M. impedita*. Another form of *M. lancifolia*, however, found on limestone cliffs 50 miles further south, and 3,000 feet lower down, invariably had four petals only, and the stamens were cream (K.W. 5286).

Possibly this is *M. concinna*, the same as K.W. 5191, though except in the number of petals they closely resemble one another. (See B, Figs. 1, 1a, p. 203.)

There were several charming *Cremanthodiums* in flower at this time, notably one with rather glassy nodding flowers, the disc florets almost colourless except for the dark purple style, the ray white flushed with palest purple. It grew in the fine silt of the lake basin.

Another species with bright yellow flowers grew on the steep scrub-clad alpine slopes ; and a third species of the earth screes had ray and disc florets wine red. It is sad that we have been unable to do anything with *Cremanthodiums* in this country, for they are charming and modest flowers. There is a refined shyness about them.

Other *Compositæ* included species of purple-flowered *Lactuca* and lemon yellow *Crepis*, the big tight heads of flowers surrounded by a broad collar of leaves, and buried up to their necks in gravel. Such rosette plants are usually confined to the screes.

The *Rhododendrons* and *Primulas* were over, all except the delightful saxe blue 'Muscaroid' *P. cernua* (K.W. 4748), in flower in the open pine woods at 10,000 feet. But that belonged to Muli. *Gentiana Hopei* (K.W. 4627) was one of the plants now in flower in the high alpine meadows. Its wistful blue flowers,

borne all up the stem in tight whorls, won it a first-class certificate at Chelsea in 1923 ; an honour shared by *Campanula calcicola*.

It was September before we saw Glacier Lake Camp for the third time. We moved up from Muli on the 10th and remained till October 13, when the deep snow compelled us to beat a retreat. The weather was wet to begin with, but there were some new flowers and many seeds were ripe.

Owing to the terrible destruction of seeds by grubs, the work was much increased ; a further complication was added later by the heavy falls of snow experienced in the first half of October—an unusual occurrence in these mountains. The poppies suffered badly, but unequally. *M. integrifolia* appeared to be immune, as also did *M. lancifolia*. But the capsules of *M. Pratii* (the commonest species) were full of grubs, which destroyed millions of seeds ; while those of *M. impedita* suffered only a little less.

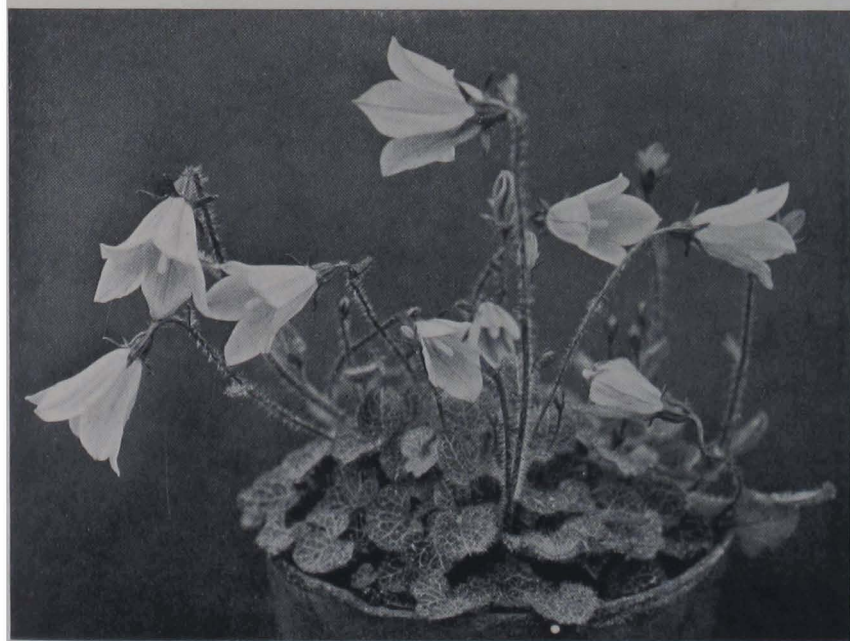
The hard wooden capsules of *Incarvillea grandiflora* were often found to be bored through and half the seeds destroyed. *Primula rigida* suffered badly, but was so abundant that we had no difficulty in securing good seed. The Rhododendrons, however, gave no trouble.

The most charming plant of all was little *Campanula calcicola*, found on the limestone cliffs. Along shady banks in the oak forest the maroon flowers of the lanky *Saxifraga diversifolia* showed up darkly, and clumps of bright yellow leafy Saxifrages of the 'Hirculus' section abounded.

On the cliffs were a few mossy Saxifrages, and the limestone boulder scree yielded just one beautiful



RHODODENDRON SOULIEI.



CAMPANULA CALCICOLA.

(By permission of the Editor of the Garden).

species of the encrusted group—a chit of a thing with chocolate red stem and flowers, rising from a tight rosette of silvered foliage (K.W. 4610).

In the marshes, the blue trumpet gentian was flowering ; and several of the smaller Rhododendrons, notably *Rh. hippophæoides* and another purple-flowered 'Lappancium,' and 'silver rose,' were showing a spasm of late bloom. A few Primulas—*P. dryadifolia* and *P. apoclita*—were also breaking into flower, and had the autumn been finer, no doubt there would have been a brave display. As it was the bad weather persisted, and after the middle of September snow began to fall on the high peaks, though it rained in the valley. But there were few plants flowering in their own right as high up as this after mid-September. A bright cadmium yellow Sedum, a dwarf violet-flowered larkspur, and a rather colourless monkshood on the screes were the most important. Nevertheless on September 30 we moved camp, crossing the slate range, and camping near the 'jade' lake. We had now put two rather lofty passes between ourselves and Muli ; and immediately it began to snow seriously.

On the night of October 1 an icy mist came down and hid the mountains. Then came the snow, with thunder and lightning. The gleam of the flashes suffused through the mist and entangled with the whirling flakes was extraordinarily weird, and the muffled roll of the thunder as it reverberated amongst the cliffs sounded as ominous as the tolling of a bell.

The dense mist prevailed throughout October 2, and snow fell intermittently. Not only was it impossible to climb in such weather, but all our plants

were buried under a fall of snow, and we could collect nothing. Nor could our transport, which was on the other side of the slate range, reach us under such conditions. We were marooned.

Though very uncomfortable in camp, it was not nearly cold enough for fine weather. At night, thanks to the mist, the temperature only fell just below freezing-point, while by day it rose as high as 40° F. and the snow melted fast ; that however did not help us, as more fell each night. On the 4th it snowed heavily, and for two days and nights it hardly stopped ; but on the 6th it began to clear up, and in the afternoon out came the sun. I spent a glorious three hours on the mountain, collecting seeds, and enjoying the view—the ‘jade’ lake in its white muffler, the dark cliffs, striped with snow, and the whole world overturned as it seemed. That night the temperature fell to 28°F. and the sky at dawn was crystal bright ; yet in the course of a long climb we were caught in a heavy snowstorm, and got back to camp exhausted with tramping knee-deep through the snow. Nevertheless the eighteen hours respite had had one good effect—men and ponies had crossed the pass, and come to our rescue.

For a time I thought they too would be cut off with us, for that evening the snow came down faster than ever. There was no way down our valley,—we had to cross a pass somewhere. However, October 8 dawned gloriously fine, and though the deep snow gave some difficulty, we crossed the slate range in five hours. We did not descend to Glacier Lake Camp, however, but camped a thousand feet higher up, by one of the pools, to give us a better start on the follow-

ing day, for we intended to climb the highest peak of all. On the 9th we climbed High Peak, situated on the range where slate and limestone met. It is a limestone tower 16,000 feet high, and a very conspicuous object from every direction.

The snow was distressingly soft, and we had trouble on the ice-glazed ridge, but reached the summit just as another snowstorm came on. Out on the sharp summit, where there was literally only just room for four of us to stand, the wind came whooping over in freezing blasts. I was both cold and frightened, but my native assistants, though they too felt the cold, took it all very calmly. There were scattered plants right up to the summit of High Peak, white bearded cones of *Saussurea*, monkshood, *Solms-Laubachia* and others. The men gathered plants of *Saussurea* to make tinder from the wool.

It seemed hopeless to remain here any longer. It would be better, I thought, to descend to Muli and wait there till the fine autumn weather really did begin ; then we could return to the mountains for a week and finish our work. We therefore returned to camp, struck the tents, and continued the descent to Glacier Lake Camp, intending to complete the journey to Muli next day. However, October 10 looked so promising that I postponed the retreat, and we spent the day climbing again, making a good collection of seeds. But the men went down with the ponies, saying there would be more snow.

There was. That night the wind rose to a storm, and for the next forty-eight hours it snowed heavily. The snow fell in three forms ; sometimes it came in hard granular pellets, which, driven by the wind,

drummed on the canvas ; sometimes in soft clinging flakes, which clung to the trees in loose wads, and bowed down the branches ; anon the cold increased, and a fine hard snow dust filtered through every crevice.

There were still the yak ; and on the morning of the 13th they came unexpectedly to the rescue.

It took a long time to pack up the frozen tents with numb fingers, but eventually we got away, and floundered over the pass. The yak at any rate enjoyed themselves. In the pastures they halted and breathed such blasts of hot air into the snow, that it melted, disclosing the meagre yellow herbage below.

In spite of the mist, the valley looked beautiful under its mantle of snow ; and when a flash of sunshine broke through, the world was transformed to a dazzling loveliness. The scrub Rhododendron over which we trampled was all puffed up with snow which hung in tassels from the honey-coloured larch trees. Wads of snow flopped softly from the dark firs ; and the tree Rhododendrons drooped their leaves, which were screwed up into tight cylinders, from which the snow slid easily.

After five hours of this sort of thing, we came to mud in the lower forest, and halted for a meal ; it was drizzling sulkily here. Resuming our march in the darkness, we descended the steep stony path as rapidly as possible ; a watery moon came out and leered through the rack, and we sang and whistled to keep up our spirits. At last lights appeared below, floating on a milky sea, for the mist had sunk down into the valley. About ten o'clock we breasted the rampart of the monastery. Dogs barked, annoyed

at being disturbed at so late an hour. A head was thrust out of a window high up in the wall of the fortress, and a sleepy voice asked us who we were. Ten minutes later we were hammering on the cobbler's door, while the loads were being untied from the ponderous yak in the fitful glare of pinewood torches.

October 14 was the last day of the storm, and then followed a fortnight of glorious weather. Gradually the snow, which had crept down almost to the foot of the cliff, and muffled the tops of the fir trees just above the monastery, melted; so that when we started back for Glacier Lake Camp on the 30th much of it had disappeared even from the high peaks. But only on the south face.

It was gorgeous in camp now; after a sparkling night the haggard mountains crystallized one by one out of the blue-black magma as the amber dawn burned more brightly.

Above 12,000 feet there was deep snow on the north slopes. A fierce wind hummed over the passes, but out of the wind on the dazzling sun-drenched screes it was quite warm.

And here another check to seed collecting presented itself; the plants on the white cliffs and screes were burnt to cinders and most of the seeds inside them were cooked too. *Primula rupicola* (K.W. 4165), *Campanula calcicola*, several Saxifrages and other species were simply shrivelled up in the drought, and it was with great difficulty we secured even a few seeds of these.

On the screes the wind had broken off the brittle plants at ground level, and they were being tumbled

hither and thither with their seeds still intact ; not a bad method of scattering them !

A few plants were still in flower—species of *Cyananthus*, *Swertia* and *Saxifraga*. *Gentiana Georgii* indeed was just coming into flower. Its bloated urns are a particularly revolting shade of lilac-purple, peppered over with smuts. The breathless blue of *Gentiana sino-ornata* (K.W. 4859) still shimmered and glowed from the pastures, but the seed of nearly all the plants which had been prematurely buried under snow was dead, and here again it was no easy matter to find sufficient ripe seed. In the marshes, however, I found several fat capsules ajar, though on the dry slopes the snow had damaged them beyond repair. They appear to be precisely the same species, though the bog form is much paler in hue.

Climbing the slate range was now great fun. The wind

Which then blew bitterly against our faces,
Awak'd the sleeping rheum,

so that I shed tears ; but the mountain views were astonishing in their delicate enamel colouring and clarity.

The snow was much firmer on the south slopes, where it had alternately melted and frozen, till a glazed crust had formed, than on north slopes where it had never melted at all. Here the bitter wind had converted it into a fine dry powder, in which we sank to our knees. When the gusts picked it up, the air became so thick we could scarce breathe, or see our way, and the flying splinters of ice rasped our faces like a sand blast. On the night of November 5 we

had 17° of frost in camp. It began to snow again ; and when we returned to Muli on the 8th it was raining in the valley. However, this was merely a local disturbance lasting a couple of days ; and from the 10th to the 15th, when we bade farewell to Muli, the sky was as crystal clear as the mountain brook.

CHAPTER X
PLANT HUNTING ON THE CLIFFS

Full many a glorious morning have I seen
Flatter the mountain-tops with sovereign eye,
Kissing with golden face the meadows green,
Gilding pale streams with heavenly alchymy.

W. SHAKESPEARE.

Muli cliff is a stupendous monument to the perished glaciers of the Marches. From 40 miles distant it looks like a castle crowned by a cluster of church spires. It is a mile high, and 15 miles in circumference. It towers up above the white monastery which nestles dwarfed at its foot. Eastwards it faces the Litang River, westwards the deeply eroded valley of the Rong chu; while to the south a tributary of the latter stream has worn a valley deep enough to sever it from the Muli range. It is on this face, but high up, that we find the great screes. Northwards, the last link is broken; for even here, amongst the stacks and spires and chimney-pots of the summit, glaciers have ploughed a valley several hundred feet in depth, cutting it off completely from the rest of the range. Thus stands the Muli cliff, in splendid isolation.

Towards the summit it presents, from every direction, an unyielding wall, harsh, bitter, barren, and blazing white. Here, where it is dislocated, it stands



A MANTZU WARRIOR IN FULL DRESS.

naked, with no shred of clothing to hide its mangled limbs. On the south face are the screes and gravel cones flung down from the roof. It is on the east face, where the cliff rises storey by storey and tier by tier, with narrow ledges and sills, and long chimneys, and deep slots, and grooves and cracks and crevices, and a devil's kitchen, all fledged with forest, that we find most of the flowers. We subjected the cliff on this side to intensive exploration ; and it yielded many a prize worthy to be recorded.

Generally speaking, the finest alpine plants are found on limestone cliffs ; and since limestone cliffs are more difficult to climb than granite or slate cliffs, it follows that the best alpines are often the most difficult to secure ; though why limestone in general, and cliffs in particular, should be so addicted to handsome plants passes the wit of man. Not that fine alpines are altogether unknown from igneous rocks. For example, the Mekong-Salween divide at such frequently reported health resorts as Damyon, Chu-la, Ka-kar-po, Do-kar-la and Si-la, consists of granite (or porphyry), schist, slate—in fact almost anything except calcareous rock ; and hosts of first-rate plants have been looted from its cliffs and meadows. To mention a few not recorded elsewhere : *Aster fuscescens*, *Primula pulvinata*, *P. helvenacea*, *Cassiope palpebrata*, *Rhododendron oresbium*, *Rh. pagophilum*, *Rh. tapetiforme*, *Pedicularis Wardii*, *Pedicularis insignis*, *Meconopsis impedita*, and by far the finest form of *Isopyrum grandiflorum*. To non-calcareous soil also are confined those amazing plants, *Myosotis Hookeri* and *Meconopsis speciosa*. But the opposition can point to an even braver array, of which the following is a

mere sample: *Campanula calcicola*, *C. argyrotricha*, *Meconopsis lancifolia*, *Primula Forrestii*, *P. oxygraphidifolia*, *P. rupicola*, *P. Dubernardiana*, *P. blattariformis*, *P. pulchella*, *Rhododendron cephalanthoides*, *Rh. sinolepidotum*, *Rh. cuneatum*, *Rh. Wardii*, *Cyananthus incanus*, *Roscoea cautlioides*, species of *Solms-Laubachia*, *Codonopsis*, *Saxifraga*, *Incarvillea*, *Oreocharis*, and many more; but, lest I appear tedious, I will refrain. The ayes have it, as the Speaker says.

In this chapter I shall talk of cliff plants, both igneous and calcareous, as opposed to scree plants. And first I had better explain that screes are formed at the foot of a cliff, by the accumulation of fragments broken off in the process of 'weathering.' If the cliff faces north, however, it is usually covered with vegetation including tree growth, to the utmost limit of plant life, and there is no scree visible; since above the limit of plants we come almost immediately to perpetual snow. Where the cliff faces south, on the other hand, huge barren screes are usually piled up, especially when the cliffs are composed of a rock as brittle as limestone, and the seasons so marked as they are in the Tibetan Marches; for the alternation of hot and cold, or wet and dry periods, greatly facilitates weathering.

On the North-east Frontier of Burma, where it is always raining when it isn't snowing, there are practically no screes. Even where the cliffs face south, the nearest approach to screes are those long rubble cones fired out through narrow slots in the granite cliffs. They present, of course, very much the appearance of small screes and doubtless possess their salient properties. But they are not, like the huge white screes

of the Marches, a feature of the landscape ; and they lack many of the characteristic scree plants.

To come then to Muli cliff. Below the monastery it sloped in steep lawns and cultivated terraces to the river. Above, where the sun smote fiercely, was a forest of gnarled evergreen oak, but over the shoulder of the next spur you found thickets and tangles of shrubs, and forest trees clinging like fur to the wall, and woods, and coppices. Nothing very exciting here, you say. Perhaps not in the spring. Yet on the barest ledges steeped in sunshine *Primula Dubernardiana* (K.W. 4275) formed great rounded cushions, studded with yellow-eyed mauve flowers ; or, where sunshine was lacking and water too freely supplied, leafy hassocks devoid of flowers. *P. Dubernardiana* is a woody-stemmed perennial of the 'Suffruticosa' section. It flowers in April and May, on the limestone cliffs of Muli, and like all the short-stemmed 'Suffruticosas,' such as *P. pulvinata*, and *P. Henrici*, in which the flowers nestle amongst the foliage, forms big blots of colour. The olive-green leaves are covered with soft glandular hairs, to which their fragrance is due.

There is another group of 'Suffruticosas,' characterized by flowers hoisted well above the foliage on 8-inch scapes. *P. Forrestii* and *P. redolens* are familiar examples of this class.

The 'Suffruticosa' Primulas are generally regarded as limestone plants, but *P. pulvinata* and another (K.W. 5403) at any rate are not, occurring on schist and slaty rocks. The huge chrome-yellow patches of the former are a fine sight on the cliffs of sacred Ka-kar-po.

In early spring too *P. pulchella* was in flower on the limestone cliffs, sometimes in deep shade, sometimes out in the open. The moon-faced flowers of *Anemone rupicola* flourished at higher altitudes, and so too did species of *Pyrola*.

On the lower wooded cliffs, a small Martagon lily, of a pleasant rosy pink speckled with purple, and a still more pleasant fragrance, promised to interest the lily lovers ; but of the half-dozen solitary specimens found, not one revealed itself by seed or anything else in the autumn. It was very like *L. Farreri*. Several species of *Didissandra* were abundant on the lower rocks and cliffs. In dry sunny situations were *D. flabellata*, with violet or almost white flowers, and the very similar *D. bullata*. A much larger species, *D. grandis*, also with pallid flowers, grew on heavily shaded limestone cliffs ; which in places were covered so thickly with the rosettes of an *Oreocharis* (K.W. 3995) that there was often no room for anything else. The nodding flowers are a deep egg yellow. At lower altitudes it was entirely replaced by *Tremacron Forrestii* (K.W. 4523) with much larger leaves with a sinuous oak-leaf outline covered with soft chestnut hair. The starfish-like rosettes are quite twice as big as those of the *Oreocharis*, but the pale cream coloured flowers are scarcely larger, and look disproportionately small.

