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HANDBOOKS OF PRACTICAL GARDENING
EDITED BY HARRY ROBERTS

THE BOOK OF ROCK
AND WATER GARDENS



WATER LILIES

THE BOOK OF ROCK
AND
WATER GARDENS

BY

CHARLES THONGER

AUTHOR OF "THE BOOK OF GARDEN FURNITURE"

"THE BOOK OF GARDEN DESIGN," ETC.

"As for our love of gardens, it is the last refuge of art in the minds and souls of many Englishmen; if we did not care for gardens, I hardly know what in the way of beauty we should care for."—
COMPANIONS OF MY SOLITUDE.

LONDON: JOHN LANE, THE BODLEY HEAD
NEW YORK: JOHN LANE COMPANY ♦ ♦

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PREFACE

THIS book is written for those who love the flowers of mountain and stream, of Alpine pasture and reed-fringed pool; for those who gladly welcome into their gardens a class of plants whose beauty and charm is not surpassed by any other. It is also written with the hope that it may arouse interest in those who have no knowledge of rock and water plants, and yet have facilities for growing them. And especially is it offered to the many whose dull and ugly "rockeries" might so easily be transformed into "rock gardens"—a different thing altogether.

Let none regard the subject of water gardening as one having direct interest for only a favoured few. Seeing that aquatics may be grown under purely artificial conditions, the pleasure of a water garden is not limited to the possessors of natural streams and ponds.

In these days of stress and hurry we seek in Nature a balm for many ills; in our gardens, and in all that pertains to them, we may find welcome rest and relaxation.

C. T.

WOODBRIDGE, SUFFOLK

CONTENTS

		PAGE
	PREFACE	v
CHAP.	I. ROCK AND ALPINE GARDENS	1
	II. ROCK GARDEN CONSTRUCTION	9
	III. THE GARDEN OF ALPINES	18
	IV. THE ROCK GARDEN IN SPRING	27
	V. ROCK GARDEN PLANTS	34
	VI. ROCK SHRUBS	45
	VII. WILD WATER MARGINS	52
	VIII. SMALL WATER GARDENS	61
	IX. BOG AND MARSH GARDENS	68
	X. LILY TANKS	77
	XI. WATER-LILIES	82
	XII. AQUATICS AND BOG PLANTS	90
	INDEX	93

LIST OF ILLUSTRATIONS

WATER-LILIES	<i>Frontispiece</i>
ROUGH STEPS WITH SMALL PLANTS IN CREVICES	.	<i>To face page 4</i>
		<i>(Photo by Mrs Delves Broughton)</i>
FRONT GARDEN, BRANTWOOD, SOUTHPORT	,	6
FRONT GARDEN, BRANTWOOD (ANOTHER VIEW)	,	8
THE EDELWEISS	,	10
PHLOX SUBULATA NELSONI	,	12
		<i>(At Messrs Barr's Nurseries)</i>
LITHOSPERMUM GRAMINIFOLIUM	,	14
		<i>(At the Craven Nursery, Clapham, Lancaster)</i>
ROCK GARDEN, LOWTHER CASTLE	,	16
ROCK GARDEN, LOWTHER CASTLE (ANOTHER VIEW)	,	18
WILD GARDEN, AUDERLY HALL	,	20
A GROUP OF DWARF IRISES	,	22
		<i>(Photo by Charles Thonger)</i>
A ROCK BORDER	,	24
		<i>(Photo by Mrs Delves Broughton)</i>
ANEMONE APPENINA	,	26
		<i>(At Messrs Kelway's Nursery, Langport)</i>

SILVER SAXIFRAGES	To face page 28
<i>(At the Craven Nursery, Clapham, Lancaster)</i>	
TUNICA SAXIFRAGA	„ 32
<i>(At the Craven Nursery, Clapham, Lancaster)</i>	
AURICULAS ON ROCKERY	„ 34
<i>(Photo by Charles Jones)</i>	
ROCK GARDEN WITH GRASS APPROACH	„ 36
<i>(Photo by F. Mason Good)</i>	
ROCKY BANK WITH HYACINTHS	„ 38
PRIMULA DENTICULATA ALBA	„ 42
NATURE'S WATER GARDEN	„ 52
<i>(Photo by Mrs Delves Broughton)</i>	
STREAM AND ROCKERY IN MESSRS BARR'S NURSERIES	„ 56
A GARDEN POOL	„ 62
<i>(Photo by F. Mason Good)</i>	
WATER GARDEN, LOWTHER CASTLE	„ 68
ARUMS BY A LAKE-SIDE IN CORNWALL	„ 74
<i>(Photo by S. W. Fitzherbert)</i>	
POND WITH WATER-LILIES, LOWTHER CASTLE	„ 82
IRIS KAEMPFERI	„ 90
<i>(At Messrs Kelway's Nursery, Langport)</i>	

THE BOOK OF ROCK
AND WATER GARDENS

THE BOOK OF ROCK AND WATER GARDENS

CHAPTER I

ROCK AND ALPINE GARDENS

BETWEEN the rock garden and the "rockery" there is a vast difference. The latter is a thing which no good gardener will tolerate, contravening as it does all ideas of common sense, good taste, and artistic perception. It is hard to preserve a spirit of tolerance towards the uncouth excrescences which distort and mar the appearance of many gardens, inflicting as they do upon the gracious earth and cool sward the semblance of some horrible disease. Ugly and ridiculous in itself, and ill-adapted to the growth of plants, the average "rockery" is an eyesore. It is rarely productive of any pleasure or satisfaction, even to a mind least exacting. More often than not, it is made in some tree shaded corner, where sun and air, the very essentials to the happiness of rock plants, never penetrate. A few stunted ferns share with a tangle of dusty ivy the melancholy duty of partly screening an ill-considered heap of stones and vitrified brick rubbish.

And yet the possession of a few cart-loads of builder's refuse, clinkers, broken pottery, shells and fragments of statuary, immediately seem to suggest an opportunity for "rockery" making. Small wonder that such spots display nothing of the true charm of a garden, or that they soon come to be regarded as so much waste ground.

2 ROCK AND WATER GARDENS

As its name suggests, the "rockery" is a collection of rock fragments and odd pieces of stone, among which a few plants have either been planted or become established.

The rock garden is quite different. It is a definite piecing together of natural rock and stone, and is so formed that it shall offer ideal conditions for the growing of Alpines and such plants as occur naturally on mountain sides and at high elevation. In the rock garden the first thought is for the plants that will occupy it: in the "rockery" the disposal of so many loads of débris is the usual aim in view.

A rock garden may occupy practically any area of ground, but the idea that the term can only be applied justly to large and important places is certainly erroneous. It is possible to make a charming home for Alpines which will cover only a few square yards of earth, and if the plants and not the stones are the reason for its existence, it will be a garden, and surely one of beauty.

It has seemed to me important thus to emphasise the distinction between the rock garden and the "rockery." For one thing it will help to make more clear suggestions following; for another, the condemnation of the "rockery" opens out new possibilities to those whose knowledge of Alpine plants is somewhat limited. And, too, it is surely worth while taking pains to understand the needs of the many exquisite families of miniature flowers which deck the mountain slopes, and spring from ledge and crevice, colouring the grey solitudes with wondrous beauty.

In all good gardening it is necessary to have a clear idea at the outset what we mean to do. There is too much blind groping after effect, too much carelessness, and the vague supposition that everything will come right in the end. We defy Nature at every turn, and then look to her to conceal and beautify our thoughtless efforts. It is true that garden-making never is and never can be

anything but artificial, and in the designing of rock-work we are making but a feeble imitation of the great forces of Nature. And yet we must certainly study natural effects and natural laws if we are to achieve any measure of success in the growing of Alpine flowers.

An entirely erroneous idea exists that the plants usually found on high mountains cannot be grown successfully in lowland gardens. It is not so much the altitude that suits these miniature flowers, but rather the absence of plants of robust habit and coarse growth. There are no trees or shrubs on these wind-swept wastes, no succulent leafage, none of those plants which on the plains quickly smother their smaller neighbours out of existence. And so we find an altogether smaller race of plants has taken possession of the barren slopes, secure from molestation, and unmindful of the struggle for existence in which they are always worsted. Here there is ample space for all, sheltered crannies in which *Silene* and diminutive mosses find a home; sunny corners where the roots of the Alpine Poppy can secure a foothold. Cutting winds and the rigours of winter are hardly felt by these true children of the wilderness, for whose safety the smallest crevice will suffice, and for whose warmth there is a mantle of snow.

Thus a simple lesson is brought home to us. The rock garden is no place for overcrowding, or for the indiscriminate mixing of plants, large and small. Each plant should be carefully tended, and not left to battle for existence with others of stronger habit. Nine rock gardens out of ten are hopelessly overgrown, not so much from the inclusion of too many varieties, but as a result of undue prominence being given to *Aubretias*, *Arabis*, and kindred plants. This does not imply that only the smallest flowers should be grown; that would be carrying natural conditions to extreme. The rock garden may contain representatives of most of the Alpine families, from the tiny *Androsace*, which clings to the rock face

4 ROCK AND WATER GARDENS

among the snows, to the Gentians and Harebells which stud the mountain meadows far beneath. But the plants must be grown in colonies, the strong with the strong, the weak with the weak. It is a frequent lament that the smallest rock plants are constantly lost, and to prevent this the rock garden is dotted with unsightly pegs. Seldom it is that unsuitable soil or aspect is the reason for the annual dwindling away of choice seedlings, but very often may the cause be traced to the encroachment of other plants. This crowding-out process may not be visible to the eye—to all appearance the plant is quite isolated. But below the surface, other roots are absorbing all the nourishment; not infrequently the fibres from some neighbouring tree or bush are allowed free access to the best soil in the rock garden. Root restriction in the case of large plants is just as needful as sufficient "elbow room" for the smaller.

Most Alpine and rock plants require great depth of soil, a fact which will, perhaps, come as a surprise to many. The professional builders of certain rock gardens entirely overlook this point. Their work is finished when they have reared their cumbersome earth-banks and transported some tons of stone or cement to form miniature precipices, crags, and jagged cliffs. The gardener must attend to the work of planting, and a hopeless task he often finds it.

Having no knowledge of the ways of rock plants, no provision has been made for rooting, and the stone ledges are covered with but a few inches of soil. A cup-shaped depression in the surface of a boulder is filled with a pinch of earth, and in this miserable dwelling any small Alpine is considered to be perfectly at home. All this comes of an entire ignorance as to how mountain flowers in their natural haunts live and have their being. Take the case of the tiny Stonecrops, which in the high Alps may be found clinging to the edges of almost perpen-

4 ROCK AND WATER GARDENS

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dicular rock faces. To outward appearance they must exist on such food and moisture as can be obtained from the atmosphere. Yet if we break away pieces of the shaly rock, we shall find small white rootlets thrusting themselves into minute crevices through which a drop of water could hardly percolate. Were it possible to extract one of these roots whole, we should probably find that it was some feet in length. So that even in these barren regions, the forces of Nature have been, and are, slowly disintegrating huge rocks, grinding them down into particles from which a plant, but an inch high, may draw life and sustenance.

This simple fact should be of most practical assistance to growers of small plants in rock gardens. In itself it explains why, without apparent reason, small Alpines are constantly dying. That they should have been starved for lack of necessary plant food is the last thought to occur; Alpines are credited with extraordinary powers of endurance. Rich soil they certainly do not need; under natural conditions the roots are found in that of the poorest quality, a mixture of sand, coarse grit, and earthy particles. But even in the most unlikely places where Alpines are found, there is soil of some description, and if at any reasonable depth the roots will find it. Otherwise plant life, except of the most restricted nature, would not be found. Unless the designer understands and appreciates the conditions under which rock plants occur, he cannot hope to make a garden home in which these transplanted wildings will flourish and multiply.

In the placing of stones forming the rock garden, valuable lessons may be gained from a study of Nature. Not that we want to imitate natural features or erect a miniature Alps in a small garden, but because Nature's arrangement of rocks is nearly always best suited to the growth of plants. If we notice a particularly vigorous outgrowth of vivid mosses, small plants and ferns,



FRUIT GARDEN, EKAN WOOD, SOUTHPORT
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in summer, damp and sunless in winter, these places offer the worst possible opportunities for a race of plants which is accustomed to the fullest exposure. In these misplaced rock gardens we find a sad lack of variety; the smallest and most interesting plants gradually disappear, and a dense growth of robust trailers covers the earth spaces. Besides, if advantage were taken of mounds and natural ridges, much labour and expense would be saved, at any rate in districts where there are rocks and mossy boulders cropping out of the earth.

On high ground where the surface soil has been washed away by rains, a minimum of labour will ensure a beautiful rock garden. After all, it is for those who live in favoured localities to make the best use of their advantages; certainly there is less excuse, in their case, for bad or thoughtless work.

The extreme hardiness of most Alpine plants is often overlooked. The smaller and rarer the flower, the less necessity for "coddling." It commonly happens that a pocket of rich, loamy soil in a sheltered corner, is regarded as a suitable spot in which to establish some choice seedling: "It will give the plant a chance 'to settle' comfortably." But as a matter of fact the seedling nearly always dies. If the same plant had been given a fully exposed position in poor gravelly soil, interspersed with small stones, it would probably have survived and thriven. It is astonishing the numbers of Alpines which are perfectly at home along the edges of rough paths, between stones, and in the joints of rude steps. The roots twist among broken stones and push their way through the coarse grit, always finding abundant moisture; surface evaporation being far less under these circumstances than in borders of good soil. Many small plants thrive best when their roots are in dry quarters during the winter: in the chinks of an old wall or in a rock fissure, they escape altogether the

8 ROCK AND WATER GARDENS

superabundant moisture of the earth. Although water, either in the shape of a small stream or still pool, often occurs in beautiful rock gardens, it should never be found in places where Alpines are exclusively grown. A lonely tarn may be found on the mountain side, or a tiny spring gush from the rocks, tracing its way like a silver thread to the valley below. But these instances are the exception, not the rule; and in the small space of the Alpine garden, water is destructive to the best effects. In the same way, trees and shrubs, apart from their propensity for impoverishing the soil, are a decided anachronism. All signs of bold vegetation disappear as we ascend the mountain side and approach the home of *Gentian* and *Edelweiss*.

The rock garden should not be situated near highly cultivated ground, neither should walls or buildings come into the view. It is best approached from the region of woodland or shrubbery, and by walks, the margins of which are left undefined. Occasional mossy boulders, with a bold grouping of Foxgloves and homely plants, will prepare the eye for a change, and incidentally heighten the effect produced.

Perhaps the most beautiful way of all in which to gain the garden of Alpines would be across a stretch of turf, through which in places the natural rock appeared. Here we should have patches and drifts of *Gentiana acaulis*, *Muscari*, *Narcissi* and *Scilla*. Fortunate indeed are those who may attempt something of this kind, happy reminder of those exquisite gardens of Nature, the upland pastures of the Tyrol.

CHAPTER II

ROCK GARDEN CONSTRUCTION

THE actual construction of the rock garden demands more than ordinary thought and care. So many miserable failures are everywhere apparent that we may at least know what to avoid. From the small clinker built mounds, hideously studded with shells, which may be seen in those piteous little gardens of the slums, to the vast heaps of vitrified rubbish, which in certain public parks pass for rock gardens, there is a lesson to be learned from all. If this is the proper way to build a home for Alpine and rock plants, why is it that in such places the plants are so unhealthy? Are there not a thousand beautiful flowers from the mountains which crave admittance into our rock gardens? Why, then, the monotony of these mounds and banks of slag and scorixæ, on which only dusty Ivy and rampant Vinca seem to thrive? It is well known that quite half of those who thrust pieces of stone into the earth, in the belief that they are building rock gardens, have no knowledge of Alpine plants and their ways. They dot their earth mounds with impossible pinnacles and piled up pieces of rock, placing fantastic effect in the forefront of their endeavour. When finished, their "rockery" is about as well adapted as a home for plants as it would be to serve as a break-water.

The position of the rock garden will necessarily be determined by special circumstances, but there are certain rules which hold good in all cases. In the first place,

the surroundings should be as informal as possible; the intervention of shrubberies, woodland planting and wild garden preparing the eye, accustomed to beds and shaven lawns, for a change of scene. Nor should distant views from the rock garden itself embrace any sections of highly cultivated ground. The untrammelled wildness of Alpine flowers, their freedom of growth, and the natural way in which they spring from the rock fissures, unfits them for association with plants of staid habit. The proximity of well-gravelled paths, of mown turf and trim borders, robs the rock garden of all its significance and charm, making it appear but an untidy heap of stones overgrown with straggling vegetation. Isolation, then, should be the first thought when planning an ideal home for rock plants and Alpines. The worst positions would be found in the neighbourhood of walls, buildings and fences, which evidences of the habitations of man are as far as possible removed from the wild spirit of the mountain solitudes. Trees should not be found near the rock garden, not merely for æsthetic considerations, but because their roots, far reaching and greedy, will impoverish the soil. Alpines, and indeed most rock plants, demand the fullest exposure to sun and air; the damp, still atmosphere which prevails in tree sheltered spots, is not conducive to their welfare. Besides, the association of *Androsace* and *Saxifrage*, children of the barren uplands, with trees and shrubs of our lowland woods, is in itself a fatal anachronism.

Then, again, it is generally possible by taking advantage of suitable conformation of the ground, to impart a certain meaning and expression to rockwork, merely artificial though it be. Thus the side of a sloping earth bank suggests itself as a not unnatural site for a rock garden; in Nature such places frequently exhibit rock strata, which have become exposed owing to the washing away of the surface soil by rain and winter snows.



THE EDELWEISS

ROCK GARDEN CONSTRUCTION 11

Earth ridges, through which weathered rocks thrust their naked shoulders, as on the cleaves of Dartmoor: narrow defiles, pierced by the rushing streams of the smaller Derbyshire dales—these are suggestive examples of Nature's rock gardens. Nothing looks more pointless than a circular mound of earth and stones raised on perfectly level ground, or the thrusting of a bristling rock promontory across the smooth expanse of a lawn. As a connecting link between two distinct parts of the property, the rock garden fulfils an admirable purpose, and in this case, it matters little whether the way lies through a sunken passage or across sharply rising ground, necessitating the use of rough steps cut in the side of the hill. In such places an entire change of design is demanded, and the use of rockwork appears perfectly natural.

“Rockeries” are put up in the most absurd situations—beneath trees, even encircling the trunks; against walls of houses, and in the centre of gravel paths, where they look as though they had been shot bodily out of a cart. It is time that we ceased to employ a beautiful race of plants for association with such contemptible efforts, and bestowed on the growing of Alpines the same rational considerations that are deemed necessary for the culture of vegetables.

When a pathway is cut through a high bank, as is often necessary in hill gardens, the steep sides may be prepared for planting by the use of stones to form rough walling. Many Alpines succeed better on these almost perpendicular faces than on level ground, and the walls are so constructed that they show no trace of mason's work, but resemble rather the sheer drop of a miniature cliff. Raised banks between two sections of the garden, natural knolls and wild craggy ground covered with furze and heather, suggest themselves as other spots offering inducements for conversion into rock gardens.

