

BOTANY

# Orchids That Look Like Girls

## Flower Forms Suggest Doves, Swans, and Even Elephants To Folk Who Keep Their Imaginations Young and Active

By FRANK THONE

WHEN a smitten night-club Johnny bestows a gift of orchids upon the exotic lady of his preference, and pens on his accompanying card something about "Orchids for an Orchid Girl," he may be dealing out better botany than he realizes.

For if there are dancing girls who look like orchids, at least to an enamoured eye, there are also orchids that look like dancing girls to anybody's eye.

Plucked from their stems and stood on the table, they are the daintiest little dancers imaginable—dancers in the latest fashionable costumes at that. Their skirts are long and concealing, tight over the slim hips and flaring widely at the bottom. The dancers stand poised, their arms thrown up and out, their heads covered with chic cloche of a rather theatrical pattern, such as one would expect show-girls to wear. One involuntarily waits for them to break their fragile repose at any moment and whirl into their dance.

But they are orchids, just orchids. They come from Panama, and the botanists at the Missouri Botanical Garden in St. Louis have been very successful in their culture. For official purposes they refer to them by their severe family name of *Oncidium stipitatum*, but most of the time they call them Dancing Girls, as everybody else does. For botanists are human beings, who smoke pipes and go around in their shirt-sleeves, and they can see a pretty girl just as far as anyone can.

Orchids can look like dancing girls, or a variety of other things, because they are such highly specialized flowers. They have evolved one of the most astonishing methods of transferring pollen from one flower to another known in the whole plant kingdom, and in doing so have developed their petals and sepals into all sorts of unusual and beautiful forms. It is all done to attract big bees and moths, and even humming birds, and to maneuver them into just the right position for receiving and carrying the masses of pollen

See Front Cover

which must be transferred if the species is to survive; but incidentally the orchids make themselves into things of beauty and joys forever—especially to the florists who reap the golden harvests from expensive feminine tastes.

This bizarre evolution of the floral parts in orchids, undreamed of by such severely regular cousins of theirs as lilies and tulips, expresses itself in the Dancing Girl mainly in the development of her spreading skirt. This is a single petal, grown to be the largest and showiest part of the whole flower. Her two upflung arms are the two other petals, which have remained more nearly like those of "orthodox" flowers. Her hood-like cap is a structure that protects the pollen-bearing and seed-forming parts of the flower. All round, the Dancing Girl is a hard-working little lady, with a serious purpose in life, though her festive garb may not tell everybody about it.

### Picture of a Swan

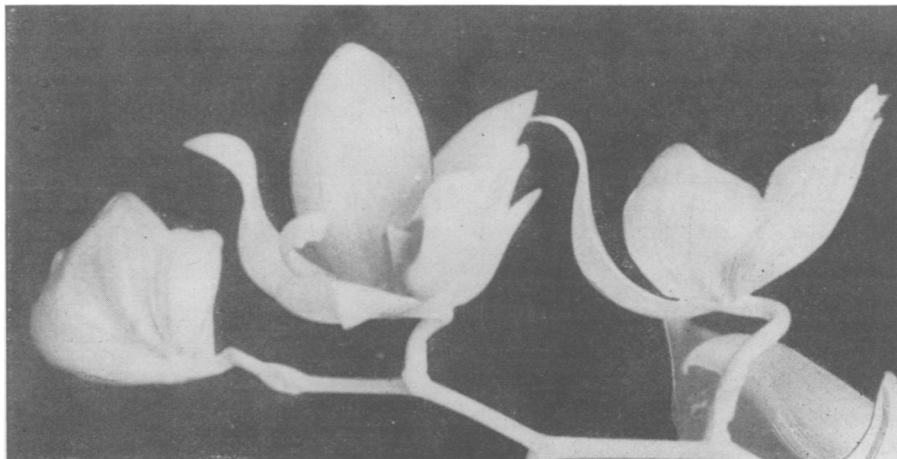
But orchids can depict other things besides graceful girls. Another species forms the image of the most graceful of birds, the white swan. Even its Greek name, *Cycnoches*, means "swan's neck"; and although this refers to one of the inner parts of the flower, the whole blossom exteriorly is a lovely picture of a swan.

As might be expected of the swans of fairyland, these flower-birds have no sense of responsibility to gravitation. Those on the underside of the drooping stem are as unruffled as their sisters on the upper side, and the ones that must perforce stand out sidewise care nothing for that. These swans of phantasy calmly regard all such matters as merely relative, and pay them no attention.

Even more lovely than the swan orchid is the dove orchid. This exquisite flower is a native of Panama and other Central American states, and also does well in the orchid houses at St. Louis and in other botanical centers. In this orchid the outer flower parts, the petals and sepals, are more orthodox in shape, and form a sort of frame or shrine around the exquisite little image at the center.

This is made up of the structures associated with the sending and receiving of pollen; it is the very heart of the life-activity of the flower. And it has the form of a dove brooding over its nest. In every opened flower the lovely image is repeated, like a poem or a passage of music that one does not tire of hearing again and again. It is not at all to be wondered at that the people of the countries whence it comes, strongly imbued as they are with the Latin tradition, should have called this orchid "the flower of the Holy Ghost."

