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The JOURNAL of
THE SCOTTISH
ROCK GARDEN CLUB

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VOLUME XIII Part 3
No. 52

GEORGE FORREST CENTENARY
13 MARCH 1973

Editor : P. J. W. KILPATRICK, Slipperfield House, West Linton, Peeblesshire

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NOTICE

The ANNUAL GENERAL MEETING will be held in Hutcheson's Hospital, 2 John Street, Glasgow C2, at **2 o'clock on Thursday 8th November 1973.**

Members are notified that nominations are required for President and other Office-bearers, for three Vice-Presidents and for five Ordinary Members to serve on the Council. Nominations *in writing*, seconded by another Club member or members, must be sent to the Honorary Secretary no later than 20th August, the nominator having ascertained that the nominee is willing to serve if elected.

David Livingstone, Esq., having served as President for three years is not eligible for re-election as President, but, as the immediate Past-President, will automatically serve on Council as a Vice-President.

All other Office-bearers retire annually but are eligible for re-election.

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East Lothian.



GEORGE FORREST, V.M.H.
born 13 March 1873 - died 5 January 1932

George Forrest. 'The Man'

by his eldest son, GEORGE FORREST

It is now just over forty years since my father died.

When Mr. Kilpatrick asked me to write an article on him, I thought at first that it would be fairly easy, because I thought I knew my father fairly well. But when I came to make a start I realised I would have to go back not forty years but nearer sixty years ! This is quite a considerable time. But I have very many memories of my father, George Forrest, one of the greatest of all plant collectors, and who had the chance to collect plants from one of the richest plant areas in the world.

My father was a man of several good principles, such as being truthful, being clean in mind and body, and being a great worker. I would not say he was a strict disciplinarian, but everything had to be just right, or else he wanted to know why.

Most of my memories of my father are happy and pleasant ones, with one or two exceptions !

When he was home on leave after an expedition father liked to keep fit. One exercise he particularly liked was scything, and he used to cut the hay-field we had in front of our house. One day when he was doing this he sent me up to the house for a bottle of beer as scything is thirsty work. I went for this and he had it, and told me to take the empty glass and bottle back to the house. On the way I noticed there was a drop of beer left and, thinking father would not notice, I drank it. But he had noticed and I was told to go and wait for him at the house. This I did and shortly got the punishment and telling-off I deserved. But once finished with, the matter was forgotten. I had learned my lesson. Perhaps it is a pity more such discipline is not meted out nowadays.

Always when father was home our garden was rejuvenated. We tried, of course, to keep it going when he was away, but it was never as good as when his hand was on the tiller. Father, and mother too for that matter, was very keen on gardening, and was a very good one. We always grew lots of vegetables, fruit and flowers, and anyone who came to visit us would always go away well laden.

Father always did like working out in the open air and used to loathe the days, sometimes weeks, when he would be cooped up in

the house writing up endless field notes and other correspondence. What a desperate pity it was that he could never be persuaded to write a book or books. His experiences when travelling and plant collecting would have easily filled many volumes. All he did write were comparatively short articles for the *Gardeners' Chronicle*, etc.

I think my father relaxed best when he was fishing. He was very keen on this and also very expert and many are the happy, if somewhat wet and cold, at times, hours I have spent with him in the pursuit of trout, both on loch and burn.

When father was in China mother always took us for a long Summer Holiday either in the country or to the seaside. Those were wonderful times always to be remembered. When father was home we quite often went away during April. Then it was usually to somewhere there was a good trout fishing river or loch, and the head waters of Tweed knew us well. It was here that I once, under father's guidance, tried to "guddle" a trout. But it was not a trout but a quite sizeable salmon which, needless to say, got away.

It was chiefly on those holidays that my interest in plants was aroused. Father was such a good person to learn from. He seemed to know nearly it all. He also got me very interested in geology and birds, and in fact everything to do with nature. Those were wonderful days.

But living in the country as we did for quite a few years, in a lovely house called 'Broomhill' between Eskbank and Lasswade, Midlothian, ended when we went to live in Edinburgh. This had to be so, father said, because of our education. At the back of our new house was a lane and across this was the back entrance to the Royal Botanic Garden. This was very convenient for father, too, because at that time a great amount of work was being done on plants father had collected. Many many weeks and months were spent by my father, Sir William Wright Smith and Mr. Harry Tagg on this great work. Again it was the kind of work father loathed, but it had to be done. It was at this time that father used to give lectures in the Botanic Garden lecture hall, on Plant Collecting in Western China. These lectures were chiefly for the benefit of the Probationer Gardeners, but we always attended with some of our friends. Father was really a very good lecturer. He seemed to have the knack of putting it over just right and, of course, the excellent slides shown made it even better. Father was a little nervous always before a lecture, but once started all went well. He was worried at times that his precious slides, and

many were precious, would be 'fried' by the lantern. This, too, used to worry Mr. R. M. Adam, who usually worked the lantern !

It was at this time, too, that father spent quite some time visiting some of the members who had subscribed to his various expeditions. This was chiefly to advise them on the growing of the plants, but I think many of them liked to show my father how well they had managed to grow rhododendron so and so ! He used to go to Caerhays Castle to see his very great friend, the great Mr. J. C. Williams. He also visited Northern Ireland and many other places. It was a terrible blow to father when Mr. J. C. Williams died, and a very great loss to horticulture.

I think plant collecting and photography must go together. Father must have thought this too. In his many years of collecting he must have taken thousands of photos, and most of these were taken using the old type quarter- and half-plate camera.

To use these cameras requires endless patience. He must have had it, because it meant waiting till the plant was quite still. On a windy day photography must have been 'out' ! Anyhow, he was an expert photographer, as anyone who has seen his pictures will admit. To make it more difficult, it was not always easy to get water cool enough, in China, to wash the negatives when developing. For his last expedition he had a very nice Leica camera and also a Bell & Howell cine camera. This must have helped a lot, but I never remember seeing any of the results.

My father was not a religious man in the sense that he believed in the bible or went to church. As far as I know he only attended church once when at home and that was when his sister, Isabel, died. He was very fond of her and so we have *Dracocephalum isabellae*. I think his non-attendance at church sometimes worried mother, and yet he could see religion in a flower, or a bird or animal, or even in a piece of countryside. I remember he used to say that one did not have to go to church to be religious. It was in the man, he would say.

Father was a very meticulous man about cleanliness, as I have mentioned before. He shaved daily and if he could not have a daily bath had the next best thing, a very thorough wash. This was also so when out in the wilds of Yunnan and Tibet, and that cannot have been too easy at times.

With the odd bout of malaria, and once a very bad go of sciatica, he kept very fit and well when at home. When in China he did have blackwater fever, enteric and typhoid fever, and usually these were

treated—at least in the early stages—by himself ! Needless to say, he always carried with him a very useful stock of drugs and medicines. These were not only for himself but also for his own men and their families. He was several times commanded—I say ‘commanded’ because one does not argue with such people—to look after the wounded of both sides when two of the local brigand chiefs had decided to fight it out. I am sure he saved many lives doing this at great peril to his own.

He was also very careful in his dress, and could not abide shabbiness. His usual dress was a tweed jacket and rather ‘tight-at-the-knee’ breeches : not ‘plus-fours’ which he did not like. And long stockings to match. He usually wore strong walking shoes. His favourite colour seemed to be a lovat green and he preferred a bow tie to the ordinary long one. With all this he wore a soft cloth cap, and the end result was a very neatly dressed man. He always seemed just right. On a few special occasions he had to wear long trousers, but this did not suit him at all.

Diplomatically father must have been a very sound man, and he did not believe in violence. When he first went out to China it must have been a very wild country—I wonder if it has changed much since then ? He always had with him on his expeditions a double-barrelled gun, with which he was an excellent shot. This weapon was entirely to shoot ‘for the pot’. He also had a .250 repeating rifle, which I think was used once, when a wolf came a bit too near. He also had a small .410 gun for collecting purposes, and lastly, for his own protection, he carried a big heavy .45 automatic. This weapon too was only used once, and that to threaten with, not to shoot. This was when he menaced a small Tibetan hamlet for food, having eaten nothing for eight or nine days. This was when he was being chased by the Tibetans. It so turned out that the village was a friendly one, and actually helped him to escape over a 20,000 ft. pass to eventual safety. But at the time he was not to know that the villagers were friendly.

As I have said, he could use all these weapons expertly. I remember once watching him, at home, at target practice with the .45. The target was a piece of planking about 18 ins. by 12 ins. and was about 25-30 yards away. By the time he was finished there was not much left of the target. I do not think he missed once. It was a very impressive demonstration. He was also a good shot with a .22 rifle we used to take with us on our holidays for shooting rabbits. When on holiday in 1926-27, in Arran, father began to start missing and naturally be-

came very worried, because there was nothing at fault with the rifle. It was his eyes, and as soon as we got home again he was examined by a specialist in Edinburgh. He confirmed that father was developing cataract in both eyes, and would have to be operated on. Eventually this operation was carried out and, to all our great relief, was a complete success.

When father had any spare time at home he liked to read, chiefly novels by the well-known authors. But quite suddenly he became very interested in 'Westerns' ! He must have finished up with a library of two to three hundred, and either my brother, Eric, or I used to make fairly regular calls to a little bookshop, Alex. Brunton, at the corner of Hanover Street and George Street. Old Mr. Brunton, unfortunately long since dead, was always a bit shocked, I think, in father's tastes in literature, but he always managed to produce a good and steady supply of Westerns, nearly all of which were good clean stories. I liked them too !

To go back to Photography for a minute. Father was always a bit disappointed that all his pictures were in black and white. They *would*, of course, have been so much better in colour. He had tried a French plate, I think, but was not at all satisfied with it. It accentuated the blues and greens too much, he said. So he decided to try his hand at tinting some of his plates. I made up suitable light wooden frames to hold the slides while he worked on them. As far as I can remember he was quite successful. Soon, however, colour photography began to improve and there was no longer any need for the rather slow hand colouring.

Another of my father's great achievements was that he could write wonderful letters. Throughout most of his time in China he wrote weekly to mother. These letters must have kept her going many a time. It cannot have been too easy looking after a family of three boys, as we were. I hope we did not try her too much ! Occasionally there would be a letter for us, and then there was great excitement. How father managed to keep it all up I do not know, but he did, and always the letters were packed full of interest. Usually too, there would be a dried leaf of some plant he had found, or a butterfly or moth. These were very beautiful, too, and much treasured.

On father's last expedition he never let up on his prodigious letter writing. He actually increased it, as not only did my mother get the usual weekly letter at home, but there was nearly always one for me every week. This started in 1930 when I went out to a tea plantation

in India. These letters were a tremendous help to me in my entirely new environment. They were always full of the most useful advice as well as wonderful writings of all he had been doing and all he had found. I think father's record letter to me was one of thirty-six foolscap pages ! I remember I was hard put to try and equal it.

When father decided, in 1930, that he would have to make one last expedition to 'finish it off' as he put it, I begged and pleaded to be allowed to go with him. I am sure I could have taken some of the weight off his shoulders, and been a help in some way. But he would not have it. His reason was that he considered the climate would have been too much for me. It certainly was bad, but as it turned out the climate of the tea district I went to was as bad, if not a lot worse. That was in *those* days. Now, due to modern drugs and ways of malaria control, it is a very much safer place. This we both discussed at length in our letters to each other.

Suddenly father's letters stopped and the word came through of his death. The shock was awful and it was many many days and weeks before I came to realise that I would hear from him no more. I felt so useless and but for the good advice of my tea garden manager and his very kind and understanding wife, I would have packed up and come home. I was also much helped by the then British Consul in Tengyueh, a Mr. Prideaux-Brune. He wrote to advise that things were not too good in China and likely to get worse, and that he would do all that had to be done, and keep me informed. This he did. He was also very helpful to mother, who must have been shocked even more than I was. Father was always so very fit, we never even thought of death. But that is the way of life, and I am sure it was the way my father would have liked to go, if he had had any say in it. I like to think that he now looks out over the Hills of Yunnan and Western China he knew so well, and over which he must have walked so many miles.

My father's passing was, too, I think, the end of an era in plant collecting. Since that time no European collector has been in that area which, I am sure, still holds many plant collecting secrets. I wonder if we shall ever be allowed in again. Many gardens certainly need replenishing with new stock, in the way of seed, etc., from that part of the world.

These, then, are some of the memories of George Forrest, 'The Man', who was my father. I have tried to be as accurate as possible, so I hope readers will please not be too critical of any small, I hope,

discrepancies they may find in my writings.

I have tried to show what a wonderful man he was, what a wonderful father he was, and what a wonderful husband he must have been to my mother.

And now in the Savill Garden, Windsor Park, where I work, nearly every day I come across plants collected by George Forrest, and bearing the famous 'F' prefix to the number. It makes me proud indeed to be the son of such a great man.

George Forrest's Plants at Caerhays

by JULIAN WILLIAMS

THE DEBT that British horticulture owes to George Forrest is a great one, but there are few places where it is more apparent than at Caerhays. The sweep of his work and the scale of his introductions make any attempt to analyse his achievements a giddy and a perplexing one—so many blind alleys, so many mysteries still to unravel.

My grandfather, J. Charles Williams, was at the receiving end of E. H. Wilson's and Forrest's importations from around 1903-1926. His meticulous notes in his spidery handwriting are still here. His interests were not merely in Rhododendrons and Camellias, but in Magnolias and "Evergreens", which in their turn ran the gambit from Azaras to Vacciniums.

Some idea of the scale of the problem that faced J. C. Williams and his gardeners at Caerhays and at Werrington Park can be gauged by the photographs in Dr. Cowan's fine book on the Journeys of George Forrest, which shows a formidable consignment of material in huge cases waiting for despatch homeward to Caerhays.

The Forrest field notes here start at No. 7451 collected in April 1912, and end with 27767 (an *Ilex*) collected in November 1925. Between these dates Caerhays and Werrington had a mountain of material to cultivate, to assimilate and to distribute.

J. C. Williams felt his responsibility to the plant collectors keenly, and he was frequently admonished to take care of the new consignments and to realise with what risk and peril they had been collected. In a letter to J.C.W. (which is now mislaid) in 1912 E. H. Wilson laid

this responsibility on him with something akin to severity. In this instance he was sending six plants of *Rhododendron* 1350 to Caerhays from the Arnold Arboretum. His warning was that J.C.W. was the only person he could trust to grow them, as it was too risky to try at that time in the U.S.A., that he had only found this *Rhododendron* in one place during his explorations, it was unlikely that he would ever return to that locality and if he did, the chances were that the old plants would have been destroyed by a forest fire. Happily Mr. Wilson was wise in his choice and there are very many more than six plants of Rh. 1350 (later called *Rh. williamsianum*) growing in the old and the new worlds at the present time.

Forrest, too, was frequently warning J. C. Williams in long letters—sometimes 30 pages in length—of the burden he was taking on in accepting the consignments.

E. H. Wilson's plants gave the two gardens a chance to organise themselves to deal with the new material. The gardens before 1914 had large staffs and able propagators in Mr. Fitt at Werrington and "Gardner" Martin at Caerhays. The flood of material from Forrest must have been formidable indeed. From April 1912 until December 1913 Forrest collected Herbarium material and seed from nearly 5,000 plants. All through the first war these consignments still arrived. It is amazing to think that such an influx could have been continued. Other members of the syndicate also faced the same problems with trying to cope with similar torrents of plants. With young men going to the war, the garden staffs must have been greatly depleted. John Charles Williams, fifty-four in 1914, had his hands well and truly full with County commitments, his wife ran a war-time hospital at Werrington, four of their sons were on active service, and he spent most of his free time at Caerhays. It was then that he must have started upon his notes. The bare bones of them here show painstaking and prolonged industry—describing the progress of the seedlings, to which other gardens they had been distributed, etc., etc.

In the late twenties he consolidated his notes and one evening took them to London in his despatch case, to be handed over to a publisher. On leaving the sleeper at Paddington he reached the ticket collector and suddenly realised that his case was still in the sleeper. He returned to retrieve it, but found it had gone, and with it fifteen years' work. He had had a few pounds in the case which must have proved irresistible to the thief.

If this disaster had not occurred the task of his successors here

would have been considerably eased and British horticulture would have benefited.

Labelling and identification of plants was a great problem in itself. At the outset this was done meticulously, but during the Second World War, with very few staff, the labels began to disappear (at the present time the remaining lead labels face another hazard—grey squirrels, to whom they appear to be irresistible). At Werrington, however, there are a large number of original labels *in situ*—due to the efforts of my father (Commander A. M. Williams), and his late gardeners, Richard Gregory and George Fry. In one place there is a clump of five *Rhododendron arizelum* each with its own separate Forrest number—in this instance there is very little variation.

The great number of new *Rhododendron* species found by Forrest must have caused the most excitement, but sometimes the attribution of novelty was rather over-optimistic. *Rhododendron oreotrepbes* (fig. 43), for example, seems to have been given at least ten synonyms. Possibly because the numbers of new *Rhododendrons* became difficult to handle, and certainly because of the Second World War, losses in this garden of many of the new species introduced by Forrest have been severe—especially among the dwarf *Rhododendron* species (here again they appear to have survived better at Werrington).

If one had to list the ten *Rhododendron* introductions of Forrest that have done the best at Caerhays and Werrington, such a list would include :—

Rh. sinogrande : Here we have reached great size despite showing signs of temperament when they come to put on their new growth.

Rh. lacteum : Superb at Werrington, but difficult, if not impossible, to grow with any degree of truth from seed.

Rh. griersonianum : Banks of the original plantings continue to show vigour and gusto and take pruning quite well.

Rh. eriogynum : So valuable in the early summer and a very good parent when crossed with *auriculatum*.

Rh. valentinianum : Again strong and healthy in its original site, but by no means the dwarf which it was once thought to be. Its weakness is that it flowers slightly every other year.

Rh. leptothrium : Pale mauve flowers growing here to 20 ft. instead of the 6 ft. to which it is credited in the *Rhododendron Handbook*.

Rh. meddianum : Good red flowers, but more at home at Werrington than at Caerhays.

But on looking through the list of Forrest's introductions again I find that one should have chosen twenty more species equally striking and handsome. Such is the debt that Rhododendron enthusiasts owe to George Forrest.

With Camellias the explorer's achievements are equally remarkable and the introduction of *Camellia saluensis* added a new dimension to Camellia cultivation as a parent for hybridisation. In their own right, however, the clumps of *Camellia saluensis* are worth a visit to see when they put on their show in February and early March. When garden visitors in April are told what they have missed they view the information with disbelief. *Camellia reticulata* 'Mary Williams' again flowers superbly in March and is frequently missed.

Forrest's Magnolias, Manglietias and Michelias deserve an article to themselves—but no plant has flourished better here than *Michelia doltsopa* in all its forms. A majestic evergreen, generous in its creamy scented flowers and generous too in its flowering span, it is probably George Forrest's greatest legacy to this garden.

Finally, there is the large section which J. C. Williams refers to as the Evergreens. When the Rhododendrons have passed their peak, then is the time to enjoy the less spectacular shrubs—but here the great worry is how to propagate them. *Quercus lamellosa* (24183), collected in May 1924, probably planted out in 1929, has grown to 31 ft. A fine leathery foliage and disliking cold winters, it flourishes but does not, or has not yet, set seed. A young plant propagated from a cutting is growing well, but that may have been a fluke. We have tried to propagate many of the *Quercus* family by this method, but this is our only success to date. Our *Lithocarpus pachyphylla* (which may or may not be a Forrest plant) sets seed regularly. Every year until this summer we have tried to raise them, but in vain. This year, planted and potted in the usual manner, three seedlings have appeared. The reason we cannot fathom.

As can be seen, the full accomplishments of George Forrest have been dealt with in a rather shallow manner in this article, but it is hoped that it has given some idea of the problems and the explorer's achievements. There should, however, be a full catalogue of all Forrest's non-Rhododendron importations, with details of where the surviving plants are growing and which introductions have died out.

Another omission in this article is the debt owed by both George Forrest and by private gardeners and patrons like J. C. Williams to Edinburgh, to Sir Isaac Bayley Balfour and to Sir William Wright

Smith. The excitement as the new Herbarium specimens and the seeds arrived reverberates through their letters. It is always one of the great pleasures of the gardening year when Dr. Fletcher visits us—it was he who dealt with a great many of the Herbarium specimens when they arrived—and when he sees some, at least, of the results of past labours, flourishing here.

One of the most valued possessions in this house is a photograph of George Forrest—taken I suppose ten years before the photograph in Dr. Cowan's book. There he sits, his Labrador at his side, his stick at his feet, and a flower in hat, beaming down out of the frame (Frontispiece). How said it was that he had so little time to appreciate the effects of his exertions, and that he did not enjoy the longevity which appears so common to the gardening fraternity.

George Forrest's Gentians and their Hybrids

by KATHLEEN S. HALL

It was early in his first expedition, that expedition which was to include enough drama and tragedy to daunt a less dedicated man, that George Forrest first set eyes on the plant which was described by David Wilkie as "Without doubt . . . the finest all round garden plant to be introduced in this century", *Gentiana sino-ornata* (fig. 44).

In September 1904 he was working in the area in N.W. Yunnan between the south flowing Yangtze-Kiang and the Chungtien plateau, when he discovered the first clump of this superb gentian on the Nie Chang Pass. Even those who have grown it for many years are entranced each autumn by its beauty, but the first sight of it was entered, somewhat prosaically, in Forrest's field notes as "No. 408. Boggy ground. Summit of Nie Chang Pass between River Yangtze and Chung Tien plateau. Elevation 14-15,000 feet. Flower deep blue. Yunnan, Sept. 1904."

From this collection he does not appear to have sent home seed, but in 1910 he found the same gentian in the Li-chiang range, to the S.E. of, and at a lower altitude than the previous site. Seed of this collection was sent home and plants were raised in Mr. Bulley's garden

at Ness and in the Royal Botanic Garden, Edinburgh, which flowered in 1912. For several years it was known as *G. ornata* (Chinese form) until Sir Isaac Bayley Balfour described it as a new species in 1918. It received the Award of Merit of the Royal Horticultural Society in 1916 and the Award of Garden Merit in 1927.

G. sino-ornata flowers in October and makes a dazzling foil to the colours of autumn. The corolla is a true royal blue, forming a funnel up to 6 cm long on the outside of which are five bands of deeper blue ; these alternate with stripes of whiteish-green with a narrow blue line up their centres. From the central rosette of leaves radiate stolons up to 17-20 cm in length, bearing a number of opposite pairs of stiff lanceolate leaves. The leaf nodes as they lie on moist peaty soil send out roots and form new rosettes which, if protected over winter with a layer of leaf-mould or peat, will grow into young plants the next year.

Of all Forrest's gentian discoveries this is the only one which has adapted itself successfully to garden culture, though strangely enough in the early 1920's it was considered to be difficult, not only in the South but also in some Scottish gardens. A series of tests was made at Wisley, the results being published in 1936 in the Jour. of Roy. Hort. Soc., which showed that it could not survive on limey soil, lived only a little longer on clay or sand, but would thrive and flower in rich loam. In cultivation it is advisable to divide up the plants every two or three years and replace the divisions, which should have thick thong-like roots, about 9 inches (22 cm) apart in good loam to which has been added peat or leaf-mould and a sprinkling of hoof-and-horn or lime free fertiliser. If this is not done the plants soon show signs of starvation, the leaves turn yellow, the roots become thin and dry, and few flowers are produced. Though it does not demand the "boggy ground" in which Forrest found it, this gentian must be grown in moist soil and any peat worked into the ground should first be well watered. It has one virtue which is a boon to country gardeners . . . that rabbits do not appreciate it.