Most of these Gesnerads, however, require heavy shade ; and as we do not grow trees on our rock gardens in England, they are not of much use—we cannot grow them so as to look natural. They are cliff plants ; and we do not make cliff gardens. Were I part proprietor of one of our cliffs, I should make a cliff garden ; but since tea shops and nigger minstrels

and bathing machines give a bigger dividend, I suppose it is absurd to urge anything so fantastic.

A good cliff *Cremanthodium* was discovered here (K.W. 4619), with nodding flowers of pale sulphur yellow. The *Cremanthodiums* are delightful—there is something shy and maidenly and refined about them. Their colours are always soothing and gentle. But hardly ever do you see them in our gardens—they are difficult alpinists.

But the gem of the middle cliff was *Campanula calcicola* (K.W. 4166, 4805). As early as June 4 I had found the skeleton of a tiny rock plant which, with astonishing perspicuity, I recognized for a *Campanula*. I even gathered a few dejected seeds which had lain abandoned at the bottom of the capsules through the long winter; and “watch that plant,” I adjured myself.

I did. In August it flowered. Two years later (June, 1923), it received an Award of Merit at the Chelsea show, where it attracted considerable attention. And well it might, though it never looked half as bewitching there as it did on the limestone cliffs of Muli. It is a dwarf not above an inch high, growing in the sunniest crevices of the cliff—though it does not get very much sunshine in July and August, while flowering. It forms mats and nests of olive green kidney-shaped leaves veined with pale jade, and covered with a soft white down. From amongst this mosaic spring clusters of large nodding tremulous flowers of deep violet, in shape like the flowers of the Scotch bluebell (harebell). Grown in masses, it would be a charming sight, and it appears to be perennial.

On its sheltered flank, the cliff was deeply fluted

by torrents, several of which, however, did not function in the dry weather. They collected water at the source, and yielded it up again at the foot of the cliff ; but in the middle they refused to work, and the water-courses were consequently dry for half the year. It was undoubtedly owing to this fact that the middle portion of the cliff was the poorest in plants. At the summit there was plenty of water from rain and snow, and there alpenes flourished ; at the base there was plenty of water derived from above ; and there an almost semi-tropical flora was found. Between these extremes there was an undoubted shortage of water for some months in the year.

In the cool depths of one such gash where water does flow the year round is a remnant of mixed forest, with the appropriate undergrowth. Here giant *Pseudotsuga* and *Picea* trees mingle with species of *Tilia*, *Acer*, *Alnus*, birch, oak, cherry, *Decaisnea* and others. There were also species of *Helwingia*, *Euonymus*, and twining *Schizandra*. One of the most interesting plants found here was a big tree *Rhododendron* of the 'Falconeri' series, *Rh. fctolacteum* (K.W. 4509, 5112). It grows perhaps 40 feet high, bearing leaves 18 inches in length and 6 inches wide, dark green above, and covered below with a thick flocculent chocolate coloured felt. It flowers in April, the corolla being milk-white, with a few purple specks peppered over the upper part, coalescing to form a deep blotch at the base. The truss carries between twenty and thirty blooms, in a compact hemispherical ball of the usual 'Falconeri' type.

I found this species growing in colonies, on damp, not to say boggy slopes, heavily shaded by forest trees,

where limestone visibly outcrops ; and it is impossible to believe that the boggy loam in which its roots are sunk is not calcareous. At any rate it was confined to the limestone ranges.

The leaf buds break fairly late, about May ; and the point is important.

Any man who would cultivate *Rhododendrons* in Britain has three principal difficulties to contend with.

The first is, that much of our soil is calcareous ; and it is taken for granted that *Rhododendrons* will not grow where there is lime in the soil.

The second is that many of them, particularly the more desirable species, break early, in the genial warmth of February and March, to be nipped by the Arctic winds of April and May.

The third is, that the wood is soft and active throughout our late summer, lasting sometimes well into October ; and then comes an abrupt change to sudden frost in November. Result—the bark splits, and the tree lies at death's door.

Let us examine these difficulties in turn.

The first is largely imaginary. England, for all its white cliffs, is not made of limestone ; quite considerable areas boast a soil which is non-calcareous. I refuse to sympathize with those who live on the chalk. They have so much to compensate them, that they can probably survive the penalty of not being able to grow *Rhododendrons* ; a penalty which anyhow exists chiefly in their imaginations.

For though England is certainly not made of limestone, North-western Yunnan, curiously enough, is. Not chalk, of course ; but mountain limestone, often crystalline. And as all the world knows—at least

that part of it which devotes an appreciable amount of time to gardening—North-western Yunnan is covered with forests, and thickets, and carpets of *Rhododendron*. Would it not be truly remarkable if there were found to be no *Rhododendrons* growing on limestone in a country made of limestone ; a country which has given us many hundred species of *Rhododendron*, from big trees to creeping rock plants, found in every conceivable situation, on cliffs and lawns and screes and moors, in forest and bog and thicket, and even growing epiphytically ! It is incredible !

But if the die-hards will not yield to probability, they may possibly be silenced by fact, and cease to trumpet the fiction that *Rhododendrons* will not grow on limestone. The would-be cultivator of *Rhododendrons* who is discouraged by the possession of a calcareous soil might do worse than experiment with those species which are definitely recorded by the collector as coming from limestone cliffs ; such for example as *Rhs. rubiginosum*, *sinolepidotum*, *cephalanthoides*, *Wardii*, *radinum*, *Clementinæ*, *cuneatum*, *niphargum*, *Traillianum* (which will grow on anything), *oreotrephe*s and several of the moorland ‘Lapponicum.’ In Europe even we have *Rh. hirsutum* confined to limestone.

The second difficulty is more serious. It is a foregone conclusion that if a species breaks early in this country, it will be cut. It does not require to be a *Rhododendron* to meet that fate. Almost every year one may see specimens of our native trees, or of long acclimatized trees, cut by late frost. Nevertheless there are numerous species of *Rhododendron* which break as late as June, or even later ; and the

collector should be on the look-out for such cautious species. They are invaluable.

Not that they will break at exactly the same time when translated to this country—or that it would necessarily be an advantage if they did. There is at least one species in cultivation which breaks so late that it is frequently cut by the first winter frost.¹ To begin with, at any rate, an introduced plant will follow the old rhythm inherent in the species for generations ; only gradually will it adjust itself to a rhythm more suited to the new climatic conditions. At least we fondly hope so. That is the value of acclimatization ; a power of adaptability we must suppose possessed in some degree by all perennial plants.

By the term 'breaking' one refers, of course, to the leaf buds, not to the flower buds. It does not greatly matter when the flowers open. I have frequently seen Rhododendrons flowering bravely with the snow hanging from them in wads. Many species on the North-east Frontier of Burma flower regularly in the snow. At the worst the bloom turns black, and falls quickly. It is sad of course ; but it does not injure the plant.

But if the young foliage is destroyed the consequences may be serious, affecting the whole life of the plant ; though that too happens in China more often than we imagine.

The third difficulty is also very real—the danger of early winter frost. There can be no doubt that all the large-leafed tree Rhododendrons, particularly those of the 'Grande' and 'Falconeri' series, as well as the 'Irroratum,' 'Barbatum,' 'Campylocarpum'

¹ *Rh. auriculatum*.

and other forest trees which are suspected of being soft, should in this country be thoroughly sheltered. They must be grown in copses, where they are not only sheltered, but shaded. In their own country they are enveloped in heavy forest.

But the question of adequate shelter is no simple one. It might be assumed, for example, that the hollows and valleys amongst the Surrey hills—in many respects a good *Rhododendron* country on account of its sandy soil and the excellence of its pine-tree wind screens—would afford shelter; while the hill tops were exposed to biting east winds. Yet cultivators of *Rhododendrons* whose estates are situated in the bottom lands have informed me that in the cruel April of 1923 they were simply devastated, while their neighbours, perched upon the hills, escaped. Why? Cold air sinks, we know; it also sticks, apparently; whereas on the hill tops it is quickly blown away.

It has often occurred to me that many of our difficulties might be overcome, if we could grow our *Rhododendrons* on sloping ground, as indeed they almost invariably do grow in Yunnan. Good drainage is thus assured, and there is no danger of the young trees being waterlogged. Some of our early winter losses might then be avoided.

But I digress too far from my subject.

Other cliff *Rhododendrons* are *Rh. sinolepidotum* and *Rh. cuneatum* ('limestone beauty,' K.W. 4486); while in the thickets which smother the base of the precipices are found such species as *Rh. racemosum*, *Rh. decorum*, and *Rh. yunnanense*.

Rh. sinolepidotum I found growing in the 'devil's

kitchen'—a natural cauldron, in the wall of which was a rent so narrow that a man's body might not pass through it. A rill had sawn its way through. The only way to enter the kitchen was to climb down into it from above.

This little plant, clinging so pathetically to the cliff, was in flower in August, evidently for the second time that year. The flowers are dusky purple by reflected light ; but when the sunlight flares through them they turn blood-red. A band of silver scales, like sequins, coats each lobe of the corolla, on the outside.

Seen against the sky, the little plum-purple flowers became incandescent immediately. And that was the lesson of the cliff—lighting effect. It is not unimportant.

You may see the same thing in many of the 'Lepidotum' and 'Campylogynum' Rhododendrons—this fluorescence as it were. In *Rh. myrtilloides*, a carpet-forming 'Campylogynum' from the North-east Frontier of Burma, it is very apparent. *Rh. myrtilloides* (K.W. 3172) is remarkable for occurring in the forest as low down as 8,000 feet, where I found it sprawling over the slate rocks, in the stream bed ; though its real home is the granite cliffs, 4,000 feet higher. It is notable also as flowering from June till August.

When the light glances off its little pouting-mouth shaped bells, they shine with plummy blushes ; but when the sun smites through them, the colour deepens to a rich claret.

On the Muli cliffs, a coarse *Onosma* (*O. paniculatum*, K.W. 4263), hung all over with little tubular

red flowers, like Venetian glass, told the same tale. Leaning over the cliff, so that the light pierced the translucent bells, the contrast between their airy fairy freshness and the wintry stems, bearded with stiff white hairs, was altogether quaint and beautiful.

Reader, if you grow rock plants, I beseech you remember this. Do not grow everything in such a way that one can only look down on it from above. These baby Rhododendrons, covered with bloom, the plants with hanging bells, or swinging scarlet fruits, place sometimes high up out of reach, with no trees behind, that you may catch them against the sky-line and see the exquisite play of light and shade which they evoke, the colours they bear.

Rhododendron decorum, one of the Fortunei series, is widely spread in far-western China, and somewhat variable. It is a plant of the pine forest. At Muli it flowered from the end of April to the end of July. There were two well-marked colour varieties. In one form, from lower altitudes, the flowers are pure white with a few pale green markings on the corolla; the glandular hairs of ovary, style, pedicels, and calyx, are colourless; and the leaves are long and narrow, almost oblong in extreme cases (K.W. 4487, 5002, 5090, 5125).

The other variety tends to form a small gnarled tree rather than a bush, with more oval leaves, and flowers with pigment, which displays itself as a pink flush, with rather darker spots, and crimson instead of colourless hairs (K.W. 3805, 4340, 5122).

There are intermediate forms, and perhaps even greater extremes; but no reasonable person would wish to make two species out of them.

Rhododendron racemosum also is a variable plant, withdrawing itself into a compact twigulous bushlet when fully exposed to the fury of the sun, but expanding to a slender leggy shrub when concealed in a copse (K.W. 4050). In effect, the numerous varieties all seem to fall naturally into two groups. (i) Dwarfed undershrubs with grey bark and condensed inflorescence. The axillary flower buds are massed under the terminal bud, so that, though the truss actually carries only three flowers, the effect of a much larger truss, or condensed cyme, is produced. (ii) Tall, weedy shrubs of 8 or 10 feet. Bark black. There is only the terminal flower bud to begin with, the axillary buds either aborting altogether, or opening later, but always separated by an interval from the terminal bud. Truss three-flowered; flowers nodding, or loose, having ample room for expansion.

Of *Rh. yunnanense*, another variable species, it is unnecessary to say much, except that it is abundant, free flowering, and persistent. It blooms from April to June, and again in September.

There is another species of *Rhododendron* which forms heath-like brooms on the slate rocks below the limestone cliff (K.W. 4456). It is one of the many purple-flowered 'Lapponicums,' and its claim to distinction rests on the fact that it was in full blast by the middle of July. The corolla is elipsoid, and has a distinct tube which completely conceals the ovary. I named it 'woodland purple.'

In the comparatively dry climate of the Marches, the woody flora is highly sensitive to even slight changes of shade, shelter, and irrigation. Consequently, as one revolved round the base of the cliff,

one noticed abrupt alterations in the composition of the flora. At the foot of one escarpment were bushes of *Ceratostigma* covered with sky-blue flowers, and a scented briar with pink flowers. Elsewhere thickets of *Cotoneaster*, *Berberis*, *Deutzia*, *Desmodium*, *Viburnum*, *Corylus*, *Salix*, *Ilex*, *Hypericum patulum* and the species of *Rhododendron* already referred to, all tied and tangled together in late summer with species of *Clematis* and *Codonopsis* and vines and *Leptocodon gracilis*. This last is a sea-green climber decked all over with scores of dainty pale violet tube flowers which totter and swing with every zephyr.

In late summer the *Campanulaceæ* flower boisterously.

Codonopsis convolvulacea exhibited some Protean changes at Muli. In the dry pine forest it produced a stem only a few inches long, coiled in a tense spiral round the nearest support, and hard, almost brittle linear leaves, few in number. In shady gullies, on the other hand, it grew many feet in length, scrambling amongst the bushes and hanging down in loops and festoons ; and the pale green membranous leaves were of moderate size, heart-shaped or sometimes even kidney-shaped. A third type, found on dry shrub-clad slopes, was intermediate between these two extremes, neither so crisp-leafed as the first, nor so round-leafed as the second, and of a darker tint and stouter texture.

But the flowers of *C. convolvulacea*, though magnificent, are an eyesore. The lavender blue of the large staring corolla is spoilt by a fleeting suggestion of red ; but a more serious blemish is the vicious purple

centre which gives the plant a truculent air. Nevertheless they are very striking and were extraordinarily abundant.

The steep lawns rolling from the foot of the cliff towards the valley are, in the autumn, violet with the lovely little *Cyananthus Delavayi*. The throat of each flower is stuffed with a wad of hairs, from the midst of which peeps the five-rayed stigma, like a little yellow star. The plant forms closely woven mats of foliage, covered with soft downy fur, and bears dozens of pale violet silken flowers lying down on the ground and sprawling everywhere.

Another autumn plant is little *Saxifragia gemmipara*, lining the banks in the shade of the trees. Its white flowers speckled yellow rise from tight rosettes which are crowded together like paving stones, and it forms clusters and nodes under the bushes. Growing with it is a larger chocolate-flowered plant *S. diversifolia*.

But it is not so much the plants which fascinate, as the excitement of climbing and exploring the cliff itself. There is something bold and threatening, and even mysterious, about a cliff. It hurls back Nature's forces, and defends those committed to its charge, as a castle wall. It is strong. It is ruthless. And yet, to those who seek its aid, it is kind. It gives them shelter, food and water. There are a million sanctuaries for harassed plant life. And they in turn protect it as they can from the ravages of Nature.

And it is mysterious, too. What is hidden behind the cliff? What is there at the summit? We must climb and explore. There is a rent here worn by

tumbling water, and up it we go, scrambling at first from boulder to boulder, and presently from ledge to ledge. We are stopped by a wall, and turn aside, selecting a chimney. We cross the face of another escarpment, precariously, and ascend a steep shoulder on all fours. By this time we are far up the cliff, and, looking back over the heads of the trees, catch sight of the river rumbling over the rocks. No sound reaches us, however, so we ascend, pitch by pitch, zig-zagging up the cliff. Sometimes the way is clear, and it is easy enough. Sometimes we are brought up short by a wall which baffles us ; we must find a way round. Sometimes fear comes—sudden fear of violent death. That is not pleasant ; and for a few minutes we crouch in our safe eyrie, till the sickness has passed. Then on again.

Crack ! A rock splits high up, and whizzes through the air : follows a shower roaring down the gully. We shrink back into our retreat appalled as the dust rises. There is a moment of stunned silence. Then a flock of parakeets wings overhead with a frightened scream.

At first there is a veneer of forest ; and as we climb higher, the trees grow bigger and bigger ; also fewer. At last there are only scattered trees, clinging desperately to the rock, tortured and battered. And suddenly they have grown quite small, wizened and twisted, and stunted. But still they hold on, steadfastly, root and branch. Sometimes I wonder whether I will do the same ! Then the trees cease altogether. Once I heard in the forest a terrible cry, followed by a scream, half human, half bestial. I was horrified, but anxious to know whence came the noise, and

why. It must be an animal—but what animal? Was it a scream or a laugh? It might be either, or both! There it was again! So! At any rate it was not a man. I followed the sound cautiously, climbing from rock to rock, dodging from tree to tree, till I could look over a shoulder of the cliff; and what I saw astonished me. The trees in front shook and shivered as though agitated by a violent wind, and then—silence again! Some one—something, coughed not far from where I crouched. It was quite distinct—a cough; a little deprecating, perhaps. I peered this way and that, too excited to move,—or too frightened, and well knowing that, if I did, I should see nothing more.

And suddenly I saw a face, a large face, ashen grey, with dull menacing eyes. It poked itself round a rock, stared at me, and was withdrawn, silently. Next minute it was looking at me again, this time from the other side of the rock. This time I saw more—a dull yellow back, covered with long hair, and a short stumpy tail, belonging to the largest baboon I have ever seen. The old warrior watched me till the troop had made good their escape, then turned and followed his companions.

The monkeys on the Muli cliff, which I caught sight of several times, are sacred; that is to say, no one interferes with them.¹

On the cliffs I have met with black bear, ghoral, and sheep. Generally they see me before I see them. It is part of their job. I seek plants and am generally made aware of the presence of other cliff folk by the clatter of stones. Looking up, I see

¹ This is probably the *Macacus tibetanus* of western Szechwan.

that I am—hush !—observed. Twice I have met bears just round the corner, but being of a shy disposition, have never summoned up sufficient presence of mind to say how-do-you-do ! On both occasions Bruin has, happily, had a pressing engagement elsewhere.

If, as it seems, cliffs are the last resort of many rare animals, still more is this the case with plants. Thus there is always present the feeling that at any moment you may come upon an unknown and beautiful flower ; beautiful at any rate, and new or not, the joy is the same. Exploring a cliff is not like exploring a meadow. In the latter case you can run your eye over half the whole in a twinkling ; any unfamiliar streak of colour is instantly detected and quickly reached. But on the cliff vision is restricted. Rock plants are small. There may be a gorgeous flower within a yard of you, invisible till you are on top of it almost. It is lurking under a rock, or hiding in a crevice ; it may even be quite out of reach. And on the cliff plants do not grow in sheets and colonies as they do in the meadow, or in the woods. It is a plant here and a plant there. No doubt there are plenty of them, but they have to be searched out one by one. Therefore it behoves the plant hunter to search every nook and cranny, to climb every ghyll, to explore every corry and crag, to prowl round every escarpment he cannot climb ; the search is long, but well, well worth while.

For what flowers have come to us from the cliffs ! A hundred yards away I saw the first golden yellow cushions of *Primula pulvinata* ; but they were out of reach, and it took me an hour to secure the plant.

I could not climb the cliff, and there was no tree at hand. Then two of my men went away for a quarter of an hour, and cut down a young fir tree, and returned, dragging the limbless trunk. They set it up against the cliff, and we climbed up it ; and *Primula pulvinata* was ours. Thus are difficulties overcome.

Another cushion *Primula*, found on the cliffs above the Chiangka River, may yet outrival *P. pulvinata* (K.W. 5403).

Then there is *P. densa*, from the North-east Frontier of Burma. Dainty little thing ! Its mauve flowers, of the ' *Obconica* ' type, are produced in a small umbel, above the membranous leaves. It hides along the moss-grown ledges of the limestone cliffs of Hpimaw, and is not easily seen.

Primula fragilis laces the limestone reefs which suddenly break the swell of the green jungle, all up the eastern branch of the Irrawaddy ; and in the almost inaccessible gorges of the Taron, I found another species of the same type.¹ It was in seed on the hot granite cliffs, almost beyond reach, a minute shrivelled thing, scarcely to be noticed in the high tide of October sunshine. *P. yunnanensis* itself I found in flower on the limestone cliffs above Feng-kow, in July. Except in special cases, these minute species are not likely to be of much use in the garden.

Above the tree-line, the cliffs are often a paradise of flowers ; but there is also much bare rock.

Here we find *Isopyrum grandiflorum*, its wondrous pale violet flowers with their shock of golden stamens,

¹ K.W. 5444. Section ' *Yunnanensis* . ' Until the discovery of *P. fragilis*, the section was not known to occur outside Yunnan.

ever trembling as, from the security of some cranny, they look down over the frightful precipice. At last the rude wind scatters the silken petals one by one, and only the fern-like foliage is left to shake and shiver as with an ague. Then with agile twist the flower stem turns, so that the crimped capsule may develop erect.

Here too is that freak of the homely Cruciferæ, Solms-Laubachia—no simple name for a plant! It grows on the cliff face, or jammed into cracks of the keen-edged limestone. Its swart woody stems burst into flower in May, even before the leaves appear,—petals turquoise blue with deeper veining, fragrant as dawn dew. Some species form tussocks.

Saxifrages are legion. By August they frill every ledge and joint with masses of orange, speckled with old gold, chrome, or crocus yellow.

A curious little Primula is *P. oxygraphidifolia* (K.W. 4182, 5222) of the high cliffs. Its large solitary flower, flattened against the rock, stares wonderingly at heaven. Last year's leaves, bleached bone-white, persist, and the flower opens in May, before the current year's leaves are unfurled. The colour is mauve, with yellow eye, as in *P. rupicola* (K.W. 4154) mentioned below; but the latter is dusted over with snow-white meal, which is altogether absent from *P. oxygraphidifolia*. Sometimes the steep mossy gullies are starred with its unblinking eyes; but the barest limestone cliffs, flashing back the June sunshine, are as often its home.

With it, but in more sheltered situations, is found *P. rupicola*. Even so the autumn sunshine often proves too strong for it, scorching the ripening cap-

sules till the young seeds wither. The flowers are borne in a compact umbel, two, three, or four together. As in many alpines, the colour varies ; but sometimes when growing with *P. oxygraphidifolia* it is hard to distinguish them ; though they are not really in the least alike.

CHAPTER XI

PLANT HUNTING ON THE SCREES

The champaign with its endless fleece
Of feathery grasses everywhere !
Silence and passion, joy and peace,
An everlasting wash of air.

R. BROWNING.

Of all the devices which so beautifully trim the fabric of a mountain chain—meadow, and bog, and cliff, and moor, the most barren, the most grim, the most harsh, are the screes.

Screes are the mountain's rubbish heap, the chips and splinters left over from the carving of the earth ; the dust and litter, from the impact of weather—wind and rain, ice and snow, heat and cold, on rock ; the waste and ruin of battle after combined attack by horse, foot, and guns. They are peculiarly the product of a land of fierce contrasts, of ruthless oppositions ; hard and proud and cruel,—cruel as hell.

Scree is also typical of regions where there are well-marked wet and dry seasons, and especially where there is a considerable range of temperature, day and night, winter and summer. In very wet regions fragments broken off the cliff are borne away by water before they have time to accumulate as scree. Moreover, vegetation here overwhelms everything, so that

they are smothered and buried out of sight as quickly as they are formed.

But where the rainfall is not too great, the rocks are smashed by the pitiless onslaught of the weather just the same, by the lash of the rain and the kick of the frost, and the fragments accumulate more quickly than they can be removed. Thus screes are formed.

The kind of rock does not matter. There are slate screes and granite screes, and even earth screes ; but the most glaring, vivid and magnificent of all are the limestone screes. In the Marches, scree plays a notable part in the landscape. The rock being almost always limestone, they are visible at a great distance, as crisp white cones leaning against the cliff. They are straight-edged and clear cut against the sky. They express the hard, angular, pagan side of the mountain spirit. It will be evident from what has been said that screes may be formed either in the high alps, where a fierce dry cold numbs all movement, or in the deep river gorges, where the hot breath of the wind curbs vegetation.

In the Marches, the limestone ranges are splintered into a million pointed towers. Cold winds eddy round the cliff ; bitter frosts and scorching sun smite them ; the rocks crack and shiver under the blow, and the screes rise and spread.

In the arid gorges of the Mekong and Salween Rivers, huge screes of an aching whiteness under the slogging glare are piled up. These support very little vegetation—a few tortured stunted shrubs, nothing more.

Screes are always active, some more, some less ; there is no such thing as an extinct scree. Motion,

swift, loud, and startling, is its very essence. As soon as rocks cease to fall, the scree begins to melt away. Transport, however slow, overtakes production; plants gain, and keep, a foothold; and the scree dissolves in fat ease. A live scree is tense and aggressive; it is all tooth and nail; all hammer and tongs.

When cliffs occur in the forest region, screes are not formed, because the vegetation is usually able to bury all accumulations of rock out of sight; but the outlines of a scree can often be traced under this mantle. Perhaps it is striped with two or three bare channels torn out by the ever-flying rocks.

Seen in profile, a scree forms a segment of a cone, lying against the cliff at an angle of about 60° .¹ In full face it is therefore a triangle. In the Marches, however, a range of limestone cliffs will be flanked by confluent screes, several hundreds of feet high, over a distance of several miles. Here all shape is lost.

On every scree, the biggest fragments lie at the base, the smallest at the top. Thus the scree stands on a foundation of boulders, because the biggest boulders roll farthest.

There is no difficulty in climbing at the foot of a scree; it is when we get higher up on to finer and finer gravel that it becomes difficult. Here the earth slips and slides; it is difficult to get a footing; added to all there is the ever-present fear of bombardment from the cliffs above, fierce, swift and overwhelming. With clogged feet there is no time to run, to duck, to

¹ Strictly speaking, the angle of slope depends upon the size of the material, and the profile of a scree is slightly curved. On a big scree, however, this is almost imperceptible, and 60° is a mean slope on most screes.

hide. There is no cover. To be caught means death—death—death, a brutal, shocking, mangled death, as the singing rocks bludgeon the life out of you, and hurl you stunned and crushed and dripping down the slope.

There are few noises in the mountains more appalling, more oddly terrifying than the bellow and roar of a rock avalanche. You wake up in a cold sweat as the numb silence of the night suddenly thrills with alarm. Curiously enough, you have anticipated it, as though subconsciously you knew it was about to happen. For a minute you struggle to apprehend. Not a sound! Half awake and half asleep, you listen, intently, expectantly. Hush! What was that? In a moment you are alert, wide awake. From far up the cliff comes a single sharp explosion—just a crack like a pistol shot, nothing more. Seconds later the breathless silence is cleft by the shrill scream of flying metal. The noise grows louder, then dies away in rumbling, and the frightened birds settle down again for the night. You turn over to go to sleep, only to find that you are trembling and sleepless. You see the whole thing clearly in a sort of nightmare,—the pale scree with the moonlight on it, and the frost sparkling on the rocks; the gaunt cliffs overhead, and the hard outline of the mountains against the luminous sky. And then you see as it were a gully yawn suddenly beside you, and spew out a load of rocks, which leap in the moonlight, and bounce and roar down the chute; and a cloud of dust rises, cold and choking, and blots out the scene. There are men running, with leaden footsteps. And when the cloud lifts, you find yourself at the base of the scree, looking up

to that little harmless spot hundreds of feet above, with the dust cloud poised over it. There is something lying on the ground very still, roweled and senseless ; and the rocks are smeared and spotted ; they too are still now. Then you open your eyes, afraid to close them, and lie half awake ; and with the first streaks of dawn the terror passes.

But the high alpine screes are the home of some of the finest flowers imaginable. On the granite screes are flaring Rhododendrons, and on the limestone screes, blue poppies, Primulas, and best of all, species of *Cyananthus*, with flowers of a soft lavender blue.

Besides these are many other flowers, Labiatae and Compositae, Saxifrages, Stitchworts, Louseworts.

One of the most enchanting of alpine plants is *Cyananthus incanus*, var. *leiocalyx*, an admirable plant for the rock garden. In colour and form it is first-class. Not till July does it announce itself on the limestone scree, by unfurling its leaves. The crimped foliage, all grey white with soft downy hair, forms prostrate mats, which spread and sprawl in every direction. Then in August the flowers open,—large shining corollas of glossy silk, till presently the green mats are smothered under a glut of icy blue salvers.

The throat of each is at first plugged with a pompon of white hairs ; but as the petals spread out more widely, the pompon too resolves itself into five crests, or beards, one to each petal. The five-rayed stigma is also disclosed in the centre of the tube, like a yellow star.

The whole plant is now covered with flowers. Day after day more open, and for a month or six weeks the mats are a picture of health and loveliness. Through

the veil of rain the trumpets gleam and burn against the dead white scree. They are a keen, live colour, now bright and piercing, like blue gimlets ; now hot and misty, like Bengal lights.

Comes the early autumn snow, and the plants are buried. When it melts on the scree, under the baleful glare of the November sunshine, it is difficult even to find the plants. They are dead, shrivelled, and uprooted, or torn to shreds. The wind tosses them up and down the scree. But the seeds lie snug. We shake them out—hard marbled eggs, and they travel safely to England (K.W. 4730).

This *Cyananthus* flowered on the rock garden at Kew throughout September, 1923, and was a splendid sight. It is perfectly hardy ; and when the mats are a little larger, will make a gorgeous display at a time when there is not much to be seen in the rock garden.

Another species of *Cyananthus* is *C. Delavayi* (K.W. 4968), which edged the wooded lawns below the monastery at Muli. It flowers in October. Though smaller than the last, it is a bonny plant, with flowers a shade deeper than *C. incanus*.

Scree plants are the waifs of the alps. They grow on the scree because there is nowhere else for them to grow. They are homeless. Amongst this small but select band of hardy warriors several types of vegetation are met with, all more or less adapted to this desperate mode of life ; at least so it would seem.

There are for example the rosette plants, such as *Crepis rosularis*, *Lactuca Souliei*, *Draba* sp. and others. The tight heads of flowers are almost flush with the surface, and the leaves spring from all round

the compressed stem, which is buried up to the hilt.

Related to these are the mat plants, such as *Cyananthus incanus*, *Gaultheria* sp., and others.

Then there are the woolly cones, such as species of *Saussurea*, the 'flannel leafed Aster' (K.W. 4686), and certain Labiatae such as *Eriophyton Wallichianum* (K.W. 4644); in the latter the leaves arch over the pink flower clusters, completely concealing them.

To another class belong the compact dwarf species which are neither woolly nor flannelly, such as *Meconopsis impedita*, *Aconitum* sp., *Primula minor*, and *P. rigida*.

But all this sort of fancy dress would appear to be optional, since we find also plants in ordinary everyday garb standing up on the scree as bold as brass. There is *Meconopsis speciosa* for example, *M. eximia*, *Polygonum Griffithii*, species of *Pedicularis*, *Silene*, and so on.

Rhododendrons, however, are not fond of the scree—not of the upper scree, that is, though they occur commonly amongst the boulders at the base. Here they form a dense impenetrable scrub.

On the granite screes of Ka-kar-po *Rh. sanguineum* (K.W. 575) with lurid scarlet flowers is abundant. On the limestone screes of Muli, *Rh. cephalanthoides* (K.W. 4160) is not uncommon; *Rh. Clementine* (K.W. 4177) also occurs in a dwarfed condition. *Rh. sanguineum* stripes the scree with dense low-growing thickets; but *Rh. cephalanthoides* forms scattered bushlets very hard and compact, and 'silver rose' assumes a gnarled habit, with interlacing branches. The 'flannel leafed Aster' (K.W. 4686) is a particularly striking species with chubby heads of violet flowers, cuddling down amongst the foliage. It

flowered in July and August on the slate screes, to which it is confined. The October snow storms wiped it out and in November the frozen corpses were being desecrated by the wind. However, I secured seed of it, and this germinated in England ; though it is likely these exiles, under our weight of atmosphere, will be but shadows of their real selves.

Primula minor from the Mekong-Yangtze divide is another scree plant. It was cultivated in England lang syne, but subsequently lost. Perhaps *P. rigida* and *P. melanops*, of which I secured seed, will take its place.

The former occurs on the screes of Muli (K.W. 4033 is the limestone form ; K.W. 4081 the slate form). The limestone plant is over by the end of May, the latter not in flower till June. Therefore I not unreasonably considered them distinct.

This K.W. 4081 is a squat 2-inch plant, bearing several flowers, purple, lilac or mauve, with innocent white eye. Also it has a haunting fragrance of lavender. In September the tall narrow parchment tubes are ripe and rosy. They gape at the apex, and the seeds, which form a small heap at the bottom, are jerked out on to the snow-clad scree by winter winds. However, as is often the case with Nivalids, the seeds find no little difficulty in effecting their escape, a fact taken advantage of by the collector, who may come upon them in the following spring with seeds none the worse for six months' cold storage.

A fourth species of this assemblage, *P. amabilis* (K.W. 5369), I found on the granite screes of Damyon. The most frenzied lover of Primulas would scarcely grow all four species. It were better to find out by

trial which is the most suitable for this country, and stick to that. *One* of them is certainly worth its place in the rock garden.

Of all the scree flora, perhaps the most interesting plant is *Meconopsis integrifolia*. It grows on limestone and granite indifferently, at the highest levels, never being found below 16,000–17,000 feet. I first met with it above Atuntzu in 1913. Nine years later I came across it again, this time on Damyon, a snow-peak on the Mekong-Salween divide; and also on Paima-shan, a snow-peak on the Mekong-Yangtze divide. It is a stumpy little fellow, not exceeding 12 inches in height; the large nodding flowers of bright cadmium yellow are borne on simple one- or two-flowered scapes. The whole plant is coated in long silken champagne-coloured hairs, which on the capsule form a stiff pile (A, Fig. 2).

This capsule is characteristic. It is rather narrow, oval in outline, and regular. There is a very short style. The five-rayed stigma is almost sessile, forming an apical disc not unlike that of the ordinary poppy, but slightly more raised.

There has been a certain amount of doubt as to whether there are really two yellow-flowered poppies in far-western China, or three. Observations made in the field enable me to state quite positively that there are three.

Sir David Prain, who is the greatest authority on *Meconopsis*, informs me that the first species, found by Russian explorers, was *M. integrifolia* (A, Fig. 1 and K.W. 4169).

The next to be discovered, by French missionaries, was this hairy plant described above (A, Fig. 2 and

K.W. 5393). It was, however, confused with *M. integrifolia* by the French botanist, M. Franchet, who went even further, and called a third plant (A, Fig. 3 and K.W. 5384), also discovered by the Russians, *M. integrifolia*.

This was too much for Sir David Prain who realized that at any rate the plant with the sessile radiate stigma (Fig. 2) could not possibly be the same species as that of the long style (Fig. 3). For the latter he therefore proposed the name *M. pseudointegrifolia*—a decision amply justified by observation in the field. In the matter of the Russians' original *M. integrifolia* (Fig. 1), and the missionaries' *M. integrifolia* (Fig. 2), he reserved judgment.

There were now two yellow-flowered poppies : *M. integrifolia* with hairy capsule, opening by four or five valves, and almost sessile stigma ; *M. pseudointegrifolia*, with glabrous capsule, opening by eight or ten valves and long style with capitate stigma. Doubts were then expressed as to whether the original *M. integrifolia* of the Russians was the same as the *M. integrifolia* of the French missionaries ; whether in fact the capsules shown in Figs. 1 and 2 could belong to the same species. In 1921-22, I collected specimens of all three plants, and there seems to me no doubt that we have to deal with three, not two species ; a conclusion at which Sir David Prain had already arrived independently, from examination of herbarium material. The differences between the three, without going into technical description, are quite conspicuous.

M. integrifolia is a plant of 15 or 20 inches found on the open moorland, and in pastures at 12,000-13,000 feet. The large almost globular sulphur-yellow

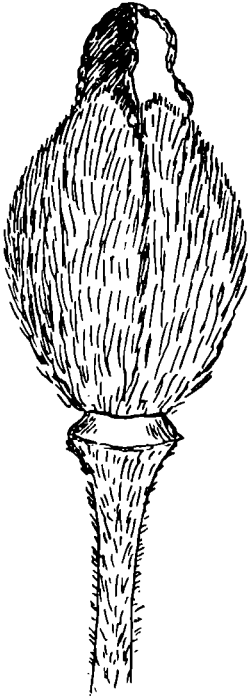
flowers stand semi-erect, but do not fully expand. The hairs on the ovary are dark greenish brown, like wet leather. There are four or five ridge-like stigmatic rays, and the capsule opens by four, sometimes five, apical ports. It flowers in May and June.

Inside the flowers I found a number of large beetle-like flies, completely concealed by the arching petals, and sluggish with the load of pollen smothering each.

M. pseudointegrifolia is a taller plant carrying more flowers and reaching a height of 30–40 inches. The flowers are sulphur-yellow, but are much flatter and more open than in the last species. It grows in copses, and under bushes, at 12,000–13,000 feet. The capsule, which is narrower at the base than at the apex, is provided with a distinct style ending in a small knob-like stigma, slightly grooved. This capsule is, further, glabrous, or provided with a few scattered hairs which pass unnoticed. It opens at the apex by twice as many ports as the former, that is, either eight or ten.

The *M. integrifolia*, var. *brevistyla* of Prain and Balfour (which is not var. *Souliei* of Fedde, Sir David Prain tells me), is quite a distinct thing.

It is, as already stated, a scree plant from the loftiest regions ordinarily inhabited by flowering plants. Mr. Littledale found it even in Central Tibet. The flowers are bigger than in the other species, and of a more intense yellow—cadmium best describes it. But the plant itself is shorter in stature than *M. integrifolia* and quite dwarf compared with the tall *M. pseudointegrifolia*. Plants, so far as my observation goes, bear no more than two or at most three flowers. It is by far the least common of the three, occurring widely



A FIG. 1.

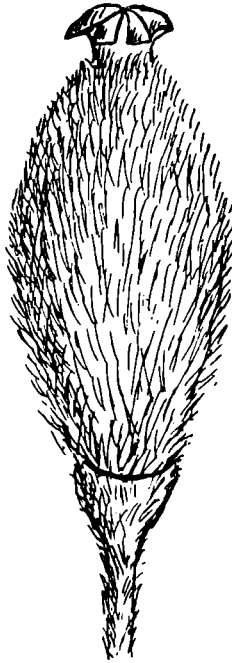


FIG. 2.

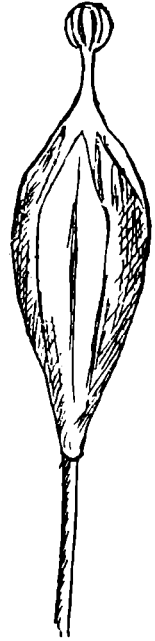


FIG. 3.



B FIG. 1.
M. lancifolia.

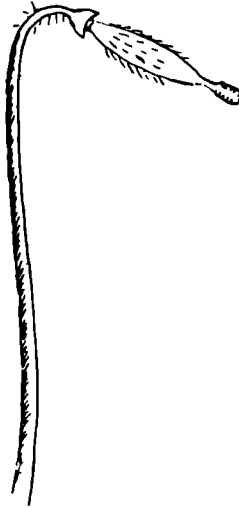


FIG. 1a.

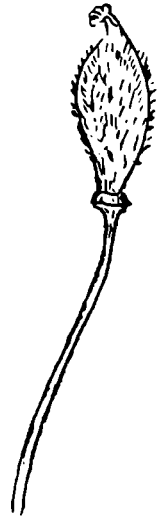


FIG. 2.
M. impedita.

scattered under rocks in the most barren regions, never growing socially as *M. pseudointegrifolia* invariably does. It flowers in July.

Finally the seeds of *M. brevistyla*, as we may venture to call it, instead of being black and tuberculate, as in the other two species, are orange-brown, and covered with a sort of papery scurf, or bark, which forms a loose-ribbed jacket.

There are three types of scree met with in the Marches, each with its peculiar flora ; and we can usually supply them in three materials—limestone, granite, and slate. The three types are : (i) Boulder screes, found at the heads of old glacier valleys, and at the foot of most big screes, whether in the alps or the river gorges. (ii) Gravel screes, formed of fragments shattered from the cliffs, accumulating on a long slope ; the surface of most screes is of this type. (iii) Earth screes, forming steep slopes under slate cliffs, very high up.

The high boulder screes are almost naked, plant life here being without visible means of support. Their most characteristic and constant patrons are the Cambridge blue *Meconopsis speciosa*, and certain clumped Sedums, such as *S. atuntsuense* and *S. venustum*. In the alpine valleys at the scree foot, however, they are more or less decently clothed with shrubs, including species of *Rubus*, and colonies of *Rhododendron* of the 'Neriiflorum' type, and even small maple, birch, and other trees.

The earth screes too are more or less devoid of plant life. A few poverty-stricken Cruciferæ, perhaps one or two species of Saxifrage looking as though they had got there quite by accident, and had no intention

of remaining, and an electric blue *Corydalis* are the chief victims ; but one also finds in favoured spots small colonies of *Cremanthodium*, and the little butter-golden stars of a *Ranunculus*. It is on the gravel that the bulk of the hard-bitten scree flora is found. Here occur *M. Prattii*, *Cardamine granulifera*, *Lilium Delavayi*, and most species of *Saussurea*, *Crepis*, and *Lactuca*, besides the plants already referred to at length—*Cyananthus incanus*, *Meconopsis Souliei*, *Primula minor* and the scree *Rhododendrons*. But just as *Rhododendrons* shun the scree as far as possible, so do other shrubs turn up their noses at it. They are haughty. Most of them would sooner starve than grow on such a rubbish heap. A few dwarf species of juniper, *Cotoneaster* and *Lonicera*, do stripe the slope under the lee of the cliff. *Lonicera*, in particular, with straw-yellow flowers, subsequently replaced by bright scarlet berries, is an interesting rock plant.

The scree, botanically considered, is a place for the quick-change merchant—the annual, the biennial, the plant which can hustle through its job in a few brief months.

Screes usually face south. It is their misfortune. The alpine slopes which face north are not so severely cudgelled by the elements and are consequently wooded, or carpeted with alpine turf. At the worst, only those naked chutes which tip out a continuous stream of rubble scar the slope with long parallel lines. It is on the scree that the winter snow first melts. In the rainless spring comes intense drought, a cold hell by night and a hot hell by day. Not till the rains break in late June is there relief. Even then the

surface of the scree dries at once ; drainage and evaporation are perfect.

Added to this are the mechanical difficulties. The scree is ever on the move. On the steepest pitches, the material slithers and slides, it may be imperceptibly or by visible fits and starts. Anywhere there is always the danger of bombardment from above, as the smashed crockery of the cliff is flung overboard.

As for soil, there is none ; it is washed off the top, and sinks down amongst the stones. But dig down a foot or two and you will find soil in plenty underneath. That is the great secret of the scree ; down below there is soil—and water.

Drought, movement, exposure—these are the three nightmares of the scree flora. And as regards the latter, well may it be ! After a day spent on the scree in November, one wonders how any live thing could ever exist there. A fierce wind comes yelling round the cliffs. It skins the top off the snow, which is hard, like grit, and whirls it up, till the air is curdled and choking. It hurls the gravel down the scree, and tears the stiffened plants out of their sockets. Nor is it much better in the summer. The lash and sting and fury of the cold monsoon rain becomes almost unbearable at times. It is pitiless, unceasing for days, weeks. The clouds roll like smoke through the mountains.

Then the sunshine bursts out. In a moment the scree is almost incandescent. The surface becomes incredibly hot, and the glare in the thin, tense, clean atmosphere is frightful.

If then our plants are built to no common pattern above ground—being indeed compact or straggling,

woolly or prickly, tall or short, matted or erect, clustered or solitary—at least they bear a family resemblance below the surface. Heat and cold may move them not ; but thirst begets the same defence in all—an immense root system. Every scree plant develops, as the price of its life, a deep-questing and extensive root, partly to enable it to obtain water from the sub-soil (which is quite moist) and partly to counteract the effect of movement in the scree ; a shallow-rooted plant might some day find itself cast high and dry upon the beach, the soil having slipped from beneath it.

Some plants are provided with a long tap root. More commonly, however, the root is repeatedly branched, dividing first into a Λ -shaped or even \perp -shaped brace ; or it may be fibrous. The object of the sprawling habit, seen in *Cardamine*, *Corydalis* and other plants, is clearly to accommodate itself to the restless scree. The stem is so weak that it lies on the surface, always growing up hill. Thus as the surface slides the stem is simply carried along towards its point of origin, without disturbing the root, or subjecting the stem to any strain. It is probable that the absence of 'cushion' plants on the scree may be ascribed to this fear of being torn out of the soil, or buried under a rock slide ; for such massive hassocks cannot nimbly adjust themselves to all the changes and chances of scree life. Independent plants can fend for themselves ; colonies present rather a tempting target to the artillery on top.

CHAPTER XII

THE RHODODENDRON MOORLAND

I have seen dawn and sunset on moors and windy hills,
Coming in solemn beauty like slow old tunes of Spain ;
I have seen the lady April bringing the daffodils,
Bringing the springing grass and the soft warm April rain.

JOHN MASEFIELD.

Beyond the River of Golden Sand is a lofty limestone plateau. In places it is rent by the 'four rivers,'¹ which cut it into blocks, faced on their east and west flanks by high escarpments. Here and there it is raised into rugged, spiky ranges of white limestone ; but generally it is a wide, windy, undulating moorland, with wide shallow, boggy, ice-worn valleys, and rounded billowy hills. Such is the 'Lapponicum' Sea.

The moorland reaches out northwards, league on league, to the grassland plateau of the nomad, where the trees die out and *Rh. thymifolium* with *Rh. capitatum* smothers the lawns of Kansu. Westwards, as far as the bouncing Mekong, though pinched and confined, it occupies much of the lofty area round Atuntzu, and here little purple-flowered *Rh. rupicolum* is an outlier with *Rh. tapetiforme* ; and so north-west, beyond the curve of the Salween River. But within

¹ The four rivers which give the name to the province of Szechwan, namely the Kinsha, Litang, Yalung and Min.

the arc of snow-clad mountains which clasp mysterious, million-throated Irrawaddy, no altitude can make up for the hell of rain which comes sweeping through Burma-Assam from the south-west, to fling itself against the barrier ; and that the 'Lapponicums' will not stand. Dwarf Rhododendrons do indeed grow on these sodden Alps. We find here the wee creeping stems of *Rh. repens* curtaining the boulders, the heathlike bushlets of the 'Saluenenses' happy in adversity, a few 'Cephalanthums' and the twiggy tussocks of the 'Campylogynums,' their preposterous little dusky purple flowers pouting like rows of ship's ventilators. But if some few dwarf Rhododendrons flourish even here—and none of them are 'Lapponicums,'¹ be it noted—so also does dwarf bamboo. Where Rhododendrons are it will be in the midst of them. It is the curse of the North-east Frontier. Its flint-skinned, solid stems form a dense brake, through which no man can force his way ; and when a path is cut the sharp upstanding spikes which remain threaten to impale him. They pierce leather as though it were paper, and it is necessary to step gingerly. Nothing will grow under the bamboo's accursed shadow. Its greedy roots fill the soil, its jostling stems and close leafage condemn to perpetual darkness the ground within its evil grip.

There can be no moorland here. Rich though the Burmese alps are in Rhododendron, we are dealing with a different type of vegetation. There the keen-edged rain cuts a thousand furrows in the mountain to each one which is bluntly ploughed by ice way

¹ There is only one 'Lapponicum' Rhododendron known from the Himalaya, namely *Rh. nivale*.

back behind the Tibetan rain screen. And so to the limestone plateau.

Ascending from the hot, dry river gorge through the scented pine forest where clumps of slipper orchid and pallid *Nomocharis* and pink *Androsace* grow in the warm loam, we emerge by wood, and lawn, and meadow on to the moorland.

In winter, when the shrill wind leaps from the snow-peaks, 'tis bitter cold on the naked moor. The music of the beck is hushed under a crust of ice ; the bogs are petrified into queer misshapes ; and the wind moans through the brown sticks which once were flowers. A numb and awful silence reigns ; and the world is mantled with snow which has drifted and eddied and clotted into a pattern of dissolving dunes.

Summer comes with a rush of rain. Dark billows of cloud surge in out of the west, and roll like deadly smoke up the high valleys, muffing the moorland. Gusts of drenched wind flog the flowers to pulp ; a grey, amorphous, weeping pall hides the dying and the dead. The sloping lawns whiten under a film of water which froths and slurs over the green turf. The thirsty bog gulps greedily, and gurgles ; and the swilling brooks fill and lift up their voices with one accord. The drowned world shakes itself gloomily, and the deluge ceases for a day ; a splinter of sunlight pierces the curdled clouds. Everything is very still. Only the smothered drip, drip of water in the forest, and a far-away sound as of a hundred weary, whispering becks is heard. The faded, draggled flowers lift their faces to the sun. And then the rain breaks out again.

Autumn comes. The berries are reddening on the bushes, and the leaves mellowing in the woodland. Once more the air is sweet and bracing ; and a kind breeze, neither charged with the sting of driven rain, nor sharp and biting with the malice of winter, rustles over the plateau. Now there are limitless views over mountain and fell, east and west and north and south. The soft azure dome of the Tibetan sky seems shrunk on to the world like a well-fitting lid, and the mountains stand out hard as flint against a background of frosted blue glass. At dusk a great cold creeps over the mountains. The sun sets in a bath of orange, as cold and lifeless as an extinct volcano ; the molten purple and crimson tones which succeed cool swiftly, like lava, leaving the crystal stars diced over a gun-metal sky. At dawn he rises slowly over the mountain ridge, and floods the valley with crocus-coloured light, and the crisp frost wilts under his touch.

But it is in spring that the moorland puts on its wedding garment. Then you may wander for days ankle-deep through a chromatic surf of Rhododendrons, rose pink, ivory white, lavender, plum purple, crimson, and amber yellow. They are woven into carpets of queer design and ample pile, or form tuffets, or hassocks, or mere tangles, or mats, or brooms. They spread and sprawl everywhere, bushy and twigulous, all foaming into flower together ; till looking across the dark ocean of moorland you see the billowy hills crested with colour ; and, where escarpments break the even roll, the plant growth surges high up the rocks. It is Western Szechwan, the Tibetan Marches, home of the 'Lapponicum' Rhododendrons.

Now the 'Lapponicums' are many and various. The moorland is submerged beneath uncharted seas of them ; and few have been recognized as distinct. My own plunge into this flowery ocean brought to light, not species indeed (or if so, by the way), but certain considerations with regard to social moorland 'Lapponicums' in general ; and these I will divulge, taking it for granted that my reader knows a 'Lapponicum' *Rhododendron* at sight. If he does not, it were best to skip the next few paragraphs ; for the only guidance I can give him here is to mention by name a few comparatively well known 'Lapponicum' species : such as *Rhs. intricatum*, *hippophæoides*, *fastigiatum* and *chryseum*. It is not much use to mention *Rh. lapponicum* itself, because it comes from the Arctic, and is unknown, or very rare, in cultivation. Although the first known, it is certainly amongst the least known.

These little heathlike or carpet *Rhododendrons* have flattened five-lobed corollas, with a short toothed calyx, minute, or large enough to conceal the wee ovary ; and, generally, ten stamens. The small leathery leaves are more or less covered with scales underneath. The flower colour I have referred to—it may be cadmium yellow, as in *Rh. chryseum* (which unfortunately is not as golden as it sounds) or *Rh. muliense*—the former from west of the Yangtze, on the fringes of the moorland ; the latter from east of that river, in the heart of the moorland, and as closely related as two brothers brought up in different countries : it may be some shade of lavender as in all the bog species, *Rh. hippophæoides*, and others ; or lavender purple, or lavender violet, or even violet, as K.W. 5184. But most commonly it is sheer purple, dark

and opulent, as in *Rh. impeditum*, or paler, as rosy purple, and less regal, *Rh. cuneatum* ; or for variety's sake, pinkish purple—not a nice colour that (Rhododendron K.W. 5198). Pink itself is supplied on the moorland not by a 'Lapponicum' at all, but by ordinary *Rh. racemosum*, which is quite a different thing.

The odd thing about it is that whatever the colour of the flower (except yellow), the style is always either crimson or purple, though the filaments of the stamens match the corolla.

Seeing this galaxy of colour you not unnaturally suspect a different species for each, and fondly imagine yourself revelling in a botanic garden. There must, you decide, be dozens of species here. It is a vain delusion ; for even the most cursory examination informs you that several of your 'species' resemble each other in every character save that of flower colour : and you will hardly be rash enough to add another synonym to the long list of the proscribed, whose ultimate fate at the hands of botanists is slow suffocation under a weight of scorn and neglect, despite the frenzied efforts of interested nurserymen to keep them alive.

For example, the lavender-flowered *Rh. hippophæoides* has a variety in which the blue colouring matter is lacking, the result being a clear shell-pink flower, as in *Rh. sphaeranthum* or *Rh. radinum* ; and of course a delightful thing. Out of flower you would certainly call the plant *Rh. hippophæoides*, and in flower you can do no less. Being a wise man, you swallow down an overwhelming urge to immortalize your name in the Index Kewensis as the authority for *Rh. acyanoflora*

(syn.), and content your soul with mentioning the fact. Baulked of new species according to colour, you fly to the other extreme, and ruefully confess that there are really only three or four species in all that rainbow display ; only to find two purple-flowered species as distinct as *Rh. K.W. 5130* or *5147*, and *5065* or *5030*. Clearly too much stress must not be laid upon colour, though anything so distinct as the yellow of *Rh. muliense*, or the lavender of *Rh. fastigiatum*, is of course vital. It is correlated with other differences. Any little observation, such as the above, serves as a point of departure ; and strolling over the moorland behind the easy-going mules, you begin critically to examine specimens plucked at hazard, whether they bear a superficial colour resemblance to one another or not.

So far as flower colour goes you cannot fail to notice that they fall naturally into three groups : (1) yellow, (2) lavender, and (3) purple. That seems simple. But now the difficulty begins ; for on scrutinizing several specimens of, say, purple-flowered forms, you find that while some are illuminated with bands of silvery scales like sequins on the outside of the corolla, others which closely resemble them are without this decoration. Worse still ; while in some cases the ovary, viewed from above, is open to the light of day, in others, owing to a beard in the throat of the corolla, and to whiskers at the base of each filament, it is quite invisible.

By this time you are launched on an investigation which promises to be thrilling. 'Curiouser and curiouser,' you think, as you delve into this wonderland, analysing, comparing, contrasting ; till presently

you stumble up against the oddest fact of all. In some flowers the crimson stigma is quite short—shorter than the stamens ; in others it projects right out of the flower, being half as long again as the stamens. And yet, except for this, you can detect no difference between your plants, so that unless you regard it as fundamental, they must be the same species. In other words some of the ‘Lapponicum’ are heterostyled, as in *Primula* ; but whereas in the latter genus the stamens also occupy relatively different positions, according to the length of style, in the ‘Lapponicum’ the stamens remain the same length and occupy the same relative position whether the style be short or long.

On such fine variations are species apt to be founded ; and I can only conclude that one diagnostic character of this description does not by itself warrant the bestowal of specific rank. Thus the presence or absence of corolla scales, the concealment or otherwise of the ovary, and still more emphatically, the length of style, are, singly, no criteria for a species.¹

But if these characters by themselves are not valid, there are plenty of others, almost equally refined, which are. For example, in some plants the calyx is so minute as to be practically non-existent ; in others it is large enough to envelop the ovary, and is fringed with long hairs. In some the corolla has

¹ The late Sir Isaac Bayly Balfour, in an analysis of the ‘Lapponicum’ series (*Notes from the Royal Botanic Garden, Edinburgh*, June 1916), stresses the value of the lepidote corolla as a diagnostic mark, in conjunction with other characters. But I think he overlooked the fact that the same species may have a corolla which is densely lepidote, or only slightly lepidote, or possibly even elepidote.

a distinct tube, in others there is practically no tube ; and there is considerable variation in the colour and density of the scales on the under-surface of the leaves. In *Rh. impeditum* (K.W. 5147) the upper surface of the leaf is polished ; in most species this is not the case. These alone may be good characters.

Reader, you are now impatient, and preparing a counter-offensive. "What," you ask, hurling your bomb at me, "is a species?"

It is an old question, and frankly I cannot tell you the answer ! Nor have I met anyone who can. When you get down to these minutiae, each must judge for himself. The personal equation must, ultimately, enter into every discussion of species. And for the present I intend to leave it at that ; merely remarking that after gathering samples of thirty or forty plants, I personally recognized some ten or twelve distinct 'Lapponicums' on the moorland.

What a gorgeous sight those miles and miles of colour are ! For the species grow socially, covering large areas, drifts of purple here, of pink there, broken by patches of bright yellow, like sunlight. But in the bogs the colour is always lavender ; which sorts well with the Irises likewise found there. These latter are beardless, and of the 'Sibirica' type, bearing lateral flowers under the terminal one ; sometimes dwarf plants bearing a single terminal flower.

The total number of 'Lapponicum' Rhododendrons already described verges on fifty species, of which all but three come from far-western China—from the moorland as I have described it. From the Salween in the west to the Min River in the east and from Kansu in the north to Yunnan in the south,

these carpet Rhododendrons cover the alps as heather clothes the highlands of Scotland.

Some grow in bogs or marshy meadows, and some in peat, and some grow on the limestone cliffs.

They mostly occur above 12,000 feet, and are buried under snow for three or four months in the year. Summer rain they of course need ; but they flower early, quenching their thirst from the melting snow, in a country where spring and autumn droughts are the rule. But the everlasting rain of the North-east Frontier they do not like, so that the alpine Rhododendrons which clothe the mountain tops above the Indo-Malayan forest belong to an entirely different assortment.

It is to be noted that the area occupied by each species is comparatively restricted ; and as might be expected, the deep river gorges which cut up the plateau into blocks often mark the limits of species.

But the most deeply dissected country, westwards of the Yangtze, is on the fringes of the ' Lapponicum ' Sea. The question of hybrids in Nature is a difficult one. Amongst the ' Lapponicums ' hybridization almost certainly occurs ; and if amongst them, why not amongst others ?

But ordinary variation may easily be mistaken for hybridization. In any case the latter does little or nothing to solve the problem of species. In order to get a hybrid, two species are first necessary ; and a hybrid, far from displaying new and sharply defined characters, tends rather to a blurring and dilution of existing ones.

Nor is the moorland entirely devoted to Rhododendron. Beside a number of undershrubs, such as

Lonicera, Caragana, Cassiope, and Juniper, lost and buried in the tumult of 'Lapponicum,' there are other flowers ; and as the blaze of Rhododendron dies away in June, meekly they offer themselves in its place. In July, when the rain is sweeping gustily over the uplands, a new harmony of colour breaks out.

The shallow troughs and bowls at the foot of the barren ridge, where long ago the ice collected, before moving on to grind its furrow, are now pastures. Here and there they are sheeted with flowers ; patches of bright purple *Pedicularis siphonantha* vie with patches of a crocus-yellow species. The tall ivory towers of *Rheum Alexandræ*, standing in rows, rise up above the flower-strewn lawn like the spires of some fairy city. Nanking's porcelain pagoda, a mile away, might have looked something like this 4-foot sorel, whose large cream-coloured bracts arch completely over the puny flowers, storey on storey, as though ashamed of their dullness. Drifts of Iris break the ranks of Rheum, or form broad patches of violet shadow against the emerald green grass. Mats of Androsace, with little balls of eyed pink flowers nestling amongst the silken foliage, overspread the gravelly soil, between clumps of Rhododendron ; and where the eager brooks spill over and submerge the lawns, is a patchwork of Primulas, mauve for fragrant *P. Wardii* ; canary yellow for the refined *P. pseudosikkimensis*, whose web is shot with purple threads of *P. secundiflora* ; deep rose for *P. chrysopa*, its nodding flowers laved in snowy meal ; violet for *P. brevifolia*. They crowd the marshes and frill the errant streams with the lace of their foliage.

Let us follow down one of these grassy, ice-ground

valleys. A change rapidly comes over it. Instead of growing wider, it grows narrower. The gradient grows steeper and steeper, and presently ends in a fall. The meandering stream is by this time a thunderous torrent, and forest trees choke the ravine. We can follow it no further. The glacier stopped here, and so must we.

In favoured hollows may be found solitary plants of *Meconopsis Henrici*, one of the finest of the 'Primulina' section of poppyworts. Its 15-inch flower stalks end each in a big, shimmering violet balloon of a flower, which flops over, ducking its head against the inclement weather. A well-grown plant sends up three or four scapes from a rosette of hairy leaves. *Primula violacea* (K.W. 4386), the most voluptuous of all the 'Muscarionids,' is another rare treasure of the moorland. Its scape ends in a cluster of fragrant violet tube flowers, larger than in most 'Muscarionids.' But the 'Muscarionids' are not easy of cultivation, and most of the violet-flowered group are, it must be confessed, very similar to one another. Few objects look more dismal than poorly grown specimens of *P. pinnatifida* or *P. Giraldiviana*; while *P. Watsoni* is a disreputable little imp.

Scattered over the moorland are many flowers, growing up through the tangle of Rhododendron; the sulphur-yellow *Meconopsis integrifolia*, though of short stature, is more conspicuous than most. The big, gay, globe-like flowers hang their heads, and keep the tips of their petals touching, so that you must pull the flower open in order to appreciate the delightful contrast between the egg-yellow anthers and the pale sulphur petals.

There still appears to be a certain amount of confusion attaching to the yellow poppies of far-western China, owing no doubt to the wide range of these plants, and their variation. For the present it is enough to say that there are two species in cultivation, *M. integrifolia* and *M. pseudointegrifolia*: which, though quite distinct, are often confused by nurserymen.¹ Another plant which pokes its head up through the thatch of dwarf *Rhododendron* is *Codonopsis tibetica*—an erect species in a large family of smelly twiners. Many grotesque plants repel us with their disgusting odour, even had we been attracted to their bizarre colouring; which perhaps disposes of the curious belief that flowers were placed on earth for our especial benefit; but the association of foul smell with beautiful flowers is rarer—unless our deficient fifth nerve is to blame. Anyhow *Codonopsis* is a fœtid family. But who can refrain from admiring the lavender bells of *C. tibetica* with their delicate crimson veining, which gives a queer bloodshot effect! And the erect species of the genus are at any rate less nauseating than the twiners.

Where, in the hollows of the moorland, larger bushes of *Rhododendron* or willow lurk in the wind's lee, many plants crouch under their shadow. Here grows that queer thing *Primula vincæflora*, one of the whimsical group of *Omphalogramma* Primulas; plants so odd that at least twice in their chequered career they have been regarded as no primrose. By the time *P. vincæflora* was discovered there was a disposition on the part of some botanists to regard them as aberrant Primulas; but since then, the late

¹ See Chapter XI and Plate.

Sir Isaac Bayly Balfour had been converted to the view, originally expressed by Professor Pax, that they belong to a distinct genus, which he called *Omphalogramma*. No matter, *Primula vincæflora* by any other name would look as sweet—a large violet of periwinkle blue, its chin thrust forward till the flower stands at an angle of 45° to the short scape. The capsule, however—a toothed urn, filled to the brim with the flat winged seeds which are packed in a spiral—stands erect ; and the seeds are shaken out as the resilient stem bends to the gusts.

These ' *Omphalogrammas* ' have been looked upon as plants of the mead ; at least they have been found there often enough to justify such a conclusion. But it seems all do not demand the moist conditions claimed for the first discovered species. Many occur on the moors, where they lurk under bushes, in peaty soil ; though it must be remembered that these moorland species, flowering as they do in early summer, are kept thoroughly drenched while ripening their seeds.

Their distribution tells us nothing, except that they are true Sino-Himalayan plants : *P. Elwesiana* from Sikkim and *P. violagrandsis* from Kansu mark their extreme limits ; while half a dozen species, from little blue *P. vincæflora*, and the gorgeous violet *P. Delavayi*, to the pestilent purple of *P. Franchetii*, occur in between. They are no plants for the ordinary person to play about with. Besides, they are not really beautiful, only suspiciously handsome, in a masculine manner.

CHAPTER XIII

IRIS MEADOW

Here in the country's heart
Where the grass is green
Life is the same sweet life
As it e'er hath been.

NORMAN GALE.

From Tali to Likiang by Hoching is six days' travel. Crossing a low range which separates the Tali basin from the Hoching valley, I spied a flake of gold on the white limestone cliff, and climbed to it, giddy with mingled hope and fear. It was *Primula bullata*, a rare 'woody' primrose, very like *P. Forrestii*, for which at first sight indeed I mistook it. But next day—it was March 29, and it snowed sulkily—we crossed the range and passed through a defile whose cliffs were carpeted with *P. Forrestii*. It filled the hollows, between the dark trunks of the pine trees, like pools of fragrant sunlight.

The resemblance between *P. bullata* and *P. Forrestii* is quite considerable, but the plants can nevertheless be distinguished on sight. *P. Forrestii* is a bigger plant in all its parts than *P. bullata*, and carries twice as many flowers on the truss. It is hairy all over—*P. bullata* is glabrous. The calyx and bracts are of a different shape, and are not mealy—at least not in the mature state; whereas in *P. bullata* they are envel-

oped in meal. The leaves are larger, with longer petioles and a more crenate margin ; and the meal on the under-surface is dead white, or silver. In *P. bullata*, on the other hand, the meal on the under-leaf surface, calyx, and bracts, is a pale greenish silver.

So much for an analysis of the parts ; yet when those parts are assembled, to an inexperienced eye the results match one another just as two motor cycles, to the inexperienced, match one another.

In habit *P. bullata* is intermediate between those forms which, like *P. Forrestii* and *P. redolens*, hoist the flowers well above the foliage ; and those which, like *P. pulvinata* and *P. Dubernardiana*, form cushions studded with flowers, cuddled by the leaves.

The distribution of the two is decisive. Nowhere do they overlap. *P. bullata* is much the rarer, and it does not, so far as I know, cross the 10,000-foot range which separates the Chienchuan and Hoching valleys. On the east flank of that range it is immediately replaced by *P. Forrestii*.

Each of the ten or twelve species of the ' Suffruticosa ' Primulas covers a small and well-defined area ; and the whole section is confined to a comparatively small corner of N.W. Yunnan. ¹

From Hoching we marched long hours to the city of Likiang ; and passing north, by the temple of the water dragon, to the head of the valley, there in the lime-walled gutters at the foot of the snow-peak was *P. Forrestii* again. Three days later, in the heart of the great Yangtze loop, we saw it for the last time.

¹ There is one woody-stemmed Primula—*P. suffrutescens* in N. America ; but except in that one particular, it bears scant resemblance to the Chinese plants.

Thenceforward it disappeared ; it is cribbed and confined in that narrow belt of country, from Hoching to the Yangtze loop.

It is a hard journey from Likiang through the loop to Yungning. The mountains here are knotted and tangled to an extraordinary degree. The path is never below 9,000 feet altitude save once, when, leaving the loop near the apex, we plunge down into the sultry gorge of the Yangtze. We cross pass after pass, 10,000 or 12,000 feet above sea level, as we dodge from one side of the loop to the other, closely invested by the coils of the river, which flows on three sides of us. The warped backbone, which zig-zags through the loop, throws off streams to either limb and is prolonged northwards beyond the river, till it becomes lost amongst the snowy ranges of the Marches. The great Yangtze loop is between 50 and 60 miles deep as the crow flies. In the upper half it varies in width from 8 to 12 miles ; but in the lower half it is as much as 20 miles across. The eastern south-flowing limb extends below the point where the river first changes direction to the north ; and altogether the loop adds nearly 200 miles to the length of the Yangtze.

At the head of the Likiang plain is the Yü-lung or Likiang range, its snowy peaks rising to about 21,000 feet. Leaving this on the left, we enter the mountains again, and cross in quick succession the 'white water' river and the 'black water' river, flowing eastwards from the snows. The 'white water' is milky with lime ; the 'black water' flows over black slaty rocks. The glacier from which rises the 'white water' has shrunk far back into its couloir like a

frightened snail and the lower valleys are now filled with meadow flowers ; here in early spring the mauve mops of *Primula sphaerocephala*, its flowers awash in a foam of white meal, are a feature of the brown lawns.

But the snowy range trends due north, and after marching along its base for two days, we diverge more to the right—and the snows quickly recede. The river cuts its way diagonally across the great range, flowing in a profound gorge.

Now come endless pine forests, and bogs, and meadows of flowers. The warm orange of *Primula Bulleyana* is a familiar sight by the roadside, and the meads in April are blue with *Rhododendron hippophæoides*.

The descent to the Yangtze is a hot and tiresome affair. Towards the bottom of the trench, with the mountains brooding over it, is situated the village of Fengkow ; and here on the paddy terraces I found a dark-eyed *Primula* of the 'Malacoides' type (K.W. 5044). It differs, however, from *P. malacoides* itself in several well-marked characters. In the first place the Fengkow plant has the leaves more orbicular, with margin less finely cut, and glabrous or nearly so, as against the downiness of *P. malacoides*. The corolla tube is twice as long, and striped with fine violet striæ, giving the appearance of a dark 'eye' ; and the calyx is narrower, with more pointed teeth. A fine plant of this new *Primula* was shown at the Chelsea show in 1923, under the plagiarism of *P. stricta*—which it is not ; and surprise was expressed that it did not receive an award of merit—an honour assuredly in store for it before long. Its real name is *P. effusa*.

It seems likely that this Fengkow plant (K.W.

5044) is identical with one of which I obtained seed only from the Sholo gorge in the previous year—K.W. 4252.

In the summer, when little rain falls in this arid rift, several striking flowers bloom on the honey-coloured rocks. Amongst them may be noted a lavender-violet Anemone, a small white-flowered trumpet lily with pubescent leaves, and an *Ipomœa* with rich violet flowers.

We crossed the Yangtze by ferry below Fengkow, where the river flows south, some few miles from the apex of the loop. Already I had visited the western limb where the river flows north at Ta-ku and found the slopes here well clothed with shrubs. Just by Ta-ku the Yangtze rolls out of its corridor through the lofty Yü-lung range. There is a wide plain here open to the south—that is in the direction of Likiang, protected on both flanks by impassable cliffs, and in front by the river. The plain is really a big river terrace ; the Yangtze once took a wide sweep round this mountain bay, and the terrace, which is partly cultivated covers about a square mile. At its apex are three large villages, including four or five hundred houses.

It is a sad reflection on the sagacity of their leaders that the Chinese troops who have been trying to retake their lost city of Chungtien (or at least say they have) should never have considered the strategic possibilities of Ta-ku. No soldier conducting operations against the Marches could afford to overlook it. With Ta-ku and Yungning in their hands, the Chinese might do a lot. It is unlikely that they ever will.

After crossing the Yangtze by ferry boat at Feng-kow, we climbed Wa-ha and, crossing a wooded pass at 12,000 feet, dropped into the Yungning basin.

In July, the forest bogs, where the streams rise, are aggressive with crimson patches of *Primula Poissonii*; and like islands in a bloody sea, grow a few plants with dull maroon flowers and narrower yellow 'eye,' but otherwise similar. The flowers of these 'rogues' are larger than in *P. Poissonii* and the two are often associated—a lake of shining crimson, flecked with maroon. Is this a variety of *P. Poissonii*, or a distinct species? It is a species—*P. anisodora*. Though growing in company, in the wet meads under the bushes, or in the forest, one could not help noticing that whereas *P. anisodora* ventured into the open sometimes, *P. Poissonii* true never did.

The number and variety of Primulas in this country is astonishing, and I have collected nearly a hundred species between the Irrawaddy and the Yalung.

Diverging north-eastwards from Likiang, into the drier country of the Marches, woody plants decrease while herbaceous alpine, notably Primula, increase in number and variety. Conversely, west of the Yangtze, where the rainfall is heavier and more persistent, woody plants, especially Rhododendron, increase, while Primula decreases.

The country between Yungning and Muli I have already described. It is to those vast moorlands beyond the Litang River that we must now transport ourselves.

In the wooded country of Kong I met with one of the early flowering 'Sphærocephala' Primulas, *P. polyphylla* (K.W. 5154). It lined the path through

the forest, and filled the margins of the meadow. Though nearly over—this was at the end of May—there were lingering flowers of grey-mauve with yellow 'eye,' distilling a sweet fragrance in the warm lazy air. The 'Sphærocephala' Primulas—or, as they are generally called, 'Capitatas'—are amongst the mealiest of all, and this one was no exception, the closely packed tubular flowers forming a globular head enveloped in snow-white powder. *P. polyphylla* is rather widely scattered in western Yunnan. But the most gorgeous Primula met with in this district of Kong was *P. werringtonensis* (K.W. 5166). The flowers are a glib crimson with plenty of punch in them; they flamed and raved in the wooded limestone ditches in early June.

In forest glades where the soil is damp, the fierce orange yellow of *P. chungensis* pulls you up. The colour is first class, but the small, rather squinny flowers, though borne in abundant whorls, detract from the plant's value. It is a near relation of *P. Cockburniana*; and as all the world knows, *P. Cockburniana* is a valuable mate for the malignant group of purple-flowered 'Candelabras' such as *P. Beesiana* or *P. pulverulenta*. There being no cause or just impediment why these two should not be joined together in holy matrimony, the marriage is often consummated. Beautiful offspring result.¹

It was with a shock of surprise that I found in the hot gorge of the Litang River itself a small 'Malvacea' Primula whose wee flowers were carmine, or

¹ Primulas belonging to different sections mate with difficulty, or not at all. The rule is, species with species of the same or a closely allied section. The same remark applies to hybrid Rhododendrons.



ALPINE MEADOW, WITH RHEUM ALEXANDRAE.

rose, with dusky crimson eye (K.W. 4351). Though but a lanky weed, growing in bad company entangled with the rude grass and scrub which clothe the slaty cliffs of the gorge, it is nevertheless a true *Primula* of the 'Malvacea' type, with the large leafy calyx and globese parchment-like capsule of the breed. Its name is *P. atrotubata*.

Nor was it the only strange prize which the river gorge hid. *Rhabdothamnopsis sinensis*, a tufted plant with small claim to a place in this country and by no means despicable creamy flowers, grew on the cliff. The two valves of the long slender pod-like capsule twist themselves suddenly into tight spirals as the fruit dries, spraying out the seed dust.

From across the Litang River one had a solemn view of the mile-high Muli cliff, with the now pigmy monastery nestling at its foot, and the steep green lawns below. Here earth's skeleton pierces the flesh which year by year sloughs off in soft gobbets, leaving a mass of bent ribs and broken vertebræ—the smashed frame of the tortured leviathan—to bleach in the sunshine.

Between the Litang River and the Gold River, called Yalung, is the Rhododendron moorland, the 'Lapponicum Sea.' There are also meadows in the forest below ; meadows of summer flowers, wistful or proud, strident sometimes ; all the yellows in the paint box—amber and gold and chrome, lemon and gamboge, cadmium even ; all the reds too—coral, cherry, and vinous, rarely scarlet ; some of the many blues, such as turquoise and forget-me-not.

In the meadow are Irises and Primulas, and shrill coloured louseworts, and golden Trollius and nodding

yellow lilies ; an ' *Omphalogramma* ' *Primula* looked exciting ; but it was in fruit, and I know nothing about it to this day, save that it is not *P. vinceflora*. Nor was it common : a plant here and a plant there, widely scattered in the meadow. Its seed is numbered K.W. 4445, and has germinated well. In the meadow valleys, the streams are lined with bushes of *Hippophaë*, under whose shade grow clumps of June *Iris*. The narrow perianth lobes of this species are white flushed with slate purple, the ribbon-like falls confusedly veined with plum purple. It formed compact clumps 2 to 3 feet high at 12,000 feet altitude (K.W. 4433). Here and there in marshy ground are patches of citron *Iris Wilsoni*, the falls veined with black (K.W. 4101).

A much better species is little *I. chrysographes* with flowers of an indescribable stained-glass hue, the colour of claret cup with the texture of satin. The standards are really plum purple, the falls almost black ; and these blend exquisitely. It also grows in the moister meadows (K.W. 4025).

The commonest *Iris* of all, however, was a plain dark violet-coloured species, which sheeted every high alp on the fringes of the forest. Thus *Iris Meadow*, where the shallow ice-worn valley opened out at the top of the defile, got its name.

The steep defile itself was filled with trees, birch and oak and willow and fir, and bushes of *Rhododendron*—especially *Rhododendron*. The blushing flowers of *Rh. Souliei* (K.W. 5145) formed gouts of rose pink against the ribbons of green lichen which fluttered from the trees, and the close-knit bamboo. Here and there the rust-red leaves of purple-flowered *Rh.*

brevistylum twitched in the draught ; and high on the white cliffs, the bottle-green foliage of *Rh. impeditum* (K.W. 5147), gaudy with claret-coloured flowers, shone like polished stone.

Then the slope became more gentle, the cliffs came to an end, and there was the wide wet valley shelving up to the moorland, with pools of vivid colour, splashed on the green, where the Irises grew. That henceforth was Iris meadow ; the other flowers hardly counted that day—not even the tall lilac-flowered ‘ Muscarioid ’ *Primula tsarongensis* (K.W. 4436) which grew under the willows in the ravine below, or the purple ‘ Nivalis ’ Primulas, and yellow poppies, and crimson *Incarvilleas* in the pastures ; nor all the flying foam of the ruined Rhododendrons.

Irises are amongst the most beautiful of all flowers, so long as they remain—Irises. Breeders have done a great service in improving them, and raising new and gorgeous colours ; and the Iris has responded to the wiles of the cultivator, as few plants have done. But for goodness sake let them be themselves—Irises, the truth, the whole truth, and nothing but the truth ; Irises, with three falls and three standards, unmistakable, not monsters. A field of Iris, a tossing violet sea, ruffled and streaked with jade green under the lash of the wind, is a brave sight. So too is a meadow mottled with clumps of yellow flag Iris. The more reason why we do not wish them to be changed in spirit ; though their external trappings may be what you will. Like the sweet-pea, when doubled, they cease to be themselves. All the charm is gone, and in place of a very dainty flower—a rag-bag.

In the high valleys stand the last shanties of the

cowherds, snuggling down at the foot of the mountain, two and three together. Their simple, kindly owners come and go with their flocks across the brilliant meadow. Here and there a small patch is fenced off and cultivated. Long cloaks and circular hair hats protect these hardy Hsifan from the inclement weather ; they are wonderful hats, with low crown, and a wide brim bearded with yak hair, from which indeed the whole outfit is made.

There are many Szecheny's pheasant-grouse (*Tetrao-phasis szechenyii*) on the moors. This bird goes about in coveys, which scatter and run, up hill, though not fast, on the approach of danger. When frightened, however, the birds take to flight, screaming noisily, with a characteristic harsh cry. In April, when snow lies on the ground, they are to be found in the upper Rhododendron forest at 12,000–13,000 feet, sluggish and unafraid. At this season they feed on caterpillars. In the summer, however, they ascend to the open Rhododendron moorland, above the timber line ; and indeed I have seen a cock stand up on a rock, close to my tent, squawking lustily at his family on the carpet. The colouring of these birds is rather sombre, male and female being identical. Feet and beak are black ; breast slate grey, spotted black, the feathers tipped with buff ; back and wings slaty brown, the upper tail coverts tipped with buff, or white ; tail grey, the lateral feathers black, tipped with white, the under feathers sienna, also tipped with white ; rump silvery grey. The only bright colouring is afforded by the scarlet patch round the eye, and the buff throat.

I was able to secure half a dozen specimens of this bird, stalked by my amateur *shikari* ; and good eating

they proved. Though by no means large, a male weighed three pounds !

The only other game bird I secured in this country was an eared pheasant (*Crossoptilon tibetanum*). This magnificent bird goes about in coveys in the highest timber belt, being found even as early as May at 13,000—14,000 feet. The face and legs are crimson-scarlet, beak rose, long tail feathers dark iridescent green, or metallic purple-black ; remainder snowy or creamy white, the feathers very coarse and fluffy in the breeding season. My bird—a male—weighed six pounds, but was not good eating—probably because it was not hung long enough.

Other birds I glimpsed or heard, but did not secure. Besides game birds there are deer. The King of Muli had a tame deer as big as a pony, which marched in the procession, stiffly, like a pantomime beast. This is the *ma-lu* of the Chinese.

On Wa-ha, a small fallow-deer, called ch'i-tzu by the Chinese, is common, and is occasionally hunted by the natives. The meat is excellent.

CHAPTER XIV

HARVEST

The autumn leaves are strewn along the way,
Brown and red,
Red and brown :
Fast and faster they are falling every day—
Gliding down, floating down,
Till the pale, sad air around
Seems alive with mystic sound :
Spirit forms are fluttering round,
Sighing aye—
“ Well-a-day ! ”

W. M. WARD.

It is obvious that in order to collect seed of a plant which appears worthy of introduction, the collector—or one of his accredited representatives—must be on the spot in autumn or early winter. Thus only a limited area can be covered during the season, since the ground has to be gone over at least twice.

But first catch your hare. Having found a good plant, you can always return and harvest seed. Hence there are two phases of the work to be considered : plant hunting, and seed collecting. Only years of experience in a region such as Western China justify the collector harvesting seed of plants he has not seen in flower, but even so he cannot be certain he is not collecting rubbish. Moreover, although after a lengthy apprenticeship he may have a shrewd idea as to whether

a flower is new or not, he would be a bold man who would venture to assert he had got seed of something original without first seeing the flower. He may know sufficient to recognize the capsule and foliage of a *Primula* when he sees one, for all the fifty or so types into which the 500 species might be grouped ; to recognize the beaked capsule of a *Meconopsis* with its lidded ports ; the very characteristic capsule of a *Rhododendron*, for all its limitless variety ; the urn-like capsules of gentian, or the club-shaped capsules of *Iris*. But many *Primula* or *Rhododendron* or *Mecconopsis* capsules are not dissimilar, and unless he has made a keen study of the genus, the most hardened collector is likely to go astray. The mastery of *Rhododendron* alone has now been elevated to an all-time job ; so that with no more than three or four favourite starters in hand, the harvester who collects seed ' blind ' is likely to have a hard time of it. Yet there is much to be said for a journey across unexplored mountain ranges in winter, grabbing seed of anything which tickles the collector's fancy.

The question of what to collect is briefly discussed in the final chapter. Here we are concerned only with the routine work, the potted yearning, the hopes and fears, and the fun of harvest. It is the culmination of the season's work ; and into it is compressed all the hope of immortality, the fear of failure. At the beginning, any day might bring to light some supremely lovely thing, some unique flower. But as the spring waned into summer, and summer mellowed to autumn, the chance of a wonderful find grew more and more remote, till at last winter breathed over the mountains and everything was congealed. Then came

qualms. Are there any plants worth bringing home, or are they all 'kag'? Will the seeds germinate? Will the plants be admired, or sneered at, or worst fate of all, ignored? Or will they be received with howls of acclamation, which, as the years pass and the plants fail, dies down to a timid whisper? Will they be thrown on the ash heap and burnt at the stake, or will they receive a F.C.C. at the Chelsea show and be stared at by thousands who never give a thought to the odyssey of those few pregnant words, 'New Alpines from Tibet'?

Feverishly you scan your field books for some hint of a good thing; your specimens, for a mummy of past glory. How dull and commonplace everything looks now! That *Primula* you admired so much—is there not an odious flush of magenta in it after all? That *Rhododendron*—is it not sallow and wan? And the fragrance of that lily—surely it is too elusive for the blunt senses of mankind? (a setter might remark it!). But the despondent mood passes and in due course you set to work to harvest your seeds.

It may be remarked, however, that though there is a season set apart for harvest, yet there are always seeds; just as, in the ups and downs of the collector's life, there are always flowers.

When first you come to the alps in spring, there are still last year's seeds lurking in the capsules; some species of *Primula* and *Iris* are sad laggards to scatter those seeds, which lie deep-sunk in the capsule. And when you last leave the alps, under snow, in November, there are still gentians, gleaming on the sun-soaked rocks.

Then again some of the early *Primulas* and other

flowers set seed in the summer, though the earliest of all alpine flowering plants—namely *Rhododendrons*—are amongst the last to ripen their seeds.

Thus a hemisphere of flower constellations follow each other across the face of the year, and set ; and darkness comes for a space. And at the beginning are many flowers, but few seeds ; and as the flowers wane, the seeds wax.

As regards seeds, there are two things to remember ; they must be quite ripe, and quite dry. To dry them in a hot sun is often fatal, especially with small seeds ; they must be dried in a breeze in the shade.

A great deal might be written about seeds ; a great deal has in fact been written about them. But from the collector's point of view—and he comes into contact with all sorts and conditions of seeds—not so much has been said. Experience teaches him many things which he would never have guessed for himself, or even discovered in the garden. How, for instance, some seeds ripen on the ground after being washed out of the capsule while still green ; how an unripe capsule may, and often does, contain ripe seeds. This is important because in the first place time may be saved by picking the capsules and drying them artificially, when they will open and disgorge their ripe seeds ; and in the second place it is a convenient way of collecting and drying the seeds themselves, of recognizing them on sight and avoiding confusion. Some seeds appear to retain their power of germination for years, while others, less robust, perish if not sown almost immediately. More important still for the collector is the terrific destruction of seeds in their seed vessels, by the larvæ of insects. Few plants are

•

safe. As a genus, it is likely that *Rhododendron* is more immune than most from this toll; but even the hard capsules of *Rhododendron*, with their dry and repellent seeds, supply food to hungry grubs. Thus it was difficult to find a capsule of *Rh. sino-grande*, in the Salween valley, which had not been broken into and glutted.

Some years ago experiments were performed to show that seeds immersed in an atmosphere containing a larger proportion of carbon dioxide retained their germinating power for a longer period than those not so treated. The results perhaps were not very conclusive, but it was clear there was something in the idea.

The method has been applied to seeds sent home from China, in the following way. A Sparklet siphon is employed to generate the carbon dioxide, which is forced into the bottle in the usual way, except that there is only air in the bottle, not water. The seeds are packed in small envelopes and placed in a deep and narrow tin with a well fitting lid. (A Kodak film tin is as useful as anything.) The compressed air and CO_2 from the siphon is then allowed to flow gently into the tin and the lid is soldered on. An atmosphere containing a slightly higher percentage of CO_2 is thereby obtained, and in this the seeds travel home.

Careful experiments would be required in order to ~~ascertain~~ at the relative merits of this bath and of an ordinary air diet for seeds. CO_2 is an inert gas, and may inhibit that minute activity which goes on in the seed, maintaining its vitality at a high pitch and retarding exhaustion. Or, since a seed, like any live plant,

or animal, breathes in oxygen and gives out CO_2 , an atmosphere of its own waste products no doubt renders it comatose. A seed is like a clock. It is wound up to go for a certain length of time. By judicious braking might we not keep it going for a longer period ?

My own experiments are far from conclusive, largely owing to the difficulty of control at home. It would require half the seed being sent home in everyday air and half in treated air : the seeds to be sown under exactly the same conditions in each case. It might then be possible to compare the two.

In 1921 I sent home several dozen species of seeds packed in CO_2 . They all germinated on sight, and here I thought was unshakable testimony to the virtues of CO_2 as a retarding agent. But as all the untreated seeds I sent home likewise germinated well, if not with such stunning haste, the experiment was inconclusive. Still, it is quite possible there are cryptic virtues in the carbon dioxide bath, and I am far from decrying it.

Besides seeds, it is of course permissible to send home bulbs, cuttings, and even entire plants ; though if the latter have to be sent through the tropics, there is not much hope, except in the case of orchids collected during the resting stage. Bulbs are best packed in sand, heavy though it is.

Of course if the journey home does not involve the passage of the tropics, the collector's difficulties are halved : but since the fall of Constantinople in 1453, and the consequent closing of the high roads through Asia, it is puzzling how to send stuff home from western China except by sea.

The difficulty was of course temporarily solved by the Trans-Siberian Railway ; but that functions no longer, or, if it does, is inaccessible. The Pacific route from Shanghai is available for northern China, but for the most prolific areas, the Indian Ocean is the natural outlet. Robert Fortune, one of the most famous plant collectors of all time, sent hundreds of plants from the China coast to India alive, in Wardian cases. Sometimes he sowed the seeds, and they germinated en route. And that was seventy years ago, when ocean travel was less certain and rapid than it is now !

One may reckon on letters taking two months from western Yunnan to England ; so that seeds must be in first-class condition to stand it. But obviously the collector is often two or three weeks' journey from the nearest post office to begin with ; and in these days acceptance by the Yunnan posts is not gilt-edged security for ultimate delivery.

Having once seen a plant in flower, the collector should be able to recognize the same plant six months later in seed, even though it is in another place ; and such knowledge greatly reduces his labour. Few plants are really rare, though many are local. In the miles of ground the collector covers in the course of a season, he is bound to meet with the same species over and over again. Even if it is local, he is likely to come across it in flower in one place, in fruit in another place, so that it is seldom necessary to mark down the exact spot where a species grows. He returns to his summer camp and collects from the same ranges as before. If, however, he requires the best form of a variable species—as he does—he must

mark it down, since in fruit it will probably resemble inferior forms.

In September the collector definitely turns the corner ; henceforth flowers are fewer each week, berries are blushing, capsules are drying, pepos are fattening, legumes are bulging, leaves are wilting. By October the bushes are robed in splendid livery and beaded with coral red berries. Seeds are being scattered—plumed seeds which float away dreamily into the air on some bold voyage into unknown places ; winged seeds which slant weakly to the ground like fledglings : hard, plain seeds, which are jerked out of their capsules and fall unenterprisingly round the parent plant ; dull seeds which do nothing for themselves but whose fine houses, being eaten over their heads by birds, claim the insurance money and are straightway planted far and wide.

The first deliberate seed-snatching trip is a joy. Early in September we move out of our base in the village armed with many bags, and tins, much newspaper, and multitudinous envelopes. There are autumn-flowering Clematis in the hedges—the tottering straw-coloured thimbles of *C. nutans* loll negligently and *Codonopsis convolvulacea* looks on with baleful eye ; the stunning blue of *Delphinium yunnanense* shouts at you from the sun-baked gravel banks, and is answered by the squeaky green of Sophora over the way. There are freckled Saxifrages on the shadowy banks, and the pale trembling bells of *Lep-^{is}* tocodon, one of the most graceful and delicate of the twining Campanulaceæ, though a fusty fellow. A beautiful early autumn gem is *Primula cernua* (K.W. 4484), whose powdered saxe-blue flowers sweeten the

air. It grows amongst the oak scrub, or in open pine woods, in the scorched valleys, where the soil is gritty and crisp—sand almost.

The gentians are beginning to preen themselves. Those who know the Alps—the Alps of Hannibal, Napoleon, and others—will remember June as the month of gentians ; in the more recently discovered Chinese alps, they prefer the fine September weather, when *G. sino-ornata*, *G. heptaphylla*, and *G. Farreri*, to mention a few, take the field. On the limestone cliffs the rather murky purple of another gentian is met with round about 10,000 feet ; it basks on the ledges facing south, drinking in every beam of sunshine. But not much sunshine comes its way, slinking through the trees, and its brow is dark as though missing the jubilant China blue of its luckier comrades.

With eager step we ascend the woodland paths through pine and oak and fir, to the fringes of larch and *Rhododendron Traillianum*, and so to the alpine pastures ; and pitch our camp at the foot of the scree. The weather has set fair. Instead of a shapeless fluid sky, a field of blue lawn, mottled with hard white shocks of cloud. The gilded valley, printed with a pattern of peaks at dawn, is drenched with dew ; and at sunset the sky is striped like a spectrum. Up, up the valley we climb, past the meadow where the tall swamp Primulas clustered, past the stony bank where the Cremanthodiums curtsied to us as we greeted them, and the red pokers of *Polygonum Griffithi* smouldered ; and so to the wind-swept pass, strewn with the gravid corpses of *Meconopsis*, *Primula*, *Pedicularis*, *Lilium*, *Phlomis*, *Incarvillea*, and many another. On the lee slope we find ourselves tripping over a

taut network of *Rhododendron*, through the meshes of which peep up more flowers—*Codonopsis*, *Lloydia*, *Aster*, and *Morina*, to mention a few.

Higher yet we reach the lake, occupying a rock basin where the valley turns at right-angles ; evidently scooped by the ice as it swung round. Its basin is half silted up, and in the wet sand sprawl species of *Leguminosæ*, *Saxifraga*, and *Cochlearia*. Then to the rubble scree, which, despite its forbidding aspect, is decorated with quite a number of plants, *Draba*, *Primula*, *Silene*, *Cyananthus*, and dwarf *Meconopsis*.

Most of the meadow *Primulas* are ripe ; their capsules are opening at the seams, and we pluck them as we pass. The *Iris* capsules gape ; the poppywort cones have lifted the lids of their ports, and we return to camp laden with bundles of dead plants, which are laid out on sheets of paper and set round the tents to shed their seeds.

A few days of fine weather and then the rainy season winds up in a blaze of thunder storms. How the wind yells through these high treeless valleys ! The rain comes down in sluices, and forms rivulets which purr down the links. At night I lie awake listening to the slam of the thunder as my tent is lit up by incandescent flashes ; and fall asleep with the drone of the rain on the canvas, as the storm goes stumbling and echoing through the mountains.

Dawn comes. The world is very still, as though shocked at the rage and destruction it has witnessed. But next morning the peaks are capped with fresh snow.

Presently we shift our camp to the next valley, hiring yak transport from a neighbouring herder.

What slow brutes they are!—will they never reach the pass? At 15,000 feet it is already winter. There are no new flowers, except a dwarf rather colourless monkshood, blue-lipped with the cold, and on sunny lawns the glorious trumpet gentian (*G. sino-ornata*, K.W. 4859) which opens its blue eyes in fine weather, and languidly closes them at the first sign of atmospheric trouble. It cares not. Indifferent to rain and snow and screeching wind, which rage overhead and even bury it, it shuts up like an oyster. When the storm has passed it peeps out, and if satisfied, opens its eyes again. In a flash the drab lawns are sparkling with blue, as though the dome of heaven itself had cracked and rained splinters on the grass.

Some of these late alpines undoubtedly ripen their seeds under a mantle of snow, if need be. I have collected ripe seed of this gentian which has lain buried for days; though it is questionable whether flowers which are caught early ever set seed, at least while actually under snow.

Nevertheless early snow is a tragedy to the collector. It buries the high alpines whose seeds are already ripe, and prevents the late autumn flowers from setting seed at all. Apart from the agony of seed collecting under such conditions, soft snow hampers movement. It is in any case hopeless to search for small plants buried under a fall; and by the time it is melted again, the seeds are often scattered.

— Queer to relate, we find some of the early Rhododendrons blooming a second time, as though spring had come round again. There are scattered flowers on several of the 'Lapponicums'—notably *Rh. hippophæoides*, on 'silver rose,' and on the dainty 'Cepha-

lanthum' 'snowy dwarf' (*Rh. cephalanthoides*). This is not uncommon. I have seen the same thing on the North-east Frontier of Burma, in October, when the alpine species, or some of them, tend to flower again in the fine weather, before the snow finally engulfs them. At Muli, a form of *Rh. yunnanense* flowered freely in September, and was a particularly gorgeous sight, the trusses of pinky mauve flowers glimmering faintly against a background of ruddy orange foliage. Then there are *Rh. tapeinum*, a yellow-flowered epiphytic member of the 'Sulfureum' group, which on the Burma frontier flowers as freely in October as it does in May; and finally the fragrant white-flowered epiphyte *Rh. dendricola* (K.W. 5501) from the same region, whose flowering season is November–April.

Clearly associated with this is the case of those species which flower for a second time within a few months of the first flowering period—though whether it is the same *individuals* of the species which flower a second time, I am by no means certain. The blood-red blooms of *Rh. facetum* ('Irroratum'), for example, are to be seen in the rain forests of Burma as early as April, probably even in March, and as late as August; and in Yunnan I have come across a bog full of 'Lapponicums'—*Rh. hippophæoides* itself, or a close ally—in full bloom in April and beginning to open scattered flowers again in July.

This last suggested that the plant had changed its rhythm to keep pace with the change of climate, and had not yet quite settled into the new rhythm. That the climate of western Yunnan has changed is amply demonstrated by the prolonged retreat of the glaciers.

On the limestone scarps, which have long since yielded up all the water they ever retained, the plants are bearing ripe seed. These are mostly tufted plants, which bulge from joints and cracks and crannies of the cliff. They form tight shocks, or puff themselves up into frilly spheres, or hang in bunches or ravelled tresses from the rock pockets. Generally the flowers hang head downwards, often out of reach ; and oh ! the anguish of the collector when he comes on an orb of tempestuous colour, quivering high above his head on a sheer rock wall ! Recourse to field glasses only serves to whet his appetite and rouse his desire.

It is interesting to note of these tufted plants that pendent flowers generally develop upright capsules, by a twist of the flower stem.

Belonging to the above category are the yellow-flowered *Potentilla peduncularis*, *Isopyrum grandiflorum*, *Campanula calcicola*, species of Solms-Laubachia, and others ; we may also include some species of Primula and many Saxifrages. They are perennials, whose thick roots worm their way deep into the heart of the rock, contracting or expanding as space permits ; so that at their exit from some crevice they often look ridiculously inadequate to shoulder the fat bunch of foliage which springs from it. But their habit is a good one for conserving the elusive water which quickly runs off the granite cliffs, and through the limestone. Their bulk stops it, their questing roots suck up the last drop. Also they are very floriferous, and what is more important, they set good seed. A single plant of a tufted Solms-Laubachia yielded 135 sound capsules. *Isopyrum grandiflorum* always pro-

duces healthy capsules, but scatters the hard granular seeds so quickly that unless you are on the spot before the wiry stems dry, you lose three-quarters of it. The latter grows on both limestone and granite—if indeed they are the same species, which there seems no reason to doubt.

These plants are safe as regards seed production; others are not. There were, for example, *Campanula calcicola*, perhaps the most beautiful rock plant I discovered, and *Primula rupicola*. Both grow on the sunny side of the cliff, and it is no exaggeration to say that they are simply scorched to death in the sunshine. The *Campanula* flowers in August, so that it is ripening its seeds when the rains normally cease. The autumn sun smites on the bare white rock, and the capsules shrivel up. Thus it is sometimes difficult to collect seed of a species.

Some plants are as prodigal as others are niggardly. Many species of *Primula* and *Meconopsis* and most species of *Rhododendron* produce hosts of seeds; so that even if the plant is rare—which is not often the case—the collector has no difficulty in getting as much seed as he wants.

As to how much seed he sends home, the collector will be guided by circumstances, and also by reason; always remembering that his seed will be distributed as widely as possible. In the case of a small plant, say a *Primula*, it is legitimate to send home a larger quantity than in the case of a bush or tree, such as a *Rhododendron*. It is a sheer waste of time to send home pounds of *Rhododendron* seed, because no one will raise more than a very small quantity of it. If the seed is going to germinate at all, it will germinate

from an ounce or two ; and it is astonishing how far an ounce of fine clean seed will go.

The important thing is to have good seed, and to be sure that it is quite ripe, and quite dry. After that the seed can look after itself. For this reason the collector need not feel despondent because he has been able to gather only a very small quantity of seed of some of his best plants. A single seed may germinate, establish the species in its new home, and be the parent of innumerable offspring ; but there is no reason why, if proper care is taken, 75-90 per cent. of the seeds should not germinate, and a single truss of *Rhododendron* flower may yield thousands of seeds. In the case of specially desirable forms of a species, the collector will, of course, mark them, in order to distinguish them in fruit from inferior forms. But where there is no form of exceptional merit, he will be wise to collect his seed from as many separate individuals as possible.

The distribution of his seeds probably lies outside the collector's volition, but if he has any voice in the matter, he should try and get them distributed amongst responsible growers in every part of the British Isles. The climate and soil of Great Britain are extraordinarily variable, and there can be few plants with any pretensions to hardiness which will not find a congenial nook somewhere.

In any case our great botanic gardens should have first claim ; they have resources, and accumulated knowledge, far in excess of any private person, and their skilled men are in the first flight. Moreover, Kew, Edinburgh, Glasnevin and Cambridge fairly epitomize widely different climatic conditions.

The collector will find during harvest operations that he has a serious enemy, one who must invariably forestall him. I refer to the whole abominable race of insects, including moths, beetles, flies, bugs, ichneumons, wasps, and anything else with six legs and no principles. These greedy Arthropods, in the larva state, are the greatest devourers of seeds in the universe. They cause an incredible amount of destruction of potential life.

As a rule those plants which produce seeds in reckless profusion are the worst sufferers—though *Rhododendron* is an honourable exception. The 'Aculeatæ' section of *Meconopsis* fares badly. *Primula* furnishes food for famished grubs. Peckish larvæ develop inside the flower heads of *Cremanthodium*, and show their gratitude by eating the seeds. Even the *Rhododendrons* are not altogether immune. The sad case of *Rh. sino-grande* I have alluded to. *Rh. sino-Nuttalli* is eaten wholesale, by some strong warrior with a digestion, and *Rh. aperanthum*, even in the Alpine zone, cannot escape the attentions of a hungry brute.

A curious example came under my notice in the case of a species of *Caragana*. When the pods had released the hard round seeds, which are like small shot, we noticed a crackling noise, an odd crepitation, proceeding apparently from one of the many sheets of drying seeds.

Presently Yang-kin came to me in great excitement.

"Sir, the seeds are alive, they are hopping about of their own accord."

I went. I looked. I laughed. As Yang-kin had reported, the *Caragana* seeds were dancing on the

paper with a rat-tat-tat like hailstones hopping on the pavement ; and on breaking open one I found that it was but a shell, inhabited by a grub who, alarmed at the crooked turn of events, expressed his disappointment by dancing with rage. He was in fact being slowly dessicated.

In this case the grub was inside the seed ; usually he contents himself with the shelter afforded by the seed vessel, and eats the seeds from outside. The parent of grubs lays an egg in the flower bud, or if she is particularly maternal, inserts it right inside the ovary by means of a bayonet-like proboscis ; the egg ripens into a little caterpillar as the ovules are ripening into seeds. Then the seeds begin to disappear, one by one, the caterpillar taking their place ; till at last there are no more seeds, and the smiling caterpillar fills the ovary. It is possible of course that there is a definite understanding between the plant and the insect ; that in return for food during existence on the lower plane, the insect on a higher plane attends to the pollination of the flower.

But if insects are a plague to seeds in western China, they are a positive menace to them in the Irrawaddy jungles. There no seed or fruit is safe. They strew the ground, and armies of grubs rise up and devour them even as they germinate. They remain on the trees—and the insects find them there too. There is no escape. A constant and bitter war for existence is waged between insects and plants, therefore ; we hear much of the friendly relations existing between insects and flowers, but little of this murderous strife between their hopeful offspring.

By far the worst enemy of the plant collector,

however, is snow ; and snow came at Muli, in 1921, before the end of September. It is poor fun gathering seeds with frozen fingers in a snow-storm ; but it is impossible to gather them after a snow-storm, because they are simply buried out of sight.

The cold at high altitudes is very severe, and in a few days the snow is converted to a hard fine powder, which the wind picks up and drives before it like a mist ; but it is a mist with a barbed sting in it. Sometimes it is swept up in such blinding clouds that one is forced to seek shelter.

We were marooned two days in our valley after the first heavy snow-storm, for it was impossible to cross the pass till some of the snow had melted, and the transport could not reach us. When at last it struggled over to our rescue, we had a hard time getting back to our first valley.

Had we been wise we would have returned to Muli ; unfortunately the weather looked so fine that we stayed another day, and then came the snow again.

For three days and nights it snowed ceaselessly. The men could not reach the encampment down the valley, where the animals were, and it was almost impossible to leave the tents, and useless did we do so.

As for me, there being no stove in my tent, it was wretchedly cold ; but by means of a sheepskin coat, Gilgit boots, and two pairs of socks, I survived, though I grew thoroughly bored and rusty. Yet the prospect outside was not inviting. In the evenings I managed a charcoal fire in an iron cooking-pot, without suffocation.

At last we got a message sent out, and next day,

through the whirling snow loomed the plodding yak, lurching forward with the assurance and inevitableness of a snow plough.

Coming up to the mountains in early spring one is full of suppressed excitement at the prospect of this strange new life and all the new and beautiful things it may hold in store. But when, eight months later, the last packet of seeds is made up, sealed, and directed, the last box packed, the last good-bye said with ceremonious bowings and scrapings and scratchings and protrusion of tongues, and the mules are standing by ready to be loaded, with what joy does one look forward to the return journey !

Back to civilization ! Magic thought ! There is only one civilization in the world—your own !

It is mid-November. The high ranges which bar the way to the plains are snow-bound. No matter—we will go forward. The weather is perfect, and the days of vast sunshine make up for the bitter frosts at night. Then the plum-purple sky is riddled with stars, and the full moon rises up behind the jagged crest like a golden lamp. The minatory shadow of the forest, black and cruel, lies athwart the glittering snow, and every spike and tower and butte stands livid in the fierce illumination.

There comes a day in the life of every Tibetan traveller when he stands on the crest of the last range, and gazes across the foot hills to the plains below. It is evening. The sun is wallowing in a lake of gilded mist, and fiery tongues are licking up the last wads of cloud. Behind him rise in awful and paralysing grandeur the most desperate mountains in the world. Below him rise spirals of blue smoke from

the hearths of men ; and as he looks, and dusk slinks down the sky, he sees as it were men and the children of men, and families gathered into villages, and villages into towns, and towns into cities ; and hears the dull roar of transport and industry, as man tries to inhabit the whole earth. But behind the mountains lies the garden of God.

CHAPTER XV

THE DREAM OF A PLANT COLLECTOR

A glamour of dawn on the slopes of the lawn,
A magic that wavers and lingers—
What shadowy pass has enchanted the grass,
The touch of what mystical fingers ?
Oh ! whence are these gleams of fantastical dreams,
This whiff of the Forest of Arden ?
The foliage responds to the waving of wands—
For there is a child in the garden !

UNKNOWN AUTHOR.

The Plant Collector—though he may not realize it—is a public servant. He may work for a firm, or for a syndicate, or for himself ; but ultimately he is working for the public, and he must never forget it. If he is going to introduce new plants into this country he has got to remember that he must collect only the *best*. On him, partly, will depend the appearance of our flower shows, and hence of our gardens, for the next generation. Further, it is within his power to bring joy into the lives of many who have no gardens of their own, by the introduction of *one* plant only of universal appeal.

Therefore his aim must be to introduce as many first-class hardy plants as possible.

But what is a first-class hardy plant ? Evidently the personal factor enters here ; the most outstanding attribute of a flowering plant, namely colour, being

largely a matter of taste, it is impossible to define exactly what is a first-class plant. However, if we allow mature judgment to guide the profane in matters of art, so educated taste can legislate to some extent in matters of colour. Thus it is possible to indicate in a general way what is meant by a first-class hardy plant.

In the first place it must be *hardy*. It must have a constitution, and be able to adapt itself to the changes and chances of this fatal climate. That is not to say that it must survive every specimen season we can hand out to it ; no plant could perhaps. But at least it must not perish by the wayside without a struggle. A mere wet June, a Saharan summer, a frosty May, or semi-tropical October must not daunt it. If it blanches under the infliction, no one need be surprised ; but if it pines away we have a right to hold a post-mortem. However, on the question of hardiness I have already dilated. Now the most important attributes of a first-class hardy plant are : (1) colour, (2) fragrance, (3) habit, (4) abundance of flower, (5) ease of cultivation.

But a distinction must at once be drawn between different kinds of plants. Fragrance, so desirable in a shrub, is of less importance in a rock plant. Even enthusiasts do not habitually crawl round the rock garden on all fours, sniffing the Sedums. White is an uninteresting colour, but more pardonable in a rock plant or in a climber than in a shrub, unless the latter is also fragrant. For white, foaming over the rocks, and overflowing from ledge to ledge is bewitching, as every one knows who has seen cascades of *Olearia* or of *Artemisia*—the latter for its foliage ; and the white

stars of Jasmine, which has the further advantage of being fragrant, or of *Clematis montana*—which has not—on a wall, are appealing enough to convert atheists.

Hence we must start by dividing our plants into four groups : (1) Alpines, so called, for the rock garden ; (2) Plants for the herbaceous border ; (3) Shrubs ; (4) Climbers. Each is a race apart ; but we may remark this of Alpines and rock plants—they are useless for cut flowers. It is manifestly impossible to compare the horticultural value of plants belonging to different groups. It will be enough to indicate what the best judges might agree to be necessary in a first-class rock plant.

Here colour and habit are of paramount importance ; fragrance, as already noted, is a secondary affair. Self colours are undoubtedly the best : violet, indigo, sky blue, sapphire, forget-me-not, orange, gamboge, cadmium, cream, scarlet, lavender, rose pink, flame, peach, are all first-class. No collector will pass by such colours, which, in their purest form, unspotted and without blemish, are not too common. As regards habit, a true rock plant is compact and massive, not exceeding a foot in height,—though many plants larger than this are grown in the rock garden. Aubretia is a good example of first-class habit, for the sake of which we tolerate its vilest colours. For the same reason many white-flowered saxifrages, chalk white, milk white, ivory and so on, look well in the rock garden.

Uncommon or dainty foliage is a great asset in any plant, but it is less likely to be decisive for a rock plant than for a shrub. Nevertheless not a few rock

plants, such as *Leontopodon* and *Raoulia*, owe much of their charm to it. Size of flower is important. Some plants, first-class in many respects, have a flower so small that, though beautiful enough in themselves, they add nothing to the beauty of the rock garden. *Primula bella* is a case in point. Naturally people do not grow them ; and the plant collector, if he would serve his public, must study their tastes.

Abundance of flower is of first-rate importance on a small plant ; it is intimately associated with habit, for small flowers when growing in spongy masses, or in tufts, or hassocks, redeem themselves from the commonplace.

There are, however, other aspects to be taken into consideration by the plant hunter ; and when we consider the diverse uses to which ornamental plants are put, this is hardly surprising. A shrub may have insignificant flowers, and be of quite ordinary habit, and yet when it is in fruit it may turn into something exceptional.

A climber such as a vine may be commonplace in summer plumage, yet when autumn comes it may be radiant in scarlet and orange livery. Hence the plant collector must visualize his plants during twelve months of the year, know when they flower, and for how long, when they shed their leaves, and when they break. There are a hundred subtleties of grace and beauty which the collector can find amongst the infinitely varied vegetation of the mountains ; a twist to the corolla, a flush of unfamiliar colour, and a flower may be transformed. But these he cannot learn off by heart—at least it will not help him to do so. Experience alone can teach him what to select and what to

reject—experience with plants, cultivated and in Nature. He must have lived in a horticultural atmosphere before he can appreciate the finest points of a plant.

All these things the collector can see for himself, though it is less easy than it sounds. In the first place, a plant growing wild in the mountains, despoiled by wind and rain, looks very different indeed to the same plant nicely brought up in a frame at home. Often it is hard to recognize it as the same little waif after it has been washed and dressed and taught to smile on life. Again, the surroundings are so different that it is sometimes impossible to recognize the good points of a plant, buried as it is in a wilderness of plants. Not till it is taken out of the ruck and set up by itself does it display its true charm. So that unless a plant is of obvious and outstanding merit, the collector may easily pass it by ; it is here that judgment and experience tell.

But of hardiness and cultural possibilities the collector is ignorant ; for the appearance of the plant gives him no clue. He will not look for hardy plants in the steaming jungle ; nor, if he is wise, will he expect to find many of them on the summits of lofty mountains, at say over 16,000 feet altitude ; at least not if they are of the ' cushion ' type, or covered with woolly hair, as so many of the loftiest alpines are. But between these extremes there is ample scope ; and, taking climate and latitude into consideration, the critical altitude decreasing as latitude increases, it is easy to select plants which have the stamp of hardiness about them. Beyond this the collector has no information as to whether the plant will prove

hardy or of no constitution, easy of culture or miffy. Only trial will show.

Now, first-class plants on the lines indicated are not always popular plants, and for an excellent reason. Many first-class plants are not easy ; they require attention and pine away if they do not get it. To be really popular a plant must be able to fend for itself. Thus many popular plants are not quite first-class, but being easy of culture find a ready market. On the other hand, broadly speaking, the most popular plants are the best plants.

Widely spread plants usually vary a good deal, and exhibit certain more or less well marked forms. What is required is the best form of the best plants.

But varieties may be of importance in another way, in that slight external differences may be correlated with difference of constitution. A hairless form, a more robust growth, may be the outward visible sign of an inward power of adaptability, or of a strong constitution, or of some disease-resisting quality.

Thus any new variety of a well-known plant may be a most valuable introduction.

A few famous plants may be mentioned by way of illustration, though there is no need to go to the Andes or the Himalaya to find excellent examples. England is full of them. Only because they are so abundant we despise them. Gorse, for instance, is absolutely first-class : so too is heather. The common primrose, the corn poppy, and the bluebell are other examples. *Primula malacoides* is a first-class popular plant. It is an annual, and therefore its hardiness or otherwise is of no particular account. As a matter of fact it is generally grown as a pot plant, or in the greenhouse,

to which it is eminently suited. The light, airy grace of habit, pale mauve flowers, and silver-dusted cups are incredibly appealing. It has reached that Mecca of the truly popular plant, Covent Garden, and tens of thousands of plants have been and still are sold for winter decoration.

Saxifraga Burseriana is to be seen in every rock garden. It is a first-class plant, but by no means so popular as the last, if only because every one does not possess a rock garden.

Primula pulverulenta, though not quite first-class, is popular by reason of its value in hybridization, and is grown by every nurseryman who deals with Alpines. It just misses full marks on account of its colour—a truculent crimson, or dusky cerise—not at all a weak or washy colour, but loud and vigorous. In mass it makes a fine flare, attracting attention to itself at once. You cannot pass it by; fiercely it demands notice, and in spite of yourself you admire it as being a little dangerous. In the rock garden it forms explosive mixtures. But the crosses of *P. pulverulenta* with *P. Cockburniana*, another first-class introduction, yield a race of flame-coloured primulas which are unsurpassed. Among them may be mentioned 'Sir Frederick Moore' and 'Lady Moore,' both raised by Mr. H. D. M. Barton, of Antrim.

Oxalis enneaphylla was brought home from the Falkland Islands a few years ago by the sack load, and sold at ten shillings a plant. Now there is hardly a rock garden in England without it, and any nurseryman will sell you a plant for one and sixpence. The feature of this introduction was the fact that it was really a reintroduction—the plant was already in

cultivation—or had been ; but so rare was it, and so desirable, that it was well worth while to introduce it on a large scale. Nothing was simpler than to take ship to the Falkland Islands, bundle the plant into bags, and return to England with the spoil ; and the man who did it reaped a well-deserved reward. Curious that the bleak and treeless Falklands should yield one plant of such outstanding merit ! It is almost the only plant they do produce !

The collector of course must be on the look-out for reintroductions. His main object is undoubtedly to discover and introduce new plants. But there is no merit in novelty, and some of the recent introductions are just scum. On the other hand a new plant is an unknown quantity, whereas a plant which has gone out of cultivation, or which is rare in cultivation, may be a well-tried species, with distinct possibilities.

And it is easy to lose plants. The slaughter of alien plants in this country is terrific. Some die of neglect, others of coddling. Some men are distinguished for the number of plants which die on their hands, just as others are noted for raising and keeping everything which comes their way. No one can hope to keep plants alive unless he really and truly loves them ; yet thousands die a death attributed to natural causes. Some die a violent death, as in the cataclysm which overtook Kew Gardens, during the great drought of 1921, when the unfortunate plants were inadvertently watered with brine from the shrunken river ! Happily such a catastrophe can never happen again—I mean not at Kew.

But the most prolific cause of loss is undoubtedly

amongst those exotics which are monocarpic, and set no seed. They flower once, and die, without ripening their seed. They are gone.

Thus numbers of plants are continually being lost, and the only remedy is fresh stocks of seed. It may be that some day one of them will make up its mind to set seed in captivity. One could name a score of good plants which have been in cultivation, and are not.

What has been said about first-class colour for a plant does not, of course, apply to cut flowers. Florists' flowers are a special selection of garden flowers, grown to satisfy the colour taste of the majority.

Here colour, height, and a lasting bloom are the essentials. Most florists will tell you that they sell more white, pink, and heliotrope or mauve flowers than those of any other colour. These are hot favourites. Why?

Well, the buyers of florists' flowers are chiefly women, and in the majority of drawing-rooms which depend for their decoration on cut flowers, the predominating colour is a cheerful and commonplace pink. Pink invites sunshine; it matches a good complexion and flatters a bad one.

Heliotrope combines delicately with the favourite shades of pink, and is what women call a 'becoming' colour. The same applies to mauve. The greenhouse fragrance of heliotrope itself is rather in keeping with feminine sentimentality. White of course is the conventional colour for the great occasions of cut flowers—christenings, weddings, and funerals. It is also popular for unspecified bouquets in society novels, feuilletons, and other sticky literature.

So much for the popular colours. The unpopular ones are—blue, which a woman will tell you is too cold (to a man blue denotes space rather than temperature—the sea, the sky, the far hills) ; red, which she dismisses as too hot ; and yellow, which is nemesis to the Englishwoman's light hair and clear colouring.

Naturally the demand for certain colours in flowers varies with the particular fashion for each season ; but the list given is as true as a generalization can be.

However, these particular prejudices do not touch the plant collector, who is catering not for fashionable flower shops, but for the prosaic gardener. The skilled nurseryman, if he gets hold of the right plant, will soon paint it all the colours of the rainbow.

The nurseryman is a specialist. Every true nurseryman, though he sells all plants to all men, secretly believes that there are really only one or two plants in the world worthy of cultivation. Their august names may be Clematis, Gladiolus, or Delphinium ; probably they are merely Rose, Tulip, or Sweet-pea. And all honour to the artists who have raised these plants to their present level of perfection. Let the nurseryman, on the other hand, remember that it is often the collector who finds him the raw material in which he works.

Picture him in camp in a remote alpine valley. It is evening. He stands at the entrance to his tent, peering through field glasses at the peak he proposes to climb on the morrow ; he is reconnoitring a possible route from the north face to the ridge, from the ridge to the col, and so to the summit. The sun swims in a bath of gold, and presently disappears behind the mountain ; and night falls swiftly. He goes inside

his tent, and lights the candles. It is very still. The wail of a bamboo flute comes to him from the men's tent, followed by the twanging of a bamboo 'Jew's harp.' Suddenly the silence is split by the roar of a rock avalanche, and as the last thunderous echo dies away an owl hoots sleepily. The collector lies down on his cot to read for half an hour before turning in; but he pays little heed to the printed page, and presently the book falls from his fingers. He muses in the gloaming while he listens to the shrill splash of a cascade. Now he dozes; and as he dozes he dreams. . . .