Much humbler in its pretensions is an orchid genus native to our own northern woods. In this flower the lower petal, that spreads out into the skirt of the Dancing Girl orchid, is modified into a hollow, slipper-shaped



SWANS SWIMMING MOTIONLESS IN AIR



LIKE A PRIMA DONNA WITH HER SUPPORTING CAST: DANCING-GIRL ORCHIDS

sac, while three other parts of the flower, narrow and twisted, flare outward at the top like loose tiestrings. The resemblance of this flower to a slipper is so irresistible that it has entered into its name in all lands. The Indians called it moccasin-flower, and in Europe it got the name of lady's slipper. Its botanical name is *Cypripedium*, which means "slipper of Venus"—Cyprus was one of the numerous alternative titles of the classical goddess of love.

#### The Slipper of Venus

The lady's slipper genus is a large one, and though most of its members are content with the conventional footwear pattern some of them branch out a bit. One of the species has earned for itself the Latin surname *Papilio*, or butterfly, because the flower-parts that form the "strings" of the commoner slipper types are here so long and slender that they look like the antennae of an insect.

Another *Cypripedium* of more sinister entomological mimicry is described in one of the most curious books about flowers that was ever written. Erasmus Darwin, grandfather of the famous Charles Darwin and his forerunner in evolutionary speculation, wrote a book of highly fanciful verse called "The Botanic Garden." Published when the eighteenth century still had ten years more to live, it combines the sentimentality of the early Romantic school of literature with the stiff elegance of form insisted upon by the Classicists. It is a long allegory, in which flowers are persons, and have the same standing with nymphs, gnomes and a host of other mythological folk conjured up by the old dilettant-naturalist whose more prosaic grandson was to set the scientific and philosophic world by the ears.

This flower that Erasmus Darwin tells about he had never seen, for he

says as much in a footnote, and inserts as an illustration a picture of an ordinary North American lady's-slipper. But this hearsay *Cypripedium*, described as looking like a fat-bodied, long-limbed tropical spider that frightens off visiting humming-birds, moved the elder Darwin to a flight with the Muse.

But orchids are not by any means the only flowers that make imaginative mortals see insects, animals, birds and even inanimate objects in their curious adaptations of sepals, petals and stamens. Folk-names and botany-books alike erect monuments to such resemblances.

Every flower of the pea family is a butterfly to the botanist, for he knows that particular flower-form as "papilionate"; and that, in plain Saxon, means "like a butterfly." But if he pulls a pea-flower to pieces he sees different things in its separate petals. The broad, flat one at the top they call the "banner," the two at the sides are the "wings," and the two narrow ones folded edge to edge at the bottom form the "keel." The butterfly has become a festive flying boat.

And again, among the flowers less showy than the orchids, the spider as well as the butterfly finds its mimics. All over the country, in moist places, grows the tall, grass-leaved, blue-flowered plant known as the spiderwort. This time it is not the flowers themselves that earn the name, but the clustering collar of leaves that jut out from the stem just below the flowers, bearing at least a slight resemblance to the legs of a spider.

Much more realistic is the mimicry of a certain narrow-petaled member of the amaryllis tribe that is very common in the South, always growing with its feet in the water. The perianth-parts of this flower are so exceedingly slender, and its stamens so conspicuous, that its

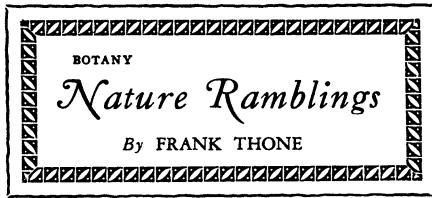
common name of "spider lily" is inevitable.

Human resemblances are not lacking, either. Everybody sees faces in the common pansies of our dooryards, though some prefer to call them monkey-faces rather than reflections of their own. There is another genus of flowers, with only one species common in the East but highly deployed in the West, that bears the appropriate name of "monkey-flower." The eastern species is especially well marked. Under each of its violet-to-white hoods is a little grinning face, so pert and impudent that when you are shown it for the first time you cannot help laughing.

Botanists no less than everyday folk have seen the joke in the monkey-flower. The great Linnaeus had a good imagination, and many of his Latin names are most poetically pat. This plant he called *Mimulus ringens*, which means "a grinning little mimic." Several of the western species of *Mimulus* have become garden favorites, because of their bright color—they favor the red-yellow end of the spectrum—and the fact that they can be grown very successfully in wet places. There is one species in Yellowstone National Park that might almost be called the "geyser flower," it is found so often keeping its toes warm in the run-off springs of the hot springs and geysers.

#### A Sylvan Preacher

If you get to talking about human resemblances in flower, no child will let you leave the subject without doing justice to the Jack-in-the-pulpit. Here it is the whole flower-structure, rather than just the flower itself, that supplies the image. And to tell the truth, the image of the pulpit is much better than the picture of the preacher, if you look too closely. However, it is sufficient to satisfy the fancy of childhood. (Please turn to page 191)



**Snow-on-the-Mountain**

**T**HE thinning autumn pasturelands of the West and the farther Midwest still show brave displays of taller plants that hold out against the frost and likewise are able to repel hungry livestock. Conspicuous by virtue of the sharp white stripes with which its foliage is adorned is that interesting euphorbia species known colloquially as snow-on-the-mountain. It is an attractive herb that gets to be as much as three or four feet high, and is favored to some extent as a cultivated plant in the East.

It is like its other relatives of the euphorbia genus in its predilection for gaudy leaves. The most familiar euphorbia to most of us is the poinsettia of the Christmas floral displays, whose flaming head is not really a flower but a collar of leaves surrounding a group of inconspicuous little flowers. