

ECCENTRIC FLOWERS.

By ELIZA BRIGHTWEN, Author of "Rambles with Nature-Students," etc.

PART I.

WHEN we see some strangely-shaped flower we are rather apt to regard it simply as a freak of nature, and pass it by without giving any thought to the reason of its eccentric form or colour.

This was very natural in former times before the science of botany had made its present advances, but of late years much careful study has been bestowed upon the remarkably shaped flowers of orchids, aroids, and other plants. This study has revealed the fact that each organ of these blossoms has its own especial use in the life history of the plant.

For instance, we import orchids from tropical and other countries where the birds and insects are of a wholly different type from our own, and upon investigation it is discovered that these flowers, which present to us every variety of weird formation, are exactly suited to the kinds of birds and insects which are to perform for them the important office of fertilisation.

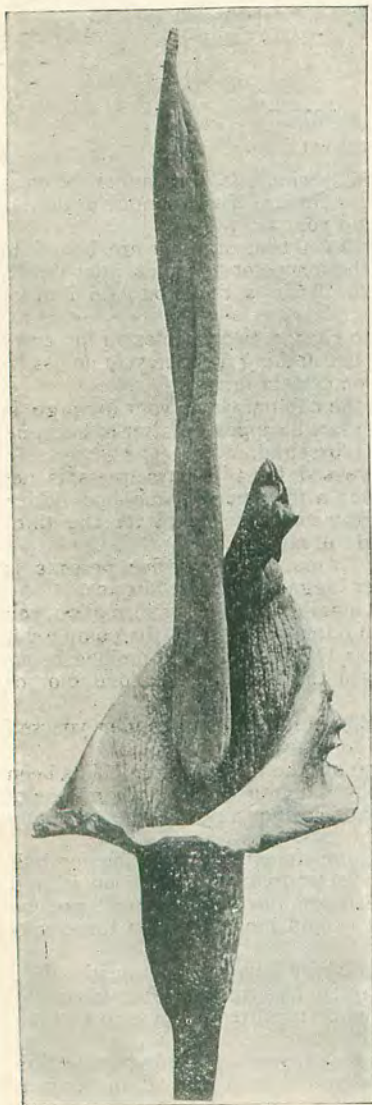
I have thought that it might interest our young readers to hear a little about a few of the curious foreign plants which appear in my conservatory month by month.

The aroids are a family of plants that are exceptionally quaint in their appearance.

The flowers are very minute, and are usually developed upon a thick central stalk called the *spadix*. In the common arum (*Arum Maculatum*) they are arranged in rings or whorls, the lowest consisting of pistils only, then a ring of stamens, and finally some barren flowers. Its most curious feature is the large, greenish, purple-spotted bract which enfolds the central stalk and flowers; this, I think, gives the "Lords and Ladies" of our hedges its title to be included amongst eccentric flowers. If we examine a blossom we shall notice that it is constricted in the centre so as to form an inflated chamber enclosing just the region of the stalk circled by the flowers, and, by the way, let us avoid inhaling its perfume, for we shall not find it that of roses or violets but something suggestive of putrid meat, just the kind of odour that is attractive to the smaller flies which are required to effect the fertilisation of the flower.

The bract or *spathe* is lined inside the inflated part with hairs; the flies pass in through the narrow channel, and by means of the hairs, which point downwards, they are prevented from escaping until they have helped to distribute the pollen-grains on the pistils. The result is that the latter are fertilised and so seed is formed.

It is very evident that the unusual shape and general character of these flowers tend to subserve an important purpose in their lives, and by studying the formation of an



Amorphophallus Rivieri.



Sauromatum Guttatum.



FLAMINGO PLANT.
(*Anthurium Scherzerianum.*)

*Anthurium Andreanum.**Gloriosa Superba.*

English *Arum* we get the key, as it were, to some of the floral puzzles presented to us in foreign examples of this and other species.

I have many exotic plants growing in the glass-houses and gardens here, and I will try to explain the service performed by three or four of the most beautiful of these striking forms.