Where natural rock stratum exists a few inches below the soil, it will always be better to make the rock garden by excavation rather than by the addition of fresh stone work. The practice of employing artificial stone substitutes, or even carted stone, when already there is a natural outcropping of rock in the ground, is indefensible. In such cases the difference between the real and the apparent is bound to be strongly marked.

Much of the artificial rockwork now so common in both public and private gardens is a poor enough imitation of the real thing. The fault lies not so much in the material itself, as in the manner in which it is employed. The ease with which it can be worked, and its low cost, considering the strength and solidity of its appearance, has led to a new form of desecration in the gardens of the wealthy. I have seen an example of this recently, and can only regret that the owner of that most precious heritage, an old-fashioned English garden, should be so misled as to convert a sunken court into an Alpine peepshow, which might well serve as a sixpenny attraction at Earl's Court. Until the advent of this pernicious stone work, nothing could have been more beautiful than this sunken lawn with its weathered sundial, and terraced borders of herbaceous flowers, completely encircling it like the holiday throng at a Grecian amphitheatre. In the time of roses one felt that here indeed pulsed the heart of the English garden. But now all is changed. The turf and roses are swept away, the sundial no longer tells the summer hours. The place is surrounded by an absurd range of beetling crags and frowning cliffs; the ground is strewn with tufa boulders. Small paths and rocky steps suggest a maze, and *horresco referens*, this "garden" is approached by rockwork tunnels, in which there is sufficient light to reveal rows of artificial stalactites!

If natural stone is unobtainable in the neighbourhood,



PHLOX SUBULATA NELSONI
In Messrs. Barry's Vol. 1, p. 103

the use of the artificial substitute is permissible, but only in moderation. There are men quite capable of imitating very closely the appearance of simple rock forms, or indicating the strata lines in larger exposures. But it must be clearly understood that the employment of such material is only justified when it enables plants to be grown to greater advantage; the thoughtless plastering of a large area of ground with lumps of cement is a hindrance rather than encouragement to the formation of a good Alpine garden. Whilst so many rock plants will thrive on any well-exposed bank, or even level ground, the use of stones cannot be regarded as an absolute necessity. Therefore, unless they are disposed in the best possible manner, it will be better to do without them altogether.

When starting the actual work of rock-garden construction, one thought must be kept prominently in view—the requirements of plant life take precedence over considerations of the picturesque. For this reason, it is the gardener, not the builder, who should arrange the disposition of the rocks. The latter's aims are fantastic, and he wishes his rockwork to look ornamental, even before a single plant has been established. Before anything, the rock garden is a home for plants, and the beauty afforded by the stones themselves, though not inconsiderable, is quite secondary. Granite and limestone may be deeply interesting to the geologist, but they are as nothing compared with the direct appeal of the living plants.

Elevation in rock gardens should always be obtained by masses of earth, and not by stones piled one above the other, with soil in the crevices. The foundation of large banks may consist of brick ends, builders' rubbish, and any convenient material, but above this should be soil to the depth of at least two feet. Too often we see flat rocks laid so as to form a series

of ledges ; or pinnacles in which each stone is carefully balanced on its predecessor, much after the fashion of a child's erection of wooden bricks. Handfuls of soil are crammed into any convenient crevice, and in such unpromising quarters plants are expected to grow. Naturally, as soon as the roots have pushed their way through the ball of soil, they are in a barren air-chamber, and during a dry summer half of them perish. In the well-built rock garden the soil is rammed firmly home, and no vacuum exists between adjacent stones. Rocks which are hollowed out on the under side must be sunk into loose soil, so that the cavity is completely filled. Unless the work is made firm in all its stages, the effect of frost and heavy rain will be to cause soil subsidence, leaving innumerable air spaces.

At this stage it is helpful to study rocks in their natural positions. A tract of English moorland offers a striking object lesson in this respect. On level ground, smooth rocks, usually of fair size and round in shape, rise a few inches above the ling and heather. Occasionally we come upon a slight knoll or ridge, from which a cluster of lichen-stained rocks thrust themselves boldly. The higher the ground, the more rocks, and *vice versâ*. The fact is one which should be remembered in garden-making of this description. Always use the smooth flat stones for the lower levels, and be content with quite a few: higher up the bank the plants will be smaller and the boulders more conspicuous, whilst quite at the top tufts of diminutive Saxifrage and Androsace will cling to the sides of the roughest and most weathered rocks. This is not an attempt to slavishly imitate Nature's methods, but it is adopted because in no other way do the various families of Alpine plants appear to so great advantage.

Stones should be laid in the earth with their broadest sides downwards ; the bases should also be sunk in the



LITHOSPERMUM GRAMINIFOLIUM
At the Crat. at Viresey, Clapham, Lancashire

soil. The practice of thrusting pointed fragments of rock into the ground, so that they resemble rows of jagged teeth, is particularly unfortunate. Lines of natural stratification should be simulated where possible, as this produces a more restful and coherent effect than aimless dotting.

If the stones are of small size, and the rock garden slopes abruptly, it will be necessary to build an occasional course of dry-walling, otherwise the earth will slip forward after heavy rain. The walling must be built very carefully, as it is important that all trace of builder's work shall be concealed. Choosing the largest stones available, a single course should be laid somewhere about the ground level. The earth must be well rammed, and the spaces between adjacent stones filled with soil. A thick layer of soil is now placed above the stones, in the same way that mortar is spread between lines of bricks. A second course of stones is now put into position, no idea of uniformity in size being entertained. The dry-walling is carried up as far as necessary; in the case of almost perpendicular slopes, it will be convenient to make a series of ledges, as these permit of freer planting, and serve to break the monotony.

When setting the stones, it is desirable that each should be placed so that it tilts slightly backwards, in other words, the front faces are not perpendicular. Not only does this serve to strengthen the wall, but the rain, collecting in tiny runnels, soaks into the earth crevices and refreshes the plants. This rule holds good as regards the disposition of all stones and rocks in the Alpine garden. Shelter is not needed for the majority of such plants, and the "penthouse" method of placing rocks, simply produces dry pockets of soil, in which plants struggle vainly for existence.

These sections of dry-walling, which are necessary in

nearly all rock gardens formed on banks, require to be closely planted. The joints and seams between the stones should be completely hidden by Saxifrages, Ferns, Alpine Primulas and various Sedums. Then if the stones have been laid so that they simulate the lines of natural strata, the idea of a wall will give place to a solid, unbroken rock face, in the fissures of which various small plants have established themselves. When building, it is convenient to lay a wooden spline vertically against the front face of the rock wall from time to time: it will then be easy to ascertain if the centre stones are in a line with the rest, or are too much advanced. The latter is a serious error in rock building, as sooner or later it leads to the bursting outward of the whole structure and the loss of many valuable plants.

Apart from considerations of economy, local stone should always be used, as being most likely to harmonise with the character of the surrounding vegetation. Sandstone blocks are extremely useful, this material having the additional advantage of weathering to a picturesque shade. Limestone is also good; but slaty, crumbling material is of little value, as it soon succumbs to the disintegrating influence of the atmosphere. On no account should gnarled tree roots, broken stumps or woodwork of any description be included in the rock garden, a restriction which, needless to say, includes all such anachronisms as fragments of pottery, and general débris from the stone mason's yard.

The paths in the rock garden should be of the simplest description. They need never be of greater width than will permit of two persons walking abreast, whilst the smaller back paths should be capable of admitting but one. A good effect will be obtained by sinking irregular stone slabs at intervals, much in the way that the native rock appears along the foot-worn track on mountain side



KÖNIGSGARTEN, LOWTHER CASTLE.
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or cliff path. Flat stones by the path edge, with an occasional rock jutting out from the garden slopes, will help to disperse any appearance of formality. Coarse grey gravel and small stones will form the best surface, and provide a dry, clean footway in all weathers. There are many small plants which establish themselves readily among the edging stones and at the sides of the slabs in the pathway itself. Such are the Woodsias, Asplenium and other Alpine ferns, the creeping Sandwort (*Arenaria*) and the little violet-flowered Wall Erinus (*E. Alpinus*). Herein lies the beauty of the rock garden, for even as we walk there are flowers crowding the pathway; space is never wasted, there is always some tiny plant willing to occupy the smallest crevice.

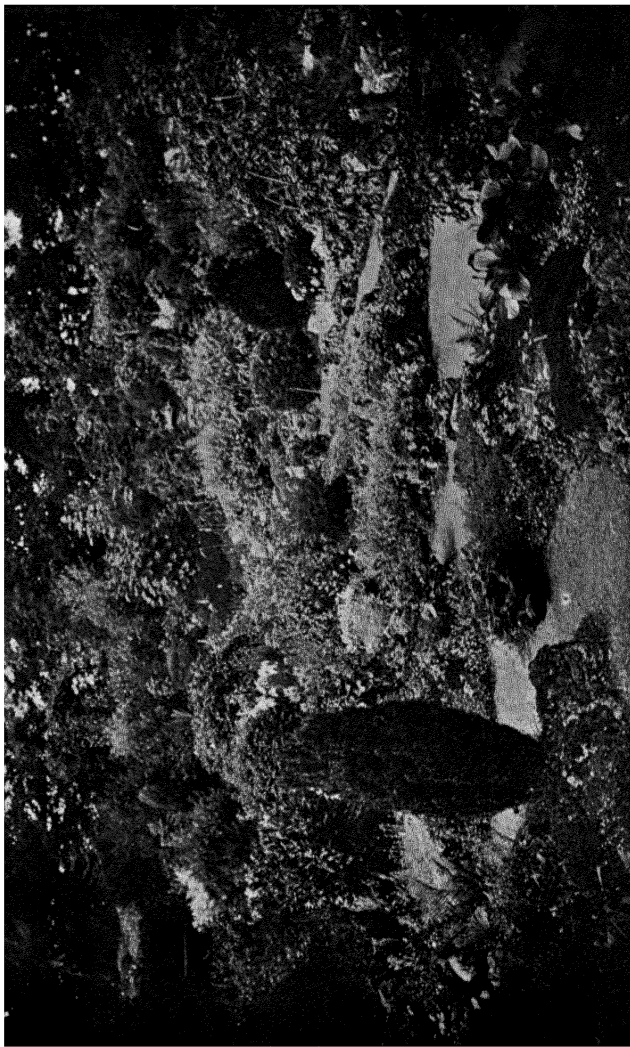
Rough steps connecting the different levels add much to the picturesque appearance of larger rock gardens. They should be quite informal, and if carefully made will look as though they had been roughly hewn out of the living rock. A long narrow stone slab should be fitted to the front edge of each step, or if this cannot be managed, two or even three smaller pieces connected by sunken cement joints. The cement will afterwards be concealed by small plants and mosses, which may be naturalised by the scattering of a few seeds in a pinch of soil. It is not necessary to pave the tread of the steps, but a few pieces of flat stone may be inserted here and there. For the rest, they may be made firm and level with earth and coarse gravel. In a short time the plants bordering the steps will throw out creeping stolons, draping the sides; dwarf *Campanulas* will thrive in the joints, and in the corners, safe from the foot of the careless, *Rockfoils* and *Stonecrops* will thrust forth their tiny blossoms.

CHAPTER III

THE GARDEN OF ALPINES

IN the true Alpine garden will be found only such plants as are indigenous to the Alps. The mixed flora of the rock garden, containing as it does plants from many different sources, here gives place to that of a definite character. This does not imply that our choice is unduly restricted, or that Alpine gardens must be of necessity monotonous. Only in the very largest places could anything like the full number of available plants be included. As for variety, it is endless—evergreen shrubs, exquisite miniatures of lowland kinds, brilliant mosses, lilies, dwarf trailing plants, orchids and ferns, to mention but a few of the types of Alpine plant life which are perfectly at home in English gardens. To know this charming race of plants is to wish their further acquaintance, and when once they have been seen in their native haunts, the desire to grow at least a few of them is inevitable.

Unfortunately, though there are many large and important collections of Alpines, there are but few Alpine gardens. We hear of "collections" numbering so many distinct varieties; one has a plant which another has not; a difficult kind has been coaxed into flower, in another garden it has failed altogether. There is something almost pathetic in the appearance of these Alpine show-places. Single plants dotted here and there, pegs and labels, more obtrusive than the flowers themselves, bell-jars and cover glasses to nurture the weaklings—



ROCK GARDEN, LOWTHER CASTLE (ANOTHER VIEW)
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the whole place looks like a botanical hospital. No general effect is attempted; of unity and purpose there is no sign. When the true ideal of the garden is considered, how puny and pitiful this becomes. With these same materials, or half of them, beautiful pictures might be evolved. Brave masses of colour, stones and rocks matted with jewelled mosses, drifts of snowy Saxifrage, carpets of azure Gentian, a gleam of silver and gold from clumps of Alpine Ranunculus, the deep green of fern and the cobweb grey of Edelweiss.

The Alpine garden should be situated on the highest ground available, in fact the more exposed the site the better. The summit of a rocky knoll, or the sides of an earth ridge will generally ensure abundant sunshine for the plants. But little rockwork is needed: in Devonshire, Cornwall and other places where the geological formation tends to produce natural rock features, no artificial work should be attempted. In other districts, quite a large garden may be laid out with the aid of a few cart-loads of rough boulders, but small stones should be mixed with the soil in order to secure free drainage and retain moisture. Alpines, being of small, compact habit, demand restrained treatment in their surroundings. Besides, the use of comparatively few stones permits of larger grouping and bolder masses of colour in the earth spaces, than would be possible if a few chinks and corners among piled up rocks were the only positions available for the plants. So many Alpine gardens are all rocks and no flowers; the former thrust themselves on our notice, for the latter we must search.

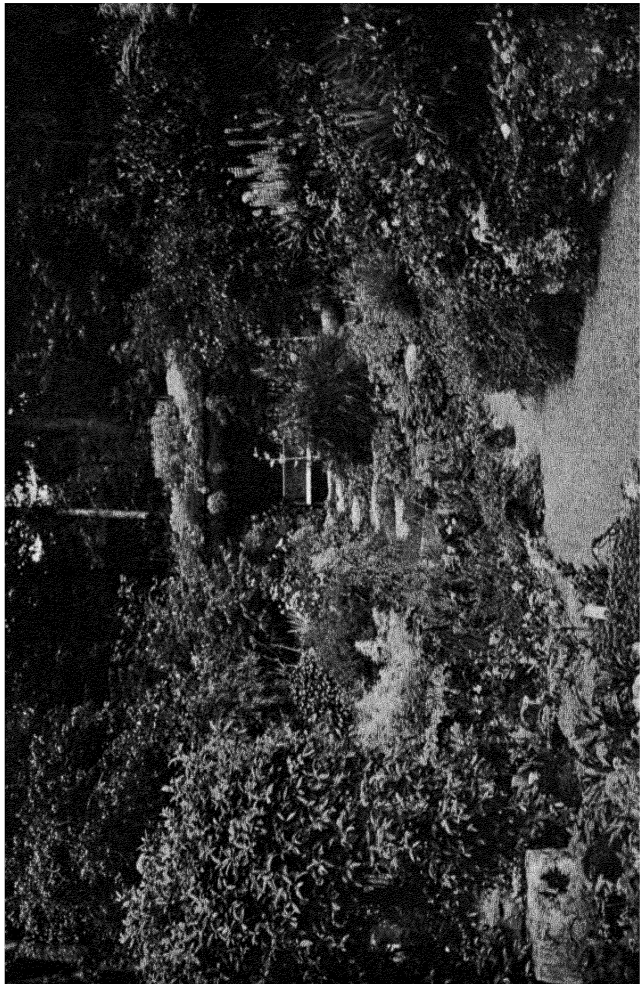
A common cause of failure in the cultivation of Alpines, is the unsuitable character of the soil to the varieties chosen. Few classes of plants are more exacting in this respect. It is true that certain kinds will accommodate themselves to varying conditions, and make a brave show even under adverse circumstance. But it is never wise

to depend too much upon suspected adaptability: not infrequently it fails altogether. The geological formation of the Alps includes certain well-defined classes of soil, with a flora peculiar to each. On limestone soils the beautiful Pasque-flower (*Anemone Pulsatilla*) is invariably content, its violet flowers scattered over the grassy hill-sides in early spring; on ordinary garden loam it frequently fails altogether. *Rhododendron Chamæcistus*, though strictly speaking a native of the Tyrol, is another chalk-loving plant, whereas *R. ferrugineum* prefers a granite soil. Among the large family of Alpine Gentians, such varieties as *angustifolia* and *Clusii* are always best on limestone, whilst on the granite soil their place is taken by *Pyrenaica* and *Kochiana*.

Having regard therefore to the welfare of plants in the Alpine garden, care should be taken to make the choice of varieties entirely subservient to the class of soil with which we are dealing.

Except in very large gardens it is really unnecessary to provide special soil, that is supposing that a garden picture and not a botanical collection is the object in view. There are sufficient plants peculiar either to the granitic or calcareous formation for us to make a garden of either. The gardener who grows plants for their beauty and not for their rarity realises that he can do better by keeping to varieties that suit his soil, than by adapting the soil to accommodate unwilling aliens.

In a garden of any size an endeavour should certainly be made to provide an ideal home by means of grassy banks or an approach of fine turf for some of the beautiful flowers of the Alpine meadows. Naturalised in this way they will appear to greater advantage and flower more profusely than in the bare earth spaces among the rocks. In close grass *Anemone Pulsatilla* is at its best, and in the same place the lovely Alpine *Primula* (*P. Auricula*), quite distinct from the florist's varieties,



WILLIAM

ANDERLY HALL

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may find a home. The Glacier Pink (*D. neglectus*), with its tufts of grass-like foliage and clusters of rosy flowers, is another good plant for naturalising. From the pasture lands of the Austrian Alps comes a charming Harebell, (*C. pulla*), a true gem for the grass. Among the Gentians is the May-flowering kind (*Alpina*) and the larger Willow Gentian (*G. asclepiadea*), the latter, however, more suited to positions among coarse grass than in the section devoted to the smallest plants. The Vernal Gentian (*G. verna*), common on English hillsides as well as in the Alps, prefers limestone, and is never so happy as when exposed to the fullest sunshine, in a cool, moist soil. Where the rocks meet the grass a few patches of the Alpine Heath (*Erica carnea*) will mark a change in the planting: in early spring the rosy flowers are particularly welcome. *Ranunculus aconitifolius*, of which our Fair Maids of France is the double form, is one of the best Alpines for naturalising, and is especially free flowering. Finally there are the Alpine violets, which carpet the mountain meadows with a filmy veil of blue. The Spurred Violet (*V. calcarata*) and the little Two-flowered Yellow Violet (*V. biflora*), are among the brightest and best flowers to grow in the grass near the garden of Alpines. All the above may be naturalised in close turf, and with occasional division and replanting will continue to increase in size and beauty every year.

Naturally these small Alpines are not suited to coarse pasturage or for association with the tall growing grasses which thrive in waste places. On the poor limestone soil which best suits them, only the smallest and poorest grasses will be found. Such kinds as the Sheep's Fescue (*Festuca ovina*), with wiry, setaceous leaves will form an excellent carpet without choking the Alpines out of existence.

Higher up the mountain sides where the meadow land gives place to sparse tufts of dry bents and wiry grasses,

the character of the Alpine plants changes. Here the children of the highlands and the lowlands meet. As yet, we are below the line of snow and glacier, consequently the flowers are not yet dwarfed beyond the limits necessitated by ordinary full exposure.

Blue is a colour particularly appropriate, contrasting as it does with grey rock faces and the vivid green of Alpine mosses. The Carpathian Harebell (*C. carpatica*) flowers in July and August, its spreading tufts of large cup-shaped blossoms filling a good sized recess. Its relative the Mont Cenis Harebell (*C. Cenisia*) is much smaller, with bright rosettes of leaves and blue flowers; it should be grown in the highest positions and in the poorest soil. *C. alpina* and *C. pusilla*, the latter best in a moist gritty loam, produce a charming effect when planted in quantity. The Windflowers form a procession of colour throughout the greater part of the year on the hillsides and meadows of Europe. For our Alpine garden we may select *Anemone alpina*, a large and graceful kind, requiring a deep soil. The creamy yellow variety *sulphurea*, though not always easy to establish, contrasts very favourably with the rich blues of its relatives. The Common Hepatica (*A. Hepatica*) blooms in March, and in sheltered places the foliage is evergreen. *A. apennina*, found also in our own woodlands, is a delightful little plant. Nearly all the Windflowers like a chalky soil. *Erinus alpinus*, with violet flowers produced in racemes, is suited to small rock chinks and the earth crevices between stones. In a patch of moist peaty soil, if such exist, we may plant the Bavarian Gentian (*G. bavarica*) with flowers of iridescent blue rising from small tufts of foliage. *G. angustifolia*, *G. pyrenaica*, *G. Kochiana*, stemless with dark blue flowers spotted with green, and *G. Clusii*, are all hardy perennials, and give those exquisite shades of blue for which the Gentians are famed.



A CLUMP OF DWARF IRIS (*I. PUMILA*)
Photo. by Mr. Charles Tronger

The family of Saxifrages includes many varieties which are purely Alpine, in fact the genus is probably more fully represented in the mountain ranges of the Alps than any other. They are of the simplest culture and embrace plants of such varied habit, that a beautiful garden might be made of the Rockfoils alone. The large leathery-leaved kinds should be grown in the lower terraces, the silver-hued and green-tufted varieties in the middle spaces, whilst the tiny moss-like growths of the smallest of the genus, will cling to the joints and crevices of the highest rocks.

The Pyramidal Saxifrage (*S. Cotyledon*) is one of the largest, and is readily increased by offsets from the parent plants. Its large silvery leaf rosettes and spikes of white blossoms contrast vividly with patches of blue flowers. *S. longifolia* is even larger, with grey leaves dotted with white, and large panicles of creamy flowers. In a crevice among the rocks the huge leaf tufts are most striking, and providing the roots can penetrate deeply, it will be quite at home in a perpendicular wall. The plant seeds freely and the stock may be readily increased. *S. Aizoon* is valuable more for its silvery foliage than for its flowers; *S. lantoscana*, in the incrustated-leaves section, has a drooping flower spike with bright clusters of narrow leaves. Of altogether smaller habit is the tiny *S. cæsia*, which at first sight might be taken for a small silvery moss clinging to the surface of weathered boulders. The flowers are white, and the plant though not always easy to establish, usually thrives in sandy soil which is not allowed to become dry in summer. *S. Burseriana* is one of the most precious plants in the whole of the Alpine garden. As early as January the silver foliage is flecked with brown buds, each carried on a small red stalk. It does best in a well-drained chalky soil, and soon spreads among the stones. *S. aretioides* is so diminutive that special care must be

24 ROCK AND WATER GARDENS

taken to prevent other plants from overgrowing it; the golden blossoms appear in April above the silver leaf cushions. A moist sandy soil suits it, and propagation is effected by seeds or division. Other good Alpine Saxifrages suitable for various positions are *S. diapienioides*, *media*, *moschata*, *bryoides* and *squarrosa*.

In the arrangement of garden pictures, flower masses must be relieved by the introduction of foliage plants. Fortunately the Alps are by no means lacking in suitable flora for this purpose. Many ferns and small native shrubs are available, and by forming a groundwork for bright colour masses, enable the composition of beautiful pictures.

The cool, deep green of the Spleenwort Ferns affords a happy contrast to the rich blues and dead whites of Gentian and Saxifrage. Two good kinds are *Asplenium germanicum* and *A. Selosii*. The Shield Ferns (*Aspidium*), which include also the *Polystichum*, are many of them perfectly hardy, requiring, however, abundant water during the hot weather. *Montanum* is a true Swiss variety. Between low masses of rock, small clumps of *Woodsia* look beautiful, especially when the stones are mantled with Sedums and vivid mosses. A slightly peaty soil suits them best, and they require plenty of water. *W. hyperborea* and *W. ilvensis* are especially suitable. In shady corners where the drainage is perfect the Bladder Ferns (*Cystopteris*) soon make themselves at home. *C. alpina*, one of the smallest, is also one of the best. *Lomaria Spicant* and the hardy *Cheilanthes* are other precious ferns for the garden of Alpines.

Though none will deny the beauty and diversity of the plant families which make the Swiss pastures and lower Alps veritable gardens of Nature, yet the true charm of Alpine flowers is only felt when we ascend to the region of ice and snow. Here at last we realise "the powerful grace that lies in herbs." Dull and unimagina-



A ROCK BORDER

Photo. by Mrs. De/tes Broughton

tive must be the mind that is not moved when amidst the savagery of Nature, the chaos of rock and dreary waste of snow, a tiny plant springs forth and bravely fights for life. In lowland pastures it would fail to arouse a moment's thought, but here, in the stillness of the eternal solitudes, its message of life and hope is trumpet tongued. The thinking mind values flowers no less for their capacity of arousing emotions, than for their gifts of colour and form, and I may be pardoned if, in a book of a practical nature, I claim for the smallest of cultivated plants, a power which is not equalled by the most majestic tree or gorgeous exotic. For this reason, a particular interest attaches to the small mosses and diminutive plants which in the Alpine garden are afforded the highest positions.

The smaller varieties of Androsace and Saxifrage, which thrive in the grit-filled clefts beside mountain glaciers, often fail altogether in garden soil. It is ridiculous to speak of such plants as "delicate" Alpines, or to infer that our climate is unsuited to their needs. As a matter of fact, the soil in most Alpine gardens is far too rich, and these plants from the highest regions die from over-nutrition. The earth chinks should be filled with the poorest gravel soil, and with full exposure to sun and free drainage the majority will do well.

In town gardens Androsaces are difficult to grow, as their small green leaves soon become coated with soot and dust. They are diminutive plants of the Primrose order, and in their native Alps flower directly the snow has melted. Small fissures in the upper part of the Alpine garden should be prepared for their reception, a mixture of gritty loam and sand, with a small proportion of peat, being packed into the crevices. The plants will never thrive on shallow ledges; the roots should strike downwards for at least a foot. During summer

26 ROCK AND WATER GARDENS

drought the small fibres will wrap themselves around stones and rock fragments, finding abundant moisture in the cool depths. In the granite regions of the higher Alps the following *Androsaces* are found:—*A. glacialis*, *A. carnea*, and *A. Vitaliana*, the two former rosy, the latter yellow. Chalk loving kinds are *A. chamaejasme*, pink; *A. helvetica*, white; *A. pubescens*, white with yellow eye; and *A. villosa*, pink.

A group of dwarf *Campanulas*, comprising *C. Allioni*, *cenisia* and *excisa*, will swell the list of miniature plants. *C. Allioni* forms a close network of succulent roots, the stemless blue flowers being raised on small rosettes of leaves. It is found on granite soil. *C. cenisia* (Mont Cenis Harebell) is another free rooting kind, with blue flowers and bright leaf rosettes. These *Campanulas* do well on perpendicular rock faces, clothing the joints with exquisite flower and leaf clusters.

A tiny *Saxifrage*, *S. caesia*, almost like a silvery moss, is another native of the high Alps. It requires a sandy soil, and must not be allowed to suffer from dryness during the summer. The Cobweb Houseleeks (*Sempervivum*) demand full exposure to sun; in flat spaces among the small Alpines their quaint silver leaf rosettes and pink flowers are very distinct. To combine with these there are many other families of plants, the *Primulas* and *Gentians*, *Artemisia* and *Achillea*.



ANEMONE PENNSYLVANICA
fl. str. Kitchway's Nursery, Langport

CHAPTER IV

THE ROCK GARDEN IN SPRING

WITH the first breath of spring bright patches of colour will fleck the slopes of the rock garden, and with the lengthening days the flowers from mountain and hill clothe themselves in summer garb. Quite early, though the keen winds check all tender vegetation, the Alyssum and Rock Cresses shake out their banners of purple and gold. A little later the Cushion Pinks and snowy Arabis mantle the ledges with rosy blossoms and cascades of virgin white. Now is the rock garden at its brightest and best. After the barren greyness of winter, when the flowers in garden borders have scarcely roused themselves from sleep, here is the fulness of life and colour, the fulfilment of the eternal promise of spring.

To which class of spring flora are we most indebted for the freshness and charm of the rock garden at this season? Surely our chief cause of thankfulness is to be found in the myriad bulbous plants, the Alpine Irises, the Fritillaries and Muscari, the Narcissi from mountain pastures, the Snowdrops, Chionodoxa, Snowflakes and Scilla. If rock gardens were formed for these flowers alone, they would still be worthy of our care, and in this chapter only bulbous plants will be considered. It will be a good day for English gardens when the practice of growing spring bulbs in ornamental lawn beds is regarded with the same disfavour as parterres of broken brick or the once-belauded carpet bedding.

28 ROCK AND WATER GARDENS

There is no comparison between the stiff lines of Snowdrops and Crocuses used so frequently as border edgings, and the same flowers grown in drifts and colonies among the stones in the rock garden. There is, too, so much variety among these bulbous plants that they may be used with certainty of success under almost any circumstances.

Before the winter snow has disappeared, the narrow leaf spikes of *Iris reticulata* begin to show above the ground. A small colony of these flowers produces a beautiful effect in the rock garden. There are several varieties, but none can exceed the gold and violet splendour of the common Netted Iris. *I. r. cyanea* is a dwarf blue form, and *purpurea* with rich purple flowers is adapted to warm sheltered corners. *Krelagei* blooms much earlier than others of the genus, but neither the colouring nor the fragrance are so pronounced as in the type. The Netted Irises are not particular as to soil, but prefer that of a somewhat sandy character. Grown in bold clumps, with a groundwork of small Ferns and Mossy Saxifrages, they are among the best of early bulbs.

Another good dwarf Iris is the Armenian variety, *I. Bakeriana*. It is much like *reticulata* in colour, but possesses a distinctive charm in its violet-like scent. The Iberian Flag (*I. iberica*) is worth growing if only for the singular beauty of its flowers; the contrast between the purple-veined falls, with their sheen of gold, and the violet-pencilled standards is very striking. A warm, well-drained soil is necessary, as the rhizomes decay unless they are kept dry during the winter. When planting, the roots should be surrounded with sand. *Iris cristata* (Crested Iris) is a gem for the rock garden, where it may be grown on sunny ledges with a carpeting of small-leaved Alpines. It is only a few inches high, with broad leaves and pale-blue flowers,



AVERAGES
J. Clapham, Leicester

At the

pencilled with darker markings. In the border, this exquisite little flag would be lost, but a sunny corner among the rocks offers a charming alternative to growing it in pots, where its beauty is shown to but poor advantage.

Quite the best dwarf Iris for colour effect is *I. pumila*, which, owing to the size of its flowers, forms compact masses of violet or pale blue. It grows about six inches high, and from the sturdy character of its leaf growth, smaller plants are not required to hide the soil. Most of the early flowering bulbs produce but few leaves, and therefore look best rising from sheets of dwarf evergreen foliage. This gives a far better effect than the bare earth; moreover, in the latter case the blossoms are liable to be stained during rainy weather.

There are many other Irises for the rock garden, and it is a never-ending pleasure to experiment with new kinds, supplying suitable soil and trying the effect of a few bulbs in sunny corners. In addition to those already mentioned, *Korolkowi*, rosy-lilac; *balkana*, claret and white; and *Cengialti*, light-blue, should be remembered.

The *Narcissi* are another large family of bulbous plants, and to them we owe an everlasting debt of gratitude for many precious garden pictures. The larger kinds should be naturalised in grass, in woodland vistas, and among choice shrubs, but the smallest and daintiest varieties are best in the rock garden. Most of the dwarf Daffodils prefer a slightly peaty soil; all demand good drainage and sharp sand around the bulbs. A light top dressing is an incentive to fine bloom, and the delicate kinds, which are liable to injury from spring storms, should be afforded the warmest and most sheltered situations.

The Hooped Petticoat Daffodil (*N. Bulbocodium*) is found growing wild in many of the southern European

countries. It cannot be considered a hardy variety, but is worthy of a good position. There are various forms all having rush-like leaves. Conspicuous, with large yellow leaves, is very early, as also is *citrinus*, the pale sulphur French kind. The White Hoop Petticoat (*N. B. monophyllus*) is an exquisite variety from Algeria. *N. triandrus* (Ganymede's Cup) and its sub-variety *albus* (Angel's Tears) are among the daintiest of the race, but must be carefully sheltered from high winds. The Rush Jonquil (*N. juncifolius*) is sweetly scented and not difficult to establish. Though somewhat expensive, a small clump of the Queen Anne's Jonquil (*N. odorus minor*) well repays the outlay; on warm soils the pale yellow double flowers are very striking. If the rock garden contains a somewhat moist corner, it would be worth an effort to grow the Cyclamen Daffodil (*N. cyclamineus*). The flowers are bright golden, the leaves a vivid green. On peaty soils it would almost certainly succeed.

Beside the *Narcissi* with their note of creamy yellow, we may place the *Scillas* and *Muscari*, giving us a procession of blues from porcelain to deep indigo. *Scillas* are of the simplest culture, and when once established merely require an occasional top dressing. The best known and perhaps most beautiful form is the Siberian *Scilla* (*S. sibirica*), with flowers a delicate shade of pale blue. It is a vigorous kind, and the clumps should be divided every few years. On a warm, sandy soil it blooms in February. One of the most delightful ways of growing this *Scilla* is to plant bold colonies near the margins of Alpine shrubs. The sight of the blue drifts of flowers escaping from the shelter of dark foliage, and in small colonies descending the rock slopes, is a spring picture of true charm. Later in the year the Spanish *Scilla* (*S. hispanica*) raises its stout racemes of pendent bells. It is a vigorous kind, and is suitable for natural-

ising in grass and on the outer flanks of the rock garden. The white variety (*alba*) and *rosea*, a pink form, are also good. For association with choice Alpines it is a trifle too vigorous. *S. bifolia*, with deep blue flowers, is the type from which several handsome varieties have been evolved. *S. b. taurica*, *S. b. praecox*, flowering very early, and *S. b. alba*, are all worth growing. The Italian Scilla (*S. italica*) combines extreme hardiness with brilliant colouring and sweet perfume; in semi-wild places we must not forget the improved forms of the Woodland Bluebell (*S. nutans*). Deeper shades among the Scilla blues may be provided by patches of Grape Hyacinths (*Muscari botryoides*), which will answer to the same treatment.

Other blue flowers are the Chionodoxas (Glory of the Snow), of which *C. Luciliae* and *C. Sardensis* are desirable. They are at their best after they have had time to become thoroughly established. The Bulbous Fumitory (*Corydalis bulbosa*), with purple blossoms produced in April, may be included in large rock gardens, and in really warm localities the lovely Chilean bulb *Tecophylaea cyanocrocus* gives us a shade of blue hardly to be equalled. Finally, there are the Dog's Tooth Violets (*Erythronium*), with spotted leaves and single, drooping flowers. *E. Dens-canis*, the best known of the family, thrives in fairly moist sandy soil, but requires a sunny position. The white, tooth-like bulbs should be planted deeply, and division every few years will increase the stock. This variety is of European origin; others come to us from America. *E. giganteum* and *E. grandiflorum* are large, white flowered, and succeed on slightly peaty soil.

Blue is a colour which in garden pictures calls for contrast. In the spring rock garden, patches and drifts of Snowdrops and *Leucojum* should be associated with the Scillas and *Muscari*. There are many varieties of

Snowdrops, but we need ask nothing better than *Galanthus Elwesii*, with its pure, shapely flowers and bright spikes of green leaves. In close, retentive soils it is disappointing, but is perfectly happy in a mixture of good loam, leaf mould, and sand. Snowdrops should never be grown in open beds, when such ideal positions as shrubbery and woodland, close turf and, above all, the rock garden, are available. The Spring Snowflake (*Leucojum vernal*) may be regarded as a large and handsome form of the common Snowdrop. It grows well in similar positions, and with the same class of soil. In a shady corner, with peaty soil, a clump of Wood Lilies (*Trillium*) display their pure white three-petalled blossoms above rich shining leaves.

Other small bulbous plants there are in plenty. The Cyclamens, *europæum*, *Atkinsii* and *Coum*; the Spring Star-flowers (*Triteleia*) and Fritillaries, *Anomatheca* and the American Cowslip (*Dodecatheon*).

Several of the smaller varieties of Tulips are commonly recommended as suitable for rock garden planting, such kinds as *Greigi*, *sylvestris* and *Kaufmanniana* especially. To my mind, however, they never look well in such positions. Their stiffness and formality ill accord with the wild freedom of mountain plants, and their blaze of colour, glorious though it be, blinds us to the beauty of many a dainty flower and shrub. The wild Tulips are delightful in woodland clearings, meadow sides and shrubbery margins, and for the florist's kinds nothing can exceed the suitability and charm of old-world Tulip gardens, in the Dutch style,—a formal arrangement for purely formal flowers. They even look well in borders, so that it seems unreasonable that they should occupy valuable space in the rock garden, which affords a home for many plants that will not thrive elsewhere.

The same feeling applies to the dwarf Liliiums,



At the Crown Nursery, Clapham, Lancaster

elegans, tenuifolium and others. These noble flowers are so much better suited to border grouping, or the peaty soil among Azaleas and Rhododendrons, that despite the opinions of others, I never commend them for the rock garden. Later in the book suggestions are offered for growing the best varieties of Liliiums on the outskirts of the bog garden, probably the ideal place for them.

It has seemed best to give some reason for thus excluding these two prominent families of bulbous plants; otherwise the omission might appear unaccountable. As it is, few are able to include in their gardens more than a few of the lovely children of mountain and moorland, and to them we look for the happiest effects in the garden of rock plants and Alpines.

CHAPTER V

ROCK GARDEN PLANTS

IN the planting of rock gardens, we must endeavour to secure by means of careful selection and judicious grouping, an impression of breadth and boldness in the colour masses. Nothing is more satisfactory when contemplating any form of garden art, than the feeling that the designer has from the beginning worked with the idea of achieving some definite purpose; that with a certain ideal ever before him, labour and thought have been systematically devoted to the fulfilment of such purpose. This is especially so in the case of rock gardens, which are often planted without any consideration as to their appearance when completed. New plants are obtained from time to time, and as they are received are set in any positions available, regardless of their suitability or otherwise for association with those already established. Bare places must be filled, but that is no reason why the first seedlings that come to hand should be thrust into them, with the mere object of hiding the soil. Beautiful garden pictures are only possible when each small plant is made to play its part in the building up of a definite scheme, constituting either by its colour, habit or contrasting value, to the improvement and completion of the whole. Too often the rock garden is but a thoughtless jumble of scattered units, of materials which in careful hands would amply suffice to ensure a really satisfactory ensemble.

There are hundreds of plants suitable for rock



AICULLAS ON ROCKERY
Photo. by Mr. Charles Jones

gardens, but only such as are really desirable should be included. The mere fact of rarity should not influence selection: the commonest and easiest grown flowers are often the most beautiful. Nor should too many varieties be grown. It is better to plant two or three representatives of a family in bold groups, than to obtain perhaps four times the number of different species, with but a single plant of each. Hybrids and sub-varieties are often but inferior reproductions of their types, and it is to be regretted that nurserymen should lavish extravagant praise on high priced novelties, ignoring old established favourites because they happen to be both cheap and plentiful.

However, variety must not be sacrificed to an undue spirit of conservatism. There are certain plants which are perfectly easy to grow, and at the same time give beautiful effects. The temptation to overcrowd the garden with these hardy, free-flowering subjects, which make a lavish display in return for a minimum of trouble, is only too prevalent. In this way less adaptable plants are excluded, and a certain sameness and lack of interest ensues in the rock garden picture.

For rapidly establishing themselves in cushion-like tufts and mantling the edges of the larger stones, the Rock Cresses (*Aubrietia*) are unequalled. They will grow in almost any soil, and may be increased by seeds or division. *A. purpurea* and *A. deltoidea* are the oldest of the group and have long been favourites in English gardens: *A. groeca*, lilac-purple, and *A. Campbelli*, deep violet-blue, give lighter shades among the purples. Near these, a sheet of snowy *Arabis* would afford a brilliant contrast, and to complete the picture we would arrange a cluster of golden *Alyssum*. These three families of rock plants, all perfectly hardy, provide materials for creating one of those bold colour effects, which are often more welcome than subtle harmonies.

Another good grouping would consist of *Iberis sempervirens* and the yellow Alpine Wallflower (*Cheiranthus alpinus*). This combination is particularly beautiful on an almost perpendicular rock face, the deep green and white curtain of Candytuft falling among the golden Wallflowers, which thrive exceedingly in the earth fissures of rock walling. An exquisite picture is achieved by a few plants of *Lithospermum prostratum* (Gromwell), and a cluster of the Pyramidal Saxifrage (*S. Cotyledon*). Given a large boulder, rising from an earth ledge, we may plant the former so that it falls, a cascade of gentian blue, into the lap of the silver-leaved Rockfoils. In addition to the beauty of blue and silver, tall pyramids of white Saxifrage flowers will rise in graceful clusters before a curtain of azure.

Between scattered clumps of the Blue Winter Windflower (*A. blanda*), drifts of Snowdrops may wander freely; a carpet of the white and silver *Saxifraga cæsia* gives an added beauty to the rosy tufts of the Glacier Pink (*D. neglectus*). *Saponaria ocymoides* forms with the Creeping Sandwort (*Arenaria*) a mist of pink and white over rock ledges and grey stones; the graceful flower sprays of Maiden's Wreath (*Francoa*) are seen to greatest advantage when backed by the rich green foliage of Alpine Rhododendrons and other shrubs.

It would be easy to suggest further combinations, either for form or colour, but the value of garden books lies more in suggestion than in the laying down of fixed rules. A garden heedlessly planted can never be really beautiful; good pictures require something more than the mere covering of a canvas with splashes of paint. The grouping of plants, so that each individual is of some benefit to its neighbour, is a pleasant task, and calls forth the best instincts of the lover of Nature.

Rock plants are so numerous that only the best of the different families can be mentioned. These will suffice



ROCK GARDEN WITH GRASS APPROACH
Photo by Mr. F. Mason Goss

for a garden of moderate dimensions; in one of large size it would be better to adopt bolder grouping with the same plants, rather than make additional space an excuse for the inclusion of inferior kinds.

ROCK GARDEN PLANTS

Acæna. Dwarf plants for carpeting. Only the New Zealand variety (*A. microphylla*) should be grown, and that for the sake of its crimson spines.

Achillea. The best of the rock garden kinds are *umbellata*, with silver foliage and white flowers, and *tomentosa*, bright yellow. A fairly dry soil suits them best.

Adonis. Pheasant's Eye. A very precious plant. *A. vernalis* (Ox-Eye), forms dense clumps of fern-like foliage, from which rise large yellow flowers. It blooms in spring, and is suited to a good loamy soil. Division or seeds.

Æthionema. An Alpine sub-shrub. *A. grandiflorum*, forms dense spreading masses of foliage, covered with stout racemes of rosy flowers. Owing to its prostrate habit it is useful for mantling the edges of rocks. Well drained loam. Seeds. This is quite one of the loveliest of Alpine plants.

Alyssum. Madwort. A charming spring flower, rejoicing in the fullest exposure. *A. saxatile* (Gold Dust) with its brilliant corymbs, blooms in autumn as well as spring.

Androsace. Described elsewhere. The best kinds are: *A. carnea*, *glacialis*, and *helvetica*.

Anemone. Wind-flower. *A. apennina*, *A. blanda*, *A. Pulsatilla*. See chapters on Bulbous Plants and Alpines.

Antennaria. Cat's Ear. Dwarf plants, of which *A. tomentosa* forms a silver carpet of foliage. *A. dioica*, with pink flowers, is worth growing. Simple culture.

38 ROCK AND WATER GARDENS

Anthemis. Rock Camomile. *A.* Aizoon forms pretty tufts, with daisy-like flowers.

Anthericum. St Bruno's Lily. The lily of the Alpine pastures. A deep, sandy soil suits it, and the roots may be divided in autumn. A carpeting of Saxifrages or other dwarf plants look charming as a groundwork for a clump of St Bruno's Lily. *A.* *Liliastrum.*

Arabis. Rock Cress. Well known and invaluable. *A.* *albida* (White Rock Cress) and *rosea* a deep pink form, should be grown. Succeeds in any soil.

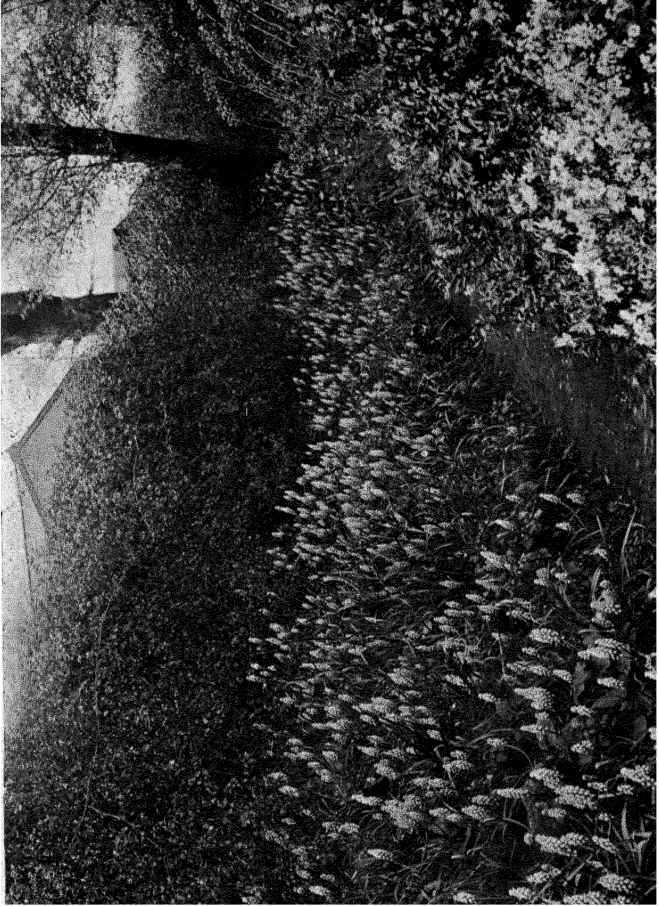
Arenaria. Sandwort. Beautiful plants, with compact masses of foliage, and myriad blossoms. *A.* *balearica* (Creeping Sandwort) and the Mountain kind (*A.* *montana*), should be in every rock garden. Seed or division.

Armeria. Thrift. Dense tufts of grass-like foliage, with rosy flowers. *A.* *cephalotes* (Great Thrift), and *A.* *caespitosa* (Tufted Thrift) are suitable for association with tall and dwarf plants respectively. Poor sandy soil. Seed.

Aubrietia. Purple Rock Cress. Though common rock plants, they are of the utmost value. *A.* *deltoidea* and *A.* *groeca* are among the best. Any poor gritty soil will grow Aubrietias, and they are readily increased, either by seeding or division.

Bulbocodium. Spring Meadow Saffron. Among the spring flowers in the rock garden, the deep, rosy flowers of *B.* *vernum* are very beautiful. Warm, sandy soil. Division of the bulbs.

Campanula. Harebell. One of the most beautiful families for the rock garden, The Carpathian Harebell (*C.* *carpatica*) bears light-blue flowers at midsummer: *C.* *cæspitosa* (Tufted Harebell) is excellent for rock steps and the edges of stone flags: the American Harebell (*C.* *pulla*), a lovely kind, does best in slight peat and sand. Other good varieties are *cenisia* and *garganica*, the latter suited to rock ledges, over which its pale-blue



ROCKERY BANK WITH GRAPE HYACINTHS

flower racemes hang in great profusion. Campanulas are so charming that in their case we cannot well have too many species.

Cerastium. Mouse-ear Chickweed. Dwarf, silver-leaved Alpines, bearing numerous white flowers from May to July. The variety *Biebersteini* is easily grown and is one of the best.

Cheiranthus. Wallflower. For rock garden grouping, the bright orange variety *Marshalli* is the finest. The Alpine Wallflower (*C. alpinus*, syn. *Erysimum ochroleucum*) is valuable for the joints of rock walling. The perennial Wallflowers thrive in poor soil and a dry position in winter. Cuttings.

Colchicum. Meadow Saffron. Drifts of the rosy flowered *C. autumnale* look exquisite in the grassy approaches to the rock garden. The leaves die down before the blossoms appear, hence the necessity for a carpeting of grass or dwarf Alpines. They are easily grown, increase freely and brighten the garden at a time when flowers are scarce.

Coronilla. Scorpion Senna. Though little grown, this is a desirable plant. *C. iberica* forms dense tufts of trailing foliage, which in June become studded with vivid yellow blossoms. *C. varia*, with pink and white flowers, is also good. A fair depth of soil is essential.

Dianthus. Pink. This large family includes several species of value. The Cheddar Pink (*D. cæsius*) thrives in gritty crevices between adjacent rocks. On rich soil it soon dies. *D. deltoides* (Maiden Pink), a charming pink spotted variety, is of particularly easy culture. The Glacier Pink (*D. neglectus*) thrives in sandy loam, its dwarf tufts of foliage and myriad rosy flowers producing a charming effect on the higher ledges.

Dodecatheon. American Cowslip. These plants should be grown in similar positions to the Alpine Primulas, the roots being divided from time to time and replanted in

sandy loam. *D. integrifolium* blooms in March, the flowers a purplish-crimson. *D. Meadia*, with drooping umbels of purple flowers, is another good kind.

Draba. Whitlow Grass. Among small mosses and in rock crevices a few plants of *D. aizoides*, with their brilliant cushions of yellow flowers, are interesting Alpines.

Dracocephalum. Dragon's-head. Easily grown plants of the Sage family. *D. grandiflorum* is covered in July with dense clusters of rich blue flowers. Division or seed.

Erigeron. Fleabane. Though most of the family are border plants, *E. alpinum grandiflorum* should be grown in the rock garden. The mauve, daisy-like flowers are produced very abundantly in late summer. Well drained loam.

Erinus. Wall Erinus. On bare rocky places the racemes of lilac flowers and tufted foliage of *E. alpinus* are most welcome.

Geranium. Cranesbill. The two rock garden kinds are *G. argenteum* and *G. cinereum*. Among the smallest Alpines, the clusters of red flowers are charming. Seed.

Helianthemum. Sun Rose. There are few more beautiful rock plants than these dwarf trailing shrubs. For mantling sunny ledges they are unequalled. They are quite hardy and succeed in any sandy loam. From a long list of varieties, we may choose *H. pilosum*, white: *H. grandiflorum*, yellow: and *H. roseum multiplex*, double pink. When in full bloom these flowers are of exquisite beauty.

Houstonia. Bluets. A grassy little plant, with numerous dainty blue flowers on slender stems. A sheltered corner with sandy soil should be afforded.

Hutchinsia. *H. alpina*, a good white flowered Alpine for association with the dwarfest plants. Sandy soil.

Leontopodium. Edelweiss. The well known hoary-

leaved plant, with yellow flowers. It is of the easiest culture and must ever be of interest, though for some its associations are of the saddest.

Linaria. Toadflax. For rock crevices and the joints in rough steps *L. alpina* is useful. *L. antirrhinifolia* forms dense tufts covered with purple flowers, and is a bright note of colour among the stones. Moist, sandy soil.

Linum. Flax. The yellow *L. flavum* and the exquisite Narbonne Flax (*L. narbonnense*) with sky-blue flowers, are both good. The latter should be planted in somewhat rich soil, if it is to bloom freely.

Lychnis. Campion. The best of these is *L. Lagascae* with bright rosy flowers. Rock fissures with gritty soil. Seed.

Mertensia. Little known but very graceful plants. *M. dahurica* and *M. alpina*, both with drooping clusters of bright blue flowers, may be grown in sandy soil. Owing to their slender habit, the *Mertensias* should be given sheltered positions.

Myosotis. Forget-me-not. *M. alpestris* is a gem for rocky places. Its light blue flower masses harmonise perfectly with those of its relative *M. dissitiflora*, which are of a deeper shade. Moist loam.

Omphalodes. Navelwort. Well-drained sandy loam suits these charming rock plants. *O. Luciliae*, with glaucous foliage and lilac flowers, is hardy, and *O. verna* (Creeping Forget-me-not) of trailing habit, bears a profusion of bright blue and white blossoms. Seed or division.

Onosma. Golden Drop. Dense tufts of evergreen foliage, with drooping clusters of bright yellow flowers. *O. tauricum* does well in a sunny aspect with deep loam and broken grit.

Papaver. Poppy. The Alpine Poppy (*P. alpinum*) is worthy of a place in the rock garden. The common form has yellow flowers, with white centres. Seed.

Petrocallis. Rock Beauty. On small sunny ledges in good soil this is a gem. *P. pyrenaica* bears a profusion of sweetly-scented, lilac flowers on dense tufts of foliage. Seed.

Phlox. Of these the Moss Pink (*P. subulata*), erroneously known as *P. setacea*, is a dainty little evergreen with rosy flowers. It is of prostrate habit, rambling freely over stones and garlanding ledges. *P. setacea* is equally delightful, with soft pink flowers; it may be massed with its sub-variety *P. s. violacea*, whose deeper crimson flowers afford a pretty combination.

Polygonum. Knotweed. The Himalayan variety *P. affine* is a good plant for moist places, its spikes of rosy red flowers producing a delightful effect. The foliage is brilliantly coloured in autumn. *P. vacciniifolium* is best in rough, rocky places where it can ramble at will among stones and boulders.

Potentilla. Cinquefoil. Plants of easy culture, thriving in exposed places in loamy soil. The best of the dwarf Alpines are *P. nitida* (Shiny Cinquefoil), with silvery leaves and rosy flowers: *P. alpestris* (Alpine Cinquefoil), much larger, with bright yellow blossoms; and *P. alba* (White Cinquefoil), a dwarf variety, bearing white and orange flowers.

Primula. Primrose. One of the largest and best of all the rock plant families. For rock gardens the following should be grown: *P. denticulata*, *P. farinosa*, *P. rosea*, and *P. Sieboldi*. Described elsewhere.

Pyrola. Winter-green. Beautiful plants for half-shade. *P. rotundifolia*, with tall stems and drooping racemes of numerous white flowers, should be grown together with its sub-variety *P. r. arenaria*. The flowers are sweetly scented. Light sandy soil.

Ranunculus. Crowfoot Buttercup. Of simple culture, the Buttercups thrive in any fairly moist sandy soil. *R. alpestris*, with deep glossy foliage, and large pure



PRIMULA DENTICULATA ALBA

white flowers and clustered yellow stamens, is one of the best. *R. glacialis*, in the coolest positions, and *R. anplexicaulis* (White Buttercup) are good for rock gardens.

Sanguinaria. Bloodroot. A very desirable plant. *S. canadensis* forms dense clusters of large glaucous leaves, on which numerous white flowers with yellow stamens rest like miniature Water-Lilies. Division.

Saponaria. Soapwort. The rosy-flowered *S. ocymoides* is a beautiful plant for mantling the edges of rocks. Poor, dry soil.

Saxifraga. Rockfoil. Perhaps the best known of all rock plants. *S. Cotyledon* (Pyramidal Saxifrage), *S. longifolia*, *S. oppositifolia*, *S. umbrosa* (London Pride). Described elsewhere.

Sedum. Stonecrop. Hardy dwarf plants for rock crevices and the higher ledges. *S. acre* (Wall Pepper) grows freely on walling, and is bright by reason of its vivid yellow flowers. *S. stoloniferum* (Purple Stonecrop), with large leaves, and *S. Sieboldi*, useful for draping the edges of stones, are among the best.

Sempervivum. Houseleek. Dwarf succulents, thriving in the poorest soil. The Cobweb Houseleek (*S. arachnoideum*) is exceedingly quaint, with its myriad silver leaf rosettes covering the ground like a web. *S. triste*, with red leaves, is distinct. Offsets.

Silene. Catchfly. Invaluable for rock gardens. The Alpine Catchfly (*S. alpestris*) is a hardy white-flowered kind. *S. virginica* (Fire Pink), though impatient of overmuch moisture, is very beautiful, with its vivid scarlet flowers borne above the trails of prostrate foliage. Seed.

Soldanella. In a moist, deep soil between the higher rocks, *Soldanellas* are delightful. *S. alpina* has bell-shaped flowers of a pale blue colour, the carpet of feathery foliage in this variety giving an added

charm. They must not be grown near large plants.
Division.

Thymus. Thyme. On the outskirts of the rock garden where there are no small plants, masses of creeping Thyme are very beautiful. The poorest and driest soil will suffice. Two beautiful kinds are the wild white Thyme (*T. serpyllum albus*) and the woolly-leaved Mountain Thyme (*T. lanuginosus*), with purple flowers. Full exposure to sun.

Tiarella. Foam Flower. An exquisite plant of the hardiest description. The trailing foliage is tinged with red and bronze, and the graceful spikes of creamy pink flowers, when massed, give the rocks and stones an almost foam-flecked appearance. Frequent division.

Veronica. Speedwell. The trailing kinds should be found in all rock gardens. *V. rupestris* and *V. prostrata* are good. *V. spicata*, a native plant, soon covers the ground with neat patches of foliage. Sandy loam.

Viola. Violet. Described elsewhere.

From the foregoing list, many families of rock plants are omitted. However, the majority are either bulbous or of shrubby habit, and will be found described in the chapters devoted to them.

CHAPTER VI

ROCK SHRUBS

IT is strange that the merits of dwarf shrubs should have been so far overlooked by English rock gardeners. Though much is written about the various families of Alpines and herbaceous rock plants, it is seldom that we see attention drawn towards the evergreen and other shrubs which rightly belong to that part of the garden we are now considering. Not only are we depriving ourselves of a very beautiful and interesting class of plants, but without shrubs, a rock garden of any size is bound to present a confused or somewhat monotonous appearance. No doubt the craze for mere botanical collections, as apart from garden picture making, has prevented many from realising the necessity for bold and definite effects even in a garden of Alpines. Rock gardens are often tame and insipid, partly because the foliage and flowers of most Alpines is light in colour, but mainly owing to the fact that in such places there is nothing very definite to detain the eye. A small group of evergreen shrubs comes as a welcome relief, connecting scattered units so that they form one coherent ensemble, and making the colour and form of the smaller rock plants more vivid and distinct by contrast.

Another difficulty attends the designer of rock gardens who overlooks the value of shrubs. The sudden appearance of a rock-strewn mound covered with dwarf plants, in an ordinary garden scene, is apt to produce a jarring note. It looks as though the rock

46 ROCK AND WATER GARDENS

garden had been deposited bodily in surroundings least suited to it. By planting the approach with small shrubs, interspersed with an occasional boulder, this feeling is entirely overcome, and the eye is gradually prepared for the wild beauty of rocks and Alpine flowers. The ability to grow plants is but wasted opportunity if no attempt is made to display them to the fullest advantage.

In the true Alpine garden our choice of shrubs is necessarily limited, and any we employ must be kept on the lower slopes and approaches. In the mixed rock garden no such restrictions apply, and the heights may be crowned with the fiery spikes of Gorse and Broom, whilst glaucous patches of Rosemary and Lavender will act as a foil to bright colonies of herbaceous flowers.

The family of Heaths contains several beautiful varieties, many of them especially suited to the rock garden. These delightful shrubs from mountain and moorland are among the best possible plants for the rough grass and boulder-strewn approaches, and when strongly massed among herbaceous flowers create a welcome note of soft colour. The Alpine Forest Heath (*Erica carnea*) is perhaps the hardiest of all, and thrives in practically any class of soil. On the mountains of Europe it is snow-covered throughout the winter, bursting into myriad rosy blooms in the early days of spring. The white variety should not be forgotten. In warm districts the Tree Heath (*E. arborea*) may be planted in the lower sections of the rock garden. A native of Southern Europe and the Canaries, it is found in oak woods, where its snowy flowers produce a charming effect. In favoured spots it attains the dimensions of a tree, but with us it is shrub-like. Slightly peaty soil suits the Bell Heather (*E. Tetralix*), which flowers freely in late summer. The Scotch and Dorset Heaths (*E. cinerea* and *E. ciliaris*) are both

dwarf kinds, covering the ground with spreading masses of graceful foliage, and blooming as early as June. The Cornish Heath (*E. vagans*) and the Common Ling (*E. vulgaris*) should be freely planted in rough meadow land or woodland clearing; bold drifts of either would look well among the stones and dry bents skirting the rock garden.

Akin to the Heaths, and equally desirable, are the dwarf *Menziesias*, tiny Alpine shrubs with dark tufts of evergreen foliage and clusters of white and rosy bells. *M. coerulea*, *M. empetrifomis*, and *M. polifolia* are the best known, and thrive in the higher ledges in a sandy-peat soil. Near these we would place a clump of *Pernettyas* (Prickly Heath) whose claim to distinction lies in their large berries in all shades of scarlet and purple. During the winter their bright appearance is particularly welcome.

The *Skimmias*, spreading evergreens from China and Japan, are precious rock garden shrubs; their small size and adaptability to varying soils render them valuable almost anywhere. Their bright shining leaves are much like those of the Garland-flower (*Daphne*), whose delicious fragrance rivals that of any other flower. Such gems as these, far too small and dainty for the mixed shrubbery, and quite unnecessarily grown in pots, are best placed in the rock garden, where their beauty can be readily appreciated. *D. Cneorum*, with dense terminal umbels of pink flowers, blooms twice in the year; a small bush but a few inches high, flooding the air with its perfume. The Rock *Daphne* (*D. rupestris*) is a little more difficult to grow, and demands slightly peaty soil with free drainage and abundant moisture. If a slow grower, it is very free blooming, the whole plant being densely covered with waxy pink flowers. The old-fashioned *Mezeron*, the joy of cottage gardens, blooms before winter is past,

though, unlike the others, it is deciduous. A white-flowered kind, *D. Blagayana*, is also worthy of notice.

Near the entrance to the rock garden, crowning a low bastion, a plant of *Veronica Traversi* looks particularly well. It is the only Speedwell of its kind sufficiently hardy for outdoor planting. The flowers are pale mauve, but the value of the shrub lies mainly in its distinct form, which enables due emphasis to be given to certain features.

Alpine *Rhododendrons* possess great depth and richness of leafage colour. Belonging to the mountain ranges of Europe, they are perfectly hardy and well fitted for association with Alpines and rock plants. *R. Chamaecistus*, an exquisite little shrub, only a few inches high, may be grown in the highest situations in sandy loam with a slight admixture of peat. It is always found naturally on the limestone formation, and is impatient of granite soils. Other dwarf kinds are *R. myrtifolium*, *hybridum*, and *odoratum*, the latter a scented variety. The scarlet-flowered Swiss *Rhododendrons* (*R. ferrugineum* and *R. hirsutum*) known also as Alpine Roses, are of larger growth, and do best in peaty soil in the lower parts of the rock garden. All the dwarf *Rhododendrons* except *Chamaecistus* form suitable backing plants for bright patches of herbaceous flowers.

Included among these dwarf evergreens is the Partridge Berry (*Gaultheria procumbens*), with drooping white flowers and winter berries. It succeeds in sandy soil in partial shade, and is easily increased by division. The other *Gaultherias* are too large for any but rock gardens of considerable extent.

Above the groups of small plants and the hard edge of the topmost rocks, there may be planted those hardy flowering shrubs which rejoice in the sunniest and most exposed positions. An unbroken line of upstanding foliage

is not desirable, but bold groups in several places, with an occasional fringe of overhanging branches. When the rock mound or bank is of only slight elevation we may in this way screen distant objects from view, and give an air of completeness to the whole design. If the upper part of the rock garden is tenanted only by plants of small stature, it almost appears as though the object of such dwarfing was to enable an uninterrupted view of scenes beyond. This, however, is unfortunate; a full measure of beauty is to be found among the Alpines and rock flowers themselves, and a degree of seclusion and privacy is necessary for their full appreciation.

In the hottest situations where nothing else will thrive, various kinds of Broom and the double and dwarf Furze may be planted. It is a mistake to despise the latter shrub because it grows wild on English commons; there are few more glorious sights in Nature than a golden sea of Furze beneath a stormy sky. The double variety is to be preferred to the single wild kind, lasting longer in bloom and giving more vivid colour effects. The dwarf *Ulex nanus* flowers at midsummer, and is suitable for small rock gardens. Furze requires regular pruning to keep it within bounds, and young plants are much easier to establish than older specimens. The Brooms (*Cytisus*) are a beautiful family, from the strong growing *C. Albus* (Portuguese Broom) with its long slender branches wreathed with white flowers, to the tiny *C. Ardoini*, a miniature Alpine shrub. The Spanish Broom flowers freely in hot, dry soils, and even our British Broom (*C. Scoparius*) is worth growing on the wilder outskirts of the rock garden. Of different habit to others of the genus, the Purple Broom trails along ledges and falls in dense curtains over large boulders.

It is unfortunate that the Rock Roses (*Cistus*) are not more hardy, as they are particularly suited to a dry sandy soil in the upper parts of the rock garden. However,

they rarely do well except in the southern counties, and even there they are liable to be destroyed during a severe winter. They are easily propagated, and a stock of new plants can be raised from time to time, so as to make good any losses. The flowers last but a single day, but are borne in such profusion that this peculiarity is hardly noticeable. *C. laurifolius* and *C. cyprius* are among the best.

The Genistas (Rock Broom) are a large family, and contain many varieties for the rock garden. In the majority of species the twigs assume a pendent habit, and the effect of the cascades of yellow blossoms streaming down the rock slopes is delightful. *G. germanica* is free flowering, and forms a shrub of moderate dimensions, *G. pilosa*, occasionally occurs naturally in England, bearing its yellow flowers in May and June. The double form of *G. tinctoria*, *G. aspalathoides*, *G. praecox* and *G. Andreana* are among those from which a choice may be made. All the Genistas are readily increased by seed, are indifferent as to soil, and need transplanting before the roots become too coarse and straggling.

Owing to the practice of crowding the hardy Junipers among free growing evergreens in the shrubbery, their value is seldom realised. When grouped together in the rock garden it will be seen that they are by no means unworthy, the common Savin (*J. Sabina*) having a decided beauty in its graceful, feathery branches. *J. prostrata* is a good sub-variety.

On warm, sunny banks a few plants of Lavender and Rosemary will afford those silvery half tones which are of such value in the composition of colour effects. The older bushes look best, the trim symmetrical form of the young plants having given place to a freedom of gnarled and twisted branches, lightly flecked with glaucous leaves. Both the white and blue Lavenders are worth cultivation. Apart from other reasons there

is a charm, a fragrant memory, attaching to these old-fashioned flowers, which gives them a special claim to our consideration.

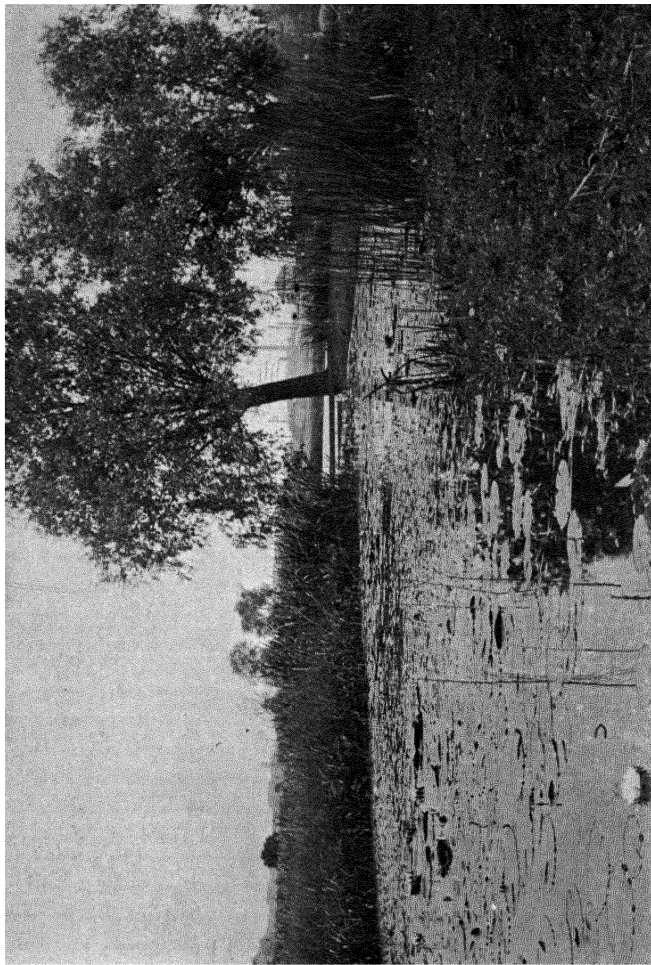
Rock shrubs of trailing character are of the greatest possible value in forming connecting lines between upright groups. The beautiful Rocksprays (*Cotoneaster*) drape the larger stones and boulders, and the evergreen kinds are like cheerful garlands on the cold slopes of the winter rock garden. The Wall *Cotoneaster* (*C. microphylla*) is quite hardy, and produces a pretty effect with its deep green foliage, white blossoms and crimson berries. *C. horizontalis* (Plumed *Cotoneaster*) is brilliant in autumn, with vivid scarlet berries and flaming leaves. The Rocksprays are of the easiest culture and do well in almost any soil. With other trailing shrubs the graceful *Mühlenbeckias* may be associated, *complexa* and *varia* being chosen for preference.

CHAPTER VII

WILD WATER MARGINS

THE native stream or meadow pool is nearly always beautiful. Formed by natural means, and clothed with a diversity of water plants, the gardener will here seek his truest inspiration. No matter at what season we visit it, we find ample evidences of rational grouping and exquisite colour effect. In early spring, great clumps of Marsh Marigold line the moisture-laden margins, the blossoms raised like golden chalices to catch the fitful sun-rays that slant from behind the storm clouds. The Loosestrife and creamy Meadowsweet give colour and fragrance throughout the summer days, and as autumn advances the leaves of the Water Dock are dyed a vivid scarlet. Nor yet in mid-winter is the stream margin devoid of interest; there will yet be a glint of silver among the willows, the soft greys and fawns of dying rush and sedge stain the banks, and above all, there is beauty of form as displayed by a group of alders, stretching their naked branches across the water.

Seeing then the success that has attended Nature unaided, we must be exceeding careful in our treatment of a water garden of this description. The planting of incongruous subjects, or any attempt at formal pathmaking or bank work, will result in a hopeless jumble, in which the good effect of one section will be entirely nullified by the unsuitability of its surroundings. However, there are few of these wild water gardens that may not be distinctly improved by careful and restrained planting.



NATURE'S WATER GARDEN
Designed by Mrs. Deires Broughton

The overgrown appearance often presented by stream margins may also be relieved by the thinning out of coarse vegetation, and the removal of water weeds. In all such cases it should be our object to heighten interest, without in any way altering a style which is essentially informal.

Supposing then that a natural stream or pond exists somewhere on the property, our first thought must be to secure convenient access. Frequently the stream borders the garden proper, or it may intersect a small paddock, or run parallel to the side of the orchard. Occasionally we are called upon to consider a pond somewhat overgrown by trees and surrounded by a swampy margin, which has hitherto caused the spot to be regarded as inaccessible. The actual making of suitable paths calls for no great skill, in fact the rougher and more irregularly they are formed, the better. Any appearance of uniformity will quite mar the effect, as will the use of gravel surfaces or trimmed edges. To appreciate the value of simplicity, it is worth while examining closely a rough track formed by the passage of wild creatures down to some woodland drinking place or forest pool. In all cases the line of easiest gradient is followed, natural obstacles are skirted closely, and the water approached at some convenient bay or inlet. Variety is given to the path by the projection through its surface of tree roots and worn stones, which instead of proving a hindrance, often secure a firm foothold on a steep or slippery descent. The edges of such pathways will fade imperceptibly into the grass and undergrowth, and apart from mere picturesqueness, the idea of utility and purpose is ever present. Marshy ground calls for more thorough treatment before the path can be used with comfort and safety in all weathers. By excavating a sufficient depth of soil and laying a foundation of stones and rough material, afterwards filling in with ballast, a convenient approach can be formed through all but very wet ground.

In some cases it will be necessary to use flat stones, in order to prevent the ballast from sinking; in others a substructure of wooden piles driven into the ground may be required. The use of stepping stones to connect one section of the pathway with another is suggestive of variety, and is especially suitable where a shallow branch of the main stream has to be crossed.

If the actual making of such pathways is a simple matter, calling for rough and substantial treatment rather than skilled workmanship, the planning of their course demands much thought and no little artistic perception. Too frequently the path follows closely the bank of the stream throughout its whole length, producing the monotonous effect which is inseparable from a canal towing path. In the case of a pond, the path often completely encircles it at a regular distance. Apart from other considerations, it is unlikely that the whole course of the stream garden will prove equally worthy of notice, and for this reason, the path should turn inland at the less interesting spots, bending back towards the bank when some desirable feature presents itself.

The gradual unfolding of a particular view is productive of pleasure and interest where a large expanse of country is concerned; it is seldom satisfactory where inches take the place of miles. This point is one that the garden-maker would do well to keep in mind, especially where small pieces of water are under consideration. For this reason, advantage should be taken of clumps of trees, small knolls or natural rock excrescences, behind which the pathway may be carried. Anything in fact which will tend to break the continuity of view, and screen, if only momentarily, our stream from sight. As the water margin on the side opposite the path will be most easily seen, it is often advisable to provide stepping stones or a simple form of

log bridge in order to enable a view of dwarf plants on the near bank, which from their own side are hidden. In fact, water gardens which can only be seen from one side are seldom satisfactory, and interest can be multiplied indefinitely when the pathway crosses and recrosses the stream, now passing close by the water's edge, now running inland for awhile. The advantage of a winding brook over one which flows perfectly straight is obvious; moreover it enables certain features to be strengthened, without in any way producing an appearance of artificiality. For instance, the deepening of a bay will provide a home for various plants which would be swept away by anything approaching a rush of water; whilst the making of a miniature promontory at a suitable bend will hide the course of the stream from view, revealing it suddenly as the pathway turns. In these and other ways we can prepare our stream, so that the maximum effect will be obtained when the plants and aquatics have become established.

Before attempting to plant, the character of the existing vegetation should be carefully studied. This will vary greatly, according as the stream winds sluggishly through rich water-meadows, or trickles among mossy boulders and fallen tree stumps. In one case, the soil will probably be a rich alluvial mud, favourable to the growth of the yellow Iris or the rank growing Dropwort. In the other, we shall find a variety of native ferns, of small creeping things among the mosses, and bold isolated clumps of golden Marigolds. Whatever additional planting is done, then, must be influenced by the class of plants already existing. Choice Water-Lilies, so beautiful in garden tank or formal pond, would look utterly out of place among the homely surroundings of the meadow stream.

The largest and boldest plants, such for instance as the Cow Parsnip (*Heracleum*), should be reserved for

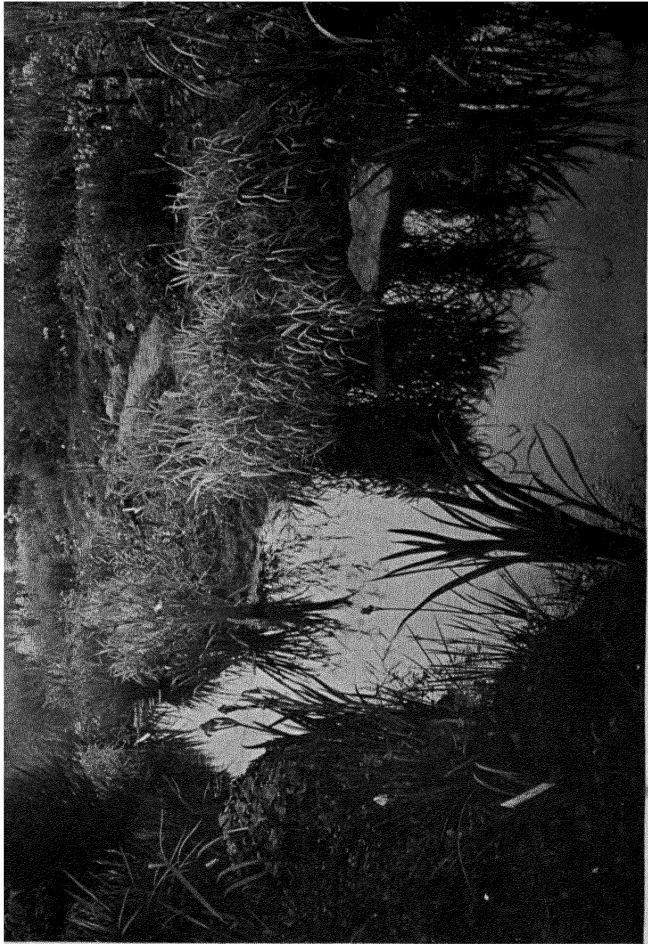
positions where the ground juts into the water. Not only will their handsome leaves show to best advantage, but so placed, they will conceal the further water recesses and provide an air of mystery as to what the next turn will reveal. An endeavour should be made to introduce a few clumps of plants with distinctive foliage. These may take the place of much of the coarse grass and sedge which probably chokes the margin of the stream.

The Sweet Flag (*Acorus Calamus*), exhaling a delicate fragrance from its leaves when bruised, the Great Water Plantain and the common Bulrush (*Typha*) are quite suitable. Then there is the Great Water Dock (*Rumex Hydrolapathum*), which in autumn decks our stream side with its blood-red banners. Unexpectedly beautiful, and yet to be found beside many English streams, is the Flowering Rush (*Butomus*), carrying its bold umbels of rose-red flowers on tall stems. Distinctive and worthy of a place, the Giant Horse-Tail (*E. Telmateia*) deserves to be established in localities where it does not already occur.

Unless the margin already consists of a fair breadth of rich soil, it is well to use the mud excavated from the bed of the stream as a top dressing before planting. During the process of deepening pools and enlarging bays, a large quantity will be removed, and in such a roothold the large border plants will thrive exceedingly.

In addition to the Purple Loosestrife (*Lythrum*), already mentioned, we may plant the yellow variety (*Lysimachia*). A well-grown plant of the Common Butter-bur (*Petasites*) would look well springing from a position close to the water edge; the dull pink flowers appear in spring before the leaves unfold. It is on the latter that the value of the plant depends; they are handsome objects, often a foot across, and not unlike those of the rhubarb.

In a simple water garden, such as we have in mind,



STREAM AND ROCKERY IN MESSRS. BARR'S NURSERIES

only native plants would have a place. It is essentially a home for the many and beautiful wildings which may be collected from the sides of English streams and ponds. Even were it possible, we would refrain from any attempt at naturalising the common Arum (*Richardia*) or the choice Irises, which in more cultivated quarters are of supreme value. They would harmonise but ill with certain of our native plants, and would in some cases be speedily choked out of existence.

Considerable care must be taken when selecting the water plants themselves. The tendency of most of them is to increase very rapidly, and a few rampant growers, such as the native Yellow Water-Lily (*Nuphar lutea*) will soon completely cover the surface. It is advisable, therefore, to keep such plants well isolated, or in such positions that their wandering propensities can be curtailed.

In fairly still water the Yellow Buckbean (*Villarsia nymphaeoides*), with its fringed single flowers and leaves like a miniature Water-Lily, forms strong patches in a short time. It blooms throughout the summer. When planting, tie a stone to each root, and drop them into the desired position, when they will soon become established. *Stratiotes aloides*, the Water Soldier, is little known, though it is a native in English waters. Perhaps it is more curious than beautiful, yet the dark tufts of long, green leaves are decidedly attractive. The flowers are insignificant, the plant rising to the surface as they are produced, afterwards sinking to the bottom again. Another good plant is the Water Violet (*Hottonia palustris*), which forms tufts of dark foliage, from which spring the flower stems bearing whorls of pink blossoms. It should be planted in clear shallow water. Nor must the Buckbean (*Menyanthes*) be forgotten. Pieces of the stem, if secured, will soon throw out roots; the three-lobed leaves and flowers delicately stained with

pink are very distinctive. It has the merit, too, of being sweetly scented. The well-known Arrowhead (*Sagittaria*) is another useful plant for shallow water. Even the single variety, with its tall spikes of white flowers, is not to be despised, though it is surpassed by some of the double forms. *Ranunculus aquatilis* needs no planting; it will establish itself if merely thrown upon the water. The foliage is feathery, and the flowers, a pure white, are produced in great abundance.

For the simplest form of stream garden, one which is but a modest endeavour to gather into small compass the best of English native plants, the above list is quite sufficient. There is more beauty in a single plant well grown than in twenty which are overcrowded. Such a garden will afford endless pleasure during the summer days; its very simplicity will bring the flower-lover very close to the heart of nature. Beside it, the tawdry blaze of colour, which is the outcome of the carpet-bedder's efforts, will seem a blatant vulgarism, a travesty of a pure and beautiful art.

The planting of trees and bushes near a native stream or pool should cause a moment's consideration. As a rule, we find that a mixed collection of evergreen shrubs, especially *Rhododendrons*, is considered fitting in such localities. A greater mistake could not possibly be made. The most unobservant cannot fail to notice that the class of trees growing beside meadow streams and broadland meres is of a totally different character. In place of ponderous masses of sombre foliage we have the graceful shoots and twisted trunks of the Willows, the lines of spiry Poplars, Dogwoods, Silver Birch, and the handsome Spruce. All these exhibit a special beauty of outline, always a consideration near water, where reflection is such a powerful aid to picture-making. Our own deciduous trees furnish sufficient variety for waterside planting, and only in special cases

is it necessary to employ those from other countries. Lack of harmony among the larger plants will produce a feeling of dissatisfaction and unrest as we view our garden in after years.

Of the Poplars none are more beautiful than the Lombardy. It is a variety which looks especially well near water, and either in straggling lines or in sentinel-like isolation, possesses true artistic value. A group of Aspen Poplars will amply reward the planter, if the soil happens to be a warm limestone; in such favoured spots the foliage of the Aspen assumes an exquisite colouring in autumn. There are many plants and trees I should like to see more freely used in English gardens and fields, but none more than the Poplars. The sight of a French valley in spring, when these graceful trees are putting forth a brown mist of leaves, is an object lesson in the value of tree form to a landscape.

The Willows offer a variety of subjects, good in form and colour. *Salix alba* develops into a stately tree, and is a noble ornament to the stream side. To those who desire colour, there is the scarlet-barked or Cardinal Willow, and the golden-yellow kind, also good. In winter, the bundles of brightly coloured rods form a cheerful note on a dull day. The various forms of Weeping Willow are much less suited to English gardens, and yet they are extensively planted. Some are not quite hardy, and except for large pieces of water they are apt to look over-heavy and dense. Many growers of Willows urge the practice of cutting down yearly, arguing that the vivid colouring of the young shoots is a decided advantage. To this I cannot agree, as the sacrifice of form is so great that we lose more than we gain. If the rods are needed for tying, a few can be cut for the purpose, or, better still, a small patch grown for yielding a supply.

According to the character of the water, we may

60 ROCK AND WATER GARDENS

associate such trees as the Spruce, the graceful Silver Birch, and the Alder. The roots of the native Water Elder (*Viburnum opulus*) will help to bind the banks closely, and the handsome bushes look especially well overhanging the stream.

CHAPTER VIII

SMALL WATER GARDENS

IN quite small gardens, much may be achieved by the use of tubs in which to grow collections of aquatics. Ingenuity, and above all the exercise of good taste, will overcome many obstacles, and there are few places in which a small water garden such as is contemplated in this chapter may not be successfully arranged.

At first sight, a tub may not seem a particularly desirable object in which to grow even a small Water-Lily, but when it is realised that the tubs may help to form part of a definite garden scheme, and that their identity will be carefully concealed, possibilities of no mean order are suggested. I have in mind a small garden of bog and water, which has been constructed at very small cost, and which might well serve as a model for others. Practically no skilled labour was required in its making, whilst the area it occupies—some fourteen yards by three—could easily be spared in the majority of gardens. Few would imagine on seeing this charming spot, that it has only been in existence a short time, or that the site was formerly a strip of waste ground over-run with nettles and coarse grass. With slight modification this water garden could be made almost anywhere, so that I shall describe it in detail.

At the end of the flower garden, a small planting of mixed shrubs occurs; these are of the usual type, and consist chiefly of laurels. Along one side of this shrubbery a pathway led down to a small paddock,

62 ROCK AND WATER GARDENS

which it is intended later to convert into an orchard. The sides of the path were bordered with rough margins of waste ground, which through neglect had become over-run with weeds, and had also served as a convenient place in which to shoot rubbish, stack turf and erect a few frames. Altogether it was thoroughly unsightly. The owner saw possibilities of improvement, and after some thought decided on turning it into a bog and water garden. Unfortunately there is not a stream or pond on the property, and as expense was a consideration, nothing very elaborate was contemplated.

In the first place, the ground was thoroughly cleaned, and a new pathway made along the side furthest from the shrubbery. This provided a strip of ground some four yards wide and fifteen long between the path-edge and the line of shrubs. As it was not considered advisable that the bog garden should extend close up to the laurels, it is nowhere more than nine feet wide, and in some places even less.

Having marked out the site, the next step was to remove the soil to a depth of two feet. This proved a somewhat heavy task, but the advisability of having the bog and water plants sunk well below the general ground level, made a certain amount of spade and barrow work necessary. With the soil removed, high banks interspersed with rockwork were made at either end. These served to screen and shelter the bog garden, and also provided a home for many delightful plants, those on the lower slopes being such as appreciate a considerable degree of moisture.

Six large petroleum casks were then procured, each being sawn in half. The tubs were well-charred inside, in order to render them as durable as possible, the oil which had soaked into the wood acting as an additional preservative against decay. Down the length

of the bog garden holes were excavated of sufficient size to sink the casks level with the rims. The holes were dug at about seven feet apart, and were arranged at irregular distances from the path, so that the tubs did not form a straight line. As the ground sloped naturally to the lower end, each tub, when sunk in position, was slightly lower than its predecessor: on the level, it would have been necessary to provide a fall by digging the holes deeper in succession.

A somewhat better effect would have been obtained had the tubs, or rock pools as they now appear, been spaced more irregularly. As it is, there is practically the same interval between each. Two tubs close together, then a third at treble the distance, followed by a cluster of three, would probably have produced a more natural result.

A bricklayer was now instructed to connect the line of tubs by a small watercourse; in this case, merely a shallow cemented channel. This did not run straight from tub to tub, but followed a slightly winding direction. The water supply was obtained from the mains, and was carried down to the entrance of the bog garden through ordinary iron piping. Before use, it was allowed to stand for some hours in a large open cistern, so that it became slightly warmed.

Suitable receptacles for aquatics had now been provided, and means devised whereby the water in the tubs could be renewed as often as necessary. All that remained was to lay out the garden, and conceal as far as possible the unsightly channel and the regular circles formed by the tub edges.

More digging was here necessary, and a further eighteen inches of soil removed. Fortunately building operations had been in progress, and several cart-loads of broken bricks, mortar rubbish, and general débris were available. A good layer of drainage material was

thus provided, and above it was spread a foot deep of peaty loam. The surface was made as irregular as possible, rising in small hillocks and ridges from the watercourse. The symmetrical appearance of the latter was then masked by rough stones, so placed that they produced an impression of water flowing along a small rocky channel. In two places the miniature stream was bridged by flat boulders.

Some amount of ingenuity was next expended on the tubs. The rims were hidden by an edging of flat stones, resting on a collar of cement—this was found necessary in order to prevent the water from overflowing, instead of passing along the channel to the next tub. The stones were of all shapes and sizes, and were so arranged that they did not follow the barrel rims exactly, but produced small angles and crevices, with an occasional larger piece of rock jutting out over the water. When finished, no two pools were of exactly the same shape.

Simple steps of rough stone lead down to the sunken water garden from its upper end, passing behind the rock mounds. In the joints, ivy-leaved Toad Flax, *Campanula pusilla*, and some of the smaller Saxifrages have become established. The pools nearest to the path are also approached by steps, with a stone slab at the edge to give convenient foothold for closer examination of the Lilies.

When making this garden, adequate means for supplying water to the bog plants themselves was unfortunately overlooked. As it is, they are occasionally refreshed and the soil kept moist, by a few cansful from the water-barrow. This entails slight extra labour, which, I think, might have been avoided. A small iron cistern could have been sunk in the ground at the point where the supply-pipe emerged from the rock mound. An overhanging edge of stones would have

given it the appearance of a small spring, and an easy approach would have constituted it a useful dipping pool. Some inches from the top an outlet would communicate with the cement channel, so that after using as much water as was necessary for soaking the bog soil, the simple expedient of turning on the supply at the reservoir would refill the dipping tank, causing it to overflow down the channel, and thus refresh the aquatics in the tubs. An overhanging fringe of Hart's-Tongue would look well near the tank, and in the stonework joints, the common Polypody, the Oak and Beech Ferns would thrive.

Only plants of small size can be used for these miniature gardens; everything must be planned on a reduced scale. For the tubs the larger *Nymphæas* are, of course, out of the question; but in one of them we may grow *N. pygmæa*, a diminutive Lily with white flowers; in another, the pale yellow variety *Helvola*, which is a seedling from *N. pygmæa*, and was raised by M. Latour-Marliac. *Pontederia*, with arrow-shaped leaves and spikes of blue flowers, would also be suitable, as would the beautiful Cape Pond-flower (*Aponogeton*). The leaves lie on the surface of the water, and the white waxy flowers, sweetly scented, are raised slightly above it. There is a pink-flowered variety, *roseus*.

In the moist bog soil, *Primula farinosa* and *P. rosea* will be found, small patches of the native yellow Saxifrage (*S. autumnalis*) being placed near the sides of the watercourse. The Bavarian Gentian (*G. bavarica*), with blossoms of iridescent blue, is likewise at home in the wet bog. A charming plant for contrast is the dwarf Bunch-berry (*C. candensis*), distinct as to its cream-coloured bracts and scarlet berries. In sphagnum, the *Droseras* and the smaller plants mentioned elsewhere can be established. From the

66 ROCK AND WATER GARDENS

American swamps we get the Meadow Beauty (*Rhexia virginica*), a beautiful dwarf plant, with deep rosy flowers. For carpeting, in addition to the mosses, there is the Moneywort (*Sibthorpia*), and in shade the hardy *Adiantum pedatum* and the American Mayflower (*Epigæa repens*). One corner in half-shade must be set aside for a clump of *Cypripedium spectabile*, and at the back *Osmunda* and certain of our smaller *Spiræas* would relieve any tendency to flatness.

It is the intention of the owner of the water garden we have been considering, to effect considerable alterations in the shrubbery which bounds the bog margin. In course of time the majority of the laurels will be removed, and their place taken by *Rhododendrons* and the choicer flowering shrubs. Peaty soil will be provided in which colonies of Lilies can be established, with ferns in the damper quarters. Short vistas will be opened from the bog garden side, so as to soften the present hard dividing line. Thus the two gardens—water and shrub—will gradually merge into one, and the plants range from actual aquatics to those which inhabit the dry peaty clearings among the *Rhododendrons*. It is always best to forecast other schemes, and arrange for future developments when planning alterations. Considerations of expense may render it necessary to delay the completion of the design, but the final effect will be rendered more certain when the various stages are considered to form part of an harmonious whole.

In very small gardens indeed, where space cannot be spared for even the above modest attempt at water-gardening, isolated tubs may be used. They should certainly be sunk in the ground, as under no circumstance can they be considered to possess anything but strictly utilitarian value. The water supply will be renewed by hand, taking care to disturb the plants

as little as possible. Some gardeners never change the water in tubs and small basins, but find that a few newts suffice to keep it moderately clean and fresh.

A water garden suggests something elaborate and costly, a luxury for the wealthy, but there are many who derive no small amount of pleasure from the miniature charms of a single Lily in a tub, with a fringe of bog plants growing in a moist, peaty bed beside it.

CHAPTER IX

BOG AND MARSH GARDENS

INTIMATELY associated with the true water plants are the numerous children of the bog and marsh land. Not the least beautiful parts of the semi-wild water garden will be found in its moisture-laden margins, in the dark peaty hollows among the trees, and in the clearings amid the copse. Here will flourish our native bog plants, *Drosera*, *Pinguicula*, *Caltha*, *Parnassia*, *Osmunda* and Purple Orchis. In the less wild portions, crimson patches of *Primula japonica* will stain the moss carpet, and by the pathways rosy branches of *Dielytra spectabilis* are finely contrasted with a glossy background of *Rhododendron* leafage. Somewhere among the tree shadows, a special corner will be found, where in splendid isolation, clumps of the Mocassin flower (*Cypripedium spectabile*) may throw up their gorgeous slippered blooms. And so gradually, the flower procession passes from water to bog, from bog to woodland, from woodland to meadow and garden border, changing as the various stages are traversed, a complete and beautiful revelation of Nature's adaptability and resource.

Near the margins of fair-sized pools and along the sides of valley streams, natural bog gardens may be made with little trouble. In fact, nothing much is needful in the way of preparation beyond the construction of safe and convenient pathways, and the clearing away of the weeds and coarse herbage which

usually over-run such spots. If the area of ground to be dealt with is large, it will be advisable to retain some of the boldest groups of sedge and rush, allowing these to act as natural screens to the various divisions. The making of rough pathways will present no difficulty. At the edge of the marsh ground and in the drier portions it will be sufficient to excavate the soil to a depth of a few inches, filling in with rough ballast and making the surface moderately level. Towards the centre and in the wettest places, the paths should be dug out at least a foot deep, coarse drainage and porous material being afterwards rammed in until a sufficiently high and firm passage-way is secured. Such paths should be left quite in the rough, with edges only barely defined. Any attempt at trimness or formality would be quite out of place. Though it should be so arranged that all the best and most interesting parts of the bog garden can be included in the survey, an undue number of paths will produce a map-like and unsatisfactory effect. In order to obviate this, good use may be made of stepping-stones, which will not only provide "short cuts" from one pathway to another, but will permit of close inspection of plants growing in the wet mossy ground, fringing the bog pools.