Of the many good hybrids of *G. sino-ornata* the following are among the best known and have all received the Award of Merit :

G. x macaulayi (*sino-ornata* x *farreri*) and its various forms

G. x stevenagensis (*sino-ornata* x *veitchiorum*)

G. x bernardii (*veitchiorum* x *sino-ornata*)

G. 'Glendevon' (*ornata* x *sino-ornata*)

Apart from *G. sino-ornata* I have been able to trace only one of Forrest's gentians, F.14636 *G. stragulata*, which is still in cultivation,

and it is possible that even this comes from a later collection for Forrest himself found it in a second locality under F.21008. It is grown in the rock garden of the R.B.G. and was recently re-introduced at Ness, now the University of Liverpool Botanic Gardens, where it grows in a trough. Discovered in 1914 "in moist stony ground in N.W. Yunnan", it was raised from seed by J. C. Williams, who gave plants to the R.B.G. It received the Award of Merit when shown by A. Harley of Glendevon, Perthshire, on 28th August 1928, and a good photograph of his plant may be seen in D. Wilkie's book.

G. stragulata forms a clump of obovate basal leaves, 1-1.5 cm in length, from which radiate stems some 10 cm long bearing pairs of leaves 1.5 cm long and oval in shape. The general effect is of a compact mat above which rise the unusual flowers. The corolla is narrow and tubular, 5 cm in length, of a purplish-blue with a clearer blue on the inside, it is constricted at the throat, reminding one of *Campanula zoyssii*, and the five triangular corolla lobes spread out above the constriction. It likes a scree mixture in full sun and flowers from late July to the end of August. Seed is seldom set but it can be propagated by cuttings.

In 1906, and again in 1912 on his third expedition, Forrest discovered the gentian which was described and named after him by Professor Louis Diels of Marburg, F.3110 *G. georgei*. First found on the Li-chiang range at 11-12,000 ft. (3350-3650 m) on open meadows and later (F.20995) on stony calcareous ground in N.W. Yunnan, it is described by Wilkie as "one of the aristocrats of the genus". It was later found in Tibet by F. Kingdon-Ward and it is this form (KW 10765) which was grown from seed by R. B. Cooke of Corbridge and several others, and which gained an Award of Merit in 1936 when shown by Lord Aberconway and Major F. C. Stern. Plants of this species from the two collections, although the same from a taxonomic point of view, would appear different to gardeners on account of their colouring. *G. georgei* (Diels) is described in the Notes of the Royal Botanic Garden as "Plant 2-3 ins. Corolla deep purplish-blue interior, exterior striped greenish with base green. Oct. 1906. Eastern flank of Lichiang range.", whereas the plant which obtained the A.M. is described in the Journal of the R.H.S. as having "lilac lobes and creamy tubes striped externally with green." It must indeed be a handsome plant, the rosettes having broad leaves of 6 cm in length and the solitary terminal flower on each 10 cm stem has a bell-shaped corolla 5 cm long and 2.5 cm wide at the mouth.

G. sikkimensis had been found some years earlier but Forrest collected it in a new location in N.W. Yunnan on moist stony slopes in 1904. Whether the plants grown in this country were his introduction or not it is difficult to say. However, A. Harley in the Journal of the R.H.S. 1928, described both this and *G. stragulata* growing at Devon-hall and said that it is a "good grower". In the *Gardeners' Chronicle* of 15th Dec. 1932 it is said to "set plenty of seed but is seldom seen and is difficult to raise and flower". It would be interesting to know if it still grows in any garden.

One other introduction worth recording is an annual gentian, found originally by Père Delavay about 1885, *G. gentilis*. Forrest found it in the Li-chiang Range and it was first flowered by Mr. Bulley at Ness in 1912. A further collection of seed was sent in 1921-22 to J. C. Williams, by whom some was sent to the R.B.G. where it was raised and flowered. It formed branching clumps 10-12 cm high and about twice that width with small pale blue flowers. It bloomed late in the year, October-November, and the flowers were found to be susceptible to changes of temperature, closing at a slight fall and opening again when the temperature rose, but not affected by light changes. From photographs in an article by R. M. Adam in *Garden* 29th Nov. 1924, this appears to be an attractive plant and one regrets its loss to cultivation.

Three other species are described by Wilkie as having been brought into cultivation by Forrest, all of which had been found at the end of the 19th century by Père Delavay. These were *G. microdonta*, *G. cephalantha* and *G. rigescens*, the last of which seems to be a very impressive plant "14-15 cm high with rich violet-purple flowers and stems which are dark red, almost black." C. T. Musgrave of Kew in an article on gentians in cultivation, in the Journal of the R.H.S. Vol. LVII, 1932, wrote of *G. rigescens* that it "presents no difficulties in cultivation". Unfortunately these all bloom late in the year and did not set seed so that, to quote Wilkie's words, "Their stay in cultivation was of brief duration."

Among other species of gentian found by Forrest are many which were either never raised from the seed sent home, or only reached this country as herbarium material. Of these three are worth mentioning : F405, *G. heptaphylla*, found in dry grassland on the Kari Pass, not far from the Szechuan border, is a small species not unlike *G. hexaphylla* but with seven leaves in the whorl. From the rosettes grow many stems 12-13 cm long, bearing pale blue flowers. Judging by the her-

barium specimens this would promise to be a charming plant for the rock garden. *G. suboculta* has large clear trumpets of pale blue, and seed of this was sent home, but plants do not appear to have been raised in any garden. *G. rhodanthe*, bearing pink flowers, would also be a desirable addition to our gardens if it could be introduced and persuaded to adapt to our climate.

Although they are not in cultivation, brief mention must be made of the climbing gentians, previously called *Crawfurdia* but included by Marquand in the genus *Gentian*. In his field note on F.963, then *Crawfurdia trailliana* but now *Gentiana heleni*, he wrote : "Climber of 6-20 ft., flowers rich deep heliotrope." These magnificent flowers were 7 cm or more long and widely funnel-shaped, hanging downwards from the twining stems. Another climber was named in honour of his sponsor, *Gentiana* (previously *Crawfurdia*) *bulleyana*, and had flowers 7-8 cm long of blueish purple. These exciting and graceful plants would not be hardy in this country but could make a striking display in a large greenhouse.

In the Notes of the Royal Botanic Garden, Edinburgh, are many more names of gentians discovered by Forrest—annuals, perennials and climbers—which have never been introduced or of which seed has failed to produce viable plants. We gardeners must wait till plant-hunters can go once more to the mountains of Yunnan, and in the meantime be grateful to George Forrest for one superb introduction, *Gentiana sino-ornata*.

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Pleione Forrestii

by H. ESSLEMONT

Pleione forrestii (fig. 40) was collected by George Forrest in the Yunnan province of China and named after Forrest as a new species in 1912. It was subsequently found by Kingdon-Ward in N.E. Burma and by Rock in other parts of Yunnan.

It appears that Forrest did not send back pseudobulbs until 1924 and that the only recipient to cultivate these successfully in the first instance was the Royal Botanic Garden, Edinburgh.

This handsome pleione has flask-shape bulbs and clear yellow flowers. The inside of the lip is a deeper yellow with raised keels which have reddish-brown blotches on them.

It is only recently that this pleione became commercially available and it appears surprisingly amenable to cultivation. My original three pseudobulbs have already increased to nine and I have about a dozen small ones grown from the small bulblets which appear at the tips of the old shrivelled pseudobulbs towards the end of the season. These are collected when the leaves wither, placed in a seed envelope and planted out in Spring.

In the wild, it is found growing on mossy rocks in dappled shade at around 6,000 feet and this may give us a guide to its cultivation.

I grow mine in a shallow pan, with good drainage, in an ericaceous mixture to which some sharp sand and chopped sphagnum moss is added. The plants are put in a shaded part of my cold alpine house in March and brought into a frost free room in November. During the winter months no water is given. They should be repanned each year in February or after flowering.

A spray is appreciated in warm summer weather and an occasional application of a weak liquid fertiliser during the growing season.

A friend who gardens in moister conditions in this area has been even more successful with the cultivation of this plant.

I am sure that those who saw the large pan of Forrest's pleione in flower at the 1971 International Rock Garden Conference will agree that it is a worthy memorial to a great plantsman.



△ Fig. 40—*Pleione forrestii*

Photo—H. Eslemont

▽ Fig. 41—*Rhododendron forrestii*

Photo—S.R.G.C. Slide Library



George Forrest - The Man and his Work

by JAMES T. AITKEN

GEORGE FORREST in 1904 went to South West China to procure plants suitable for British gardens. Thus commenced the career of a great Scotsman who by the time of his death had collected over 30,000 plant specimens from that district and as a result of whose labours the rhododendron and primula families in particular were enriched beyond conception.

He was born in Graham's Road, Falkirk, on 13th March 1873, the youngest child of George Forrest, a draper's assistant, who came from Paisley and in 1852 married Mary Bain of Bothkenner, the parish comprising the flat skinned lands bordering the south shore of the Forth around the mouth of the River Carron.

The family moved to Kilmarnock in 1887, where the father had commenced business on his own account. George Forrest moved from Falkirk Southern School to Kilmarnock Academy, where he finished his schooling and which he left to become an apprentice pharmacist with Rankin & Borland, a Kilmarnock firm of chemists. He never qualified but appears to have assimilated a knowledge of medicines and medical practices which he used on his travels in China to succour the native population afflicted with disease and the wounds of civil strife.

During his Kilmarnock days he was influenced by Dr. Lansborough, a minister of one of the town charges, who was a naturalist of local repute and was by way of an authority on the natural history of Arran.

His training as a chemist in the days when the pharmacist procured his own herbs and his association with Dr. Lansborough comprised the only formal instruction Forrest received in botany. But the natural world, for the rest of his life, fascinated Forrest both in his native Scotland and in China and Burma.

On the strength of a legacy Forrest quit his apprenticeship and went to Australia, tried his luck in the gold fields and on a sheep station, then returned to live with his widowed mother on the outskirts of Edinburgh in 1902 and obtained a post as an assistant in the herbarium of the Royal Botanic Garden.

By this time the botanical richness of China was well known,

particularly as a result of the material sent back to Europe by the French missionaries who had usually sent botanical material only. The French recipients of such seed as the priests sent home handled it badly—generally by assuming the subjects to require much warmer conditions than they in fact could stand. The plant and seed material effectively introduced by such as Fortune from China was mainly from the coastal region. The wild mountains of Szechuan, Yunnan, Tibet and Upper Burma where the missionaries had gathered herbarium material had not been exploited to any extent. So while the likely value of the plants obtainable was shrewdly calculated, out of this treasure house little had been introduced to horticulture.

Forrest's first employer was A. K. Bulley, a Lancashire cotton magnate, who had established a fine garden at Ness in the Wirral (later bequeathed by him to Liverpool University as a Botanic Garden and now as one of the great gardens of England open to the public free in terms of the bequest). Bulley had also established the seed and nursery firm of Bees (originally Co-operative Bees). Bulley was a complex character, something of a philanthropist, a Fabian and a strong and consistent socialist. Bulley asked the Regius Keeper of the Edinburgh garden to recommend a man who might go as a collector for him to South-West China. The Keeper—Sir Isaac Bayley Balfour—recommended Forrest, who accepted the post and sailed for Rangoon in 1904 at age 31. Forrest's first expedition lasted from 1904 to 1906 and was wholly financed by Bulley.

He proceeded over the Burma border to the mountainous area where four of the world's great rivers rise—the Yangtze-Kiang which flows east to the China Sea, the Mekong which flows south-east to Vietnam, the Salween which enters the Indian Ocean at Moulmein in Burma, and the Irrawaddy which traverses the Burma Plain to the sea at Rangoon. This is an area of deep-cleft valleys running north to south separated by high mountain ranges. The rainfall is high and the winter climate can be intensely cold at high altitudes.

From the first Forrest was interested in the whole scene around him. His employment was botanical but he explored the whole natural history of the region. His collections of birds, small mammals and insects are notable. He recorded the manners and occupations of the people and the geography and geology of the district.

Much of his success is attributed to his faculty for understanding and leadership of the local people. He appears to have been able to associate easily with all social grades and with the few Europeans of

the region as well as with the Chinese and Burmese.

His accounts of the Chinese he meets are generally kindly and understanding. He is factual and not critical, but quick to record the bizarre. The wide sleeves of the Chinese mandarin he speculates as useful for scratching. He describes the dress of the well-to-do ladies but assures his wife he "cannot say what they wear as undergarments". The gleam of humour can be discerned when he records his first greeting by the Chief Magistrate of the province, who assured Forrest that he 'had been waiting all his life to meet me'. The lazy official he cajoles and coaxes. He sympathises with his underpayment. But for the corrupt or the dishonest he reserves scathing condemnation. He detected the postmaster destroying mail to get the stamps. He writes of the scourge of opium.

The first 1904-1906 expedition was the most adventurous. The country was in a state of civil war, the Tibetan lamas being in revolt against the government and pledged to eliminate foreign and Christian influence.

In July 1905 Forrest was with three missionaries at Tsekou on the upper Mekong when news of the near presence of the insurgents was received. The Fathers with Forrest and the small Christian native community fled, but the party moved slowly and all but Forrest were captured. Père Dubernard (after whom *Primula dubernardiana* which Forrest had collected in the previous year was named) was one of those captured and (according to Forrest) shot by the rebels, his heart torn out while alive, and finally beheaded. For eight days and nights Forrest was hunted on the Mekong-Salween divide. He hid in the bed of streams, travelled by night, and lay up by day, discarded his boots to conceal his footprints, was without food, lost his clothes. He became delirious with fatigue but still had the resolve to make the final exertion to escape. He won through to a friendly Lissoo village where the headsman first concealed him and then escorted him to safety, though even this journey was attended by considerable hardship and privation. When he wrote home with his account of his escape he was concerned, however, about the loss of over 700 botanical specimens, seed of 70 species as well as his field notes and his photographic negatives. And even in his exhausted condition he was able to narrate and comment on the plants he had noticed on his flight!

The news wired home was that Forrest had died and Balfour had to break the news to Forrest's mother and fiancée, and his employer. Bulley wrote back aghast at this news. Forrest he described as 'a fine

young fellow who had to do it because he was poor. He lost his life to earn my beastly money'. The word of his survival was hailed with great relief. To Litton, Balfour wrote that what Forrest had already done was great but the promise was of greater things in the future.

His friend of the first expedition was G. L. Litton, British Consul at Tengyueh, which Forrest made his base. Litton introduced Forrest to the people and the country and he accompanied Litton on several of his travels before Litton died in 1905. In 1906 Forrest discovered a remarkable primula—"a superb species, with flowers in crowded spikes 2 to 3 inches in length each bearing hundreds of small deflexed fragrant blooms of deep purple-blue. Plants grow in crowded masses, in moist grassy openings in pine forests at 10-11,000 feet", and caused it to be named *Primula littoniana*. But the missionary Delavay had earlier discovered this Kniphofia-like primula and named it *P. viali* after another Father. But it was never in cultivation till re-discovered by Forrest.

Rediscovery is the role of Forrest in regard to many fine plants. *Primula malacoides*, another introduction of the first expedition and regarded as Forrest's most important commercial introduction, had previously been discovered also by Delavay, but the whole stock derives from Forrest's seed. The first collection was by one of his native assistants but later Forrest could record that from his own observation the primula had a natural distribution over about 150 square miles.

The great blue Himalayan poppy—*Meconopsis betonicifolia*—was discovered by Père Delavay in 1889, but Forrest it was who rediscovered it in the same location at the south end of the Li-chiang range in 1922. The yellow *Meconopsis integrifolia* was discovered by a Russian explorer, Przewalski, in 1872 but not introduced till 1905 by Forrest, who found great quantities at 11,000 feet on the Hon-tsi-kiang pass into the Salween valley ; the plants were discovered forcing their way through shallow snow. The soil was black, peaty, full of decaying vegetable matter, and the ground boggy from the water of the melting snow. The winter snow had varied from five to fifty feet in depth.

Forrest introduced the nomocharis genus to cultivation but several had been earlier discovered, for example the industrious Delavay found *Nomocharis pardanthina* as also *Nomocharis aperta* (fig. 42), which on rediscovery by Forrest was originally named *Nomocharis forrestii*. However, he discovered and introduced *Nn. saluensis*, *souliei*, and *aperta*, all valuable plants doing well in cultivation, as well as several others.

Two of his most successful introductions were the candelabra *Primulas bulleyana* (fig. 49) and *beesiana*, which he found growing in similar habitats but evidently never together. These primulas commemorate his employer. Indeed, Bulley instructed that as many new introductions as possible were to be named after Bees for the sake of advertisement—so there is *Rhododendron beesianum*, *Allium beesianum*, *Jasminum beesianum* (a useful parent of hybrid jasmines), *Delphinium beesianum*—and of course at least as many plants named *bulleyana* as well as a species of orchid, *Bulleyia yunnanensis*. But Bulley preferred the plant to be named after his firm and unsuccessfully asked Balfour to re-name several ‘*bulleyana*’ plants ‘*beesiana*’. These all originated in the earlier expeditions.

To rock gardeners Forrest’s best introduction was one of his earliest—*Gentiana sino-ornata* (fig. 44), collection number F408, found late in 1904 in boggy conditions on high ground above the Yangtze valley.

During all the three years of his first trip Forrest had corresponded with Clementina Traill, daughter of an Edinburgh accountant, and who had worked beside him in the Edinburgh herbarium. On 15th July 1907 they were married in Rosslyn Chapel. There were three sons of the marriage. They made their home at a succession of small mansion houses on the outskirts of Edinburgh, and for a time at Inverleith Place behind the Royal Botanic Garden.

1907 found Forrest back in the herbarium at £2 per week as a ‘help’ with the Treasury unsympathetic to his advancement in the garden. Daily he walked from his home in Lasswade, not really from choice but because the trains did not fit with official hours. He suggested he might vary his working hours to spend no less time at work but to fit the railway service, but no relaxation was granted to him by authority.

This was a period of frustration. He was anxious to return to China but on reasonable terms only, and Bulley—the only British employer in prospect—was a hard bargainer. He turned down an offer by Sargent of the Arnold Arboretum of Harvard University. He was also dissatisfied with Bulley’s treatment of the material he sent home. Only two plants of *Primula forrestii* (figs. 47-8) had been sold at 10/6 a time. Balfour thought that *Primula bulleyana* (fig. 49) would have created a sensation if exhibited at the Royal Horticultural Society’s Show, but the plants were badly displayed, he complained, and were not even catalogued. ‘Butchered in the growing’, complained Forrest.

However, in 1909 it was arranged that Forrest would return to China for Bulley at a salary of £200 a year, a sum which, however, Forrest managed to supplement from the sale of rhododendron collectings to J. C. Williams of Caerhays, Cornwall. Shares in this expedition were offered to the public and were advertised by Bulley with a striking display of his commercial acumen. To every subscriber of £200 a packet of seed of every type collected was promised, for £100 a packet of every rhododendron seed. 'We put it within your power to have your own collector'. This was to have been a three-year expedition, but Forrest returned after one season because he considered Bulley had not proved a reliable and reasonable employer. Credits promised were not arranged. His salary was not paid timeously to his wife. "For real unadulterated meanness one has to go to England for it". For his part Bulley appeared to consider Forrest had a persecution complex. But then Bulley did not need the money so badly !

By this time Forrest appreciated his own talents. He is confident of his ability and aware that others have come to value his work.

Though Forrest was to make five further expeditions—1912 to 1914, 1917 to 1919, 1921 to 1923, 1924 to 1925, and finally 1930 to 1932—in all these Forrest was financed by private syndicates of amateur growers. Never again was he the servant of the trade, though from time to time he accepted Bulley as a subscriber. The senior member of the syndicate was Williams, with Reginald Cory, the Welsh coal-master, also prominent. Among those known to Scottish rock gardeners who subscribed to the final expedition were Dr. Guisippi (ex-President of the Alpine Garden Society), the Hon. H. D. McLaren (Lord Aberconway), R. B. Cooke, Sir James Horlick and E. H. M. Cox.

The vast harvest sent back by Forrest was due to his employment of many native collectors. He quickly mastered the language and even several local dialects. After his first trip, when he found local Chinese slow to learn the requirements of collecting, he gathered and trained a number of Tibetans. He taught them to undertake the collecting both of botanical specimens and seed. Before leaving Scotland he would wire his best men to meet him at Bhamo on a certain date and there they would be. This enabled vast tracts to be covered. Farrer protested at the encroachment of 'Forrest's tentacles'. It also enabled Forrest to achieve much collecting in his absence before his arrival. At the end of his final expedition he was able before he died to organise for the Hon. H. D. McLaren the services of his native collectors for a season. (This is the source of the McLaren collectings.) The employ-

ment of so many natives involved problems of management. The inflation during the first War period necessitated the dismissal of men because of mounting wages and a fixed budget. Men did desert or failed properly to carry out their tasks. But Forrest's leadership and teaching is evidenced by the consistently high quality of his seed and botanical specimens. Notwithstanding the numbers working for him, he sent home practically nothing which he had not himself seen growing.

Although he worked easily with his native helpers, he had no European associate until his last trip when one of the larger subscribers, Major L. Johnston of Hidcote Manor, went out with him. Johnston was compelled to return because his health was not up to the rigours of field collecting. Even if he had been robust, however, it is doubtful if the relationship could have for long continued. Forrest obviously found it extremely irksome. He was left with the work while Johnston socialised, he complained. Probably no one could have brought skill and dedication sufficient to satisfy Forrest.

Nor did he take kindly to other collectors. Bulley employed Frank Kingdon-Ward in succession to Forrest, and despatched him to the same area. Farrer was there from 1919 till his death in 1920. Rock arrived from America. Forrest turned down suggestions of collaboration. He regarded his territory jealously and thought of the others as interlopers. Farrer he treats with a degree of contempt—'all Farrer's sparrows are eagles'—though he reckoned that at his death Farrer 'had reached an area of good things'. Earlier prophetically he feared that Farrer might 'leave his bones' in North Burma.

He was cynical about Ward's ability as a collector and had no confidence in his appreciation of the virtues of a plant. He blamed the difficulties he was encountering at one stage with the Chinese authorities, who stated that they 'had had more than sufficient of flower collectors', on Ward's tactless treatment of the local people. His relationship with R. E. Cooper, another Bulley collector, was better, but probably because Cooper's area did not approach Forrest's.

Forrest brought home a fine collection of photographs both of the country and the plants. Photographic apparatus was heavy, cumbersome and delicate. In the climatic conditions subjects were difficult to take. He tells how five times he tried to photograph *Primula pinnatifida*, each attempt involving a climb of 4,000 feet. "As you know", he writes, "I am not the most patient of individuals. It is only Scots dourness which carries me on. For the cultivation of patience before anything I recommend photographing of alpins in Yunnan".

“Above 12,000/13,000 feet rhododendrons are dominant everywhere. They carpet the alpine meadows”. Yunnan was a treasure house of rhododendrons. Indeed, Forrest was convinced that here was the natural centre of the genus. On many of his expeditions J. C. Williams awarded Forrest a bonus for new rhododendrons collected. In all he was responsible for 309 species of rhododendron completely new to science, and his gatherings of rhododendrons amounted to 5,375. The favourite rhododendron of his introduction was *Rh. forrestii* (fig. 41), discovered on his first expedition in 1905, with black crimson flowers and red undersurface of the leaves. It is a completely prostrate creeping plant with spectacular trumpet flowers and has proved a first class parent of such hybrids as ‘Elizabeth’, but the species itself can be shy of flowering.

He collected also the largest rhododendron—*Rh. giganteum*—scarce in nature, but growing to 80 feet with a girth of 8 feet and leaves up to 14 inches. On his last expedition, for the first time he records seeing hundreds of specimens with thousands of trusses of huge blooms varying from rose-pink to magenta with their trunks clothed in epiphytic shrubs.

Rhododendron racemosum (fig. 51) brought into cultivation by him though discovered in 1889, he describes “as the most abundant of the Yunnan rhododendrons. It grew like heather in Scotland, clothing the rolling grassy downs”. In nature he describes it as a compact shrub one to three feet high and flowering from February to October. It was prevalent in dry open localities. Its usual soil was a clay loam, and at about 12,000 feet.

Then he describes a valley where the foliage was a tangle of *Rhododendrons sanguineum, saluense, campylogynum, forrestii* and *trichocladum* growing in the boggiest places in a soil rich in humus on top of red slate, in fact in ‘sloppy black peat, slimey and greasy’.