Last spring there bloomed in the conservatory a very extraordinary flower; the *spadix* was slightly swollen and rounded, with the flowers growing in separate circles on the stem, as in the *Arum*.

The queer-looking *spathe* was green outside and a shade of olive-brown within, covered with yellowish spots suffused with dark purple. Unlike the *Arum* this *spathe* was elongated, and as it hung down with a wavy outline it looked remarkably like a large spotted lizard, from which resemblance it has been named *Sauromatum Guttatum*.* It is a Himalayan plant, and from its overpowering and offensive odour, I have no doubt it is a popular plant with all the flying insects in its native regions.

My specimen became fertilised and produced its seed.

Another plant of the same family flowered in mid-winter. In this case out of a huge pot, as large as a man could lift, rose up a solid dark purple stalk, three feet high; about two-thirds up this *spadix* came out a spreading bell-shaped *spathe* of a lurid purple colour faintly spotted on the inside. The flower organs were arranged, like those of the *Arum*, in circular rings included in the bell-shaped *spathe*. The upper part of the *spadix* was much swollen, as shown in the drawing.

This plant, the *Amorphophallus Rivieri* of Cochin China, possesses such a truly dreadful odour that we were obliged to banish it from the conservatory, and if it exists in any quantity in its native habitat it must render the air almost insupportable.

Its blossoms are, no doubt, highly attractive to the insect tribes whose aid it required for its fertilisation.

From the malodorous scent of these aroids it is pleasant to turn to the lovely scarlet bracts of the Flamingo plant (*Anthurium Scherzerianum*.)

Here we find the *spadix* twisted and contorted, and the flowers, unlike those of the *Arum*, are hermaphrodite and

embedded in the red tissue of the *spadix*. They possess neither honey nor scent, but their brilliant colour no doubt renders them highly attractive to various insects.

In Brazil, where these plants grow, humming-birds are abundant, and no doubt they play their part in the fertilisation of the flowers, not that there is any attraction for them in the blossom itself, but the hovering flies lead them to alight upon the protruding *spadix* and thus they help to distribute the pollen.

These fly-haunted plants are sometimes death-traps to the exquisite little birds which are attracted to them.

A New Zealand shrub, *Pisonia Brunoniana*, has such sticky carpels that birds alighting on them in search of insects are held fast as if by birdlime.

A writer in *Nature** speaks of having found a dozen or more dead and dying birds glued to the fruit-bearing branches of *pisonia*.

We must not omit to mention the very remarkable fact that there is a distinct rise in temperature in the enclosed part of the *spathe* in many of the aroids; this makes the blossom all the more attractive to the flies, as warmth is just what these insects delight in.

GLORIOSA SUPERBA.

This extraordinary-looking flower is a native of tropical Africa and Asia, and therefore it needs to be grown in a very warm house where a moist heat may suggest the atmosphere one would have to breathe in an Indian jungle.

It is very interesting to visit my stove-house and see the lovely flowers of tropical countries growing luxuriantly, the bananas ripening, the papyrus with stems ten feet high reaching up to the glass roof, all kinds of curious climbing plants clothing the interior of the house with their varied leafage and delightful blossoms; yet, with all their attractions, my visits to this house are always very brief; the humid air seems after a few minutes to become unendurable, and I learn to estimate the perseverance and courage of missionaries and others whose labours have in many instances to be carried on year after year in the enervating climate which exists in my tropical greenhouse.

But I must return to my subject, the *Gloriosa*, which is

* From a Greek word meaning a lizard.

* *Nature*, Nov. 1884.

a member of the lily family, though very unlike a lily in the form of its flower and in its habit of growth.