With the soil removed when path-making and cleaning, mounds and sloping banks may be made in the drier situations. A flat, even surface is fatal to the appearance of the bog garden, where the various families of water-loving plants should be grown in little groups and colonies, each a small picture in itself. It is essential also, that a varying degree of moisture be obtainable throughout, for although many bog plants, such as *Osmunda*, *Iris Kaempferi* and *Calthas*, revel in wet mud, others require a peaty loam or leaf-soil. It is an easy matter to prepare special beds for favoured groups of *Liliums*, or to make clearings among the

sphagnum for such small subjects as *Pinguicula* and *Drosera*.

Grouping for general effect, which is an important consideration in the flower garden proper, is something totally unknown in the bog garden. In one case we enjoy harmonious colour masses, and the beautiful ensemble produced by many carefully designed units; in the other we are called upon to study individual plants, to consider each flower as something worthy of notice. In short, bog gardens are Nature, as it were, under the microscope. Each separate plant disassociates itself from its neighbours, and seems to invite close inspection and its due meed of praise.

On the rising ground at the outskirts of the bog garden, the planting should be of a bolder and more definite character. The soil will here be drier and better drained, so that plants which prefer to send their roots for some distance in search of moisture should be selected. If a strip of woodland or hazel copse skirts one side of the marshy land, the garden may merge imperceptibly into the undergrowth, good use being made of Daffodils, Lily-of-the-Valley and Anemones, planted in long drifts among the trees.

In the higher bog garden, bold clumps of Goat's Beard (*Astilbe rivularis*), Blue Poppy and Eulalias, would serve to mark the confines of the garden. Another plant of somewhat the same character is Turkey's Beard (*Xerophyllum asphodeloides*), its racemes of white blossoms thrown well above the grassy foliage, on tall stalks. The Globe-flowers (*Trollius*) will also give very fine effects, and are especially happy when the roots can travel in search of moisture near at hand. In large grounds, Rhododendrons in irregular groups are invaluable, and also provide shelter for peat-loving Lilies.

Following these we may include a collection of

herbaceous Spiraeas, the large shrubby Meadow-sweets. One of the best is *S. palmata*, with handsome foliage and rosy-crimson flowers. In the neighbourhood of water, the effect produced by the rich colouring of this variety is charming. *S. venusta*, *S. Aruncus* and *S. Ulmaria*, the latter the double form of the wild Meadow-sweet, are all worth cultivating. Spiraeas are so often grown in garden borders or in the poor soil in mixed shrubberies, that the opportunity of planting them in what approaches their natural habitat should not be neglected. Given ample room and an abundance of moisture, they exhibit a freedom of growth which is surprising.

We would arrange a deep bay in the Rhododendron belt, and here prepare a home for a colony of swamp-loving lilies. Unless of a peaty nature, it would be well to excavate the existing soil to a depth of a foot, filling in with a prepared compost of leaf soil, peat and road grit. A few barrow-loads of chopped turf will also help to provide an ideal bed in which to plant some of the noblest flowers to be found in our gardens. *L. giganteum* is magnificent in such positions, and, like the others, requires only some sheltering undergrowth as a slight protection in early spring. The foliage, unlike most lilies, consists of broad tufts of heart-shaped leaves, from which spring the stout stalks six or eight feet high. These are topped by long racemes of fragrant white flowers, slightly tinged with purple. The Swamp Lily (*L. superbum*) is another fine variety for the outskirts of the bog garden; the clusters of deep orange flowers are borne on stout purplish stems. The beautiful Californian Lily (*L. pardalinum*) of which there are many sub-varieties, must not be forgotten. In moist, peaty soil it increases in size yearly, the pendent blossoms, vivid orange spotted with chocolate, being most effective. Of smaller habit is *L. canadense*

(Canadian Lily), which should be grown in bold clumps to show its clusters of golden-red flowers to best advantage. All these North American Lilies revel in cool, moist soils, and in their native haunts are found, glowing masses of colour, in swampy regions. As a ground work for the Liliiums, good use might be made of the White Wood Lily (*Trillium grandiflorum*), which covers the ground with a carpet of rich green foliage, studded with snow-white, three-petalled blossoms. Apart from its own beauty, it serves as a protection to the Liliiums during the early months of the year.

Skirting the rough pathway, irregular drifts of the Indian Primrose (*P. sikkimensis*) might be planted. In May, and onwards for several weeks, the sheets of yellow blossoms would make a beautiful picture between the moss-grown stones. These Asiatic Primroses, which come to us from the wet mountain slopes of the Himalayas, are seen at their best in the bog garden. *P. denticulata* would prove equally at home, spreading its tufts of leaves and large clusters of lilac flowers in the spring sunshine. *P. japonica* grows rampantly in moist spots, and bears no resemblance to the same plant struggling for existence in a dry garden border. *P. rosea*, small but charming, and *P. capitata*, with flowers of a wonderful purple shade powdered with white, would occupy the sides of slight knolls. A corner must also be found for the Bird's Eye Primrose (*P. farinosa*) bearing its dainty lilac blossoms above rosettes of silvery leaves. In a sheltered corner near a few rough stones it is delightful.

Now that we are approaching the pools and softest ground, *Osmunda* will form a fitting background to the many small bog plants that we must take care to include. This noble fern will attain a height of six feet or more, when its roots can spread freely in moist, porous soil. Spleenwort (*Asplenium*), *Nephrodium*, and the North

American Sensitive Fern (*Onoclea*) are other suitable forms.

Quaint and interesting flowers there are in abundance, as well as those of real beauty. The Marsh Helleborine, for instance, with purplish flowers and handsome foliage, the Marsh Orchis (*O. latifolia*) and *O. foliosa*. The Habenarias, orchids from North America, would do well in damp corners. One of the best is *H. fimbriata*. All these plants look best grown in somewhat isolated clumps, and afford a striking contrast to flowers of simpler habit. *Cypripedium spectabile*, already referred to, deserves a well-shaded, peaty hollow entirely to itself: it is too good a plant to mix singly with others. *Sarracenia purpurea*, with its blood-veined trumpet leaves and sinister aspect, might be taken as the evil genius of the bog garden, a plant of ill-omen, from which some deadly potion might be brewed. It is quite hardy, and belongs to the family of Pitcher-plants. The Fritillaries, natives of our English water-meadows, would soon become established in grassy patches near the stream.

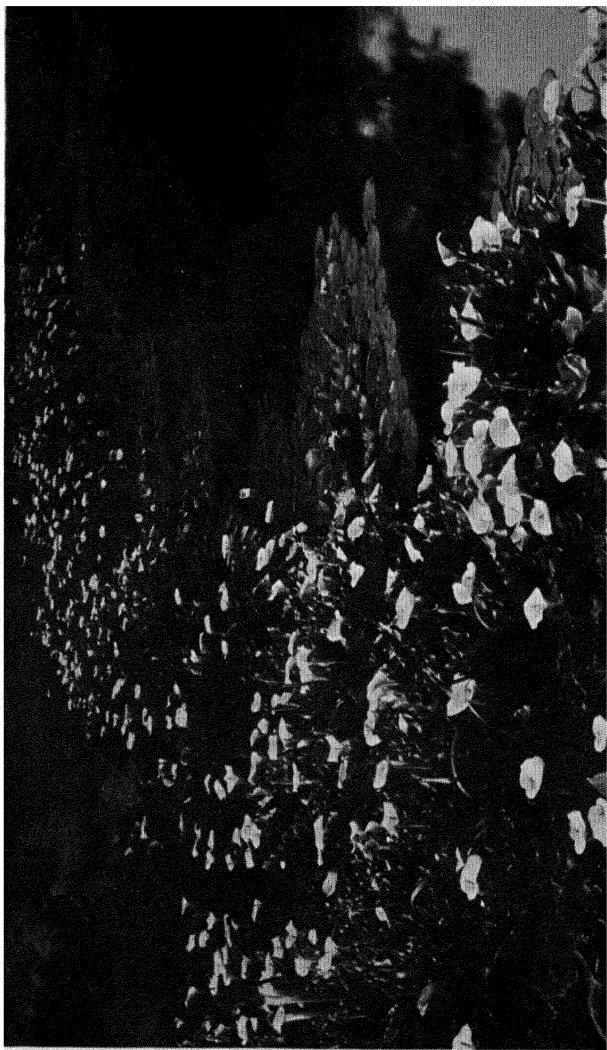
On the mossy ground around the pools and in crevices between the stepping-stones, the Sundews (*Drosera*) would be quite at home. On beds of Sphagnum they thrive splendidly. A few tufts of Cotton Grass (*Eriophorum*), so plentiful on the brown bogs of Ireland, should not be omitted. Of Heaths, there is the Marsh Heather (*E. Tetralix*) and *E. hybrida*, a beautiful variety flowering through the winter and early spring. From the stream sides of the Sierra Nevada comes a charming Saxifrage, *S. peltata*, unique as to its target-like leaves and loose clusters of pale pink flowers. The Rockfoils are not particular as to treatment, and several other kinds, including the native *S. granulata*, might be grown in the drier portions of the bog. Soldanellas, Pinguiculas, Parnassia, and the

Bog Asphodel (*Narthecium*) will, if irregularly grouped, lend interest and charm to the smaller colonies.

Close beside one of the small pools we must have a patch of the Bog Arum (*Calla palustris*), a small trailing plant with delicate white spathes. It increases rapidly, and may be associated with a plant or two of the Golden Club (*Orontium*), which blooms profusely in early summer. During the dull, cheerless days of late winter, the golden-yellow Pilewort (*Ficaria grandiflora*), seen from a distance, looks almost like a rift of sunshine on the neutral tinted bog. Such plants as this and the Marsh Marigold, in no sense rarities, could ill be spared.

Though the best form of bog garden is the outcome of judicious treatment of marshy ground, stream sides, and the wet margins of ponds, the absence of these natural features need not debar us from growing bog plants. Artificial bog gardens, though somewhat costly to construct, may be found in places at high elevation. In fact, a large amount of interest and pleasure may be evoked by a small garden, only a few feet square. I have seen miniature bog gardens, charming in their way, which have been formed in disused fountain basins, though as a rule the position occupied by these—lawn centres and highly cultivated parts—renders them unsuitable. The bog garden should be situated in semi-wild surroundings, and for its due appreciation the eye should have lately contemplated natural effects, such as a woodland path or the grouping of wild plants by the meadowside. Therefore, before deciding on a position, we should endeavour to secure a site, the approaches to which betray few signs of cultivation.

Simple gardens, varying in size with the means and inclinations of the owner, may be formed on ground which has a slight incline. On the level it is always



ARUMS BY A LAKE-SIDE IN CORNWALL
Photo. by Mr. S. H. Fitzherbert

difficult to provide the requisite drainage. Plants will not thrive in stagnant water.

The usual method of constructing artificial bog gardens is by digging out the soil to a depth of eighteen inches, thereby making a shallow basin. The basin is then rendered watertight by a lining either of brickwork or concrete. To quite small gardens it is possible to supply water by hand, in those of larger size pipes connected with a supply tank or reservoir will be needed. Nothing is more satisfactory than a constant steady trickle of water through the bog garden, and for this reason an automatic arrangement is preferable to any other. A small outlet pipe or valve should be fixed at the lowest point in the basin, so that the bog may be completely drained if necessary. At eight inches from the top of the basin an outlet in the side will permit of the surplus water trickling away. Of course the "basin" may be of any shape, the more irregular the better, there being no need whatever to make it circular.

Having made watertight the site of the proposed garden, and provided for the inlet and outlet of water, we may prepare for planting. First cover the bottom with six inches of broken bricks and rough material to act as drainage, and upon this lay a good depth of peat soil. The surface should be rendered uneven by suitable knolls, small plateaus and depressions, rough blocks of stone being used to keep the soil in place. The wettest parts will naturally be found where there is least depth of soil; the driest on the mounds and small rocky eminences. In a short time the stones will be covered with mosses and small ferns; the constant dampness too, will cause myriad tiny growths to spread a filmy veil of green over bare rock and black soil.

Larger bog gardens cannot be concreted, but must depend upon a steady flow of water, with branch drains,

76 ROCK AND WATER GARDENS

to provide the necessary moisture. Such gardens are, however, very costly to build, and require great skill to prevent their looking unnatural and out of place.

Once planted, the bog garden requires little attention, and increases in interest and beauty as the plants become firmly established and seed themselves. From time to time it will be necessary to check the more vigorous growers, or to clear away the mosses from some tender seedling which is in danger of being crowded-out in the struggle for existence. For the rest, we may leave the plants to re-group and arrange themselves, always certain that from January to December, even in the smallest bog garden, we shall not seek pleasure in vain.

CHAPTER X

LILY TANKS

THE work of the garden architect is generally condemned by lovers of the simpler and more natural forms of plant arrangement. In a climate such as ours the use of over-much stonework in the shape of statuary, fountains, vases and balustrading has little to recommend it. But if the designer will give us tanks and sunk basins, in which to grow Lilies and other plants, we cannot feel too grateful. Were it not for tanks, water gardening would be impossible for the many whose grounds do not contain natural ponds or streams.

Apart, too, from the pleasure which even a small collection of aquatics will afford, there is something truly suggestive in the sunken basin, set like a mirror, to reflect on its calm water surface changing cloud pictures or the lines of some old, moss-grown building.

In designing tanks the first thought should be to ensure the utmost simplicity, both in the surroundings and in whatever architectural work may be necessary. Artificial substitutes for stone are now so cheap that florid kerbs, angle piers, balustrades and vases may be employed at little more expense than would be occasioned by the use of an absolutely plain margin of the genuine material. In the old gardens of Italy the prodigal use of stone work is justified, not only on account of its suitability to the climate and mode of living, but because the designs were almost invariably good and pure.

The shape of garden tanks will necessarily be determined by the situation for which they are designed. Speaking generally, however, the more severe their outline, the better. Nothing can exceed in suitability a rectangular basin, with a broad coping of wrought stone, set in a framework of turf. If the pool is in view of the house, it may be necessary to slightly amplify the design, so that it may not appear inharmonious with the lines of the building. A good effect may be obtained by forming the ends into the shape of a Moorish arch, the bays being deeply recessed. So long as the outline is bold and dignified, enabling the eye to grasp the whole scheme at a glance, a satisfactory appearance is practically certain. It is the scalloped edges, the sinuous curves and raised parapets, that disfigure so many of the creations of the garden architect.

Garden tanks are often set in dreary expanses of gravelled walk, or at the meeting of several pathways. Many of these are in kitchen gardens, and have formerly served the useful purpose of supplying soft water for greenhouses and vegetables generally. The worst of these places is that there is no possible inducement to remain for more than a minute or so. Be the lilies never so fine, we lose altogether the sense of peace and stillness that rightly belongs to the garden; we can never feel alone.

An ideal position for the simplest form of garden tank would be the centre of a rectangular court, a brick or stone-walled enclosure with a doorway at either end. Here would be assured a degree of warmth and shelter that would make it a pleasant spot for reading or working, even in the early days of the year. A grass margin would fittingly surround the flat kerb, whilst clumps of Irises, Shrubby Spiraeas, Cannas, Paeonies, Funkias, Lilies, and bold foliage plants, could be grouped in masses behind. On the wall, what opportunities for growing

some of the handsome forms of Clematis, Magnolia, Roses, and sweet-scented Jasmine! Truly beautiful would be this garden picture when the surface of the pool scintillated with the jewelled forms of the hybrid Nymphaeas—ruby, topaz and silver.

It is a common idea that tanks must be built of considerable depth, and that unless protected by a low wall or parapet they are dangerous. For this reason hundreds of garden pools have been emptied and filled-in with soil. Only in exceptional cases is it necessary for the tank to be more than two and a half or three feet deep, this being ample for the class of plants that will find a home there. It is a good plan to excavate the soil to a greater depth in the middle than at the sides; a shallow ledge round the margin will keep the roots of the water plants from spreading towards the walls. Most lilies and other aquatics look better if kept somewhat in the centre of artificial basins, and are more effective if entirely surrounded by water than crowded against the walls and corners.

Deep tanks have a further disadvantage in that they are seldom properly filled. Nothing looks more unsightly than a tank in which the water scarcely rises half way. The walls cast a heavy shadow over the surface, the plants are unhealthy, and the water cold. Besides, the lily-tank should form a definite note in the scheme of design, a centre which inspires the arrangement of plant grouping around. Sunken water surfaces are useless as reflectors, and are lacking in those colour values which in sunlight are so precious. Even in quite large tanks the distance between the top of the kerb and the water-line should not be more than two feet; in smaller basins twelve inches is sufficient.

If the ground surrounding sunk tanks has an upward slope it should be laid out in a succession of terraces.

This is especially important where there is a wide margin of turf. Nothing looks worse than a grass slope falling abruptly to the water's edge. Such an arrangement is fraught with danger, the use of a mowing-machine is rendered difficult, and, most important, breadths of shaven turf set at sharp angles are utterly wrong in principle. By connecting the various levels by short flights of steps, and substituting walls of rough stone or brick for the grass slopes, a much better effect will be gained. A skilled mason is not required to construct such walls, which may be built of the cheapest materials, the crevices furnished with wall and rock plants. In garden courts abrupt changes of level are to be preferred to monotonous slopes and easy gradients; we gain then the charm of variety, and open up endless possibilities in the way of colour and shadow effects.

In more elaborate lily-tanks, such as may fittingly occupy the centre of a formal court of some architectural pretension, steps should actually lead into the water itself. A flight of broad, but shallow, stone stairs at either end of the tank cannot fail to greatly enhance its beauty. Their presence is a direct invitation to view the lilies more closely—a note of intimacy, which suggests that the water garden is made for our particular pleasure and interest. High copings and balustrades act as barriers, and prevent the jewelled water surface from forming any close relationship with its surrounding features. Some may argue that steps leading into water, even continuing their way beneath the surface, are an absurdity; in this case, however, pictorial value far overrules any utilitarian principles. We have only to remember a flight of weed-stained steps, the boat landing of some sleepy quay side, or the broad and spacious stairway, white and sunlit, which dips into a Venetian lagoon, to realise the idea more closely.

Tanks which form part of some architectural scheme

should be planted only with the best kinds of Water-Lilies, whose formality and clearness of outline exactly fits them for such places. In the beds around should be grouped plants of stately foliage and somewhat stiff habit—Cannas, admirable both as to their well-shaped leaves and gorgeous flower-spikes, Madonna Lilies, *Salvia patens*, *Funkias*, especially *F. Sieboldi*, Irises of sorts, and the cool green of Harts-tongue. Free-growing herbaceous plants must be excluded in this instance; however well adapted they may be as a setting for the quiet pool in the homely manor garden, they will be as weeds in the almost tropical brilliance of the formal Lily-Court.