Rhododendron fastigiatum he found so densely flowered that it was not possible ‘to pass a pencil between the blooms’. He found it in conditions of heavy wind and rain, hundreds of acres, in cushions from a foot to many yards in diameter.

Rh. prostratum he found at the ‘edge of the precipitous snows’. *Radicans* was one of his 1921 crop. *Rh. megeratum*, described by Balfour as one of the ‘most charming’ dwarf rhododendrons, was first seen on the Kari Pass between the Mekong and Yangtze-Kiang valleys. He found dense thickets of *R. bureavii* at their best when the plants were between four and eight feet. This is a shrub noted for its foliage,

but the blossom, Forrest thought, was best on older plants.

Second to his rhododendrons in number of introduction were his primulas, of which he gathered 154 species, of which 42 were ultimately declared new. His own primula—*P. forrestii* (figs. 47-8)—is unfortunately not hardy. He explained to Professor Balfour that it would not do with damp. 'Try a sunny dry situation'. He explains that though the plant can grow in dry crevices of overhanging cliffs such specimens do not flower so well as those in more open situations. The plant likes humus. As it produces two whorls of foliage each year, the age of a plant is easy to calculate. Forrest reckoned that in nature the species rivalled man in the allotted span of its life. One plant sent home was judged to be over 50 years old.

Pieris forrestii (fig. 50), a handsome shrub whose main feature is the crimson young leaf growth, was a favourite shrub of his and was another of the discoveries of the early years.

Two of the best *Incarvilleas*—*grandiflora* and *delavayi*—were introduced by Forrest though earlier discovered.

Some 130 species of aster were collected and *Aster forrestii* is an easy rock garden plant. He found it in several stations in open or stoney alpine meadows.

The hardy camellia varieties—*C. x williamsii*—derive from Forrest's *C. saluensis*, collected near Tengyueh between 6,000 and 9,000 feet on rocky hill sides. When *C. saluensis* was crossed with *C. japonica* the resultant hybrid proved hardy and was named after Forrest's patron, Williams, with a large number of cultivar names.

There is no end to his plants—discoveries and introductions, great talent is displayed in his ability to seek out plants previously known only by botanical specimens. Again and again he finds fresh locations for subjects previously thought to be in limited distribution. He is responsible for a vast range—trees and shrubs, bulbs and herbaceous, great giants of conifers and tiny creepers for the rock garden, ornamentals and economic plants. The harvest was vast and comprehensive.

Throughout his whole plant hunting career he maintained a close connection with the Royal Botanic Garden, Edinburgh, first under Professor Sir Isaac Bayley Balfour who had originally sent him on his life work, and later under Sir William Wright Smith who succeeded Balfour. From the beginning his botanical specimens were examined in Edinburgh and the Garden always had a share of his seed. The relationship was fostered by close personal contact when Forrest was at home and by exchange of letters when he was in the field. This

close relationship without doubt contributed greatly to the success of his work. It is a prerequisite of the successful explorer that he should have at home a capable and sympathetic scientific assessor. Thus Douglas and Professor Hooker of Glasgow, thus Masson and Sir Joseph Banks. So Forrest and Balfour and Smith. His introductions from the earlier expedition suffered by poor practical handling by Bulley. Thereafter his seed came home during and immediately after the first War when the skilled gardeners were in the forces. His greatness is indicated by how much was introduced despite these handicaps.

He was a short stocky man, a lover of the countryside and country sports. He had a reputation of being bristly, not suffering fools, somewhat anti-social. But he sought and enjoyed the company of those he knew as friends and to them he was an interesting and charming companion with a ready humour and a fine conversationalist. His letters can be long and fascinating, descriptive of the whole scene around him, sprinkled with typical west of Scotland humour. His style of writing was terse and lucid, no difficulty of expression. The vocabulary is comprehensive and expressive. Never a labour to express his nuance of meaning. There is no straining for purple passages, no elaborate painting with words, but from time to time the sheer competence of language shines out in pure poetry. Consider the excerpt used as a frontispiece to the Club's 1935 volume on Forrest : "In the morning, the sun as it touches the tops of the Mekong divide, sends wide shafts of turquoise light down the side gullies to the river which seems to be transformed to silver".

Again and again he was urged to write, but he resisted. When pressed again by his friend Dr. Wright Smith in 1917, Forrest closed the correspondence by explaining that no doubt he could write a book but he was 'like the man who had not changed his shirt for two years—I have much else to think of'.

In his lifetime the horticultural world heaped honours upon him. In 1920 the Royal Horticultural Society awarded him the Victoria Medal of Honour and he was honoured by the Massachusetts Horticultural Society. In 1924 he was elected a Fellow of the Linnean Society. In 1927 the R.H.S. awarded him the Veitch Memorial Medal and in 1930 the Rhododendron Cup.

His 1930-32 expedition was planned as his last. It was to be a final mopping up before he retired. A re-collecting particularly of plants earlier gathered but not successfully introduced. It was magnificently successful. "Of seed such an abundance that I scarce know where to

commence, nearly everything I wished for, and that means a lot. Primulas in profusion, seed of some of them as much as 3 to 5 pounds, same with meconopsis, nomocharis, liliium as well as bulbs of the latter. When all are dealt with and packed I expect to have nearly, if not more than, two mule loads of good clean seed, representing some 4-500 specimens, and a mule load means 130-150 pounds. That is something like 300 pounds of seed. If all goes well I shall have made a rather glorious and satisfactory finish to all my past years of labour''. So he wrote to his wife.

He was back at his base at Tengyueh when on 5th January 1932 he went duck shooting in the country outside the city with three of his Chinese employees. There he suddenly died of heart failure. The evening before he had spent with European friends in the city. He appeared robust and in good health.

He was buried beside his friend Litton. The whole community, European and Chinese, was represented at his funeral. And after he was buried they erected on the grave a huge cross of red rhododendrons.

The world mourned him.

The Foreign Secretary, Sir John Simon, intervened to cause the British Ambassador to seek special facilities from the Chinese Foreign Minister, Dr. Koo, to obtain quick despatch of Forrest's botanical and zoological collections.

The Times wrote that he 'stood alone in the vastness and diversity of his collections and the ripeness of his experience'. The *Scotsman* referred to his determination and thoroughness. The periodical, *Nature*, attributed his success to his management of the hillmen. The *Gardeners' Chronicle* declared that in the magnitude of his collections Forrest was easily the first.

It is doubtful whether his like will again be seen. He lived when there was still considerable botanical exploration to be conducted and when sustained endeavour and robust courage were the necessary qualities. Modern conditions have altered the techniques and the requirements. New social conditions have changed both the employers and those fitted to carry out the exploration. Political and scientific conditions are different. It is unlikely anyone will ever do it Forrest's way again.

But no-one before him ever did it Forrest's way. There had been those who botanised as a side interest whether for gain (like the French Fathers) or for recreation (like Augustine Henry); Sir Joseph Banks 150 years before Forrest provided his collectors with first class scientific

support. Forrest possessed the resources and talent of any predecessor, but none compared with him in his sheer organising ability both in financial support and field work, in his dedicated determination, his flair, his courage, his thoroughness.

He was the supreme professional. He was pre-eminent in his craft. By any true measure he ranks as one of the famous sons of Scotland who has achieved international greatness.

Primulas

by DAVID LIVINGSTONE and R. S. MASTERTON

ONE HAS only to refer even casually to the monograph on "The Genus *Primula*" by Sir William Wright Smith and Dr. Harold Fletcher to realise how valuable to science were the *Primula* findings by George Forrest. Indeed, his collections of this genus take second place only to those of rhododendrons. In all he collected 154 species and subspecies of *Primulas*, although it has to be recorded that a goodly number had been found previously by Abbé Delavay and other French missionaries but, and of more moment to gardeners, it was left to Forrest to introduce many of them to cultivation. It is recorded that he introduced to horticulture over 50 species of *Primula*, but unfortunately a substantial proportion of them did not establish in British gardens. It is a matter for speculation whether present day specialists with new techniques of cultivation would have more success with these beautiful but difficult species were they again to become available. Alas we can only speculate. The political situation is such in the region where Forrest worked that we may never have the opportunity to try them. We who love the genus can only hope !

Forrest appears to have had a particular interest in and great knowledge of *Primula*. He and Sir William Wright Smith submitted a paper to the Fourth *Primula* Conference in 1928 on "The Sections of the Genus *Primula*" in which they stated that they had collected in the Himalaya, Tibet and China with *Primula* as one of the main objectives and that they had seen "living" or "dead" all the described species of the genus with the exception of eight. In conjunction with this Conference the Royal Horticultural Society had arranged a very extensive exhibition of *Primulas*, the date, 24th May, having been

fixed to ensure a maximum turn out of plants. It is interesting, therefore, to note in the preface to the report of the Conference published by the R.H.S. that "In some degree the late date of the present Conference, compared with those previously held in 1886, 1895 and 1913, illustrates the change that has come about through the vast extensions of our knowledge of the genus by collections from China and the subsequent lengthening of the period over which the flowering of the members of the genus in our gardens extends." This extension of knowledge and the lengthening of the flowering period had, of course, come about largely through the efforts of Forrest and others such as Kingdon-Ward and Joseph Rock. It is interesting to note too that among the Forrest introductions on show at the Conference Exhibition were *Pp. helodoxa*, *chionantha*, *forrestii* (figs. 47-8), *viali* and *nutans* (fig. 54).

The species and subspecies found by Forrest undoubtedly added very considerably to scientific knowledge of the genus *Primula*, even although many of them had been recorded previously by Delavay and others. For instance, much more information became available of geographical and altitudinal variations and of the wide distribution of certain species. But the gardener's interest lies not so much in the scientific value of a plant collector's finds but in the number of garden-worthy plants which he introduces or re-introduces. Forrest's record in this respect was very impressive indeed. As stated earlier, he was responsible for introducing to British gardens over 50 species of *Primulas* and as he collected seeds on a commercial scale to satisfy those who financed his expeditions he sent home large quantities. So it may well be said that Forrest was a gardener's collector, but I shudder to think what present day conservationists would say about collecting 3-5 lbs. of seeds of one species !!

Forrest's introduction of *Candelabra Primulas* to our gardens was really outstanding and had he made no other introductions of *Primulas* he would have been remembered by them alone. In all he introduced six *Pp. anisodora*, *aurantiaca*, *beesiana*, *bulleyana* (fig. 49), *helodoxa* and *serratifolia*, and all of those except the last were new to science as well. His notes on their native habitat—moist mountain meadows and stream sides—gave a valuable clue to their requirements in the garden and I well remember being thrilled by mass plantings of *Candelabra Primulas* at a pond side and near to the Kinness Burn in St. Andrews University Botanic Garden. I have to confess a sneaking preference for the tall stately yellow *P. helodoxa* and the

shorter orange red *P. aurantiaca* which has the same peculiarity as *P. bracteosa* of growing a vegetative bud at the end of the flowering scape. This bud pegged to the ground will give a new plant much after the style of a strawberry runner.

It is a matter of great regret that, although Forrest found 17 of the beautiful Nivalid Primulas, ten of them new to science and introduced eight to horticulture, there was little success in growing them. Some grew to the flowering stage and then departed, probably because they were not able to have their long uninterrupted rest during our winters with their alternating mild and cold spells. *P. chionantha* of those he introduced has taken most kindly to cultivation and does not make too great demands on the gardener's skill.

It is idle, I suppose, to speculate on which is the most beautiful of all Forrest's Primula introductions as tastes vary so much, but for my part I would plump for the Soldanelloid *P. nutans* (fig. 54) with its compact heads of lavender blue, bell-shaped flowers, the scape and calyx being covered with white farina. It is said by some authorities to be monocarpic but I have flowered it in two or three successive years under pot and cold frame conditions and Mr. Masterton will testify later to its longevity in the open garden.

Forrest himself appears to have been in no doubt about which was the most beautiful Primula which he found. He wrote : "On the dry rocky slopes, growing amongst limy grit at the base of the cliffs, is the most beautiful species, in my opinion, of all known Primulas. None can compare with this species in airy gracefulness or in rich colouring, the azure blue flowers forming a wonderful contrast to the silvery farina with which the plant is coated." This is the Soldanelloid *P. spicata* (fig. 45) which was flowered on a number of occasions from wild seed but which was short-lived and failed to set seed. So far as is known, it is not in cultivation now. Obviously one to sigh for !!

These then are notes and thoughts on some selected Forrestian Primulas suitable for the rock garden, its environs, the cold frame or alpine house, but I must mention another, not suitable for any of these methods of cultivation as it requires artificial heat in winter and is therefore for greenhouse or home culture. *P. malacoides* is thought by many experts to be Forrest's most important Primula introduction. Certainly it makes a fine pot plant with many graceful trusses of flowers and it is easily and quickly raised from seed. Few people can have failed to be impressed by it even if seen in a florist's window. To me it has more appeal than its equally well known, more robust looking

relative *P. obconica*, another best seller from the florist's point of view.

I should like to pay tribute to Forrest as a photographer. The section on Primulas in "George Forrest : Journeys and Plant Introductions" edited by the late Dr. J. Macqueen Cowan and published by the Oxford University Press for the R.H.S. is well illustrated by nine black and white photographs taken by Forrest of Primulas growing in the wild. This issue of the *Journal* also contains 11 photographs of plants taken in the wild from the very extensive collection of negatives on glass, held in the Royal Botanic Garden, Edinburgh. Another skill of this remarkable man ! !

Finally, here are a few words, perhaps out of context but nevertheless I feel I should write them. Some 23 or 24 years ago I wrote a long article on Petiolarid Primulas, of which I grew almost all species and hybrids that were then available. My notes were published in the S.R.G.C. *Journal* and eventually a copy of the *Journal* reached Frank Kingdon-Ward, the great English plant collector then working in Assam. He wrote to me, a cry from the heart, I thought, to say what joy it gave him to learn that someone was growing the plants which he and others had laboured to collect. When we garden let us remember the Forrests and Kingdon-Wards of this world who worked over many years far from home, often in dangerous and difficult conditions, to let us have in the comfort of our own surroundings the beautiful and enchanting flowers of the mountains.

Mr. R. S. Masterton, who gardens in picturesque surroundings high above the River Tay near Aberfeldy, now takes up the story of Forrest's Primulas which he grows so well in conditions approximating to those described by Forrest in his field notes.

As mentioned by David Livingstone, George Forrest collected many species of primula—some new to science and others previously collected by earlier botanists. Many of these species remain with us today, so I intend to describe a few in their various sections, giving notes on cultivation.

Before discussing individual primulas, perhaps we should ponder, as a guide to cultivation, on the conditions under which they grow in the areas of Tibet and South West China over which Forrest collected. It is perhaps unnecessary to say that these areas are now closed for botanical exploration, but I am sure there is a comparison between the Alpine meadows of Europe and those of South West China. Anyone interested in this should read the lecture given by Dr. H. Handel-

Mazzetti to the Fourth Primula Conference in 1928, published by the R.H.S.

Primulas could be divided into three groups, namely (a) those that grow in Alpine Meadows, (b) those that are found in woodland, and (c) those growing in rock and scree.

The Alpine Meadows would have a deep rich soil, retentive of moisture with abundant humus and in places even swamp conditions might exist. Here one would find the members of the Candelabra and Sikkimensis sections who love moisture and gross feeding with their large tap roots.

Category (b) would consist of mossy banks and rich woodland soil. Here the drainage is much sharper and the soil shallower, so that the rooting systems would be much more fibrous and less penetrating. Here would be found members of the Petiolares and Soldanelloides sections.

Category (c) consists of rocky screes and rock faces where pockets of humus collect and roots are thrust into the narrow rock fissures with their moist recesses. Here you would find *P. forrestii* itself (figs. 47-8).

The other most important factor on the growing of these primulas is the climatic conditions. Dr. Handel-Mazzetti reports high rainfall, but a dry Winter and Spring. I am sure this is a critical factor and the reason for our very poor results in growing many of the Himalayan primulas is Winter rain and damp.

As well as collecting, George Forrest worked with Sir William Wright Smith on the sections of the genus Primula at the Royal Botanic Garden, Edinburgh, and combined to write a monograph on the subject dividing the genus into 32 sections. The following are some of the Forrest primulas in their sections.

AMETHYSTINA SECTION

Forrest found *P. amethystina* var. *brevifolia* but this is no longer in cultivation. Of this section only *P. kingii* has a very tenuous hold on cultivation in this country.

BULLATAE SECTION

This section contains the primula named after George Forrest, *P. forrestii* (figs. 47-8). This is a unique primula in that it forms a woody trunk-like stem. It grows on limestone cliffs in nature and in the garden it likes to grow on scree protected by an overhanging rock, or as a pot plant where it does not mind its roots being confined. The

flower is yellow and propagation is by seed. Old leaves should be cut off with sharp scissors, not pulled off, so as to avoid damage to the woody stem.

CANDELABRA SECTION

Forrest found many species in this section and as they are, in general, easy to grow, and as they seed profusely, many are still with us. They also hybridize with great abandon. They are all Alpine Meadow plants and therefore require a great deal of water and rich feeding, many being bog plants.

Most produce a tall scape with numerous whorls of flowers—the candelabra inflorescence. The colour range is terrific—from white, yellows, pinks, reds to purples. Forrest found many such as *Pp. anisodora*, *aurantiaca*, *beesiana*, *bulleyana* (fig. 49), *burmanica*, *helo-doxa*, *poissonii*, *serratifolia* and *wilsoni*.

Some of these will grow to a height of about 3 feet when growing in suitable conditions. *P. serratifolia* is the most difficult. It is one of the smaller members of the section throwing one or two umbels of yellow flowers with a distinct bar of orange. It usually flowers both in Spring and Autumn.

Propagation of this section is easy by division or by seed. Indeed, many of them will self sow in the soil and even in adjacent paths.

There is a critical point in the cultivation of primulas as to how they go into their Winter rest. In the Candelabra Section they all have tight resting buds, usually underground, which protects them from Winter damp.

CAPITATA SECTION

Forrest found *P. capitata* (in the variety *sphaerocephala*). This is a small blue-purple primula with a round head which likes to grow in scree conditions and is very suitable for growing on a rock garden. It is valuable in that it flowers later than most.

CORTUSOIDES SECTION

In this section Forrest found *P. polyneura*. This is a variable primula with many sub-species. It has pink flowers and likes to grow in woodland conditions as it will withstand more drought than most primulas.

FARINOSA SECTION

This section has the widest geographical distribution of the genus. Forrest introduced many plants in this section such as *gemmaefera* var. *zambalensis*, *pulchella*, *yunnanense* and *yargonense*, a sub-species of

P. involucrata, but few are still with us. They are all very beautiful plants with smallish leaves and long stems with white or pink flowers. They like boggy conditions but will grow in moisture-retentive soil. In cultivation, if happy they require frequent division, as they tend to weaken themselves by producing many small offsets which do not flower if too crowded. Seed is produced quite profusely.

MUSCARIOIDES SECTION

This section is near to *Capitata* but instead of a massive round head of flowers, the inflorescence in *Muscarioides* is more of a spike, as in *P. viali*.

Forrest found *P. muscarioides*, *deflexa*, *gracilentia*, *apoclita*. These are short-lived primulas and do not easily withstand our Winter conditions.

NIVALES SECTION

This is one of the largest sections of *Primula* and contains many of the loveliest of the genus. In nature they are found in the drier parts of the Alpine Meadow and in the shade of conifers and rhododendrons. They are difficult to over-winter in this country as they do not produce a tight resting bud, but may retain leaves all Winter and they are much more liable to damp off.

Of Forrest's introductions we still have *P. chionantha*, which is a tall growing plant with white flowers, deliciously scented, with the leaves and stem covered in farina. *P. sinopurpurea* and *sinoplantaginea* are purple. They also inter-marry very regularly !

Seed is the best means of propagation, but one rarely gets a uniform batch of seedlings regarding colour.

PETIOLARES SECTION

Forrest found three primulas in this section—*Pp. sonchifolia*, *taliense* and *vernica*. However, they were not established in cultivation from his collection. Later *P. sonchifolia* became more common in specialist gardens after its introduction as a live plant.

It is found in nature on mossy banks and in Scotland it likes a damp shaded situation on a slope. It forms a huge resting bud for the Winter above ground, so it frequently damps off. In early Spring it produces masses of lavender-coloured flowers.

Seed is set profusely if not frosted, and must be sown immediately the capsules start to open. These green seeds germinate in 10 days in mist with an almost 100% germination.

SIKKIMENSIS SECTION

This group is very like the Candelabra section in requirements. They are Alpine Meadow and bog plants.

Forrest introduced *Pp. secundiflora*, *firmipes*, *sikkimensis*, which are all still with us. *Pp. firmipes* and *sikkimensis* have yellow nodding bells. *P. secundiflora* is stiffer with reddish-purple flowers.

Propagation is by seed or division.

SOLDANELLOIDES SECTION

This is a most beautiful, but difficult, section close to Muscarioides. Most of the section grow in pine woodland and rhododendron groves and rocky pastures.

Forrest introduced the species *P. nutans* (fig. 54). It has lovely lavender nodding sweetly scented flowers. It grows well in woodland soil and will survive for years if given a situation it likes. It sets seed profusely.

Perhaps I may be allowed to write a few words on *Omphalogramma*, which at one time were regarded as being in the genus *Primula*, but have now been separated into a genus of their own.

Forrest introduced three species—*O. elegans*, *elwesiana* and *vincaeflora* (fig. 46). They all have blue flowers and are extremely beautiful. They are Alpine Meadow plants, but in this country require moist woodland conditions. All three species are still in cultivation, possibly due to their re-introduction by Major George Sherriff and Mr. Frank Ludlow.

Seed is set most years and division is also possible.

As it would be impossible for me to describe all Forrest's primulas, I have mentioned a few of my favourites still in cultivation.

I must stress the point that collectors like Forrest followed by Kingdon-Ward and Ludlow and Sherriff have given generations of gardeners the opportunity to attempt to grow these wonderful plants. It is such a pity that we have been successful with only a small proportion of the species introduced.

My fondest hope is that, because of improved relations with China, Peking may allow botanical exchanges, or even expeditions in the near future to areas where George Forrest collected.

TEMPORARY SUSPENSION OF COVENANTS

Owing to pressure of business the Subscription Secretary is unable to accept further Covenants until after the Annual General Meeting in November 1973.

PHOTOGRAPHS

There is a large collection of glass negatives of photographs taken by George Forrest in the Royal Botanic Garden, Edinburgh. By the kind permission of the Regius Keeper, Mr. D. M. Henderson, eleven of these photographs are reproduced in this issue of the *Journal*. These are indicated by the words "Photo—George Forrest in R.B.G. Coll."

Notice fig. 48 of *Primula forrestii* in an exposed position.

Forrest Rhododendrons suitable for the Rock Garden

by J. F. A. GIBSON

GEORGE FORREST made six plant collecting expeditions to the more inaccessible parts of Asia between 1910 and 1932. They were as follows :—

- 1910 Burma-Yunnan, Tengyueh, Shweli-Salween divide, Tali-Li-chiang range.
- 1912-1914 Upper Burma and Yunnan, Chung Tien plateau, Tali, Atuntze, Mekong-Salween divide.
- 1917-1919 Upper Burma, Yunnan/Szechuan/Tibet frontiers.
- 1921-1922 N.W. Yunnan.
- 1924-1925 N. Yunnan, Salween-Nmaikha and Salween-Mekong divide.
- 1930-1932 N. Yunnan and S.W. Szechuan.

Not only are most of these places unpronounceable and inaccessible, but even maps of that part of the world are painted with a broad brush. This is not the place to dwell on the difficulties or on the courage of the man who overcame them.

When one comes to consider which of Forrest's rhododendron introductions are suitable for the rock garden, one has first to define the expression "Rock Garden". It is really as pleasantly indeterminate as the length of a piece of string. It is easy, too, to make out a case that rhododendrons are not rock garden plants at all ; they are moorland or woodland plants ; but the conception of a rock garden is a somewhat artificial one, and the most pleasing results are attained



Fig. 42—*Nomocharis aperta*

Photo—George Forrest in R.B.G. Coll.



Fig. 43—*Rhododendron oreotrephes*

Photo—George Forrest in R.B.G. Coll.



Fig. 44—*Gentiana sino-ornata*

Photo—George Forrest in R.B.G. Coll.

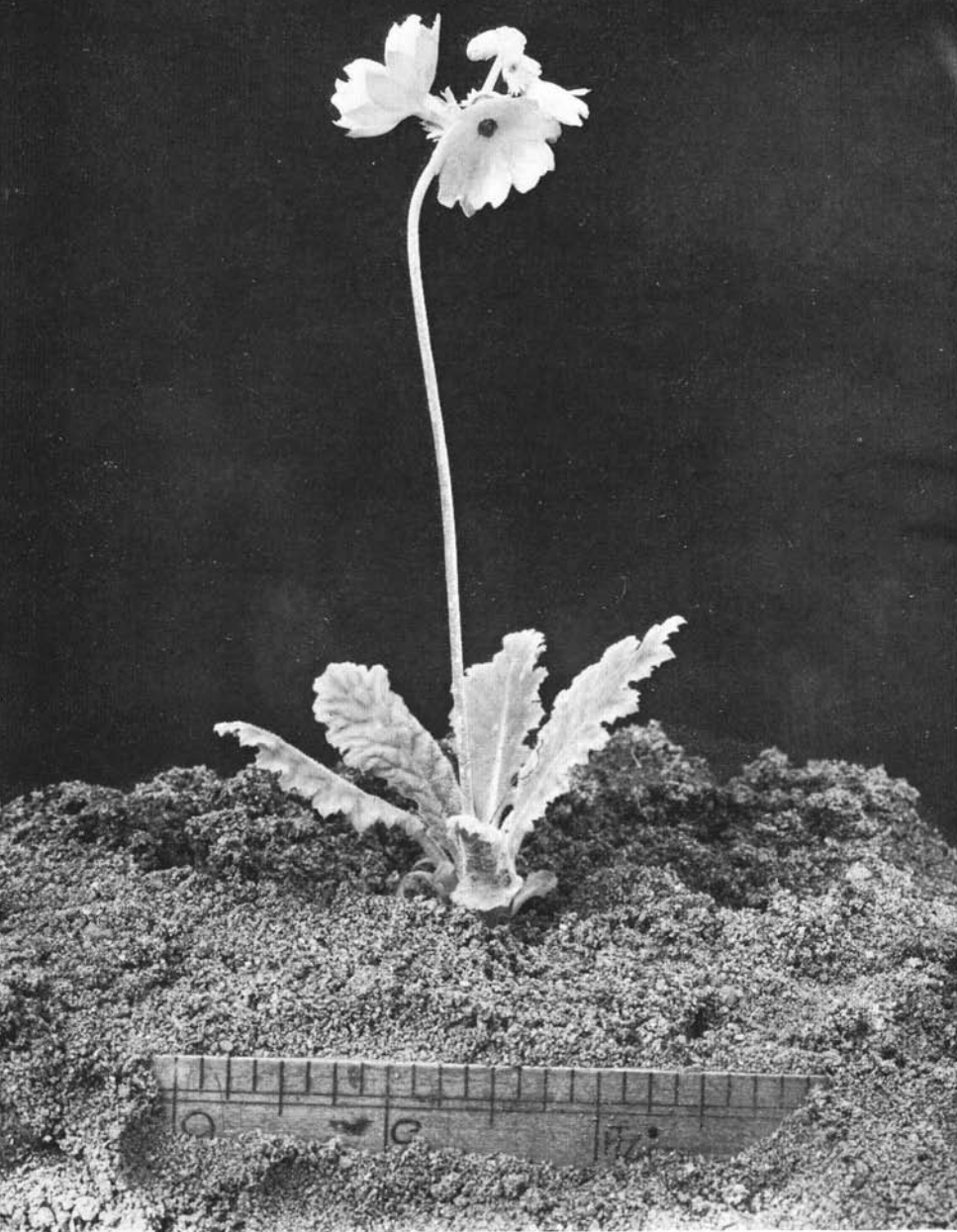


Fig. 45—*Primula spicata*

Photo—R.B.G., Edinburgh

when one is not too austere in one's garden planning. The artificiality is emphasised by the fact that in an interesting rock garden one may well find plants from Alaska, Patagonia and Tasmania all growing together ; so it seems that rhododendrons, which are not rock garden plants at all, are permissible in the so-called Rock Garden. If this is admitted, the choice is limited by the size to which the plants will grow at maturity. Clearly the big-growing plants of the Grande and Falconeri series are unsuitable, but where do we draw the line ? In a fairly exposed garden in the east of Scotland a plant such as *haematodes* may grow to say 3 ft. each way, whereas in the wet weepy west it may well get to double that size.

Clearly such a plant as this is not suitable for a small garden, though it is so outstandingly beautiful both in flower and foliage that one should make every effort to find a place for it. But to what size are the real dwarfs going to grow ? How long will they live under good conditions ? There is much to be said in favour of replacing these plants (indeed most plants) over a fairly lengthy period. In any case many of them get untidy, evil weeds get in (Bishop weed, etc.) and the soil gets exhausted. In some ways this is a blessing as many of us find that propagating plants is one of the most intriguing aspects of gardening. Most of the small growing rhododendrons are easy to grow from cuttings, though there are exceptions. One of the yellow members of the Lapponicum series, *chryseum*, seems determined not to put on roots. I have tried taking cuttings at intervals over a period. I have over-watered, under-watered, over-heated and under-heated them and have had no joy. It does, however, come from seed, though there is no certainty about getting a particular form. But although replacement is theoretically right, few of us are cold blooded enough to chuck out good plants just because they have a bit of bind weed in them.

Forrest collected great numbers of plants, by no means all of them rhododendrons. In considering such of his rhododendron introductions as are suitable for the rock garden, one has to make arbitrary decisions. Taking rhododendrons in their series, the following at first sight appear suitable : *Saluenense*, *Campylogynum*, *Lepidotum*, *Lapponicum*, *Anthopogon*, *Scabrifolium*, *Trichocladum*, *Azalea*, *Virgatum*, *Neriiflorum* (a few), *Boothii*, *Taliense* (a few), *Glaucophyllum* (a few for the larger rock garden). There is also one eminently suitable plant in *valentinianum*, of the *Maddenii* series, most of the rest of the series being unsuitable for the rock garden and very tender anyway. And even

the above list of series creates difficulties where you might least expect them. The Lapponicums seem to be unquestionably suitable for the rock garden—yet *hippophaeoides* is already seven feet high and still growing ; and *racemosum*, of the Scabrifolium series (fig. 51), is practically ten feet high but still seems to be a rock garden plant.

On looking in greater detail at Forrest's Rhododendron collections, a good many species were collected on several distinct expeditions, but only one, *campylogynum*, was collected on all his expeditions. Several were only collected on one expedition ; the most important from the garden point of view being *stictophyllum*, *russatum*, *chamaethomsonii* and *shweliense*.

These facts give some clue, admittedly a negative clue, to the problem of the distribution in the wild of these plants. More could be learned by making similar abstracts of the collections of men such as Rock, Kingdon-Ward, Farrer, Ludlow and Sherriff, etc. To some extent there was overlapping of territories, but not too seriously. Clearly plants with a wide distribution must have been introduced to captivity by more than one collector and it is doubtful whether, except in a very few cases, it would be possible to say whether a certain dwarf plant in cultivation was a Forrest plant or, say, a Rock plant.

It may be interesting to take a look at the various suitable series and to list from them plants collected by Forrest which are really worth-while plants for the rock garden. They are as follows :—

Anthopogon series : *primulaeflorum*, *cephalanthum* and *trichostomum*.

All plants of this series are somewhat choosy and difficult to grow, but worth every effort. They may not be impeccably hardy. Most are very slow growers. They should be given a sheltered place and a good mulch of leaves or bracken, and be put in soil with plenty of humus. There are many other good plants of this series, but Forrest did not introduce them.

Azalea series : Forrest introduced *simsii* (an originator of the pot plants one gives to one's friends at Christmas) and *microphyton*, neither of which is of practical importance in the garden.

Boothii series : These are lovely plants but pretty tender. They need a protected and fairly shady place. Forrest collected *sulfureum*, *megeratum* and *tephropeplum*. The last named is a sporting possibility but the others are for those who get their fun out of overcoming difficulties.

Campylogynum series : There is probably only one species in this series, those such as *cremastum* and *curvistylum*, etc., having now

- been merged into *campylogynum*. All forms are beautiful ; few grow more than a couple of feet in height ; the flowering season is spread, if you have enough different forms, over several months ; all seem easy to grow from cuttings ; a top grade plant. Full marks.
- Glaucophyllum series : Here we are on the border-line for size except for the big garden. Some forms of *brachyanthum* are very dwarf, and first class yellow in colour, but I must confess that I do not know whether these forms are of Forrest's collecting. *Shweliense* seldom gets too big and is a most distinctive thing, the flowers being yellow shot with pink ; it sounds unpleasantly liverish but is very beautiful. *Micromeres* is an oddity for the specialist and in any case is more of a woodland plant than a rock plant.
- Lapponicum series : All these are good plants for the rock garden, though a few such as *hippophaeoides* and *cuneatum* get a bit lofty for the small garden. Indispensable are *impeditum*, *scintillans*, *telmateium*, *chryseum*, *intricatum*, *stictophyllum*, *russatum* and *fastigiatum*. Why the last mentioned is so called is a mystery as it is a tight growing spreading plant with no hint of fastigate behaviour. All these plants will stand pretty full exposure and fairly rough treatment. It should be remembered that most of them are community plants, like heather in this country, and they should not be grown in splendid isolation. Most are of varying shades of lilac and purple. *Chryseum* is a first rate yellow and there is one top grade white in the series, *microleucum*, though Forrest does not seem to have found it.
- Lepidotum series : The only one Forrest seems to have collected is *lepidotum* itself, which is a delightful, graceful, semi-deciduous thing with small yellow flowers.
- Maddenii series : The only possible Forrest plant for this series is *valentinianum*, a very fine though slightly tender yellow-flowered thing which eventually, if given room, makes a 3 foot mushroom. Slightly more hardy is *fletcherianum*, but Forrest did not collect this.
- Neriiflorum series : Most of these are far too big for the rock garden. The inclusion of *haematodes* has been (doubtfully) justified above. There are three species of which every form you can get hold of should be planted. These are *aperantum*, *chamae-thomsonii* and *forrestii*. *Aperantum* can be very stubborn about flowering and tends to flower better in the east of the country than in the west. It is variable in colour, some forms being a first rate blood-red

and others very pale pink. But even the poor coloured forms are worth growing for their shape. *Chamae-thomsonii* should be seen in flower before you get it ; at its best it is top grade, but it can be a rather dirty pink. *Forrestii* used to be called *repens*. It is a very variable plant in form, and in shape of flower, though always (as far as I know) a first rate colour. It has two defects (1) it can be very stubborn about flowering, and (2) some forms have the irritating habit of opening their flowers in September or October, when the colours are never as they should be, and when they are not wanted anyway (fig. 41).

Taliense series : It is doubtful if any of these should be included as suitable for the rock garden. *Roxieanum* and its variety *oreonastes* probably qualify and both are very beautiful though not easy to grow. I do not think Forrest collected var. *oreonastes*. When grown from seed they take a great many years to flower. The only other possible candidate from the series is *proteoides*, which is really more of a joke than anything else. Its rate of growth is imperceptible and it just never flowers, but it is a neat tidy little thing.

Trichocladum series : *Trichocladum* itself is a deciduous yellow-flowered plant growing in a rather upright manner to about 4 ft. *Lepidostylum* is a spreading plant, well worth growing for its shape and its foliage. It makes its growth before it flowers and the yellow flowers are hidden by the new growth. It should be planted so that nothing can interfere with its growth, its shape being its main merit.

Scabrifolium series : *Racemosum* (fig. 51) is a splendid thing in all its variable forms. There is a Forrest form under collector's number 19404, from N.W. Yunnan, which is said to be the most compact of any yet introduced. It is a very good-natured plant which will flourish almost anywhere, like the ungodly.

Virgatum series : *Oleifolium* was found by Forrest, but I do not know whether it is in cultivation. Plants from this series (particularly *virgatum* itself) are pretty tender.

Saluenense series : After the lapponicums this is probably the most important series of plants for the rock garden. *Calostrotum*, *prostratum*, *saluenense*, *chameunum*, *keleticum* and *radicans* were all collected by Forrest. I am not certain about *chameunum* being in cultivation, but all the others are, though whether the plants in cultivation are Forrest's or someone else's is a different question.

Calostrotum has unexpectedly big flowers for such a small plant. *Prostratum* and *radicans* are both, as one would expect from their names, prostrate creepers fairly similar to each other, and I never can remember which is which. *Keleticum* is variable, some forms being practically prostrate. All are good.

It would be presumptuous of me if I were to try to tell members of the S.R.G.C. how to propagate and grow dwarf rhododendrons, but one word of warning is appropriate. Many of them believe in the Permissive Society and behave in a shockingly promiscuous manner which shows when one grows them from seed. The results are almost invariably attractive but can be far from what was expected. The only safe way to be sure of getting a particularly good form is to grow it from cuttings or layers. I mentioned above that *chryseum* has so far defeated me, and *hippophaeoides* is also unco-operative. Most others are fairly easy, though those with relatively thick growth are not as easy as those with thin growth.

There is little doubt that to those of us who are lucky enough to have our garden on lime-free soil, rhododendrons are as important a group of plants as any. That we have them in cultivation is the result of the efforts of a small number of courageous collectors, of whom Forrest was one of the most notable.

An American looks at George Forrest

by H. LINCOLN FOSTER

ONE CAN only wish that George Forrest had been destined to return to a productive retirement from his final plant collecting base at Tengyueh, Yunnan, where unfortunately he died of a heart attack while relaxing on a shooting trip January 5, 1932.

His successive, expertly organized expeditions sent back in actual bulk of material and diversity of species more than many others combined. If he had been given even a few years of retirement at home, probably he would have devoted those to years of gardening and writing. How much richer we would be if that had happened.

George Forrest was a keen observer of the conditions under which he found plants growing and would doubtless have been a superb

gardener. As such he would have enriched horticultural techniques, I feel sure. It is interesting to note that his observations about the fact that many rhododendrons in Yunnan are growing on limestone is only now beginning to seep into practices of rhododendron growers in America. The current fad amongst these faddish gardeners and nurserymen is to experiment with various calcium compounds in rhododendron soil.

During the strenuous years of his collecting expeditions George Forrest was not a prolific writer, but the few formal pieces he did compose and the letters that have survived demonstrate a wide-ranging mind and a vivid style. Just a few years of retirement would doubtless have produced a rich legacy of literature and made his name more generally known in the botanical and horticultural world.

To gardeners in America the name of George Forrest is generally known only from those few species that bear his name. Perhaps if he had been as prolific a writer as Farrer, he would be widely recognized and his contributions to horticulture more popularly acknowledged.

I suspect that among the rhododendron fanciers in America, (presently a rapidly increasing band) few realize the extent of his contributions of the primary species which in turn have given rise to literally hundreds of hybrids. To be sure *R. forrestii repens* (fig. 41) is highly prized for the rock garden in those areas where it can be grown, primarily in the northwestern U.S. Of more widespread adaptability for the rock garden is that superb form of *R. racemosum* (fig. 51), Forrest's 19404. But few are aware that it was Forrest who introduced many other widely grown dwarf rhododendrons such as *R. russatum*, *scintillans*, *impeditum*, *fastigiatum*, *hippophaeoides*, *prostratum* and *radicans*. These dwarf rhododendrons are only beginning to "catch on" in American rock gardens as we begin to learn some of their requirements. The high summer temperatures and periods of drought in the East and Mid-west are particularly difficult for plants from the high moors of Yunnan. They succeed better on the Pacific coast, but have even there been slighted somewhat by the enthusiasm for the large-flowered and large-leaved species, so many of which were also introduced by Forrest.

Among the Primulas, that other great genus that owes so much to Forrest's special interest and abundant seed-gathering, not so many persist in American gardens. Once again it seems true that they flourish more readily on the Pacific than on the Atlantic side of the continent. Every year the seed exchange lists of the American Rock Garden

Society and American Primrose Society attest to the fact that some, at least, of Forrest's introductions still flourish, principally in the candelabra section.

P. bulleyana (fig. 49), *beesiana* and the complex of hybrids closely related are to be found in many gardens, less persistent perhaps on the East coast where plantings need frequent renewal from seed. Less commonly seen, but regularly available in the seed exchanges, are *chionantha*, *nutans* (fig. 54), *viali* and *helodoxa*, all short-lived in cultivation. The handsome *Primula forrestii* (figs. 47-8) is definitely only for alpine house culture in America.

Two alliums of Forrest introduction are grown sparingly in American rock gardens: *A. beesianum* and *A. mairei*, the latter so like a small clump of grass when not in flower that at least in my garden it disappeared during a weeding. Two also of his Androsace discoveries are occasionally seen: *A. geraniifolia* and *A. spinulifera*, though of the latter there are many plants of the *A. sarmentosa* persuasion that are passed off as the Yunnan species.

Daphne retusa shares with many of Forrest's Yunnan plants a temperament just a trifle too tender for growing in northeastern United States, but thrives in the Philadelphia and Delaware area a little further south and especially well on the West Coast.

Two plants probably most commonly associated with George Forrest's name in the minds of American gardeners are *Pieris forrestii* (fig. 50) and *Gentiana sino-ornata* (fig. 44). Their quite different but striking beauty will always win admiration and praise in the gardens where they may be made to thrive.

The gentian comes and goes in most east coast gardens where summer heat and drought are inimical. If the plant is tried in naturally moist locations winter wet is destructive and weed competition in the moist soil during the growing season presents a problem amidst the grassy tufts of its foliage. Growers in the East are beginning to discover that it is best handled in the more easily managed confines of a deep planter or trough. Once again this gorgeous gentian thrives best in the Northwest where it can receive during the cooler summer the proper amount of sunshine to insure a good display of its azure trumpets.

The exciting brilliance of the scarlet new foliage on *Pieris forrestii* has only comparatively recently found its way into American gardens and has unfortunately proved too tender in the East for situations north of Delaware. Once again it succeeds in the Northwest where so

many of the Ericaceae thrive. Some recently named clones of hardier *P. japonica* displaying scarlet new growth may indeed have "blood" of *P. forrestii*, hence extending the range of adaptability.

One reads with whetted appetite of many other Forrest introductions—trees, shrubs, and herbaceous plants. Even if they were still available as seed or from nurseries we must acknowledge that growing conditions in most parts of America are not comparable to those wild regions of Yunnan that Forrest so thoroughly and knowingly explored.

Forrest and the Royal Botanic Garden, Edinburgh

by J. KEENAN

THE LONG and happy association between Forrest and the Royal Botanic Garden is nowhere reflected more than in the number of plants throughout the Garden bearing his field numbers. Granted most of these nowadays are woody subjects, but this is scarcely surprising after more than half a century has passed since the introduction of some herbaceous species, many of them notoriously temperamental. The popularity of such genera as *Rhododendron* and *Primula* also tends to overshadow the more obscure but no less attractive introductions. There are other reasons for the rarity or loss of some of his most beautiful plants. The splendid *Incarvillea lutea*, thought by Forrest to be one of the finest alpines in N.W. Yunnan and introduced by him in 1911, proved to be monocarpic and vegetated for up to fifteen years before it flowered. When it finally did, it was few-flowered and what seeds these did produce were infertile. How many gardeners one wonders discarded it in favour of some more free-flowering plant. Somewhat similarly the attractive dwarf *Allium forrestii* with drooping claret-red flowers and its unfortunate late flowering habit, a feature which results in the production of few fertile seed, appears to be lost. The much more resilient *A. beesianum* has persisted since its introduction from Forrest's first expedition and now is a well-known plant. Not so *A. mairei* and *A. amabile*, which are comparatively rare, although the former is the better known. The latter, which is a dwarf

of around six inches with large blue-purple pendulous campanulate flowers, is a plant to make the Rock Gardener's mouth water.

A very close relationship built up over the years between Forrest and Sir Isaac Bayley Balfour and the latter's sympathy and understanding often sustained Forrest during his times of stress in the field. They maintained such a close liaison that in reading their correspondence one feels that they are merely resuming a conversation dropped some minutes before rather than of several months interval. Amongst other things the choice of names for Forrest's novelties would be discussed and no better warranty of a good horticultural introduction than which exists is where the name commemorates the collector, his relatives, sponsors or friends. Other outstanding introductions which bear token to his close relations with the 'Garden' are found in these dedicated to staff members killed in action during the Great War. Thus, *Buddleia fallowiana* after Sergeant Fallow, and *Roscoea humeana* named after the young gardener David Hume who fell at Mons. *Roscoea* is a member of the predominantly tropical Ginger family and it is a remarkable circumstance that Forrest introduced all the hardy members of this family, with the exception of some *Hedychium* species, some of which if coddled will grow in the more favoured parts of the country.

The delightful yellow-flowered *Roscoea cautleoides* is one of the same alliance as *R. humeana*, also its relative *R. purpurea* which was gathered from the Li-chiang Range at around 10,000 ft. Forrest also introduced *R. alpina* from Yunnan, which differed from its Nepal relative in having strawberry-pink flowers, not reddish-purple. The hardy and more common *Cautleya lutea* was introduced at the same time.

In these days of small artificial ponds what could be more effective around the perimeter than a planting of the Forrest introduction of *Rheum alexandrae*. He collected seven species of *Rheum*, but none more attractive or decorative than this one. It owes its attraction to its large crimply, creamy flower bracts which rise in height on the plants generally to around 2 ft. rather than to its floral attractions. Forrest gathered this on the plateaux of W. Yunnan and remarked in correspondence that unlike E. H. Wilson he often found his plants with their feet in water. This, a rare species in cultivation, is successfully grown at Bodnant and around the pond at Edinburgh.

Another subject for a pond border planting which he introduced from Yunnan is that outstanding globe-flower *Trollius yunnanensis*.

This, a variable species, was first discovered by Delavay, but it remained to Forrest to introduce it. A cross between the Forrest plant and *T. chinensis* produced the very fine Award of Merit hybrid *Trollius* 'King Cup'.

Crucifers did not bulk largely in Forrest's collection but he did introduce one which in its fashion transcends all others. *Megacarpaea delavayi* was, like *Trollius yunnanensis*, first collected by Delavay but introduced by Forrest in his first expedition of 1906. A showy perennial of around two feet, it has erect branching stems terminated with a profusion of lavender-rose flowers.

Regrettably, for they were very fine rock garden plants, Forrest's introductions of *Dracocephalum* are not often seen today. The very handsome and showy *D. isabellae*, found by Forrest on the Chungtien Plateau and dedicated to his sister Miss Isabella Forrest, who acted as his agent on his first expedition, is the most splendid species in an outstandingly handsome genus. Little less so is that which bears his name, the pine-needle leaved *D. forrestii* or that which was confused in cultivation with the last, *D. calophyllum*, which he had introduced from Dokar La in Yunnan. No less beautiful but totally different was *D. bullatum*, which he found in the Li-chiang Range ; it is characterised by its long petioled leaves.

All these and many other herbaceous introductions spring to mind as examples of the insoluble links between Forrest and the Garden. The species of *Clematis*, *Adenophora*, *Incarvillea*, *Iris*, *Paeonia*, *Cyananthus*, *Codonopsis*, *Aster* and many others are still in cultivation and are there to be located by the discerning gardener. So much has been written about Forrestian plants, and more will be no doubt, but in this short article more would be superfluous, so let us turn again to the man and the Garden.

On the eve of his return from his 1922 expedition, and having crossed the Burmese border to receive news of Balfour's death from Professor Wright Smith, Balfour's successor, he wrote that he was desolate and could write no more. From Forrest, who whatever may have been said or written, was both articulate and fluent, this revealed great feelings. With Smith his relations were good, less formal, but these never seemed to catch the magic of those with Balfour.