It may be well to remind ourselves of the arrangement of the parts of a common tiger-lily. In its centre, in an erect position, is the seed-case or ovary, and growing from below the ovary are two sets of structures, the six stamens and six petals or perianth leaves, the whole supported upon a short stalk. Now if we turn to the *Gloriosa*, we find an upside down sort of arrangement; the whole flower is reversed, so that the ovary points downwards and the stalk appears to come from the top of the flower; the style is bent abruptly sideways, and assumes an almost horizontal position; the stamens radiate from the ovary in all directions, each stamen bearing a large anther or pollen-case filled with dark red pollen. The six petals are sharply reflexed and twisted, the lower part of each petal is dark orange red, whilst the upper part is amber-coloured, the whole forming a brilliant and conspicuous flower. We must not fail to observe that the midrib of each leaf is lengthened out into a twining tendril by means of which the lily attaches itself to surrounding vegetation and keeps climbing higher and higher up the sides of my stove-house,

as if in its native jungle, where every plant has to struggle more or less to reach up beyond its neighbour for needful light and air. The flowers hang in a pendulous manner below the foliage, and this fact, I think, partly accounts for the curious arrangement of their parts.

The position of the flowers is such that they can easily be seen by tropical insects and humming-birds, these latter finding in the bent style a convenient perch where they can sit and feed either upon the pollen or the juices of the flower, with the result that their feathers become dusted with the pollen-grains, and in their flittings to and fro they render effectual service to the plant by pollinating its stigmas. The sun-birds of Natal frequent the aloe and lily blossoms, and must look wonderfully beautiful as they carry out the work for which they seem specially fitted. Mr. Andersson speaks of this African bird and says:—"Its food consists of insects and the saccharine juices of flowers, in search of which it flits incessantly from one flowering tree to another, now settling and now hovering, but glittering all the while in the sunshine like some brilliant insect or precious gem."

(To be continued.)



SOME NEW SALADS.

IN these exhausting days, when anything a little piquant is so agreeable to the palate, perhaps the following recipes for salads, hitherto little known in England, may prove a welcome addition to the daily menu.

ASPARAGUS SALAD.

Ingredients.—Asparagus, chives, pepper, salt, oil and vinegar. Wash the asparagus, cut off about one inch from the stalk. Cook in salt water until tender. Arrange the asparagus on a dish so that all the heads come together, cover with a light sprinkling of minced chives and a mixture of olive oil, pepper, salt and a very little vinegar.

Another way is to serve the asparagus alone and pass round a tureen with salad mixture.

Asparagus is almost always served in this way on the Continent.

MACEDOINE SALAD.

Ingredients.—Cold vegetables, eggs, pepper, salt, vinegar and oil. Equal quantities of any cold vegetables, such as peas, beans, carrots, cauliflower, haricot beans, cut into long square pieces and soured with vinegar, oil, pepper and salt, or, if preferred, with a thin mayonnaise sauce. Garnish with hard boiled eggs cut in halves.

CABBAGE SALAD.

Ingredients.—A cabbage, chives, vinegar, oil, pepper and salt. Take a very white hard cabbage and cut it up raw, as fine as possible. Add a few minced chives and mix with oil, vinegar, pepper and salt.

MASHED POTATO SALAD.

Ingredients.—Six or eight potatoes, onion, hard egg, salt, vinegar and oil. Mash up the potatoes, mix with them a finely shredded onion, salt, vinegar and oil. Press into a form and garnish with hard-boiled eggs.

CARROT SALAD.

Ingredients.—Carrots, sugar, bouillon, salt, pepper and vinegar. Take young carrots. Clean them well and cook them in bouillon with salt and a little sugar. When tender set them to cool and then cut into thin slices. Cover them with a mixing of pepper, salt and vinegar.

WARM CABBAGE SALAD.

Ingredients.—Cabbage, bacon, vinegar, oil, salt and pepper. Cut up a cabbage very fine and cook it for about an hour in salted water. When tender, strain it well and shake it. Cook some small fine-cut pieces of bacon in a pan. Add this to the cabbage and mix all together with vinegar, oil, pepper and salt.

CAULIFLOWER SALAD.

Ingredients.—Cauliflowers, two eggs, four tablespoonfuls of salad oil, ditto of vinegar, pepper, salt and two tablespoonfuls of cream. Take away the green leaves from the cauliflowers. Cook the cauliflowers tender in salt water. Drain them, and when cool place them in a salad bowl.

Take the yolks of the two eggs, season with salt and beat steadily and gradually into them the vinegar, oil and cream. If cream is not at hand, add more oil. Add a little pepper. Pour this mixture over the cauliflower, and serve.

A very excellent cauliflower salad is made by using the remains of cauliflowers that may be over from a meal and simply adding an ordinary salad mixture. But in this case the cauliflower must be cut into small slices or pieces.

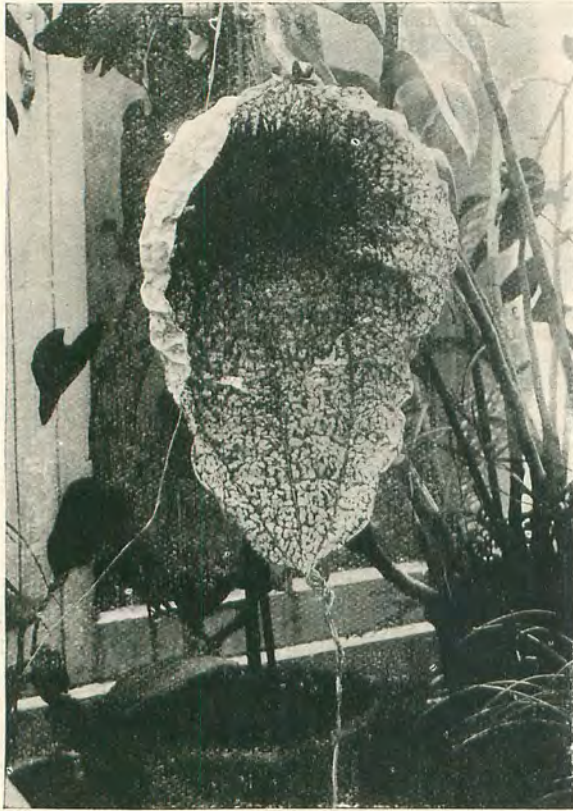
HARICOT BEAN SALAD.

Ingredients.—Haricot beans, parsley, pepper, salt, vinegar and oil. Cook the beans until tender. Strain well. Strew over them some chopped parsley and mix with vinegar, oil, pepper and salt.

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PART II. ARISTOLOCHIA.



Aristolochia Gigas.

FOR weird and fantastic form scarcely any flowers can vie with the *Aristolochias*, which botanically constitute a group of plants known as belonging to the *Incomplete*, though possessing some affinity to the *Aroid* family, discussed in our previous paper.

The blossom of the *Aristolochia*, in each of the species, may be divided into three regions, an upper part that is often dilated and developed into a most conspicuous structure, the middle which is constricted and forms a very narrow passage into the third or lower, which is usually an inflated balloon-like chamber. Several of these plants are growing in my stove-house. One species, *A. Gigas*, is a veritable monster; the huge perianth measures ten inches across and is over a foot in length. Before it is wholly expanded, it reminds one of a grey burnouse wrapped round the dusky face of a Bedouin Arab, the interior of the flower being of a dark purple colour, while the surface is thickly covered with hairs, so as to suggest the Arab's hirsute face.

The third and lowest chamber is much distended, and the passage enters it in a syphon-like manner. I must complete this description by adding the fact that a slender tail two feet long hangs down from the lower part of the flower.

It must be strange indeed to come upon this startling flower growing amongst the rich vegetation of a humid Guatemalan forest,* and doubtless its truly hideous scent

* Where its flower measures over five feet from the top of the perianth to the end of the tail.

attracts hundreds of insects to aid in its fertilisation. One would like to know the use of its slender hanging tail; possibly it conducts to the flower some special insect not provided with wings.

I read that a single spathe of a certain flower akin to the *Aristolochia* was found to contain more than two hundred and fifty carrion beetles of eleven different species; so it may be that our *Aristolochia* provides a hanging staircase for some highly desirable beetle guests.

In this flower the narrow passage is lined with hairs pointing downwards, so that flies and midges easily creep in, while the stiff hairs prevent their egress. The insects are accordingly obliged to make themselves at home. Although they are prisoners, however, they are treated with consideration; they find shelter, warmth, and food, and their impatient restlessness achieves the end for which the plant attracts them. When the flies become dusted with the pollen grains, the hairs begin to shrink up in the neck of the flower, with the result that the prison is opened and the insects escape.

Should there be other flowers of the same kind blossoming in the neighbourhood, the flies with their dusty coats pass into them and assist in carrying out cross fertilisation.

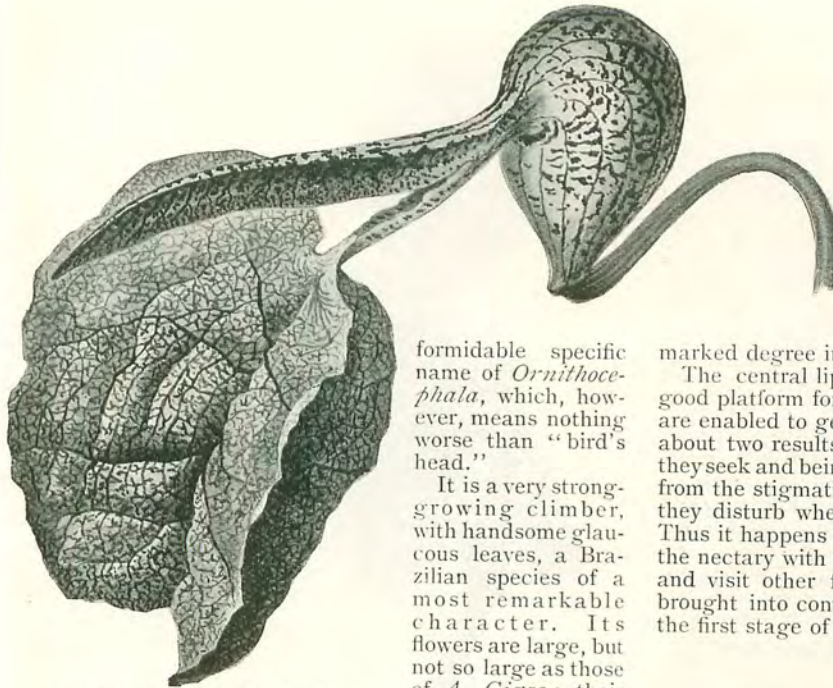
In *A. Elegans* we have a smaller flower with beautifully intricate markings, but although the construction is on the same plan the evil odour is not so repellent as in other species.

A. Trifoliata is a climbing plant having flowers that at first sight resemble a pitcher plant; close examination, however, shows that the pitcher-like effect is due to a modification of the upper part of an *Aristolochia* flower, the constricted neck and passage being somewhat small, and the chamber is inflated as in the other flowers.

A large part of the roof of one of our glass-houses is occupied by an *Aristolochia* known by the



Aristolochia Ornithocephala.



Aristolochia Ornithocephala.
(Side view.)

formidable specific name of *Ornithocephala*, which, however, means nothing worse than "bird's head."

It is a very strong-growing climber, with handsome glaucous leaves, a Brazilian species of a most remarkable character. Its flowers are large, but not so large as those of *A. Gigas*; their colour is a creamy brown mottled with intricate markings.

This colour is singular, but the shape is really grotesque. When the blossom is viewed sideways, we see that it does suggest the head and beak of some uncanny fowl. This idea has suggested itself fantastically to the author of the admirable *Dictionary of Gardening*, for he describes this flower as having "the head of a hawk, and the beak of a heron, with the wattles of a Spanish fowl, which, however, are grey netted with brown; head of the same colour, veined, and the beak grey."

It may well be termed eccentric, for anything more strange could hardly be imagined.

The drawings will explain the modified form of the three parts of the flower; the second appendage much resembles a hanging curtain of old chintz somewhat puckered up. The odour from this flower is simply beyond endurance and effectually prevents visitors from remaining in the greenhouse on a hot day when many of the blossoms are expanded and giving out their scent.