It is morning. The sun peeps over the ridge, and throws spears of brass-coloured light between the battlements into the valley. After a hasty breakfast the collector leaves his camp for the peak above the pass—treading on air; and as he threads his way through the meadow, where the dew-washed flowers are preening themselves in the cool of the morning, he can hardly repress a feeling of excitement.

Yonder is the peak. Its stony summit rises 18,000 feet above sea level, which is as high as flowering plants occur here. And he is the first man to set foot in this wild valley, to attack this peak, to accept the challenge flung by its grinning scree, the threat of its frowning cliffs.

As he crosses the troubled brook, and, parting the Rhododendron bushes, begins his long climb, exultation possesses him. What will he find? What treasures lie buried in this unknown land, guarded by the most fearsome mountains in the world? Thus he plods on alone up the steep grassy slope which leads to the ridge, trying as he walks to avoid crushing with

his feet the wondrous flowers. For this time—the first time—he must go alone. Has he not come 10,000 miles to climb this very peak, to explore its flanks for flowers? So on this pilgrimage he craves solitude, knowing that his heart may burst within him.

At last he reaches the razor-back ridge which shelves away steeply on either side; and the climb begins in earnest. Now there are rocks ahead, and deep gashes. He moves cautiously, still ascending however.

Looking back he can see his camp in the green valley far below,—the white dots of the tents, the mules grazing, and a smudge of blue smoke from the neglected fire. The country on the other side is opened up to view now. He can see over the opposite ridge a hash of peaks and valleys, splashed with blue lakelets; and bounding the whole, a lofty chain of mountains capped with eternal snow. Ahead the view is hidden by the bulk of the mountain he is climbing.

By this time the collector has reached the foot of the cliff. He goes more slowly now, searching for a way up; besides, there are rare and lovely plants here—tiny *Primulas*, pressed into crevices of the rock, cushions sprinkled with the white stars of *Saxifrage*, little nodding poppies, and on the hidden lawns of *God gentians* bluer than the seas.

Presently, feeling his way cautiously round the base of the cliff, he reaches a funnel-like slot which slants steeply up between two rock walls; and up this he goes. But the climbing here is more arduous. There are loose rocks, and awkward pitches, obstacles which

must be overcome. At last he reaches the top of the cliff, and the boulder-strewn slope of the mountain's crest stretches up before him. The wind rides free. It hums over the flower-sown gravel, it chases the flying clouds across the sky. Far below, in a high valley, the blue gleam of a glacier lake catches his eye.

The collector takes a deep breath, and pauses. He has conquered—a hundred yards more and he is at the summit. What will he see? Jostling mountains, cape beyond cape, and—his hurrying thoughts are pulled up with a jerk. What was that brilliance which his questing eye just glimpsed? Blue,—most blue, at his feet; beauty waiting a thousand years for a lover's coming; beauty which tugs at his heart and stays him. He stands: it must have been a stone, turquoise perhaps. He turns slowly, and across the boulder-strewn slope spies it again, a film of blueness, a hint of lavender, peeping from a small gully down which trickles a thread of water like tense wire. No, it cannot be a flower, and yet—— He hesitates. Shall he go straight on? Well, he has the day before him. Of course it is not a flower; no flower ever seen . . . He approaches slowly, halts incredulously. By Heaven, what a find! It *is* a flower after all, and at sight of it the collector catches his breath. For a full minute he stands dumb before it; and the whole world stands still while he worships. His heart is thumping; he must shout, but he is stricken. To move, to speak, in the presence of that shimmering loveliness, would be sacrilege. Then the pent-up emotion which is surging through him bursts bounds, and with something like prayer on his lips he drops on his knees before God's masterpiece.

A moment of mad possession seizes him. "It is mine ! mine ! mine !" he cries to the wind and the rocks ; " I will enjoy it alone." Then, as the stupefying loveliness of the plant—his plant—ceases to be an absolute physical pain to him, sanity returns.

Now the trembling beauty of the flowers, their delicate colouring, lavender and gold and the very blue of Heaven, the delicious perfume, the tender foliage, with veins inlaid like cloisonné, make his heart ache. He shouts suddenly, " All the world must see it and be glad."

The wonderful scent of the plant almost stupefies him. Mechanically he washes his hands in the pool below, and dropping his trowel, takes out his notebook. " I suppose it will not be hardy," he says, sadly, sucking his pencil : " too high." Then he begins to write : ' Soil, limestone rubble, with good underground drainage ; aspect, south, but sheltered ; altitude, 17,000 feet ; rare. . . .' " It *may*, of course, be quite hardy."

The trickle of water suddenly sounds very far away, and homelike,—the buzz of bees visiting his plant surrounds him like the stir and murmur of a multitude of people. . . . " Yes, sir, quite hardy : we have grown it outside for five years on our rock garden. It wants sunshine, sir ; a limestone plant."

The collector rubbed his eyes. The air was filled with the same rare fragrance, and long queues of people were pressing round. He could not see *his* plant—ah ! there it was ! A great bank of it rose before him, and round him astonished crowds stood gazing at it. The attendants were busy. It did not surprise him in the least to find himself suddenly

translated to the Chelsea show ; there seemed to have been events in between, he could not recollect what they were : it did not matter. He passed his hand over his brow, and listened. Ladies were talking.

‘ Yes, it got a first-class certificate, of course.’

‘ Of course everybody has it. Isn’t it a beauty?’

‘ They say it will be in every garden in England presently.’

‘ Where does it come from?’ ‘ Oh, it’s one of those Chinese importations—or is it African? I always forget! *Do* people find flowers in China? I did not see many in Hong Kong! Haven’t you got it, my dear? Oh well, you must order some at once. It’s one of those things one must have.’

He watched them thrust their way through the mob, and get the attention of the man in charge of the stand, the man whose voice had cut across mountains and continents, and turned Asia into Chelsea to bring the collector home.

He asked no questions ; as best the crowd would let him, he stood back. Over the bent inquiring heads of the people he could see the glowing bank of blossom that was the offspring of his discovery, of the little plant, perfect and solitary, that he had worshipped on a bleak hill side, five minutes—or was it years?—ago. It grew on other hills now. ‘ Quite hardy,’ the man had told him. Then it must be growing all over England. Its delicate, rare sweetness was in the breath of Sussex and of Kent ; its veined, delightful leaves were shrouding rock ledges in Hampshire gardens ; its heavenly flowers were overflowing on to paths which his own people trod.

Presently tired men would come home from overseas, and, having missed the loveliness of England, would wander out of doors on a spring evening to where his plant poured colour on the stones as wine was poured on the altar in olden days : and they, not knowing whence this flower had come, would only say as they stood content before its beauty, ' It's jolly good to be home.'

This was something given to them at last. Many would not know that he had given it, but—they would have the gift : and to him was the giving. To him was the splendid fortune of bringing back to England something not unworthy.

He moved to take his place in the crowd again, and with the movement felt a sudden rush of air that was strangely cool for the crowded tent at Chelsea. He raised himself on his arm, and knew it for the dawn wind, stealing down the valley, calling him from dreams of England to his tent in Asia—and the day's endeavour.

To some are given the world's thanks, which are fame and rich reward ; and to some it is given to work without thanks, but with some achievement, and the merited praise of a few : but to every man,—even to a plant collector,—a dream is given.

GENERAL INDEX

- Barton, Mr. H. D. M., 117, 260
Bayly Balfour, Sir Isaac, 117, 118, 221
- Chu La, 171
Chungtien, 124, 226
Crossoptilon tibetanum, 233
- Dampo, 137
Damyon, 159, 171, 200
Darwin, Charles, 14
Davies, Gen. H. R., 130
Dokar La, 171
Döpa, 128
Douglas, Mr., 14
- Fengkou, 225
Fortune, Robert, 14, 240
Franchet, Mons., 201
- Gangka, 139
Gangkaling, 104, 130
- Hoching, 222
Hooker, Sir Joseph, 14
- Insects and seeds, 249
- Kaichi ho, 109
Kakarpo, 171
Kuja La, 129, 130
Kunlong, 73
- Lashio, 73
Lenrang (Leilung), 130
- Li chu, 132, 135
Likiang, 129, 132, 222
Litang, 109, 170
Littledale, Mr. St. George, 202
- Macacus tibetanus*, 187
Mantzu, 78, 129, 130, 131, 138, 142
Menghua, 73, 102
Muli, 104, 124, 129, 130, 170
- Nyapo, 139
- Paima shan, 200
Prain, Sir David, 200 et seq.
- Sholo, 128, 136
Shunning, 66, 73
Siebold, Herr von, 14
Si La, 171
Szecheny's pheasant grouse, 232
Szechwan, 34, 83, 136
- Takin (*Budorcas*), 62, 63
Tali fu, 81, 102, 222
Tribal customs, 140
- Waha, 227
Warichen, 131, 132
- Yalung, 133, 139
Yangtze, 69, 224, 226
Yungning, 104, 109, 124, 224, 226
Yunnan, 67, 83, 140

INDEX TO PLANTS AND FLOWERS

- Acer, 176
 Alnus, 176
 Alpines on limestone, 171 et seq.
 Alpines on non-calcareous soil, 171
 Androsace, 110, 218
A. sarmentosa, 106, 127
 Anemone, 137, 226
A. rupicola, 174
 Arisaema, 110, 137
 Aristolochia, 51
 Aspidopterys, 43
 Aster, 198, 243
Aster staticifolia, 115
 Astilbe, 110

 Bauhinia, 43, 67, 138
Berberis Darwinii, 14
 Buddleia, 67, 128

Cæsalpinia nepalensis, 74
Campanula calcicola, 162, 175, 246, 247
 Caragana, 115, 158, 218
Cardamine granulifera, 205
 Cassiope, 60, 158, 218
 Clematis, 138
C. montana, 256
Cælogyne leucantha, 51
 Cochlearia, 243
 Codonopsis, 243
C. convolvulacea, 184, 241
C. nutans, 241
C. tibetica, 220
Congea tomentosa, 43
 Corydalis, 157
 Cotoneaster, 138
 Cremanthodium, 60, 161, 175
 Crepis, 161
C. rosularis, 197
 Cyananthus, 168, 243
C. Delavayi, 185, 197
C. incanus, 198, 205
C. incanus, var. *leioalyx*, 196

 Cynoglossum, 110
Cypripedium luteum, 107
C. margaritanea, 107
C. tibeticum, 107

 Daphne, 158
D. calcicola, 111
 Decaisnea, 176
Delphinium yunnanense, 241
 Didissandra, 137
D. bullata, 174
D. flabellata, 174
D. grandis, 174
 Draba, 197, 243

Eriophyton Wallichianum, 198
 Euonymus, 176
 Flora, Alpine, 114, 155
 Flora of Nam Ting Valley, 74, 75
 Floras, Scree, 196, 204 et seq.

 Gentian, 111
Gentiana Farreri, 242
G. Georgii, 168
G. heptaphylla, 242
G. Hopei, 161
G. sino-ornata, 157, 168, 242, 244

Habenaria ophioccephala, 51
 Hedychium, 112
 Helwingia, 176
 Hemerocallis, 137
Hypericum patulum, 184

 Incarvillea, 116, 231
I. grandiflora, 12, 115, 162
I. lutea, 12, 13, 115
 Ipomœa, 226
 Iris, 64, 128, 137, 216, 218, 229, 243
I. chrysographes, 116, 230
I. Wilsoni, 230
Isopyrum grandiflorum, 189, 246

Jasmine, 128
 June Iris, 230
 Juniper, 218

Kingcup, 110

Lactuca, 161
L. Souliei, 197
 Larkspur, 163
 Leontopodon, 257
 Leptocodon, 241
L. gracilis, 184
Lilium Delavayi, 205
 Lily, 137, 226, 230
 Lily, Martagon, 174
 Lloydia, 243
 Lonicera, 158, 218
 Lousewort, 110, 229

Maize, 50
 Meconopsis, 243
M. brevistyla, 204
M. concinna, 161
M. eximia, 198
M. Henrici, 219
M. impedita, 160, 161, 162, 198
M. integrifolia, 116, 162, 200 et seq.,
 219
M. lancifolia, 116, 160, 161, 162
M. Prattii, 160, 162
M. pseudointegrifolia, 201, 202
M. Souliei, 205
M. speciosa, 160, 198
 Monkshood, 163, 165, 244
 Morina, 243
Myosotis Hookeri, 12, 152 et seq.

Nomocharis Farreri, 54
N. pardanthina, 106, 107

Onosma paniculatum, 181
 Oreocharis, 174
Oxalis enneaphylla, 260

Pæony, 126
 Parnassia, 157
 Pedicularis, 157, 198
P. birmanica, 61
P. nobilis, 61
P. siphonantha, 61, 218
P. Viali, 61
 Peepul, 75
 Picea, 124, 176

Pine, 124
 Piptanthus, 111
 Plants, breeding of, 8
 Pleione, 137
Polygonum Griffithii, 61, 198, 242
 Poppy, opium, 67, 72
 Poppywort, 243
Potentilla fruticosa, 60, 158
P. peduncularis, 246
 Primula, 51, 115, 229
P. amabilis, 199
P. anisodora, 227
P. apocliata, 119, 157, 163
P. atrotubata, 228
P. Beesiana, 109, 228
P. bella, 60, 157
P. brevifolia, 117, 218
P. bullata, 222
P. Bulleyana, 26, 225
P. calliantha, 55
P. cernua, 119, 161, 241
P. chrysopa, 218
P. chungensis, 228
P. Cockburniana, 228, 260
P. conica, 156
P. Coryana, 119, 120
P. Delavayi, 60, 221
P. densa, 189
P. Dickieana, 60
P. dryadifolia, 157, 163
P. Dubernardiana, 173, 223
P. effusa, 137, 225
P. Elwesiana, 221
P. Farreri, 60
P. Forrestii, 173, 222, 223
P. fragilis, 189
P. Franchettii, 221
P. gentianooides, 128
P. Giraldiana, 219
P. Henrici, 173
P. involucrata, 117
P. "Lady Moore", 260
P. Littoniana, 13, 110, 119
P. malacoides, 75, 225, 258
P. melanops, 156, 199
P. minor, 198, 199, 205
P. oxygraphidifolia, 190
P. pinnatifida, 219
P. Poissonii, 109, 110, 227
P. polyphylla, 227, 228
P. pseudosikkimensis, 117, 218
P. pulchella, 112, 126, 174
P. pulchelloides, 112
P. pulverulenta, 228, 260
P. pulvinata, 173, 188, 223

274 INDEX TO PLANTS AND FLOWERS

- P. redolens*, 37, 173, 223
P. rigida, 156, 162, 198, 199
P. rupicola, 190, 247
P. secundiflora, 117, 218
P. serratifolia, 60
P. sibirica, 117
P. sinoplantaginea, 157
P. sinopurpurea, 127, 156
P. "Sir Frederick Moore," 260
P. sphærocephala, 225
P. sonchifolia, 127
P. szechuanica, 118, 127
P. tsarongensis, 231
P. vincæflora, 116, 127, 157, 220, 221
P. violacea, 119, 219
P. violagrändis, 221
P. Wardii, 117, 118, 218
P. Watsoni, 219
P. Werringtonensis, 111, 228
P. Winteri, 127
P. yunnanensis, 189
Pseudotsuga, 176
Pyrola, 174
- Quercus**, 138
- Raoulia*, 257
Rhabdothermopsis chinensis, 229
Rheum Alexandræ, 218
Rhododendron aiosalpinx, 57
Rh. aperantum, 56, 249
Rh. arizelum, 55
Rh. "Ascot Brilliant," 51
Rh. Beesianum ("Giant Rose"), 130, 157, 158
Rh. brachystylum, 56
Rh. brevistylum, 231
Rh. calostrotum, 61
Rh. capitatum, 208
Rh. cephalanthoides ("Snowy Dwarf") 113, 114, 178
Rh. charitostreptum, 59
Rh. chryseum, 212
Rh. ciliicalyx, 75
Rh. Clementinæ ("Silver Rose"), 159, 163, 178
Rh. coccinopeplum, 158
Rh. cuneatum, ("Limestone Beauty"), 124, 178, 213
Rh. decorum, 75, 124, 180, 182
Rh. Delavayi, 75
Rh. Falconeri, 55
Rh. fastigiatum, 212, 214
Rh. fetolactum, 176
Rh. herpesticum, 56
Rh. hippophæoides, 149, 157, 163, 212, 213, 225
Rh. hirsutum, 178
Rh. impeditum, 133, 213, 216, 231
Rh. intricatum, 212
Rh. ledoides, 105
Rh. multiense, 212, 214,
Rh. myrtilloides, 59, 181
Rh. niphargum, 178
Rh. nivale, 209
Rh. ombrochares, 51
Rh. oreotrephe, 178
Rh. puralbum, 113
Rh. racemosum, 106, 124, 180, 183, 213
Rh. radinum, 105, 106, 124, 128, 178, 213
Rh. repens, 209
Rh. rubiginosum, 178
Rh. rupicolum, 208
Rh. sanguineum, 198
Rh. sinogrande, 51, 238
Rh. sinolepidotum, 124, 178, 180
Rh. sino-Nuttalli, 249
Rh. sphæranthum, 105, 213
Rh. Souliei, 230
Rh. tapetiforme, 208
Rh. thymifolium, 208
Rh. Traillianum, 157, 158, 178, 242
Rh. Wardii ("Lemon Bell"), 113, 178
Rh. "Woodland Purple," 183
Rh. yunnanense, 119, 124, 180, 183
Rhododendrons at Muli, 125 et seq.
 cultivation in England, 177 et seq.
 "Laponicum," distribution of, 208 et seq.
 on limestone, 105, 124, 178, 180, 198
 Second flowering of, 244
 Winter flowering, 245
- Rodgersia*, 110
Rosa sericea, 60, 124
Roscæa caulioides, 111, 126
R. purpurea, 112
Rubus potentilloides, 56
- Saussurea*, 165
Saxifraga, 168, 241
S. Burseriana, 260
S. diversifolia, 162, 185
S. gemmipara, 185
S. macrostigma, 160
Schizandra, 176
Sedum, 137, 163

INDEX TO PLANTS AND FLOWERS 275

Silene, 198, 243
 Sophora, 241
 Sphænodesma, 43
 Spirea, 60
 Solms-Laubachia, 165, 190, 246
 Strobilanthes, 111

Swertia, 168
Tremacron Forrestii, 174
 Trollius, 160, 229
 Ventilago, 43
Viburnum Wardii, 56

SEEDS

K.W.	PAGE	K.W.	PAGE	K.W.	PAGE
529	113	4160	113, 198	4610	163
" 575	198	" 4165	167	" 4619	175
" 3172	59, 181	" 4166	175	" 4627	161
" 3300	57	" 4169	200	" 4640	160
" 3301	56	" 4170	113	" 4686	198
" 3302	59	" 4177	198	" 4730	197
" 3303	59	" 4181	119	" 4748	161
" 3304	59	" 4182	190	" 4805	175
" 3365	59	" 4207	158	" 4859	157, 168, 244
" 3390	61	" 4211	157	" 4968	197
" 3392	56	" 4252	137, 226	" 5002	182
" 3776	75	" 4263	181	" 5044	225, 226
" 3784	75	" 4275	173	" 5086	156
" 3805	182	" 4351	229	" 5092	126
" 3995	174	" 4386	119, 219	" 5112	176
" 4000	107	" 4410	113	" 5191	161
" 4008	160	" 4433	230	" 5222	190
" 4025	230	" 4436	231	" 5286	161
" 4033	199	" 4445	230	" 5369	199
" 4050	183	" 4456	183	" 5384	201
" 4080	156	" 4484	241	" 5393	201
" 4081	156, 199	" 4486	180	" 5403	173, 189
" 4101	230	" 4487	182	" 5444	189
" 4153	115	" 4509	126, 176		
" 4154	115, 190	" 4523	174		