From correspondence one catches glimpses of what Balfour must have meant to Forrest. The sage advice to the young man ever anxious to do his best for his sponsors and bedevilled often by their being in arrears with his salary. The quiet letter from Balfour intimating the

credit of £50 to Forrest's account "which in the circumstances I thought you should find useful." The microscope, books and advice with which Balfour plied him in order that their partnership be more efficient. For partnership it was and surely no field botanist has had closer communion with the scientist working out his collection at home than Forrest. Balfour gingered up the Propagating Department for results, demanded and received determinations from the herbarium staff and communicated these to Forrest. He also collected seed which looked viable from herbarium specimens and pseudo-bulbs from dried *Pleione* specimens which he thought might grow. Certain it is that if Forrest served Balfour and the Garden well, no less well was Forrest served from here.

That the association did not end with Balfour's death is a happy thought. During the subsequent years of Forrest's life the close links between him and the Garden staff strengthened and covered a wider range of staff. W. E. Evans had succeeded Jeffrey as Curator of the Herbarium and L. B. Stewart had sprung into prominence as Propagator. It was as if these later years were designed towards the triumphant success of his final seventh expedition. Species which had not germinated or had been unsuccessful in cultivation were noted for re-introduction. Likewise were potentially good horticultural subjects known only from herbarium specimens. Forrest now was more confident and could be quite definite on occasion as to how and where his introductions stood their best chance in the Garden. He was always heeded !

Passing mention must be made of these two magnificent genera *Primula* and *Rhododendron*, Forrest's collections in which constitute a permanent memorial to him. On his return from each expedition his collections in these genera were discussed in great detail and eventually formed the basis of two of the most important revisions completed from this Garden—*The Species of Rhododendron* and the monograph on *Primula*.

They must have been exciting years between 1920 and 1930 and it is good to read in the text of a recent Botanical Magazine that his association with the Garden is literally being kept green. During the last war, one of his rarest gems, *Pleione forrestii* (fig. 40), was reduced in cultivation to one pseudo-bulb. But from this a sizeable stock was painstakingly built up by E. E. Kemp, the past Curator of the Garden—a happy reflection on George Forrest and the Royal Botanic Garden, Edinburgh.

Arthur Kilpin Bulley and George Forrest

by J. K. HULME

THE NAME George Forrest is woven into the life of the Scottish Rock Garden Club, especially as conversation at the Shows often centres around the supreme award, 'The Forrest Medal'. Not nearly so many will have heard of Mr. A. K. Bulley, though some will know of *Primula bulleyana* (fig. 49), *Salvia bulleyana*, and possibly one or two more of the dozen or more plants named in honour of Bulley. The latter was some ten years senior to Forrest and survived the junior partner by almost exactly ten years.

Forrest was an assistant in the Edinburgh Herbarium when brought to the attention of his future associate. A. K. Bulley was primarily a Cotton Broker, though his business interests extended into other fields. He was the founder of Bees, Ltd., the seeds and plant firm, which originally occupied a part of Bulley's garden at Ness, before being moved to a thousand acre site at Sealand in 1911. By all accounts Bulley was a colourful personality who confided in his doctor, the late J. B. Yeoman, 'I have made more money than the heart of man can desire and I wish to do something useful with it.' The suggestions Dr. Yeoman made were not accepted; he none-the-less was a frequent visitor to Mickwell Brow and can recall Bulley rehearsing his political speeches. In spite of his efforts Bulley was never returned to Parliament; his lack of influence on the Mill Workers of Lancashire may in part have been due to the fact that his speeches included long extracts from French Philosophers. No one could ever doubt where Bulley's political sympathies lay. Dr. Yeoman approached me one day in the garden and said, "I want words with you, Miles Hadfield says you led him to information on Bulley, who he describes as something of a Fabian. He was nothing of the sort, he was an A-B-S-O-L-U-T-E Fabian!" There are two other anecdotes which Yeoman used to recount; one was of a time when Dr. Yeoman himself felt tired and his patient proffered a treatment. 'You need a holiday, Yeoman', said Bulley. 'My sisters are going to Switzerland for a fortnight, why don't you go with them?' The Doctor was incredulous and remained silent. 'You needn't worry about costs,' interjected Bulley, 'I will pay for it all.' Yeoman said, "I hadn't thought about costs.' I was

stunned by the unconventional approach of the man, who at the climax of the Victorian era could say, 'Why don't you go on holiday with my sisters' ''.

On another occasion Yeoman arrived at the house just as Bulley was dismissing a caller. 'Do you know what he wanted,' said Bulley, as Yeoman advanced, 'He was collecting for a Missionary Society.' 'Oh', replied Yeoman, 'judging from your tone you didn't give him anything.' 'Yes I did', said Bulley, 'they have a man in an area from which I wish to obtain seed.' A. K. Bulley was a keen naturalist throughout his life and when he became interested in the introduction of plants from abroad he wrote to missionaries and commercial firms in any area of the world likely to produce plants adaptable to cultivation in Britain. Many agreed to co-operate and seeds were duly received and grown. 'The result', said Mrs. Bulley, 'was that Ness could boast the best international collection of Dandelions to be seen anywhere'. The services of a professional plant collector were clearly required and A. K. Bulley appealed to Professor Sir Isaac Bayley Balfour for advice. Balfour was aware of the richness of the flora of Western China through the collections of specimens made by the French Missionaries and Augustine Henry. He recommended George Forrest to Bulley and in 1904 Forrest sailed for the Far East.

The hazards of journeying at that time in those areas with periodic fighting between Chinese and Tibetans have oft times been told. Those who have read Forrest's own account of the massacre of his associates on his first journey and of his frantic efforts to avoid capture over several days without proper food and suffering a series of injuries, detect an uncanny coolness in his presentation. That he should wish to continue exploring in the same general region speaks volumes for his determination.

The plants from Forrest's first expedition were cultivated at Ness, some were exhibited under Bulley's own name, others were exhibited by his firm, Bees Ltd. *Primula forrestii* (figs. 47-8), raised at Ness, was exhibited at the Royal Horticultural Society's Show in 1909 and received the First Class Certificate. Re-establishment of this species at Ness in recent years presented some difficulties, but it is now happily growing at present on a tufa bed, with protection against winter damp. *Primula bulleyana* (fig. 49), which appropriately seeds itself around the moister parts of the Rock Garden at Ness, also received the First Class Certificate in 1909 as did *Primula viali* under the name of *P. littoniana*, Forrest's intended recognition of his former associate Consul Litton.

The year previously *P. malacoides* received the Award of Merit from the Royal Horticultural Society. Although Bulley submitted this plant he did not entertain high ambitions of its horticultural future. Today, however, *P. malacoides* is one of the most important winter flowering cool greenhouse plants. It must be pointed out in Bulley's defence that the octoploid plants of this species which now adorn public park conservatories are considerably enlarged and show more vivid colouration than the diploid ancestor George Forrest brought back from Yunnan.

One of Forrest's most important discoveries for the Rock Garden was *Gentiana sino-ornata* (fig. 44) ; this plant first flowered in cultivation at Ness and the Royal Botanic Garden, Edinburgh, in 1912 and was recognised with the Award of Merit in 1916. In peaty soil kept moist in the growing season this plant produces sheets of blue flowers from mid-September to mid-November. A line drawing of this plant forms the emblem on the 'Friends of Ness Gardens' Newsletter.

A. G. L. Hellyer stated recently that it was Bulley's influence on a number of people which led eventually to the formation of the Hardy Plant Society. One can say with even more certainty that Bulley's sponsorship of Forrest and later Kingdon-Ward and his influence on Farrer led to the formation of the Scottish Rock Garden Club and the Alpine Garden Society respectively. One point of friction between Bulley and his collectors was his insistence that they should concentrate on smaller plants which could be accommodated in a suburban garden as well as on country estates and were incidentally suitable for Rock Gardens. Larger shrubs and trees were not necessarily prohibited and we can today point to a large specimen at Ness of *Pieris formosa forrestii* (fig. 50) raised from the original seed collected by George Forrest. This plant was severely damaged in the 1962-63 winter but it has grown up again to 10 feet in height with a thicket of shoots creating a clump some 15 feet in diameter. The vivid scarlet shoots and sprays of white flowers excite considerable interest in early spring. There are forms of this plant supposedly selected for their brilliant foliage colouration ; one might be entitled to say that in this respect growers should see the original.

Balfour tried to encourage Bulley to finance Forrest's second expedition but Bulley resisted the invitation, agreeing to provide money for the first 15 months of the trip, it appears that in the end a further instalment was forthcoming from A. K. Bulley. From this expedition came seed of *Rhododendron roxieanum* and there are representatives of

this species, raised from the original importation of seed, still growing at Ness. *Primula helodoxa*, the most striking yellow-flowered member of the candelabra section, was discovered and introduced on this trip. The tall scapes with four or more whorls of flowers have an elegance unrivalled by any of its relations. *P. anisodora* with deep purple flowers was discovered at the same period. This worthwhile garden plant is frequently confused with its relations *P. wilsoni* and *P. poissonii*. The campanulate lobes of the corolla separates it from *P. poissonii* and the absence of a broad yellow zone around the eye, which is seen in *P. wilsoni*, distinguishes it from the latter.

A number of large specimen plants of *Rhododendron* growing at Ness are almost certainly progeny from Forrest's collected seed. One might cite mature plants of *Rhododendron anthosphaerum*, *R. rubiginosum*, *R. eclecticum* and *R. oreotrephe*s (fig. 43) as examples. It is impossible to be absolutely sure about the provenance of particular plants; there are no extant records to which one might turn for confirmation. Mr. Bulley opened his garden to the public and was ever more interested in providing a display for visitors to enjoy. He gained pleasure from mingling incognito to hear their comments on plants and features. His crowning triumph in this respect was to receive a letter of thanks simply addressed to—The Owner, The Garden of Eden, Wirral.

Unfortunately the Second World War witnessed the decline of the Garden to tracts of wilderness. Mr. J. Hope, who should have retired in 1939, continued as Head-Gardener until 1956. He began at the end of the War, with the help of two gardeners and an apprentice, to push back the encroaching wilderness and reclaim the Rock Garden. By this time many of Forrest's treasures had vanished in a variety of ways. Now many of them have been brought back and sometimes at a price. The sixty acres estate at Ness was presented in 1948 to the University of Liverpool by Miss A. L. Bulley, to be developed as a Botanic Garden as a practical and fitting tribute to the memory of her father. One condition is that a specified area must be open to the public without charge. The Gardens are open to the public—9 a.m. to sunset every day of the year except Christmas Day. Visitors arrive in considerable numbers to note the development of the new features and to enjoy seeing the most comprehensive collection of plants in the North of England.

The George Forrest Medal

by F. CYRIL BARNES and HENRY TOD

GEORGE FORREST, the centenary of whose birth falls this year, was undoubtedly one of the greatest plant hunters of all time and a Scotsman to boot. It is therefore fitting that he should be commemorated by an award given annually at each of the Club's Shows "to the most meritorious plant or pan of rock plant(s) (one variety) at each Club Show except that it shall not be awarded more than once in any one year to the same species or hybrid." The award of this accolade is naturally a subject of much interest, discussion and sometimes acrimony amongst members: no doubt the shade of George Forrest will for many years to come derive a wry amusement from the judging and the subsequent discussion of his eponymous award.

In a most informative article (*S.R.G.C. Journal*, Vol. IV, Pt. 3, No. 16, p. 257) Major-General Murray-Lyon tabulated and analysed the Awards made in the first twenty years of the Club's life. Up to 1940 only 14 Awards had been made: at the end of 1954, when Major-General Murray-Lyon wrote, the number had risen to 46. When the present writers exactly ten years later (*S.R.G.C. Journal*, Vol. IX, Pt. 3, No. 36) came to bring the record up to date the number stood at 122. Since then the total has increased by about half as many again and the complexities of collation and analysis in logarithmic proportion. The present authors therefore seized upon the opportunity of George Forrest's centenary to revise their work before their originally envisaged 10 year programme became unwieldy and with the never admitted but ever present hope that some member with access to a computer will take over in future.

At ten Shows in the 1950's the Forrest Medal was not awarded as the Shows were "District (or County) Shows" and were not "officially adopted" as full Club Shows. By the later years of this decade all had been adopted as Club Shows with fully open sections, even though some still retained "restricted" sections for local Members. On one other occasion, the 1972 Newcastle Show at Ponteland, a special award was made as the question of awards was still under discussion between the S.R.G.C. and the A.G.S. In all these cases records of the "best plant in the Show" are available, so these plants have been tabulated separately for reference purposes, though in the



Fig. 46—*Omphalogramma vincaeflorum*

Photo—George Forrest in R.B.G. Coll.



Fig. 47—*Primula forrestii*

Photo—Martin Johnston Ltd.



Fig. 48—*Primula forrestii*

Photo—George Forrest in R.B.G. Coll.

Fig. 49—*Primula bulleyana*

Photo—George Forrest in R.B.G. Coll.





Fig. 50—*Pieris forrestii*

Photo—George Forrest in R.B.G. Coll.

Fig. 51—*Rhododendron racemosum*

Photo—George Forrest in R.B.G. Coll.



interests of accuracy they have not been included in the analyses.

What follows is largely a revision of our 1965 effort. The pattern has been followed for a number of reasons : nobody criticised us adversely ; ease of comparison ; the need to supply the information to new members who may not have access to the earlier papers on the subject. If we have repeated words or paragraphs there is a reason and we are flattered to know that you have taken the interest in reading both.

George Forrest was never a member of the Scottish Rock Garden Club for the simple reason that he died in remotest Asia a year or so before the Club was formed. Nevertheless, most if not all of the founder members knew him well and had the highest regard for him both as a man and as a plant-hunter. It is therefore fitting that the spirit of George Forrest still emanates from those of us who have had the privilege of converse with those who knew him.

Of necessity there is a lot of repetition, though with different figures. We have also widened the scope of our comment. Perhaps the most striking thing is the paucity of Forrest's *introductions* in the *awards* : for one who probably introduced more species into cultivation before or since, this is quite extraordinary.

The records are taken up to the end of the 1972 Show season and are believed to be correct. Any errors or omissions will be gladly acknowledged, though it is doubtful whether our general conclusions or statistical tables will be vitiated.

George Forrest was probably unique not only in the number of species he introduced to cultivation but also in the sheer weight of the seed he sent back. It is all the more surprising that his plants should figure so rarely in the awards, perhaps 5% at most. And yet perhaps it is not so, for the concentration of his interest was chiefly on the genera *Primula* and *Rhododendron*. The former especially in their choicest forms are kittle cattle and the latter which usually take many years to flower are not the favourites of Judges or even the amateur unless he has been bitten with *Rhododendronitis*. It is one of the ironies of life that the greatest botanical explorer of Asia should be commemorated very largely by plants from other continents.

We had thought of another possibly interesting ploy : to analyse the awards by date of introduction into cultivation in order to find out whether there was any substance in the widely held belief that plants winning in the *new* rare or difficult class would walk straight to the Forrest. In practice this has proved impossible, for the only

readily available work (The R.H.S. Dictionary of Gardening) gives only the date of discovery and description, not necessarily the date of introduction. An illustration chosen at random is *Pyxidantha barbulate*. It was first described in 1806 but the first mention in the Alpine Garden Society's Bulletin is in 1947 (and that of plants in the wild). In 1961 came the International Conference and as a result any of us who cared to ask those many of our fellow members on the Atlantic seaboard obtained a turf of the thing by return air-mail: the first mention incidentally in S.R.G.C. *Journal* is in Vol. VII, pt. 4, pp. 34, 45.

This apparent gap of 155 years (though we do not discount the possibility of it lying unnoticed and unloved at Kew or the R.B.G., Edinburgh, all this time) is in itself enough to vitiate any attempt at the exercise from a rational angle. We have therefore to fall back upon intuition and experience, in other words a guess, and this is it.

Plants in cultivation prior to 1939	..	90%
Plants new 1945-1964	7%
Plants new 1965-1972	3%

If, as we hope, these percentages are not far out, it would seem that newness has little effect upon Judges. We leave "difficult and rarity" to another paper.

It is quite extraordinary that the latest 58 awards should include one-third in the Primulaceae—*Androsace*, *Cyclamen*, *Dionysia* and *Primula*. *Androsace imbricata* continues to exert its irresistible charm on Judges, for another four awards bring its total to nine, far and away in advance of any other plant.

Ericaceae comes next with one-quarter (15 plants). In the words of the racing correspondent the rest are nowhere; there are in fact only two families newly represented, Podophyllaceae and Cruciferae which last somewhat drab family has brought upon it the inevitable, pun by acquiring awards for *Dd. mollissima* and *rigida*.

Liliaceae is noteworthy in increasing its awards by 150%, adding *Liriope muscari* and two Fritillarias. Against this it must be observed that the other great bulbous family, Amaryllidaceae, is still unrepresented. What a chance for *Narcissus*, *Leucojum*, *Tecophilea*, etc., at Penicuik. What continues to surprise us beyond measure is that *Gentiana sino-ornata* should still, after our remonstrance eight years ago, be still un-Forrested: a sad comment upon what in Scottish Gardens at least is one of the finest of late-flowering plants. We wonder also that *Androsace alpina* with its Rubens-flesh-coloured tint should avoid the Judges' eyes, or at least the exhibitors', for it is at

least as exciting, especially when growing on a glacier-water sodden creek.

In our previous article we analysed the Awards by Members. Needless to say H. Esslemont is way ahead with 36 out of 180.

The full analysis of members winning more than 2 awards is as follows :—

H. Esslemont	36
J. Drake	14
Mrs. Boyd-Harvey	11
J. Crosland	10
J. B. Duff	5
Major and Mrs. Knox Finlay ..	5
A. D. Reid	5
Major and Mrs. Walmsley ..	5
D. Livingstone	4
Mrs. Maule	4
Mr. and Mrs. Renton	4
Mrs. Dyas	3
Brigadier Hutchinson	3
Dr. H. Robertson	3
W. Urie	3
19 members with 2 awards ..	38
27 members with 1 award ..	27
	180

ALPINE HOUSE VERSUS "GROWN IN THE OPEN"

In our previous article we discussed this much-argued topic and in the opinion of one of us (H.T.) the views then expressed are still valid. For those Members who do not have our previous article to hand, we re-state what we then wrote :—

It is often argued that only those who can afford an alpine house can reach the top levels of exhibits, but this is very much a part-truth. Those exhibitors who concentrate on growing in an alpine house have, in general, a relatively smaller amount of plants to look after than those who work in the open garden. Accordingly they can give more attention to individual plants and hence the condition of those plants will tend to be rather better. At the same time, it must be realised that it is very much easier to grow plants *well* in the open ground and give them a little

extra care if it is needed than it is to grow them in pots, for the open soil seldom allows any extreme conditions of wetness or dryness, of very low or very high temperature, and this cannot be said of the alpine house. In the winter of '62-'63 the number of casualties in the alpine houses up and down the country was infinitely greater than in the open garden and most probably the same would be found in a really hot summer. Further, an alpine house is not essential, for one of our most notable exhibitors in the past grew his absolutely superb plants in a series of cold frames of varying quality and uncertain vintage in the small back garden of a Council house.

In my own view (H.T.) the degree of expertise required to grow ideal exhibits in an alpine house is very much higher than in the open ground, the amount of patience and care required is also considerably greater, and it is infinitely easier to make serious mistakes which may nullify years of work when growing in protected cultivation.

Honour where honour is due surely—for if greater skill and care is demanded, should not the award be higher? Another argument often brought forward is that the rare plant which can only be got by “those and such as those” will always take a premier award over a less rare one. In the lists given below it will be seen, on careful perusal, that the number of real rarities gaining Forrest Medals is very small, for most of the plants in it are listed in the Club's Seed Exchange or else available as plants from the Nurserymen at a reasonable cost. What is often not realised is that the really keen grower may grow a real Show plant for three, five or even nine years without it ever seeing the show bench. Then, when it is at its real peak of perfection, it is brought forward—should it not then gain an award?

Unfortunately the figures quoted then were not correct for the “Alpine House” percentage was given as 32 and the “Open” as 68%. These should have read 36% and 64% respectively. It is striking that the figures for the complete period 1934-72 are 40% and 60%—a small shift considering the number of alpine houses of various sorts and like-wise frames now in use by Club Members.

The point about rarity and availability discussed also holds good, for a study of the list of winning plants in this list shows only five out of forty-seven *distinct* plants that could only be obtained with real difficulty or at great cost (relatively).

The number of "open" and "protected" plants is shown year by year in the accompanying figure (fig. 52) where they are entered as clear columns for "open" and hatched for "protected", for it should be remembered that an "alpine frame" is now a much-used form of "protection", probably even more than an alpine house. An examination of these histogram columns will show that in only *five* years in the thirty-four does the hatched column overtop the clear. This, a different method of showing the surprisingly steady proportion as the years pass, has been adopted as some members found the "compound column" method rather difficult to follow.

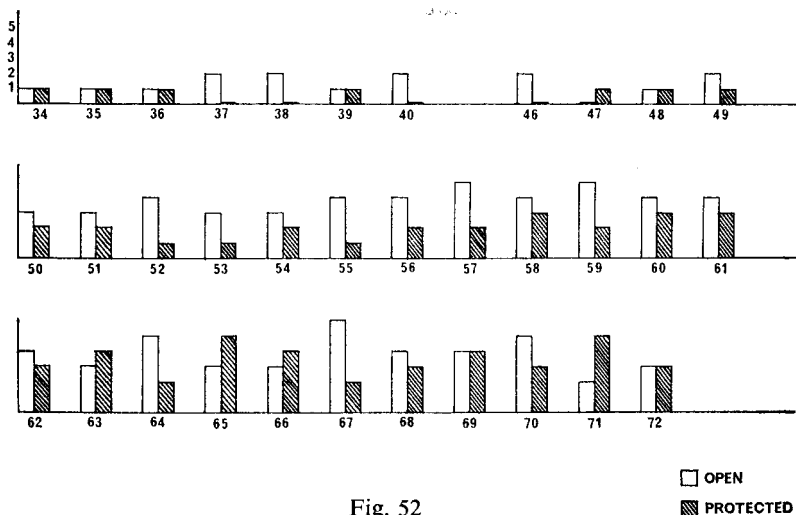


Fig. 52

THE AWARDS

Legend

A = Aberdeen	H = Haddington
Dd = Dundee	M = Musselburgh
Df = Dunfermline	N = Newcastle
Dm = Dumfries	P = Penicuik
E = Edinburgh	Ph = Perth
G = Glasgow	NB = North Berwick

BORAGINACEAE

Anchusa caespitosa
Eritrichium nanum
Mertensia coriacea

E 62	H. Esslemont
A 58	H. Esslemont
G 48	J. Drake

CAMPANULACEAE

<i>Campanula morettiana</i> alba	NB 63	H. Esslemont
— <i>zoyssii</i>	NB 60	Mrs. Boyd-Harvey

CARYOPHYLLACEAE

<i>Silene hookeri</i>	E 40	Dr. A. O. Curle
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COMPOSITAE

<i>Anacyclus depressus</i>	E 57	Mrs. R. Tweedie
<i>Erigeron aureus</i>	Dm 71	Mrs. E. Clark
<i>Leucogenes leontopodium</i>	Dm 68	Mrs. C. M. Clark
<i>Raoulia eximia</i>	NB 64	H. Esslemont
— —	A 69	J. D. Crosland

CRASSULACEAE

<i>Crassula sarcocaulis</i>	NB 62	Mrs. & Mrs. Baillie
<i>Sedum ewersii</i>	Ph 57	Maj.-Gen. Murray-Lyon

CRUCIFERAE

<i>Draba mollissima</i>	G 65	H. Esslemont
— —	G 66	H. Esslemont
— <i>rigida</i>	Dm 66	W. McGinlay

DIAPENSIACEAE

<i>Pyxidantha barbulate</i>	P 70	W. A. Bruce Robertson
<i>Schizocodon soldanelloides</i> alpinus	E 59	H. Esslemont
— — — <i>ilicifolius</i>	G 69	D. Livingstone
<i>Shortia galacifolia</i>	E 37	Major & Mrs. Walmsley
— <i>uniflora grandiflora</i>	A 56	H. Esslemont
— — —	Dm 60	Dr. & Mrs. T. R. Stuart
— — —	Dm 65	Mrs. E. Clark

ERICACEAE

<i>Cassiope lycopodioides</i> (as <i>rigida</i>)	Dm 53	Mrs. D. E. McConnel
— —	Dd 54	J. Drake
— —	Dm 62	N. M. Brown
— —	Dm 69	W. McGinlay
— —	A 70	F. Sutherland
— <i>mertensiana</i>	G 57	J. Drake
— 'Muirhead'	E 55	Major & Mrs. Knox Finlay
— —	A 62	J. Drake
— <i>selaginoides</i>	E 52	J. Drake
— —	G 59	W. Urie
— —	A 72	A. D. Reid
— <i>wardii</i>	Dm 68	Mrs. C. M. Clark
— —	E 70	A. D. Reid
<i>Epigaea asiatica</i>	Dm 56	Major Walmsley
— <i>repens</i>	G 64	Dr. Flora Slack
<i>Gaultheria cuneata</i>	M 69	Mrs. S. Maule
— <i>itoana</i>	Df 72	Dr. & Mrs. J. G. Good
<i>Kalmiopsis leachiana</i>	E 50	R. B. Cooke
— —	Ph 53	Major Walmsley
— — — 'M. Le Piniec'	P 60	J. Archibald
— — —	A 65	H. Esslemont
— — —	Ph 67	J. D. Crosland
<i>Orphanidesia gaultherioides</i>	G 70	J. D. Crosland
<i>Phyllodoce empetriformis</i>	Dm 57	King & Paton
— <i>nipponica</i>	E 46	Major & Mrs. Walmsley
<i>Rhododendron cephalanthum</i>		
— <i>var. crebreflorum</i>	E 63	Brigadier Hutchinson
— 'Chikor'	Df 69	H. Esslemont
— <i>forrestii</i> var. <i>repens</i>	E 36	Mr. & Mrs. J. T. Renton

—	<i>hanceanum</i>	Ph 61	J. D. Crosland
—	<i>imperator</i>	G 38	E. Darling
—	<i>keiskei</i>	Dm 58	W. Urie
—	<i>leucaspis</i>	Dm 63	Brigadier Hutchinson
—	<i>ludlowii</i>	Df 64	J. D. Crosland
—	<i>pemakoense</i>	Dm 64	Brigadier Hutchinson
—	<i>trichostomum</i>		
—	var. <i>ledoides</i>	Df 55	Maryfield Nurseries
—	<i>williamstanum</i>	Dm 70	N. M. Brown
—	<i>yakusimanum</i>	A 64	Dr. H. Robertson
—	—	Df 68	A. D. Reid
<i>Rhodothamnus chamaecistus</i>		G 47	Major & Mrs. Walmsley
—	—	G 56	J. Archibald
<i>Vaccinium delavayi</i>		Dm 67	Dr. M. E. Gibson

GENTIANACEAE

<i>Gentiana gilvostrata</i>	NB 58	Mrs. Cawley
— 'Inverleith'	NB 56	Mrs. Bell

GESNERIACEAE

<i>Jankaea heldreichii</i>	Ph 51	Bannatyne & Jackson
—	Df 61	H. Esslemont
<i>Petrocosmea kerryi</i>	Dd 68	J. D. Crosland
<i>Ramonda pyrenaica</i>	Df 59	Maryfield Nurseries

IRIDACEAE

<i>Crocus taurii</i>	Dd 58	Major & Mrs. Knox Finlay
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LILIACEAE

<i>Fritillaria gibbosa</i>	E 69	H. Esslemont
— <i>pinetorum</i>	Df 71	Mrs. S. Maule
<i>Liriope muscari</i>	NB 65	Mrs. R. Baillie
<i>Nomocharis aperta</i>	E 35	A. Harley
—	E 39	A. Harley

OLEACEAE

<i>Syringa microphylla</i>	G 53	Bannatyne & Jackson
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ORCHIDACEAE

<i>Cypripedium calceolus</i>	A 59	Miss Pape
—	Df 62	Mrs. Boyd-Harvey
— <i>cordigerum</i>	Df 70	H. Esslemont
<i>Pleione limprichtii</i>	E 60	J. Drake

OXALIDACEAE

<i>Oxalis laciniata</i>	Df 58	Mrs. Boyd-Harvey
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PAPAVERACEAE

<i>Corydalis cashmeriana</i>	G 49	Major & Mrs. Knox Finlay
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PODOPHYLLACEAE

<i>Glaucidium palmatum</i>	Df 66	J. B. Duff
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POLEMONIACEAE

<i>Phlox nana ensifolia</i>	Dd 69	J. D. Youngson
— <i>triovilata</i>	Df 60	H. Esslemont
—	E 69	H. Esslemont

PORTULACACEAE

<i>Lewisia columbiana rosea</i>	E 54	J. Drake
— <i>heckneri</i>	Dd 66	J. B. Duff
— <i>cotyledon</i>	Ph 63	A. S. Watson
— <i>trevoeana</i>	Df 67	Mrs. E. D. Wilson
—	Df 63	H. Esslemont
— <i>tweedyi</i>	A 55	Colonel Stitt

PRIMULACEAE

<i>Androsace ciliata</i>	G	34	Dr. W. Buchanan
— <i>imbricata</i>	Dm	50	D. Livingstone
— —	G	58	H. Esslemont
— —	Ph	59	H. Esslemont
— —	E	61	H. Esslemont
— —	A	63	J. D. Crosland
— —	A	66	Mrs. J. W. Dyas
— —	A	68	H. Esslemont
— —	G	71	H. Esslemont
— —	Ph	72	Mrs. J. W. Dyas
— <i>pyrenaica</i>	Dm	52	H. Archibald
<i>Cyclamen neapolitanum</i>	NB	57	Mrs. Boyd-Harvey
— —	NB	61	Mrs. Boyd-Harvey
— —	NB	67	H. Esslemont
— —	E	71	H. Esslemont
— —	NB	59	Mrs. Boyd-Harvey
— —	M	70	Mrs. Boyd-Harvey
<i>Dionysia aetiooides</i>	G	68	H. Esslemont
— —	Ph	71	H. Esslemont
— <i>curviflora</i>	G	54	A. D. Reid
— —	P	71	R. J. Mitchell
— —	P	72	G. I. Merelie
— <i>demavendica</i>	E	65	H. Esslemont
<i>Douglasia laevigata</i>	G	46	Dr. H. Tod
— —	E	64	Mrs. S. Maule
— <i>vitaliana</i>	Ph	69	A. S. Watson
<i>Omphalogramma vincaeflora</i>	E	34	Mr. & Mrs. J. T. Renton
— —	A	50	J. Drake
<i>Primula allionii</i>	Dm	54	Mrs. D. E. McConnel
— —	Dm	62	H. Esslemont
— —	G	63	H. Esslemont
— <i>aureata</i>	Dm	49	D. Livingstone
— —	A	60	Dr. H. Robertson
— <i>boothii</i>	Dm	51	Longmuir & Adamson
— <i>calderiana</i>	Dd	64	Dr. & Mrs. T. R. Stuart
— <i>cusickiana</i>	P	57	K. C. Corsar
— <i>dickieana</i>	Ph	50	Mr. & Mrs. J. T. Renton
— <i>dryadifolia</i>	A	67	J. D. Crosland
— <i>forrestii</i>	A	71	J. D. Crosland
— <i>kingii</i>	Dd	56	Major Sherriff
— ‘Linda Pope’	Dd	62	Dr. H. Robertson
— —	G	67	J. B. Duff
— —	E	68	J. B. Duff
— <i>marginata coerulea</i>			
— — ‘Holden Clough’	P	65	Mrs. S. Maule
— — ‘Clare’s Variety’	P	66	Dr. D. F. Booth
— ‘Pandora’	P	62	H. Esslemont
— <i>reidii</i>	G	51	Edrom Nurseries
— <i>reptans</i>	E	51	R. S. Masterton
— —	Dd	60	J. Drake
— <i>rockii</i>	E	53	A. D. Reid
— <i>rubra x viscosa</i>	A	61	J. D. Crosland
— <i>scapigera</i>	G	37	Mr. & Mrs. J. T. Renton
— <i>sonchifolia</i>	E	49	Major & Mrs. Knox Finlay
— —	Dm	59	Edrom Nurseries
— —	P	67	H. Esslemont
— <i>tibetica</i>	A	52	Mrs. Boyd-Harvey
— <i>wattii</i>	G	52	J. Drake

—	<i>whitei</i> (as <i>bhutanica</i>)	G	50	D. Livingstone
—	—	P	61	H. Esslemont
—	—	P	63	W. Dudgeon
—	<i>sp.</i> (<i>hyacinthina</i> ?)	E	38	R. B. Cooke
<i>Soldanella montana</i>		A	54	J. Drake
—	—	G	55	J. Drake

RANUNCULACEAE

<i>Anemone obtusiloba patula</i>	G	60	J. Drake
<i>Aquilegia scopulorum</i>	G	40	G. F. Laurie
<i>Paraquilegia anemonoides</i>	A	51	Mrs. MacDuff Liddell
—	E	56	Major & Mrs. Knox Finlay
— <i>grandiflora</i>	G	39	Mrs. Halley-Brown

ROSACEAE

<i>Kelseya uniflora</i>	Dm	55	Dr. H. Tod
—	E	58	H. Esslemont

RUBIACEAE

<i>Asperula arcadiensis</i>	Df	57	H. Esslemont
—	Df	67	H. Esslemont
— <i>suberosa</i>	Df	65	Mrs. J. W. Dyas
—	G	72	Mrs. J. Steel

SAXIFRAGACEAE

<i>Saxifraga aretioides</i>	G	35	E. Darling
— 'Jenkinsae'	P	58	Mrs. Boyd-Harvey
—	P	59	Mrs. Boyd-Harvey
—	P	68	J. B. Duff
— <i>lilacina</i>	P	64	H. Esslemont

SCROPHULARIACEAE

<i>Calceolaria darwinii</i>	Ph	52	J. Drake
—	Df	56	Mrs. Boyd-Harvey
<i>Veronica (Hebe) tetrasticha</i>	Dm	61	Dr. M. E. Gibson
<i>Verbascum</i> 'Letitia'	E	72	Mrs. J. Stead

THYMELEACEAE

<i>Daphne collina</i>	G	61	W. Urie
— <i>petraea</i>	E	48	H. Archibald
—	Ph	65	H. Esslemont

VIOLACEAE

<i>Viola delphinantha</i>	G	36	Mrs. Halley-Brown
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AWARDS TO "BEST PLANT IN SHOW"

<i>Linnaea borealis</i>	Df	52	Major-General Murray-Lyon
<i>Calceolaria darwinii</i>	Df	53	A. D. Reid
<i>Saxifraga</i> 'Tumbling Waters'	Df	54	C. J. Halley
<i>Tecophilea cyanocrocus</i>	P	54	Dr. H. Tod
<i>Dendrobium monile album</i>	P	55	Dr. H. Tod
<i>Saxifraga burseriana crenata</i>	P	56	Mrs. Boyd-Harvey
<i>Tunica saxifraga</i> fl. pl.	H	51	Mrs. Peel
<i>Saussurea stella</i>	H	53	Dr. H. Tod
<i>Gentiana veitchiorum</i>	H	54	Mrs. Peel
<i>Daphne arbuscula</i>	A	53	Mrs. Cozens-Hardy
<i>Cassiope</i> 'George Taylor'	N	72	Mrs. Ivey

George Forrest Book

The Scottish Rock Garden Club has re-issued the book originally published in 1935 which contains George Forrest's published works.

Consisting of 90 pages of text and illustrations and bound in cloth, the edition is limited to 750 copies. Particulars are given on page 85 of the *Journal* for September 1972.

Whilst supplies last, copies can be obtained from Mr. R. H. D. Orr, C.A., 70 High Street, Haddington, East Lothian, Scotland. The price including packing and postage is £1.25 per copy.

Copies for Canada and U.S.A. are priced at \$3.25. From other Overseas countries, cheques should be for the equivalent in your own currency.

Cheques should be made payable to "The Scottish Rock Garden Club."

An International Rock Garden Plant Conference

will be held in Seattle, Washington, U.S.A., in

Mid-July 1976

organised by

The American Rock Garden Society,

The Alpine Garden Club of British Columbia, and

The Vancouver Island Rock Garden Society

Further particulars will appear in a future *Journal*

The West Coast of Canada : Experiences with George Forrest's Plants

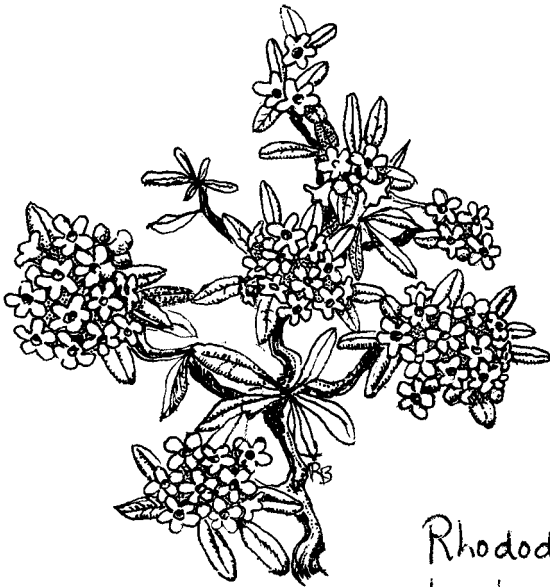
by A. J. MACPHAIL

Drawings by ROSEMARY BURNHAM

HERE on the West Coast of North America in Vancouver, B.C., we are inclined to delude ourselves that we live in a replica of Chinese hinterland, a salubrious Forrest-country climate. We fantasize about dreaming glades subdued in mist, an air exuding verdant freshness, a moisture-kissed microclimate, even and temperate, restrained and mysterious all at once. This is of course all stuff and nonsense. We have, in fact, a rather neurotic climate : never quite sure of itself. We can and often do experience severe drought in the summer ; winter temperatures can alternate alarmingly between freezing and thawing, at which time a protective covering of snow can never be relied upon. Precipitation averages 50 ins per year (at Vancouver City Hall), and occurs mainly as fall and winter rains. Not exactly Yunnan. Our lowest ever recorded temperature was 0 degrees F., while in most winters we descend to at least 15 degrees F. Summers generally are cool and pleasant : temperatures may, however, reach a "heat wave" level in the mid 80's, though only for a week or two. Still and all we can grow rhododendrons and Asiatic primulas with comparative ease. So much so, in fact, that they soon cease to be prestige-plants among the "and-what-have-you-got-in-bloom-today" set. But if I allow my mind to free-wander about the lands that George Forrest visited (Tibet, Burma, Yunnan, Szechuan) I imagine not only vast glades of dazzling rhododendrons, underplanted with endless carpets of primulas, but also wide swaths of all manner and hue of Meconopsis, occasionally relieved by secret dells full of Liliium and Nomocharis. And here's where our fantasy begins to disintegrate. We don't in fact live in 'Forrest' country.

In our small garden we do have what is euphemistically called a rhododendron glen, growing about 150 species and varieties, many of them by now far too cheek by jowl. We lean to the alpine species but by no means eschew the others. Many of my favourites were plants of George Forrest. By this I mean plants discovered, introduced,

re-introduced, or popularized by this great plantsman. Some of the best, in fact. For instance, many of the Lapponicum series can be much of a muchness : even so, one would not be without *Rh. fastigiatum* or *Rh. impeditum* if for nothing else than their unfailing reliability. They cannot match, however, *Rh. scintillans* (which to prove the point of my first paragraph was almost lost one year for lack of water and we hose continuously all summer) ; *Rh. russatum* (ours is a rich and abundant purple, the best form I have seen) ; *Rh. microleucum* (which here can scorch badly unless shaded in summer). Another magnificent alpine is *Rh. campylogynum* with its dusky plum bells. It is a very easy plant here, suffering only from nomenclature confusionitis, for we grow several plants, all rather different, under this name or its variety 'myrtilloides'. In the Triflorum series, *Rh. yunnanense* can be one of the most appealing, especially in the blush pink forms : another variable but easy plant. The perversity of the human spirit is such, however,



Rhododendron
trichostomum

Fig. 53

that the Rhododendron I value above all others does not look like a Rhododendron but more like a Daphne. This is of course *Rh. tricho-*

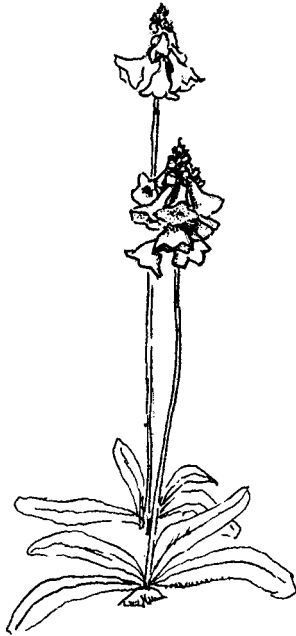
stomum (fig. 53) (and its variety *radinum*). Ours is a venerable plant, every year a mass of spice-scented blossoms.

The more one grows Rhododendrons the more one becomes a connoisseur of the foliage effects. Forrest is responsible for some of the best. There is a kind of blue-green magic to the unfurling leaves of *Rh. lepidostylum*. And I never fail to remark on the 'aura' given off by both *Rh. exquisitum* and *Rh. oreotrophes* (fig. 43). So much so that in other people's gardens I exclaim excitedly "What is it?". Even though I grow both myself. In the large boldness of *Rh. fictolacteum* we find the easiest and hardiest of the 'big-leafers'. And for indumentum, which becomes a very much tactile as well as visual pleasure, are there many better than *Rh. bureavii*? The Forrest rhodos are so multifarious one must mention only the highlights: the incredible ground-hugging habit of *Rh. prostratum*, although I rather dismiss the washed-out purple flowers: the reason no doubt my plants are so stingy of bloom; *Rh. forrestii* itself should be mentioned but confess that although it does very well here I am not partial to blood-reds. What I am partial to, however, and very much so, is one of the easiest and surely one of the loveliest of all rhododendrons, *Rh. racemosum* (fig. 51). *Rh. puralbum* is like a white *Rh. souliei*, refined and poised. It does not always set a good crop of buds whereas *Rh. souliei* itself does. With some of the Forrest rhodos we do, let's admit it, have a hardiness problem: I have lost the delicate primrose-yellow *Rh. megeratum* to a hard winter, and last year *Rh. spinuliferum*—which I have no business trying to grow at all but who could resist the orangey-red tubular flowers so reminiscent of the Chilean flora—was cut to the ground. I recently acquired *Rh. valentinianum*, a beautiful chartreuse-yellow, in a form reputedly hardier than the type. It has yet to meet its baptism of frost.

Indeed, hardiness is the one controversial issue about many of the Forrest plants. Of course it depends where he collected them, but it seems there is a certain frailness in many of the lower region ones. No doubt they experience extremes of cold in their lifetime, but perhaps not with the drastic suddenness that can prevail here. For instance, it took us a devil of a time to establish the spectacular *Pieris forrestii* (fig. 50). For a long time we had to make do with a hybrid, *Pieris* 'Forest Flame', good but not the true. The secret was about three comparatively mild winters wherein the *Pieris forrestii* could become acclimatized before the really cold winter hit. But one cannot always call the shots as one would like. So that we now enjoy the fiery red

shoots of the Pieris but we have not yet been able to establish the elegant *Mahonia lomariifolia*. It just gets going nicely when wham ! down to the ground again. I don't like to admit defeat, but with the Mahonia I'm afraid I'm going to have to.

But most of the great loves of George Forrest are quite at home here, most particularly the rhodos and the primulas. In our beautiful civic park, Stanley Park, there is a large rhododendron species collection under the imaginative management of Mr. Alleyne Cook. He has taken a page from the Yunnan of all our dreams and underplanted with great drifts of primula species. We grow these in our private gardens but not with nearly so telling an effect. Many of the Forrest plants are there from the happy candelabras such as *P. beesiana* and *P. bulleyana* (fig. 49), the robust but short-lived boggy *P. helodoxa* to the more fastidious *P. anisodora*, which definitely needs more coaxing and re-planting. There are huge patches of *P. viali*, which



*Primula
nutans*

Fig. 54

excite many a comment and which, incidentally, prove perennial, at least for a span of three or four years. *Primula nutans* (fig. 54) in the Park gave one year of absolutely glorious bloom but then faded to a very few plants indeed. We have kept this beautiful Soldanelloid for about three years, no more. Some of the trickier, smaller Soldanelloides such as *P. reidii*, *P. cawdoriana*, last longer when they do find niches to their satisfaction, such as the vertical crevices of a peat-block wall.

The same Mr. Cook in his home garden is amassing a "Magnoliaetum" (a thing difficult to resist). He does grow Forrest's *Magnolia mollicomata* but reports that it has yet to experience a really bad frost as it is a very young plant. He recalls that it looks for all the world like *M. campbelli*. This does survive our climate so I expect *M. mollicomata* will too and moreover one does not have to wait such an unconscionable time for the first blooms.

We share Forrest's love of the genus *Primula*. And would we were able to obtain some of his more exciting ones, *Primula agleniana*, for instance. Some of what we do grow we find fastidious but not impossible. *P. forrestii* itself (figs. 47-8)—such a purity to the yellow—is fine as long as its vulnerable crown is kept dry. Ours is a pot plant wedged between tufa pieces. Seedlings from the parent plant are growing in a glass-covered scree frame, but none has overwintered without protection yet. *P. burmanica* is one of the most spectacular of the candelabras, forming tier upon tier of salmon-pink blooms, practically all summer. *P. chionantha* is not quite so generous. The more's the pity as it is another plant of rare charm, emitting a kind of incandescent glow. The problem is the contrariness of its needs: moist summers, dry winters. We find the best we can do is grow such plants in well-drained peat beds. Here they for the most part flourish, but I cannot say the same for the near relatives of *P. chionantha*: *P. sinopurpurea* and *P. sinoplantaginea*. They have done little but sulk so far.

In the vertical faces of the peat walls we also attempt the Petiolarid primulas if and when we can propagate enough. Forrest's *P. sonchifolia* is still cossetted in its pot although it is multiplying satisfactorily. I think it almost rivals *Eritrichium* for the wondrous clarity of its blue.

Now for those wide swaths and secret dells of *Meconopsis* and *Nomocharis*. Most *Meconopsis* do adapt here but Forrest's *M. integrifolia*, with its pendent yellow bowls, is one of the most demanding. Again peat beds rather than the heavier, richer soil of the woodland

garden. As for *M. horridula* we have never got it in anything but a 'horridula' form and so rather summarily dismiss it. But the *Nomocharis* are another matter. The forms have been loveliness itself and we have duly awaited the long process from seed to flowering plant and they have flowered and they have died and we have had to start all over again with some of them, notably *N. pardanthina* and *N. saluensis*. If indeed either of these was the true plant as Forrest saw it. They are a rather immoral lot. Only *N. aperta* (fig. 42) has persisted and it also seems a little more prudish, with the true plant relatively stable. Perhaps we grew the *Nomocharis* with too much drainage as they were first in what amounted to rich scree, where they gradually petered out. Now they grow in a woody-peaty-gritty mix and we hope ! Surely the *Nomocharis* are some of the loveliest things on earth.

Fortunately, most of the other Forrest woodland plants are easy and delightful. Who does not grow *Thalictrum dipterocarpum* and marvel each season at the delicacy of its sprays ? And what a pleasure that it is summer-blooming when so much of the alpine garden has faded away. Ditto the *Roscoeas*, perhaps the poor man's orchids, but as I write these notes in early October *Roscoea purpurea* (fig. 55) is still in bloom. None of Forrest's *Roscoeas*, including pinkish *R. humeana* and yellow *R. cauleoides*, has ever succumbed to cold here. Altogether very satisfactory plants.

Daphne retusa is one of the best Forrest plants of all. And for a *Daphne* such a commodious customer. Only once in our 0° winter was it defoliated ; every year our oldest plant, a redoubtable small tree, provides two full seasons of sweet bloom : spring and autumn. *Daphne odora* is much more problematical with us. But last year it bloomed after a winter where the mercury dipped to at least 8 degrees F. I think what it needs is a hot summer.