Like all the *Aristolochias* this species is pollinated by minute flies, midges or small beetles. The hanging curtain affords a convenient platform upon which the insects can alight, and by means of which they can climb up to reach the tiny orifice leading to the cavity rendered so attractive to them by its perfume.

I sometimes send a handful of these floral curiosities with other cut flowers to various bazaar stalls, where they always excite the liveliest interest, but intending purchasers have to be warned of the dreadful odour they will emit when the flowers are once fully matured.

MASDEVALLIA BELLA.

Our list of eccentric flowers would be incomplete without some reference to the Orchid family, a great class of flowers representing eccentricity in the highest degree, since in this group are to be found every variety of form and character, each flower developing some wonderful contrivance for the fertilisation of its blossoms.

Amongst cultivated orchids the *Masdevallias* are remarkable for their quiet colouring and singular form, many of the flowers looking like large spiders and other insects.

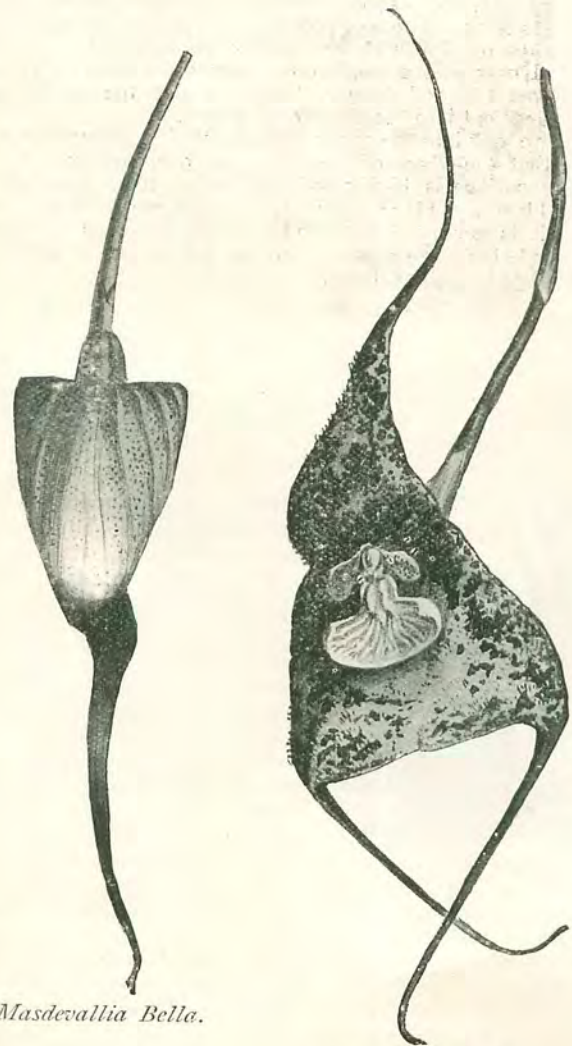
I watched with much interest a specimen of *M. Bella* which grew in my conservatory last summer. It was rooted

in a rustic basket suspended from an archway, and out from the bottom of the basket projected a strange-looking bud, which betokened a truly eccentric blossom when it should have attained its full growth.

One morning I was delighted to find that the bud had expanded into a finely-spotted orchid-flower, its surface looking as if it had been made of a lizard's skin. The outer perianth leaves had long tails, and in the centre the pure white lip seemed to be so delicately poised that a breath of air made it tremble and quiver, a feature I had never observed to such a

marked degree in any other flower.

The central lip, being broad and conspicuous, affords a good platform for small insects to alight upon, and thus they are enabled to get at the nectary, an operation that brings about two results, the insects being rewarded with the food they seek and being made the unconscious means of removing from the stigmatic pouches the little masses of pollen which they disturb when pushing into the cavity of the nectary. Thus it happens that when they withdraw themselves from the nectary with these pollen grains adhering to their bodies and visit other flowers of the same kind, the pollen is brought into contact with the slightly arching stigma, and the first stage of fertilisation is performed.



Masdevallia Bella.

Masdevallia Bella.

LADY'S SLIPPER (*Cypripedium*).