CHAPTER XI

WATER-LILIES

As the rose to the flower garden, so is the Lily to our lakes and ponds. In the summer stillness of some reed-fringed backwater, the crowning note of beauty will be found in a fleet of Lilies moored by hidden cables. Who can forget the sight of the creamy cups sparkling with the morning dew, as the sun scatters the dawn mists from the surface of some placid lake? Or in the blue mystery of night, when the folded flowers shine like silver lamps to guide our boat through the shadows. If water gardens existed but for the sake of this one flower, they would be worth all the love and labour in our power to bestow.

And yet Water-Lilies are much neglected. For them it is worth clearing and cleaning the hundreds of weed-grown ponds, which at present disfigure numberless English gardens. Small tanks and tubs might be prepared for their reception: the possession of even a few square feet of water surface should be an excuse for growing plants of the hardy kinds.

Perhaps the fallacy that Water-Lilies, as a family, are extremely delicate, is difficult to explode. The fact that they flower freely in lakes and ponds, which in winter are thickly covered with ice, should in itself be sufficient to dispel any such prejudice. Certain of the American varieties require warm and sheltered quarters, but even in exposed situations the available list is by no means small.

No doubt, years ago, variety of colouring was lacking



POND WATER LILIES, LOW THER CASTLE
As reduced by the kind permission of Messrs. Stansfeld Bros., Southport

but now that the skill of M. Latour-Marliac has resulted in so many new forms, Water-Lilies range through shades of carmine to palest rose, from saffron-yellow to purple and soft vermilion. It is almost certain that a blue Lily will yet float on the surface of English ponds, though the probable parents of such a hybrid are natives of tropical countries.

In spite of the beauty of flower and leaf as displayed by even the commonest forms, Water-Lilies owe much of their charm to suitable surroundings and graceful grouping. On natural pieces of water they should always be planted close in-shore, so that they may be appreciated without trouble from the bank. A sheltered bay, surrounded by flowering reeds and with wooded margins, would be an ideal spot for a few good patches. Sunshine is essential, but in an exposed position they rarely look their best. Absolute tranquillity seems necessary in order to realise their full charm; on the mirrored surface of a sunlit pool, each bloom stands out clear cut and delicate.

There is something in the sculptured form of this flower that particularly fits it for association with water gardens of a formal type. In large places the possession of a small Lily-Court, with sunk tank and enclosing walls of masonry, will provide a picture of supreme beauty. The lines of stone curbing and the various classic styles of architecture which harmonise but ill with many of our native plants, accord in the highest degree with the chaste simplicity of the Lily leaf and flower. If the large sums which are wasted on incongruous fountains and water jets, could be applied to the formation of simple Lily-Courts, a vast amount of interest and pleasure would be aroused at half the cost.

An advantage of tanks over ponds and streams, consists in the ease with which the plants may be looked after. Not only can growth be curtailed and overcrowding

84 ROCK AND WATER GARDENS

checked, but the roots may be furnished with just such soil as is conducive to healthy development and free flowering. In many cases the mud in ponds and lakes is exceedingly poor in character; improvement in this direction being difficult, if not impossible. As a consequence, the crop of bloom decreases annually, whilst leaf growth is correspondingly coarse and rampant.

As a rule the more vigorous growers should be reserved for ponds and open water, as the Lily petioles should be allowed to attain their full length, and the plants are impatient of over-much restraint. The smaller kinds will thrive in tanks and artificial basins, where a depth of from two to three feet of water can be secured. In case of frost, it is advisable that the crowns shall be at least twelve inches below the surface during the winter.

The best time for planting is April or May, at which time the tubers can be obtained from nurserymen and specialists. For planting in the open, it is sufficient to tie the roots to a fair-sized stone or piece of iron piping, lowering them into suitable quarters near the pond side. If the mud bottom is of only slight depth, or clay puddling has been resorted to, the roots should be supplied with some strong loam in which to strike. An easy way is to pack them in soil in old baskets, lowering them into position: by the time the baskets have rotted, the roots will have fastened themselves securely into the mud.

In artificial tanks and basins, the bottom can be covered with a foot of good loamy soil mixed with manure before the water is admitted. Planting under such conditions is easy and certain. A thorough cleaning of the sides and brickwork should always precede Lily planting, as old neglected tanks are generally foul and dirty.

In former chapters suggestions have been given as to the grouping of Lilies in various water gardens; it now

remains to indicate the chief varieties from which a selection may be made.

Nymphaea alba (White Water-Lily). This is the beautiful flower which occurs naturally on many lakes and ponds. Flowering freely in late spring and early summer, it should be planted on large sheets of water in positions where bold effects are desired.

The following are included in the same section:—

Nymphaea a. candidissima. The fine, pure white flowers of this variety are remarkably handsome, and are produced freely throughout the summer. It does best in a considerable depth of water, and is not suitable for shallow, cramped positions. *Plenissima*, with its numerous pure white petals, is a good double form.

Nymphaea odorata (Sweet Water-Lily). A native of North America; the flowers white and sweetly scented. Included amongst its varieties are several beautiful kinds. *N. o. rosacea*, with small, rosy flowers, is a gem. *N. o. sulphurea* has deliciously scented flowers of a delicate yellow, with rich golden stamens; the leaves are marbled a brownish red. This variety is distinct by reason of its slender, tapering petals. *Grandiflora* is larger than the foregoing, the leaves quaintly spotted with red on the underside.

Nymphaea tuberosa. So called from its thick mass of fleshy roots, is a large-flowered white Lily of American origin. Of vigorous habit and readily increased by division, it is well suited to large, somewhat exposed pieces of water. The flowers, over six inches across, are freely produced during late summer and autumn. *Rubra*, in addition to its delicate scent, has magnificent rosy-carmine petals, and light orange stamens. *Richardsoni*, a double white form, possesses the true globe shape of the perfect Water-Lily. *Rosea* is an early-flowering kind.

Nymphaea pygmaea, the Siberian Lily, is the smallest

of all. The white flowers, barely two inches across, are produced very early, and look especially well resting on the dainty leaf plates. *Helvola* is one of M. Latour-Marliac's seedlings, and is distinct not only for its pale yellow flowers, but for the brown blotched leaves, spotted underneath with red. As a few inches of water over the crowns suffice, it is valuable for tubs and basins.

Nymphaea flava (Florida Water-Lily). The roots of this variety are fibrous, and the straggling growths are produced somewhat like runners. Charming as it appears to be in its native haunts, it is too delicate for our climate, except in very warm and sheltered localities.

Nymphaea sphaerocarpa. This is often regarded as a variety of *N. alba*, and is similar in shape. It blooms early, even in cold seasons, the flowers being a soft shade of carmine.

We now come to the beautiful hybrids, which are associated with the name of M. Latour-Marliac. They represent the highest development of the Water-Lily, and whilst exhibiting an almost tropical range of colouring, are remarkably hardy.

N. Marliacea albida. This magnificent flower is the queen of white Water-Lilies. Single blooms frequently measure eight or nine inches across. The petals are milk white, the stamens rich golden-yellow, whilst the leaves, a bright reddish purple when young, change later to a deep glossy green.

N. M. carnea. The bases of the petals are tinged with flesh pink: fragrant.

N. M. rosea. Deep rosy pink in colour: the flowers large and of good shape.

N. M. chromatella (Canary Water-Lily). This is one of the finest. The petals are sulphur-yellow, shading to a deeper tinge. The leaves form an admirable setting to the flowers, being a distinct red, blotched with dark maroon.

N. M. flammea. Truly beautiful, with its vinous stamens and white petals flaked with red. The colouring varies somewhat in different plants, but is always distinct and vivid.

N. M. ignea. The petals of this variety are of a rich crimson hue, forming a marked contrast to the orange stamens and rose-tipped sepals. A plant or two should be in every collection.

N. M. rubro-punctata. The large flowers at first sight appear a reddish carmine, revealing on closer inspection delicately marbled petals, and sepals stained with lilac, with an olive-green backing. The stamens are orange-red.

The foregoing are the giants of the race, and require for their perfect development ample space and a good depth of water—not less than five feet. Growth is so robust that it is useless to cramp them in small ponds.

For those whose water gardens are restricted in size, the Laydekeri section offers many charming forms. In shallow pools, fountain basins, and tanks they display their beauty to great advantage.

N. Laydekeri fulgens. A small but glorious flower. On a sunny day the glowing amaranth cups, each holding a bunch of fiery stamens, form a picture not easily surpassed.

N. Laydekeri fulva. The leaves are mottled with brownish patches; the flowers a warm cream, marked with red.

N. Laydekeri liliacea. This is quite a small lily, scarcely more than two inches in diameter when fully expanded. The stamens are yellow and the petals a silvery lilac. It is one of the daintiest in the whole group.

N. Laydekeri purpurata. Deep, rosy-crimson petals, with clusters of vivid orange-scarlet stamens. The flowers are particularly well shaped.

N. Laydekeri lucida. This is a splendid variety.

88 ROCK AND WATER GARDENS

The flowers are of a rich vermilion hue, with deeper shading towards the centre; the petals tipped with white. The leaves are marbled with chestnut markings.

N. Laydekeri rosea. This hybrid is one of the most difficult to propagate, and is usually increased by seeding. The small, rosy flowers, passing to white at the petal ends, are produced in great abundance.

The following hybrids are deliciously fragrant and are suited to small tanks and tubs. They should be grown by those who are obliged to make the best of small opportunities in the way of Lily culture.

N. odorata exquisita. A deep shade of rosy pink, becoming almost crimson at the base of the petals.

N. odorata minor. A small, white Lily, found in New Jersey.

N. odorata caroliniana. The flowers of this hybrid are pale pink, the reputed parents being *N. o. rosea* and *N. alba candidissima*. *Nivea*, a white variety, and *perfecta*, with large, flesh-coloured flowers, are other desirable forms.

Where space permits, a plant or two of the following should be included in the collection. Though mentioned last, they contain some of the finest Water-Lilies in existence.

N. Robinsoni. This is one of the best of M. Latour-Marliac's raising. The flowers are large and of a deep rose or lustrous crimson colour. The petals are suffused with white and the stamens are bright orange. It is quite distinct and exceptionally beautiful.

N. gloriosa. Generally considered one of the finest of the Marliacean productions. The colour is a brilliant rose, and the possession of five sepals, instead of the customary four, gives a much greater spread to the fully-opened flowers.

N. sanguinea. Deep carmine petals, with vivid orange-red stamens.

N. lucida. The petals shade from blush rose down to a soft, deep red at the base. The leaves are marbled with maroon. This is a particularly fine Lily.

Altogether humbler than the above, and yet possessing a charm of its own, the Nuphar family deserves mention. For wild water gardens containing mainly native plants, a patch of the common Yellow Water-Lily (*N. lutea*) is effective. A smaller variety, known as *minima*, occurs in Scotland. Much finer, and with bold, erect leaves, the North American Water-Lily (*N. advena*) should be freely planted in ponds or lakes where the depth of water does not exceed three feet.

CHAPTER XII

AQUATICS AND BOG PLANTS

THE following lists of plants suitable for water and bog gardens will doubtless be of assistance to those who are in any difficulty as to selection. If many beautiful and interesting kinds are omitted, it is that, from an *embarras de richesse*, space can only be found for a moderate number. In any case, a collection formed of the whole or greater part of the plants enumerated, could not be considered other than typical; only in very large gardens could more be included.

PLANTS FOR WATER MARGINS

The following are mostly of noble growth, and are chiefly valuable for their fine foliage:—

Gunnera scabra.	Heracleum giganteum.
G. manicata.	H. mantegazzianum.
Rheum Emodi.	Arundo donax.
R. palmatum.	Gynerium argenteum.
Carex pendula.	Equisetum Telmateia.
Osmunda regalis.	Bamboos.

Flowering plants for massing by the waterside:—

Iris Kaempferi.	Lythrum Salicaria.
I. sibirica.	Lysimachia vulgaris.
Spiraea gigantea.	Bupthalmum speciosum.
S. astilboides.	Thalictrum aquilegifolium.
S. Lindleyana.	Senecio japonicus.
S. palmata.	Polygonum sachalinense.

Petasites vulgaris.



IRIS KAEMPFERI
At Messrs. Kitching's Nursery, Langport

AQUATICS AND BOG PLANTS 91

If larger grouping is needed near the waterside, some of the moisture-loving shrubs will probably be found useful. The following do well :—

<p><i>Halesia tetraptera.</i> <i>Cydonia vulgaris.</i></p>		<p>Dogwoods. <i>Viburnum opulus.</i></p>
<p>Rhododendrons.</p>		

AQUATICS

Plants which are suitable for pond and stream margins, the roots being under water. These include flowering sedges, rushes and reeds :—

<p><i>Butomus umbellatus.</i> <i>Acorus calamus.</i> <i>Menyanthes trifoliata.</i> <i>Iris pseudo-acorus.</i> <i>Richardia aethiopica.</i></p>		<p><i>Typha latifolia.</i> <i>T. angustifolia.</i> <i>Scirpus lacustris.</i> <i>Rumex hydrolapathum.</i> <i>Alisma Plantago.</i></p>
<p><i>Phragmites communis.</i></p>		

The following should be used for deeper water :—

<p><i>Stratiotes aloides.</i> <i>Hottonia palustris.</i> <i>Pontederia cordata.</i></p>		<p><i>Villarsia nymphaeoides.</i> <i>Ranunculus aquatilis.</i> <i>Sagittaria sagittifolia.</i></p>
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Chief among aquatics are the several forms of the hardy *Nymphaeas*, suitable for water of varying depths. These beautiful flowers are dealt with in the chapter on *Water-Lilies*, so that it is unnecessary to recapitulate the different varieties here.

PLANTS FOR BOG AND MARSH GARDENS

In tubs :—

<p><i>Nymphaea pygmaea.</i> <i>N. Helvola.</i></p>		<p><i>Aponogeton distachyon.</i> <i>Butomus palustris.</i></p>
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In small bog pools :—

<p><i>Orontium aquaticum.</i></p>		<p><i>Calla palustris.</i></p>
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92 **ROCK AND WATER GARDENS**

In the wettest bog margins :—

<i>Ficaria grandiflora.</i>		<i>Myositis palustris.</i>
<i>Drosera rotundifolia.</i>		<i>Onoclea sensibilis.</i>
<i>Eriophorum polystachyon.</i>		<i>Asplenium.</i>
<i>Parnassia palustris.</i>		<i>Nephrodium Thelypteris.</i>
<i>Pinguicula grandiflora.</i>		<i>Osmunda.</i>
<i>Primula sikkimensis.</i>		<i>Struthiopteris germanica.</i>
<i>Caltha palustris.</i>		

For the drier parts of the bog garden the following would be suitable :—

<i>Primula rosea.</i>		<i>Erica Tetralix.</i>
<i>P. farinosa.</i>		<i>E. hybrida.</i>
<i>P. involucrata.</i>		<i>Saxifraga peltata.</i>
<i>P. capitata.</i>		<i>S. granulata.</i>
<i>Habenaria fimbriata.</i>		<i>Orchis foliosa.</i>
<i>Sarracenia purpurea.</i>		<i>O. latifolia.</i>
<i>Dentaria digitata.</i>		<i>Dielytra spectabilis.</i>
<i>Mimulus luteus.</i>		<i>Gentiana asclepiadea.</i>
<i>Hellonias bullata.</i>		<i>G. bavarica.</i>
<i>Narthecium ossifragum.</i>		

In well-shaded positions:—

<i>Cypripedium spectabile.</i>		<i>Epigaea repens.</i>
<i>Trillium grandiflorum.</i>		<i>Sanguinaria canadensis.</i>

Plants of larger habit, useful for bolder groups :—

<i>Astilbe rivularis.</i>		<i>Meconopsis Wallichiana.</i>
<i>Xerophyllum asphodeloides.</i>		<i>Galax aphylla.</i>

Lilies in cool, peaty hollows :—

<i>Lilium superbum.</i>		<i>Lilium giganteum.</i>
<i>L. canadense.</i>		<i>L. pardalinum.</i>

INDEX

- ALPINE gardens, situation of, 19.
Alpines, at high altitudes, 25.
— blue flowered, 22.
— collections of, 18.
— hardiness of, 7.
— soil for, 19.
Anemones, alpine, 22.
Aquatics, 91.
— for native stream, 57.
Artificial rockwork, 12.
Aubrietias, 35.
- BLUE flowers, rock bulbs with, 31.
Bog gardens, artificial, 74, 75.
— plants for, 92.
Bog plants, 68, 73.
— dwarf, 66.
— grouping, 70.
Bog pools, plants for, 91.
Broom, 49.
Bulbous plants, in rock garden, 27.
— various, 32.
- CAMPANULAS, alpine, 26.
Court, a garden, 78.
- DAPHNE, varieties, 47.
Dry walling, 15.
- FERNS, alpine, 24.
— for bog garden, 72.
- GARDENS, wild water, 52.
Gaultheria, 48.
Genista, 50.
Gentians, alpine, 21.
Grouping, examples of, 36.
- HEATHS, 46.
- IRISES, rock garden, 28, 29.
- LATOUR-MARLIAC, M., 83.
Lavender, 50.
Lilies, in bog garden, 71, 92.
Liliums, in rock garden, 33.
Lily-Court, a, 81, 83.
- MARSH gardens, plants for, 91.
Mountain plants, 3.
- NARCISSI, rock garden, 30.
Nymphaea, hybrids, 86.
— Laydekeri group, 87.
— varieties, 85.
- PATHS, arrangement of, 54.
— near stream, 53.
Pathways, in bog garden, 69.
Plants, foliage, 56.
Poplars, 59.
Primulas, 72.
- RHODODENDRONS, dwarf alpine, 48.
“Rockeries,” ugly, 1, 9.
“Rockery,” difference between
rock garden and, 2.
Rock garden, arrangement of
stones in, 5.
Rock garden, grouping in the, 34.
— paths, 16.
— site for, 6, 8, 9.
Rock gardens, elevation in, 13.
— on banks, 10.
— overcrowding in, 3.
— water in, 8.
Rock plants, depth of soil for, 4.

Rock plants, families of, 37.

Rock roses, 49.

Rocks, in Nature, 14.

SAXIFRAGES, alpine, 23.

Scillas, varieties of, 30.

Shade, bog plants in, 92.

Shrubs, moisture-loving, 91.

— trailing, 51.

— value of rock, 45.

Snowdrops, 32.

Spiraeas, 71.

Stepping-stones, 69.

Steps, 17.

— into lily tank, 80.

Stones, method of setting, 15.

TANKS, 77.

Tanks, depth of, 79.

— positions for, 78.

Trees, for waterside, 58.

Tubs, 62.

— aquatics for, 65, 91.

Tulips, objections to, 32.

Turf, alpines in, 20.

VEGETATION, stream-side, 55.

WATER garden, example of small, 61.

Water-lilies, planting, 84.

— positions for, 83.

— soil for, 84.

Water-lily, blue, 83.

Water margins, plants for, 90.

Water supply, 64.

Willows, 59.

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