I wish I had planted two of the Forrest irises together to complement each other : pale yellow *I. forrestii* (fig. 56) and the gold-banded darkling, *I. chrysographes*. Certainly easy and I must do that rearrangement of the furniture. *Iris japonica* is also a surprisingly happy plant here, never cut, blooming profusely, and moving about so rapidly by its stolons that there are always pieces for those with the good sense to rave about its almost orchidaceous blossoms. Admittedly the foliage becomes very ratty looking what with the depredations of the slugs and other wayward wanderers.

I cannot talk of the successful Forrest plants without mentioning *Gentiana sino-ornata* (fig. 44), for we love it and we are duly grateful,



Fig. 56—*Iris forrestii*

Photo—George Forrest in R.B.G. Coll.



Fig. 57—*Lilium davidii*

Photo—R.B.G., Edinburgh



Fig. 58—*Meconopsis integrifolia*

Photo—George Forrest in R.B.G. Coll.



Fig. 59—*Meconopsis delavayi*

Photo—George Forrest in R.B.G. Coll.

especially in autumn as a certain bleakness comes over the garden. Two other happy-for-us Forrest plants are his contributions to my favourite genus : *Androsace spinulifera* and *A. geraniifolia*. A drift of the former at the top of a tufa scree has settled right in, despite the monocarpic reputation. The sight of those umbels of dramatically red-backed white blossoms can so readily conjure up for me dreams of Li-chiang, austere but warm, forlorn but inviting. *A. geraniifolia* is surely one of the most surprising of all plants. One does not expect *Androsace* from such foliage. We have not yet fully found its secret as only the parent plant in a pot has survived, although others have been planted in the open scree and in tufa in the scree frame. Both died after flowering. I also have a penchant for the *Codonopses*. They must be artfully placed as anyone knows who grows them, in order to appreciate the patterned designs of their inner markings. We



*Roscoea
purpurea*

Fig. 55

grow *Codonopsis melegris* in several sites, the best of which allows the plants to twine through an old dwarf form of *Pinus strobus*, itself on a raised bed, so the *Codonopsis* can be viewed at eye level.

I wish I could end there, everything happy and rosy. But, no, we have had our troubles with some of Forrest's plants. I love the *Arisaemas*, all and sundry, but none more so than *A. candidissima*. Last year a friend in Britain kindly sent a tuber and I somehow conceived the idea that this was a plant which must be grown dry, not in a woodland situation where the others thrive. So I carefully planted it in the covered scree frame and that was the last I saw of it. I am confused to say the least. I am also partial to certain of the onions. And again none more so than *Allium forrestii*. How I remember the year a colony in the bulb frame gave forth with those elegant claret-coloured bells. But we never saw it again either. Too dry? (*Allium beesianum* is equally beautiful in its summer blueness and it is a no-problem plant in scree). The loss of *Incarvillea grandiflora* does not vex me nearly so much. I cannot appreciate the flaunting garishness of this genus although I confess Forrest's plant was the best of a poor lot. They survived many years, but all died out last winter. *Pleione yunnanensis* did not die out, but I have yet to see one single blossom on it. *Pleiones* do quite well here, some of them surviving outside with very few problems, if given adequate drainage, but *P. yunnanensis* is kept in pots and it grows and it dies down and it comes up and we are forever hopeful that surely this year it will bloom. But it never does.

It is with hope I should like to end these notes. Some of our Forrest plants are still seedlings with all their promise before them (or early demise), none more so than *Paraquilegias*. Our one plant of *P. grandiflora* is of course tenderly ministered unto in a pot. And should it perchance winter through and even more perchance send forth those ethereal 'inverted bowls' of flowers I shall think of Mr. Forrest once more. Ever thankful that he bequeathed us so much that is beautiful in such bounteous measure.

Primula Forrestii

by J. D. CROSLAND

AMONG the many distinctive introductions to commemorate the name of George Forrest, this primula belonging to the small *Bullatae* Section

was discovered by him in May, 1906. Growing at high altitude in the Li-chiang Range of N.W. Yunnan, essentially saxatile, and pendulous in habit, the plant was found inhabiting, and hanging from shady crevices in limestone cliffs.

The feature marking it as unique in its genus consists of the persistent main stem, which elongates with each year of growth. This, almost woody stem, may be branched, at the ends of which there is an annual growth of leaves from which, during May or June, the following year, the flowering scapes arise. Each year, as the new leaves develop, those of the previous year wither to reveal the characteristic elongation of the main stem.

Flowers yellow, with an orange eye, $\frac{3}{4}$ in. across, are delicately fragrant, borne in many-flowered, one-sided umbels, the scapes 6 to 9 ins. tall, pedicels $\frac{1}{2}$ to $1\frac{1}{2}$ ins. The pale green rugose leaves, ovate-elliptic 2 to 4 ins. long, crenate-serrate, are borne on stalks up to 4 ins.

Doubtfully viable for outdoor cultivation in Britain, the requirements of the plant suggest a sheltered situation in a vertical wall or cliff, with a suitable overhang such as a rock to protect the plant from direct rainfall, at the same time providing a cool and well-drained root run.

It is as an alpine house plant that *Primula forrestii* (fig. 47) gives of its best, under conditions which suitably protect the plant from wetness on leaves and stems which it strongly resents at all times, but particularly during winter.

In a standard well-drained alpine soil mixture, the plant readily accepts pot cultivation. Pot up only as dictated by the plant's growth to provide an adequate root run. At no time should the plant be over-potted, which is probably a principal source of failure, but also—of vital importance when re-potting or top dressing—special care should be taken to ensure that the neck of the stem should never at any time fall below the surface of the compost. Failure to observe these points will quickly result in the loss of the plant, but otherwise careful watering, advisedly from below by plunging the pot in water, will ensure its well being and longevity.

Propagation by seed, which is available in any normal year, is an effective means of increase.

Liliaceae

by MARY W. KNOX FINLAY

ALTHOUGH rhododendrons and primulas were George Forrest's favourite plants, we gardeners who enjoy growing species and varieties belonging to the natural order Liliaceae are deeply grateful to him for the vast amount of material which he discovered, collected and in many cases introduced into Britain. It would be simple to select some of the most popular of his findings, but it is necessary to go into much more detail in order to appreciate the immensity of his collections, which includes members of the following genera :—*Allium*, *Asparagus*, *Chlorophytum*, *Clintonia*, *Disporum*, *Eremurus*, *Fritillaria*, *Hemerocallis*, *Hosta*, *Lilium*, *Lloydia*, *Nomocharis*, *Notholirion*, *Oligobotrya*, *Paris*, *Polygonatum*, *Smilax*, *Streptopus*, *Tofieldia*, *Trillium* and *Veratrum*.

LILIUM

During his many journeys, Forrest collected over one hundred specimens of *Lilium* representing approximately a dozen species and varieties—most of these had been found previously by other collectors but copious material was sent home by Forrest. It is unfortunate that *Lilium forrestii*, named in his honour, proved to be identical with *Lilium lankengense*. It is also unfortunate that *Lilium bakerianum*, found by Forrest in various forms, is not a hardy lily for outdoor cultivation in Britain.

The magnificent trumpet lily, *Lilium brownii* (wrongly named var. *colchesteri*—Woodcock & Stearne), was found by Forrest in two other varieties, *viridulum* from Central China and *australe* from the Southern areas. They are both lovely lilies, probably the finest of the trumpets, but they are not as easy as the type. Another beautiful trumpet lily was collected by Forrest in S.E. Tibet, where he found an outstanding type of *L. sulphureum* with a white trumpet, slightly yellowish therein and often also reddish, but unfortunately the bulbs did not prove to be hardy in Britain and it is doubtful if any descendants of his introduction survive.

Lilium (now *Cardiocrinum*) *giganteum* var. *yunnanese*, the Chinese variety, was sent home from Yunnan. It is similar to the Himalayan plant but it is less tall and the young leaves and stem have brown markings.

Lilium henrici is a nomocharis-like Lily rather than a lily-like Nomocharis. It was found first by the French explorer, Prince Henri d'Orleans. In 1919 Forrest found it in the Kong-Salween divide on the margin of thickets at from 1000 to 1100 ft. and introduced it into cultivation. It has always been and still is very rare.

A new species *L. stewartianum* was found on the limestone cliffs of the Li-chiang Range in 1923 at an altitude of 1100 to 1200 ft. This lovely lily is akin to *L. primulinum*. It is only known from herbarium material. Forrest, in his field notes, describes it as having stems of 1½ to 2 ft. furnished with grassy leaves. They bear single drooping fragrant flowers with ground cover of a deep olive green, but almost black with deep crimson markings or greenish yellow spotted with maroon.

Lilium primulinum vars. *ochraceum* and *burmanicum* were also found in the same area but they are not very hardy in this country. *Lilium taliense* was first discovered in Western China and North East Yunnan by Delavay in 1883. It flowered in England for the first time in 1935, having been raised from Forrest's seed. It resembles Farrer's marble lily *L. duchartrei* but it has not proved to be as easy in cultivation; although said to be a beautiful plant in the wild, it is not seen to advantage in this country.

Lilium papilliferum is a pleasing little Chinese Martagon, with each stem bearing several little nodding turks cap flowers—described by Forrest as being deep crimson or deep crimson to magenta, anthers brown and the pollen orange—introduced by Dr. J. F. Rock, first flowered in England in 1949. *Liliums davidii* (fig. 57) and *tigrinum* were also found by Forrest, but there are no special notes on these well-known species.

NOMOCHARIS

In the *Lily Year Book of 1946*, the late Mr. David Wilkie wrote 'this genus was first brought to the notice of horticulturists in this country when *Nomocharis pardanthina* and *Nomocharis mairei* flowered in the Royal Botanic Garden, Edinburgh, in 1914. Both of these were raised from seed collected by Forrest and this probably constitutes the first flowering of this genus in Britain.'

Nomocharis has been robbed of many species, but of those that remain in the genus, Forrest was responsible for the discovery, collection and their introduction. Taking them in alphabetical order, *N. aperta* (fig. 42) was brought into cultivation by Forrest from material

he found in small areas in S.W. Szechuan and N.W. Yunnan. When first introduced it was named *N. forrestii* but later placed as *N. aperta*. Forms with pure white flowers and without spots were found by Forrest and Rock in S.E. Tibet but, so far as is known, have never been in cultivation.

N. basilissa was found by Forrest in S.E. Tibet but, so far as is known, it has never been flowered in this country.

N. Georgei (named in honour of George Forrest) was found in Upper Burma. Seed was sent home but there is no record of its germination.

N. mairei is perhaps the finest and most beautiful and dominant of the genus and Forrest also introduced *N. leucantha*, which was later placed under *mairei* and a lovely white form known as *N. mairei* var. *candida*. *N. meleagrina* he found in S.E. Tibet. It was not known that it was in cultivation until it flowered at Keillour and it is presumed that it came in with a mixed collection of *Nomocharis* bulbs obtained from the garden of the late Mr. Harley—in this way *N. synoptica* also came into cultivation at Keillour, but it is not known also whether Mr. Harley obtained his original stock from the Forrest or Rock collections.

N. pardanthina has already been mentioned and the final one, *N. saluenensis*, was found in S.E. Tibet, N.W. Yunnan and W. Szechuan. It was first collected in 1914 ; it was also collected by Forrest in 1921-22.

NOTHOLIRION

Forrest, on various of his journeys, collected all four members of this genus—*N. thomsonianum* when first introduced was called *Lilium roseum*. This is a nice plant, about 2 ft. in height with pink to blue flowers. It is not hardy.

N. bulbiferum, until recently known by the much more charming name of *hyacinthinum*, is a lovely plant, 5-6 ft. in height with hyacinth blue flowers. It delights in a cool shady position and is perfectly hardy.

N. campanulatum is a choice plant, 3 ft. in height, with wine-red flowers, each petal lipped with a bright green blotch. The material growing at Keillour came from Logan many years ago and presumably it had been received originally from the Royal Botanic Garden, Edinburgh.

N. macrophyllum was collected by Forrest in several areas. This is a plant with thin strap leaves and flower stems 12 inches in height.

The flowers are blue in colour—it is hardy.

Forrest collected many allium on his travels. Of these only a few can be mentioned. *A. amabile* (syn. *yunnanense*) has deep rose to magenta flowers with crimson spots, 4-8 inches, and comes from N.W. Yunnan. *A. beesianum* has scapes to about 16 inches in height and umbels of blue to purple flowers, N.W. Yunnan. *A. cyaneum* (syn. *kansuense*), dwarf with bell-shaped blue flowers—there is also a variety *brachestemon*. *A. forrestii*, a small species remarkable for its large red flowers and resembling *A. narcissiflorum* of the European Alps, and *A. rhynchogynum*, which is allied to *A. amabile* but recognised by its much wider leaves and beaked carpels.

Clintonia udensis (syn. *alpina*) appears to be the only species of this genus to be found in E. Asia and is not as interesting as its N. American relations.

Eremurus chinensis (1½-3 ft.) with white fragrant flowers was found by Forrest growing on dry cliff ledges above the boiling springs in the Lang-Kung Hsien Valley at an altitude of 7000-8000 ft. in September 1906. This species was recorded previously only from Northern Szechuan.

Fritillaria cirrhosa, a most distinctive species, was first collected by Forrest in the Mekong Valley in 1904 and again in N.W. Yunnan in 1906. The stem is up to 3 ft., flowers solitary dark purple changing to pale green, checkered within (this plant grows at Keillour from material collected by the late Colonel Lowndes in Nepal, resembles *Lilium sherriffiae* until it changes colour).

F. delavayi was also collected in 1906 in the same area and *F. soulei* in the Mekong Valley in 1904 and 1906. The flowers are purplish-crimson and fragrant.

HEMEROCALLIS

Forrest's collection of this genus was not numerous but of great interest. In addition to *H. fulva*, and this name covers several cultivated clones and various wild types or varieties which he found being cultivated by the natives of the Li-chiang and Tali ranges, Forrest discovered a small group of dwarf or semi-dwarf types of species growing more or less intermingled in the mountains of N.W. Yunnan and Sekang. Three of these types, which are all in cultivation, have been given specific rank—*H. forrestii*, *H. nana* and *H. plicata*.

HOSTA

Most Hostas seem to have been collected in Japan, but Forrest

did at least find two species : *H. coerulea* (syn. *ventricosa*) and *H. plantaginea*, both good plants.

LLOYDIA

L. forrestii was found in open ground on the eastern flank of the Tali range ; it grows from 4-6 inches in height and has yellow flowers. *L. delavayi*, *serotina*, *tibetica* and *yunnanensis* were also found.

POLYGONATUM

Polygonatum curvistylum with greenish flowers spotted with green was collected in 1906, as also were *Pp. fuscum*, *stewartianum* and *ucinatum*.

Tofieldia yunnanensis, a plant of 4-8 inches and with white flowers, was found in the Li-chiang Valley also in 1906.

Trillium tschonoski was collected on the ascent of the Kani Pass in 1904, 9-15 inches and with white flowers.

Veratrum stenophyllum 2-2½ ft., with green flowers, was also found there, yet another treasure from the rich Li-chiang Range.

Meconopsis Collections of George Forrest

by Sir GEORGE TAYLOR, D.SC., F.R.S., F.R.S.E., F.L.S., V.M.H.

I HAD the good fortune to know George Forrest and there is little doubt that he was the catalyst in the notion that I should undertake a revision of the genus *Meconopsis* as his material at Edinburgh, both as living plants and as herbarium specimens, far exceeded in number and range that of any other collector or institution. He felt uneasy and occasionally baffled over identification and pressed the need for a critical scrutiny of the genus. Furthermore, my then mentor, Professor J. R. Matthews, to whom I shall be eternally grateful for unsurpassed instruction and wise guidance and now our greatly respected Honorary President, persuaded me to take on the task. During the first year of research I discussed at length with Forrest over his wonderful series of specimens the taxonomic problems with which the genus seemed to be beset and the advantage of his field knowledge, so freely given,

was invaluable to me in my attempt to elucidate the intricacies of the group. When I left Edinburgh to take up an appointment at the British Museum the entire Forrest collections were generously sent on loan and the collector visited me in London several times to clear up certain points and once to try to induce me to accompany him on his last expedition. Alas, I had not long returned from a collecting trip to South Africa and Rhodesia on behalf of the Royal Botanic Garden and at the beginning of my career at the British Museum I could hardly expect leave of absence for a year or more.

It is nearing 40 years since the publication of "An Account of the Genus *Meconopsis*" and apart from odd papers regarding the results of early expeditions to Nepal and the splendid finds of Ludlow and Sherriff, I have not in the last 25 years or so concerned myself with *Meconopsis* as my isolation from growing plants and, in addition, my duties and different interests led in other directions. Perhaps, however, I should mention that in 1938 I had the supreme experience of accompanying my friends Frank Ludlow and George Sherriff to South-east Tibet and Eastern Bhutan, and no one could have wished for more genial and co-operative companions, and on that expedition 16 different *Meconopsis* were collected. Personally it was most satisfying that this array of new material and close field observations confirmed most of the conclusions that I had reached in my revision. With the lapse of time and with the destruction of my detailed notes in the blitz on the British Museum in 1941, and without access to specimens and reference sources, it is not easy adequately to write of the *Meconopsis* obtained by Forrest. In fact, it is difficult to add significantly to the chapter on *Meconopsis* published in "The Journeys and Plant Introductions of George Forrest, V.M.H." (1952). The tally of species which he collected is I believe 14 and two bear his name : *M. forrestii* with blue flowers which he got on his first expedition and was described by Prain in 1907, and *M. georgei* with yellow flowers which I described from specimens collected on his last expedition in 1931. Both, judging from the dried material, are attractive garden plants and though Forrest sent home seeds of each, neither survived in cultivation. Indeed, though there have been many successful introductions of the same species by other collectors, their provenance is now so completely obscured by selection and cross pollination that only three monocarpic species now grown can possibly be descendants from plants raised from seeds of Forrest's original collections. These are *M. horridula* (which Forrest gathered and introduced under the

following names, *M. prattii*, *M. racemosa* and *M. rudis*), *M. integrifolia* (fig. 58), and *M. napaulensis* under the name *M. wallichii*. It is perhaps surprising that the renowned "Blue Poppy", *M. betonicifolia* (*M. baileyi*) did not apparently excite Forrest. There is no record of plants raised from seed though he made several gatherings of the species in Yunnan. The credit for introducing this fine plant belongs to Kingdon-Ward, who sent home seed from South-east Tibet in 1924.

One species which Forrest was most anxious to establish was *M. speciosa*, of which he sent home seeds, but there is no record of any success in raising plants. I can testify from my acquaintance with this species on the Sang La that it is a lovely thing with an abundance of azure-blue fragrant flowers. Alas, the seed which we obtained in 1938 did not lead to successful establishment of the species in British gardens. Two species have been in fleeting cultivation from Forrest seeds: *M. impedita*, a monocarpic plant with intense purple flowers, and the lovely perennial *M. delavayi* (fig. 59), which grew profusely and seeded itself freely in the garden of the late Colonel R. Trotter at Flichity, near Inverness. Other species collected by Forrest but only known in this country as herbarium specimens are *M. lancifolia*, *M. lyrata*, *M. venusta* and *M. pseudovenusta*. The two latter look most desirable plants, but although Forrest harvested seeds (and also of *M. georgei*), none of these species was brought to maturity in Britain.

On the whole, then, considering the colossal efforts of Forrest in scouring difficult country to collect seed and the amount of material which he obtained, the horticultural results are disappointing, no doubt due to the intractability of the species to our climate and cultural methods. His horticultural achievement in genera such as *Gentiana*, *Primula* and *Rhododendron* far outweigh his *Meconopsis* credit.

Dwarf Ericaceae (other than *Rhododendron*) collected by George Forrest

by Miss C. W. MUIRHEAD

THE MAJOR Ericaceous genera represented in the Sino-Himalayan region (exclusive of *Rhododendron*) are undoubtedly *Gaultheria* and

Vaccinium, both with extensive distributions in the Northern and Southern Hemispheres. They have a wide altitudinal range and vary from medium-sized shrubs at lower altitudes, which flourish under much the same conditions as *Rhododendrons*, to carpeting or low, hummock-forming shrubs, usually with very attractive fruits at high altitudes.

A third genus, *Cassiope*, though small in comparison with the others, is also highly characteristic of this region and undoubtedly has its greatest development there. It is a genus of low-growing heath-like shrubs with solitary white flowers and small, sessile, usually more or less imbricate leaves. The flowers are beautiful but the variation in habit and leaf-structure is perhaps their greatest fascination.

CASSIOPE

Six of the eleven known species of *Cassiope* have been found in the Sino-Himalayan region and their distribution within the area is of very great interest. Four of these were collected by Forrest and it is curious that *C. fastigiata*, the most widespread species in the Himalayas, was not collected by him in Yunnan. Apart from *C. selaginoides*, three of his species have proved difficult to grow and are no longer in cultivation.

C. myosuroides

This must be one of the most charming species in the genus and was first discovered by F. Kingdon-Ward (No. 1788) in 1914 in N.E. Upper Burma. It was later collected by Forrest in Western Yunnan and Upper Burma, and he says "a mat plant many feet in breadth ; 1-2 ins. in height. Flowers white tinged rose, especially on margins ; on humus-covered boulders and moist rocky slopes among alpine scrub." The branches and leaves are most like *C. lycopodioides* in habit but it is a stronger growing plant and rather bristly with the acute tips of the leaves.

C. palpebrata

This species was also discovered by Kingdon-Ward in 1913 in Western Yunnan on the Mekong-Yangtze divide—"On granite screes and precipices ; altitudes 13-14,000 ft.". Farrer says of it : "A lovely little plant occurring in cold mossy crevices of the cliffs and boulders in the high (not quite the highest) alpine zone . . . Pedicels and calyx crimson, buds creamy, flowers pure white". Forrest also collected it in Yunnan, Szechuan and S.E. Tibet at altitudes of 13-14,000 ft. In the carpeting habit this species is similar to the previous one, but the

rigid spreading setose leaves are more like those of *Harrimanella stelleriana* than a Himalayan *Cassiope*. Neither this nor the preceding species have survived in cultivation, unfortunately. It is possible, however, that if they could be collected from higher altitudes they might yet be induced to grow in this country.

C. pectinata

The type specimen of *C. pectinata* was collected by Forrest on the summit of the Kari Pass on the Yangtze-Mekong divide in September 1904. He was at the beginning of his first expedition to China and reached Tali in August of that year, crossing the Yangtze-Mekong divide in the autumn. This species was probably his first introduction to the genus and has unfortunately never been established in cultivation. It is very similar in habit to *Cassiope wardii*, the largest member in the genus, which has ascending branches, greyish with the long white marginal hairs on the leaves. In *C. pectinata* these hairs are brown, not white, and show a more complex type of branching, which appears to be constant in this species. Apart from this they are geographically separate. *C. pectinata* appears to be restricted to Western Yunnan and Szechuan on the Salween-Mekong and Mekong-Yangtze divides, while *C. wardii* is concentrated mainly in S.E. Tibet. It is interesting to note that at different times Forrest collected specimens of *C. x macrantha* (*pectinata* x *selaginoides*) within the area of *C. pectinata* which were clearly intermediate between the two species.

C. selaginoides, which is well-known in cultivation, extends from the Sikkim Himalaya to S.E. Tibet and Yunnan, where it is more abundant at the eastern end of its range. It is a dwarf, very free flowering little shrub growing in open rocky places at altitudes of 10-15,000 ft. and has been in cultivation since 1920.

GAULTHERIA

There is an interesting concentration of the genus *Gaultheria* in the Sino-Himalayan region and about twenty species are known to have been collected there by Forrest. Some of these, however, are woodland shrubs of considerable size and from altitudes which are too low for reasonable hardiness. With the exception of *Gaultheria forrestii*, only the low-growing high-alpine species are included here.