There is much to recommend this genus of orchids besides the beauty of their flowers.

They do not require much heat, they have abundant leafage which sets off their curious blossoms, they condescend to grow in pots of earth like ordinary plants and their flowers last a long time in water after they are gathered.

Most people have a deeply-rooted idea that all orchids require an immense amount of heat and therefore the possibility of growing them successfully is supposed to be beyond the reach of amateurs who only possess a greenhouse. It is, however, quite possible to flower many interesting species of orchids in an ordinary greenhouse by taking pains to give each plant its proper soil and a suitable position, whether fastened to a piece of bark, planted in a hanging basket, or grown in the usual way in a pot of earth. These and other details are easily learnt from technical books devoted to the growth of orchids.

Cypripedium Insigne is an excellent plant to begin with, as it thrives well with ordinary care in a greenhouse.

Cypripedium means Venus' Shoe, but the plant is more often called Lady's Slipper, and the appropriateness of the name will be seen from the curious form of the flower.

The species of this genus are widely distributed, for some are found in such cold countries as Siberia and Canada, while others are met with in Mexico, India, and some parts of America.

In order to grasp the significance and wonderful contrivance of the *Cypripedium* flower in its relation to fertilisation, we must carefully note the arrangement of its various parts. The most conspicuous is that known as the *labellum* or slipper, the "waist" or basal part of which is folded over and somewhat constricted, so that the edges nearly meet and form a tunnel, whilst the lower half broadens out into the shape of a slipper.

If we look into the cavity formed by this arrangement, we see that the edges of the slipper are overarching and the inner surface is highly polished. Now if we can find a small bee and place him in the slipper, we shall discover that it is so shaped that the bee can only escape by going through the narrow tunnel and so out at one of the two openings at the basal end.



Cypripedium Insigne.

In thus going out, the insect cannot fail to detach one of the two pollen masses, and as the pollen is very glutinous it adheres to the head of the bee, so that when he visits the next flower and presses in to obtain the honey, the pollen is scraped off his head by the sharp edge of the stigma, and the flower is thus cross-pollinated and fertilised, so that healthy and vigorous seed is ensured.

Truly here the eccentricity, if we may so call it, stands revealed to us as a wonderful example of the design of the Creator even in so small a matter as the physiology of a flower.

MARGARET HETHERTON.

CHAPTER VI.



THE Hamburg steamboat had just left the Newcastle wharf. Margaret stood on deck, looking with sad but tearless eyes at her father, who answered with a smile from the shore. Gradually the distance between them grew greater, and they waved their handkerchiefs. Margaret strained her eyes to keep that beloved figure in sight as long as she could, till at last a bend in the river shut out even the white handkerchief on which she had fixed

her eyes when everything else had become indistinct. She felt lonelier than ever in her life before. Not a soul on board the ship was known to her, she was of interest to no one. There was a sinking at her heart, but no inclination for tears; she was not excited enough for that, only heart-sick and lonely. At first she stood and watched the shores as the ship steamed on between the ugly lonely shores of the Tyne which

oppressed her with a sense of desolation. She tried then to fix her attention on a newspaper her father had bought for her, glancing without much interest through its columns till it grew too dark to see, and a cold wind which had arisen made her seek a more comfortable corner in the saloon.

And so two nights and one day passed. Feeling ill and shaken and anxious as to that part of her journey which still remained to be accomplished, Margaret seated herself once more on the deck as the ship sailed up the Elbe and looked with inquiring eyes about her. By-and-by, the anchor having been cast in the middle of the river, Margaret with her modest belongings was conveyed ashore in a little boat with a few of her fellow-countrymen, who on landing seemed to disperse as if by magic, leaving her all alone. For a moment or two a feeling of despair took possession of her. What was she to do? How get further on her journey? All at once she became aware that she was the centre of a wondering circle of able-bodied, sunburnt men, more than one of whom addressed her and pointed insinuatingly at the trunk beside her, and then, getting no answer from the poor little maiden, suddenly struck dumb as it were, turned to his fellows with a shrug of the shoulders, gabbling energetically the while. The