Gaultheria forrestii

This is one of the most beautiful species of the genus, if not strictly a dwarf shrub. It was discovered by Forrest on the Tali Range in W. Yunnan in 1906 during his first expedition to China, growing in

open, rocky situations at altitudes of 10-12,000 ft. A small shrub, from 2-4 ft. in height, with reddish stems and pure white flowers followed by china-blue fruits, it is fairly hardy, particularly in the south and in sheltered localities on the west of Scotland.

G. nummularioides

One of the most interesting of the dwarf species of *Gaultheria*. Widespread throughout the main Himalayan range and reappearing in the mountains of Sumatra and Java, it has been known in cultivation since 1850. It is an evergreen shrub, forming low carpets of trailing, bristly-hairy stems with 2-ranked, small heart-shaped leaves. In this country it flowers freely but apparently very rarely fruits. This, however, is not so important as the habit of the plant is so attractive in itself. The flowers are solitary and axillary, white or pale pink, and are produced late in summer.

No other species appears to be clearly related to *G. nummularioides* but one or two recall it in habit.

G. notabilis

This species was only found by Forrest in the hills north-west of Tengyueh, in Yunnan. It has the appearance of *G. nummularioides* but is more erect in habit with an axillary, racemose inflorescence of crowded white flowers which is quite different from the latter species. It is not in cultivation.

G. suborbicularis

The habit of this species is very distinct. It forms a creeping, carpeting little shrub with minute rounded leaves, tetramerous flowers and scarlet berries and is a very much smaller plant than *G. nummularioides*. It was first found by Kingdon-Ward in W. Yunnan at 15,000 ft. and later by Forrest at similar altitudes in S.E. Tibet, forming carpets in open, stony moorland. A most interesting little species we should very much like to see in cultivation.

G. pyrolifolia

This is an interesting species with a dwarf tufted *Pyrola*-like habit, short axillary racemes and blue-black berries. It extends from Sikkim to S.E. Tibet with an altitudinal range of from 10-16,000 ft., and becomes slightly narrower leaved and more compact as it moves eastwards. It was collected only once by Forrest on the Salween-Kiuchiang divide in S.E. Tibet.

G. prostrata, which Forrest collected only on the Mekong-Salween divide, is possibly a reduced form of the preceding species and is not in cultivation.

G. cuneata is also near to *G. pyrolifolia*, growing from 6-12 ins. high with a more branched habit, narrower leaves and flowers in short racemes near the apex of the branches. The fruits are pale blue at first, becoming pure white on maturity. It was collected by Forrest on the Mekong-Yangtze divide in 1924, at 13-14,000 ft., is very hardy and has long been in cultivation.

G. sinensis

This is a small prostrate shrub allied to *G. trichophylla*, but with larger, much broader, obovate leaves, lacking the ciliate margin of *G. trichophylla*, and with scattered coarse red hairs on the under surface of the leaf. The flowers are white or pale pink, solitary in the leaf axils and shortly stalked, and the fruits a brilliant blue. First collected by Forrest on the Mekong-Salween divide in 1917, it has recently been re-introduced and is now in cultivation. It is a variable species and is now known to extend from W. Yunnan, Upper Burma and Assam to S.E. Tibet and Bhutan, growing at altitudes of 10-13,000 ft.

G. hypochlora

This species is closely allied to *G. sinensis*, with larger, thinner obovate leaves which are paler in colour underneath. It occurs also in W. Yunnan, Upper Burma and Assam and may possibly be in cultivation under the name of *G. sinensis*.

G. nivea

This is a very dwarf and prostrate plant, neater than most forms of *G. sinensis*, but obviously near to it. From this species, however, it is easily distinguished by the narrower, more acute leaves, minutely hairy branches and white fruits. It was first collected by Forrest on the Salween-Kiuchiang divide in S.E. Tibet in 1919, at an altitude of 13,000 ft., and appears to be rare.

G. tetramera

In cultivation this is a slow-growing, rather spreading bush about 1½ ft. in height. The leaves are dark green and leathery and the flowers small and greenish in few-flowered spikes from the leaf axils. These, however, are normally 4-partite, an unusual condition in the genus. The fruits are remarkably beautiful and vary from china-blue to deep purple. It is known only from W. Yunnan and S. Tibet and has recently been introduced into cultivation.

G. trichophylla has been known in cultivation since 1890 and is one of the most popular and well-known of the dwarf species of the genus.

It is widespread throughout the Himalaya and extends into Western Szechuan and Yunnan but is rare. Forrest collected it only once, on the Tali range in 1906 on his first expedition to China, growing at an altitude of 12-14,000 ft. on alpine scree slopes and among dwarf rhododendrons. It is a creeping and cushion forming shrub about 2-6 ins. in height, with ovate or narrow evergreen bristle-margined leaves. The small pink flowers are followed by large, often brilliantly blue fruits which are said to be edible. In cultivation it has proved quite amenable in a scree mixture of granite chippings with peat and sharp sand.

A closely allied species *G. cardiosepala*, which is very similar in habit, was also collected by Forrest on the Tali range and later proved to be much more widespread in Western Yunnan than *G. trichophylla*. In habit it is perhaps more erect and bushy than *G. trichophylla*, with narrow lanceolate leaves which lack the stiff marginal bristles of *G. trichophylla*. Also, the fruits are white, or only faintly tinged with blue. *G. cardiosepala* is not known in cultivation.

G. thymifolia is yet another species which occurs within the orbit of *G. trichophylla*. Based on a type specimen collected by Forrest on Nmaikha-Salween divide in W. Yunnan in 1925, it is obviously very close to *G. cardiosepala* and difficult to separate from this species. It is characterised by shorter leaves and reddish flowers and fruit and is so far known from two or three localities in N.E. Upper Burma, all within the area of *G. cardiosepala*. This species has recently been introduced into cultivation.

VACCINIUM

At least 12 species of the genus *Vaccinium* were collected by Forrest in China and the neighbouring mountains of Tibet and Burma. More than half of these are shrubs which are too large for most rock gardens and just not reliably hardy. On the whole, perhaps, this genus does not seem to frequent the higher altitudes to the same extent as *Gaultheria* and there are fewer really high-alpine species to be found.

Vaccinium chaetothrix

This is a small prostrate species which is closely allied to the Himalayan *V. nummularia*, perhaps one of the most beautiful species in the whole genus. *V. chaetothrix*, which is a more slender plant than *V. nummularia*, with smaller leaves and white flowers, was collected only once by Forrest on the Salween-Kiuchiang divide in Western

Yunnan at 12,000 ft. It was growing in dwarf rhododendron scrub and also as an epiphyte on trees. Although the difference between these two species appears to be slight and mainly of habit, *V. chaetothrix* is apparently restricted to W. Yunnan and Upper Burma, while *V. nummularia* extends from Nepal to S. Tibet and is not known to occur in China. *V. chaetothrix* is not in cultivation.

V. delavayi

A compact dwarf shrub of 1-2 ft. in height, quite closely related to our native cowberry, *V. vitis-idaea*, with crowded small obovate or ovate leaves and flowers pink-tinged, in short usually terminal racemes. It is a plant of cliff ledges and rocks and is also quite frequently epiphytic on forest trees, growing at altitudes of 9-12,000 ft. Although it has been in cultivation since 1915, it is considered doubtfully hardy and liable to be killed by frost. *V. dendrocharis*, a closely related species with a similar distribution is not known in cultivation.

V. sikkimense

An attractive low-growing evergreen shrub varying in height from 2-6 ins. up to 6 ft., mainly due to altitude. The leaves are broad, more or less ovate and the flowers greenish-white to deep rose, in dense terminal clusters followed by dark purple fruits. It extends from Nepal to W. Yunnan and Upper Burma, with an altitudinal range from 10-14,000 ft. This species appears to be almost unknown in cultivation, but was first grown at Edinburgh from seed collected by Forrest on the Salween-Kiuchiang divide in Yunnan in 1921 (F. No. 19950).

V. modestum

A most interesting little species which is quite unlike any other Himalayan or Chinese *Vaccinium* and easily identified by its dwarf, *Pyrola*-like habit and solitary flowers. It creeps about, forming low carpets in moss amongst dwarf rhododendrons, about 2-6 ins. in height at 12-14,000 ft. The solitary flowers are rose-purple and quite large for the size of the plant, partly concealed by two ovate, reddish bracteoles. In the autumn the leaves colour beautifully and the large purple berries are very attractive.

Originally discovered by Kingdon-Ward near the Dokar La in Western Yunnan, the plant was collected several times by Forrest on the Mekong-Salween divide, but there is no record of its survival at Edinburgh. More recent collections have been made, however, in S.E. Tibet and Upper Burma, and it is apparently now in cultivation.

Some Forrest Plants in the Highlands

by D. M. MURRAY-LYON

ALL THE plants I describe are growing here in my garden in Perthshire at 600 feet above sea level. They have all proved themselves good garden plants.

Iris forrestii (Iridaceae) (fig. 56). This iris belongs to the Apogon group and was found by Forrest in the Li-chiang Range in Western China in 1906. Having been sent home, it was found to be an easy plant in a peat bed, its requirements being a moist humusy soil which does not dry out. It might be described as looking like a dwarf edition of the perhaps better known *Iris sibirica*. The golden yellow flowers in June are carried singly on 15 inch stems. This attractive plant was awarded an A.M. in 1924.

Pieris forrestii (Ericaceae) is found from Nepal, to Yunnan in Western China (fig. 50). It is regarded by many authorities as but a variety of *P. formosa*. It is a most attractive evergreen shrub which will attain a size of five feet by five feet or more here. The leathery leaves are rather like those of a rhododendron. The white, or pinky white, flowers are produced in sprays and are usually out in April or May. While these flowers are quite attractive, the outstanding thing about this plant is the brilliant red of the new growth in spring. This display is at its best any time in April or May depending upon the weather. This colourful new growth is easily destroyed by late frosts. This danger may be lessened by planting the shrub where it will not get the early morning sun. The idea is to prevent the sun striking the plant before the surrounding atmosphere has warmed up a bit and thawed out the tender new growth. If you are really energetic, another way of dealing with this situation is to get up at crack of dawn on a frosty morning and spray the red new growth with cold water before the sun gets at it. Almost as bad as frost are cold winds, so try and give it shelter from these. It is allergic to lime and enjoys a good humusy soil mixture with plenty of compost or leaf mould and/or peat.

Here it does well in sun, or in light partial shade. It has been awarded both the A.M. and the F.C.C. by the R.H.S.

Paraquilegia anemonoides (syn. *P. grandiflora*) (Ranunculaceae). It comes from S.E. Tibet and from Western China, where Forrest found

it. It is, however, found as far west as Kashmir.

To describe it I cannot do better than quote what George Forrest and Sir George Taylor had to say about it after seeing it growing "in the wild": Forrest, ". . . the finest cliff plant of the whole range, a real gem"; Taylor, ". . . for sheer delicacy, poise and refinement, this plant must be supreme." The delicate leaves are ferny and grey-green. The flowers are bowl-shaped, usually mauvey-blue but sometimes white. In the centre is a boss of yellow stamens. In the wild it is said to grow almost invariably in vertical crevices in huge rocks. In the garden it is not an easy plant. Probably the best chance of success is to plant in a crevice in a wall backed by good humusy soil with plenty of compost and/or leaf-mould. The soil must be well-drained but never allowed to dry out. Shade, particularly around mid-day, is another essential. It received the A.M. in 1951 and the F.C.C. in 1966.

Anemone rupicola (Ranunculaceae) has a wide distribution from Kashmir along the southern slopes of the Himalayas to Western China at between 11,000 and 15,000 feet. The plant is about twelve inches in height with three lobed leaves which are further cut. The flowers are white and a good size, one or two to a stem as a rule, but sometimes three. It resembles somewhat the better known *A. narcissiflora* but the leaves are more silky.

It likes moist humusy soil and part shade.

Androsace spinulifera is a tall plant up to 12 inches, but in dryish poor soil it is more dwarf. It is frequently found at the edges of pine forests, and is fairly widely distributed in Western China. Forrest found it in Yunnan on his first expedition in 1906. The lanceolate, rather coarse leaves up to three inches long, often tinged with red, grow in rosettes. These long upright-growing leaves die back in the autumn. The plant then has a resting bud of small leaves which someone has described as rather like a small tight sempervivum. In spring the spiny leaves lengthen and flower stems develop. By June these stems should have reached a length of about 12 inches and each should carry an umbel of half a dozen flowers each up to half an inch across. These flowers are pale pink with a reddish reverse, and most attractive they are too. It is a good plant for a peat bed. If this bed tends perhaps to be too moist, the addition of some gravel would improve matters. It can be raised easily from seed.

Omphalogramma vincaeflorum (Primulaceae) (fig. 46) was first found by Abbé Delavay in Yunnan in 1886. It was not introduced to this

country, however, till 1908, when it was raised from Forrest seed collected in this botanically rich area where Tibet, China and Burma meet. It is probably the easiest of the family to grow and very handsome. The blunted oval leaves form a basal rosette from which arise stout six-inch stems each carrying one large violet-purple flower. The flowers look rather like an outsize *Pinguicula*. The usual time of flowering here is about the end of May. To do well it requires a rich humusy soil which must not be allowed to dry out. It received an A.M. in 1913 under the name *Primula vincaeflora*, that being the name it had at that time.

University of Stirling - George Forrest Walk

THE 1972-3 project for Airthrey Garden's Group is the landscaping of a Lochside walk on the Airthrey Estate, the grounds of the new University of Stirling, with the aim of creating a unique and beautiful botanical display from the shrubs, trees and plants discovered and introduced by George Forrest.

The Group began in 1970 and is formed of people interested in Gardens, and aims each year to assist the University to preserve the beauty of its gardens (which were originally landscaped about 1780 by a Mr. White, a pupil of "Capability" Brown) by financing the purchase of exotic trees or shrubs which could otherwise not be afforded from public money. Up to date trees and shrubs for the Bridge ends, several banks of Azaleas, several tons of Daffodils and other valuable gifts have been received, including Cedars, Liquid Ambers, Magnolias and Prunus. We record again with gratitude a donation of £50 from Stirling Rock Garden Club. A recent development has been for those who work in the buildings to give trees and shrubs for the courtyards they overlook. Students have helped to plant bulbs and in other ways.

The ambitious aim of the current appeal is to commemorate the work of Forrest in his Centenary year. A previous owner of the estate was a friend of the collector and fully-grown pink and lilac Rhododendrons given by him already adorn the proposed walk. An initial collection of Forrest plants has been kindly donated by the Royal Botanic Garden, Edinburgh, and others will be supplied by Messrs. Hilliers.

There will be tall Rhododendrons of different colours—interspersed with clumps of smaller species along the length of the Lochside walk. At intervals trees of Magnolias and Acers will be planted, to provide an April Spectacle in future years. The beds will also contain Berberis, Primulas and other plants from his collection, to create altogether a living record of the life-work of a man who travelled from Yunnan to Tibet in search of beautiful shrubs, and who has so greatly enriched our horticultural heritage.

The first beds of Rhododendrons have now been prepared and, all being well, the George Forrest Walk will become a reality worthy of a visit from both specialists and ordinary garden lovers alike.

Species of Rhododendrons will include the following :—

desquamatum : from Yunnan. Flowers funnel-shaped, mauve with dark markings. Flowering March and April.

eclectum : from S.E. Tibet. Flowers bell-shaped, white to rose red.

fulvum : from Burma. Flowers bell-shaped, deep rose and crimson.

hippophaeoides : from Yunnan. Flowers lavender and funnel-shaped.

keleticum : from Upper Burma. Flowers saucer-shaped, purple crimson.

radicans : from Tibet. Flowers rose-purple.

russatum : from Szechuan. Flowers funnel-shaped, blue-purple.

telopeum : from S.E. Tibet. Flowers bell-shaped, yellow-red.

lepidostylum : from Yunnan. Flowers funnel-shaped, pale yellow.

Hybrid Rhododendrons derived mainly from species collected or discovered by George Forrest will also be planted, including :—

‘Aladdin’ Salmon-Cerise

‘Alice’ Rose-Pink

‘May-Day’ Orange-Red

‘Elizabeth’ Dark-Red

‘Susan’ Mauve

‘Tally Ho’ Scarlet

Many other genera of plants including Buddleia, Cotoneaster, Doutzia, Meliosma, Osmanthus, Paeonia, etc., etc., will be planted in the walk.

Mrs. J. M. DUNN

Chairman

Airthrey Gardens Group

H. H. MILNE

Superintendent of Grounds

The Discussion Weekend 1973

THE SEAMILL HYDRO, WEST KILBRIDE

AYRSHIRE

13th and 14th OCTOBER 1973

PROGRAMME

Saturday :

- 1.00 p.m. Lunch
- 2.15 p.m. Address of Welcome
- 2.30 p.m. The W. C. Buchanan Memorial Lecture
"Alpine Gardening—An Appreciation"
by J. D. Crosland, Esq.
- 4.00 p.m. Afternoon Tea
- 4.30 p.m. "Irises—for Everyone" by J. C. Archibald, Esq.
- 7.00 p.m. *Dinner/Dance or Dinner and Film Show (at 8.30 p.m.)
Films will be advertised in the Hotel Vestibule

Sunday :

- 8.30 a.m. Breakfast
- 10.00 a.m. The Clark Memorial Lecture
"Forrest in Perspective" by Jas. T. Aitken, Esq.
- 11.15 a.m. Morning Coffee
- 11.45 p.m. "Plant Collecting in and around Iran" by Rear-
Admiral J. P. W. Furse, C.B., O.B.E., F.L.S., V.M.H.
- 1.00 p.m. Lunch
- 2.30 p.m. "Plant Association in Rock Gardening"
by the Ayrshire Group
- 4.15 p.m. Close of Proceedings
- 4.30 p.m. Afternoon Tea

On Friday evening, the 12th, from 8.00 p.m., for early arrivals and others who wish to attend, there will be a talk by a well-known member and a short film show.

HOTEL ARRANGEMENTS FOR WEEKEND RESIDENTS

Bookings for the weekend must be made *direct* to the MANAGER, SEAMILL HYDRO, WEST KILBRIDE, AYRSHIRE, mentioning membership of the S.R.G.C.

There is no need now to extol the virtues of this hotel and its setting, except to say that, as each room in the Annexe will now have its own

bathroom, and as the modernisation of the heated swimming pool will be complete, then the virtues will have increased.

The special conference rates are : Room with private bath, television and telephone £6.30, standard room £5.10. This quotation *includes* accommodation and all meals from lunch on Saturday to Afternoon Tea on Sunday, service charges and Value Added Tax.

Early application is strongly advised, particularly by those members requiring single rooms and by those who wish to stay for an extra night.

★ There will be NO extra charge for the Dance, but members wishing to attend the Dance please inform the Manager **WHEN BOOKING** so that table arrangements can be made.

NON-RESIDENTS

Non-Residents who require meals will be charged : Lunch 85p, Dinner or Dinner/Dance as preferred £1.40, Afternoon Tea and Morning Coffee 6p each. These prices **INCLUDE** service charges and V.A.T.

Application for meals to be made at the Conference Office.

CONFERENCE CHARGE AND IDENTITY BADGES

Because of increased overhead expenses of the weekend, we must, with reluctance, increase the Conference Charge to £1.50 per person. Conference Charge to Non-Residents will be 75p per person attending one day or £1.50 per person attending both days. These charges are payable at the Conference Office on arrival at the Hydro, when members will be issued with identity badges which **THEY MUST WEAR AT ALL TIMES**.

ROCK PLANT COMPETITION

The highlights of the Seamill Weekends have been the excellent shows of rock plants staged by attending members. May I again ask participating members to bring along as many plants as they can and give us another wonderful Show.

Details of this Competition will be given in the September *Journal*.

The Best Plant of the Show will receive the W. C. Buchanan Bronze Medal, presented by Dr. Henry Tod.

All plants will be displayed in the Ailsa Suite, which will be locked when not in use.

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Notice to Members

When ordering from these pages, please tell the advertiser that you saw his advertisement in the S.R.G.C. Year Book or Journal

The Alpine Garden Society

invites you to join its band of enthusiasts
who enjoy a *Bulletin* every quarter
have opportunities to buy specialist publications
have tours to see alpine in their natural habitat
have a panel of experts to advise on alpine and their cultivation
can participate in the distribution of the seed of more than 5000 distinct species
each year

Home Members: £2.50

Overseas Members: £3.00 (\$7.20 at time of going to press)

Dollar cheques welcome

**Secretary: E. M. Upward, The Alpine Garden Society,
Lye End Link, St. John's,
Woking, Surrey, England**

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Full details from Hon. Secretary :

Lawrence E. Wigley,
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Fairways & Swinford's 1973 Programme

for Gardeners and Flower Enthusiasts

is extended in scope and covers new ground. A bare outline is given below and members' enquiries for comprehensive details are invited.

EUROPE

ITALY—an *Alpine Garden Society's Tour* to Fasana del Garda with Mr. Peter Cunnington from 4th to 18th June: (£111).

FARAWAY TURKEY—from Ankara and Trebizond to the Persian and Russian borders visiting new, exciting regions, botanically and scenically rich, with Miss Theresa Atkins, from 7th to 26th May: (£298).

SPAIN—an *Alpine Flower Tour* to Espot in the Spanish Pyrenees from 29th May to 12th June with Mr. F. W. Buglass (£112); and an *Alpine Garden Society's Tour* with Mr. Terry Underhill to Covadonga in the foothills of the Picos de Europa from 12th to 26th June (£115).

SWITZERLAND—a special tour to ZERMATT with Major-General D. M. Murray-Lyon from 27th June to 11th July (£145). Other tours to Switzerland include a flower-painting holiday with Mrs. Barbara Everard to St. Luc in the Val d'Anniviers from 28th June to 12th July (£129); and an *Alpine Garden Society's Tour* to Wengen with Mr. Michael Upward from 21st June to 5th July (£122).

FURTHER AFIELD

PERSIA—a Naturalists' Safari for plant-hunting and bird-watching with Mr. Oleg Polunin from 28th April to 12th May and from 20th October to 3rd November with Miss Theresa Atkins (£321).

THE FLOWERS OF KASHMIR—a botanical tour with Mr. Patrick Syngé from 17th June to 4th July (£369); and **TWO KASHMIRI PONY-TREKS** from 21st July to 10th August and from 18th August to 7th September respectively (£429) with Mr. Oleg Polunin. Each tour is preceded by a stay in houseboats on the Dal Lake at Srinagar.

NEPAL—a trek on foot with Mr. A. D. Schilling from Kathmandu to the Helambu Gosaikund from 20th October to 11th November, for seed-collectors and mountain lovers (£449).

For full details of these and other tours and of April and October SITES & FLOWERS' cruises to Greece, Cyprus and south-east Turkey, apply to the organizers

FAIRWAYS & SWINFORD (TRAVEL) LTD (SRGS)
18 Saint George Street, Hanover Square
London W1R 0EE (Tel. 01-629 6801)

SRGC PUBLICATIONS

MEMBERS will find much of interest in the back numbers of the Club's *Journals*. The availability and prices are as follows :

<i>Journal No.</i>	<i>Price per copy, post free to members</i>	
	<i>New pence</i>	<i>U.S. dollars</i>
1 to 6	Not available	—
7	25p	0.65
8 to 10	20p	0.52
11	25p	0.65
12, 13	20p	0.52
14	35p	0.91
15 to 17	Not available	—
18	25p	0.65
19, 20	20p	0.52
21	Not available	—
22 to 26	20p	0.52
27	55p	1.44
28	25p	0.65
29	55p (1961 Conference Report. A large volume)	1.44
30, 31	20p	0.52
32 to 34	25p	0.65
35	55p	1.44
36 to 47	25p	0.65
48 onwards	30p	0.78

Overseas members please pay by International Money Order and not by personal cheque in order to avoid Bank Charges.

The Club will welcome the opportunity to make an offer to buy (or be gifted) certain of the old *Journals* in the number range 1 to 35, provided they are in good condition.

Waiting lists for the "Not available" *Journals* are maintained.

All correspondence regarding publications should be addressed to the Hon. Publications Manager :

JOHN B. DUFF,
LANGFAULD,
GLENFARG,
PERTHSHIRE,
PH2 9PA.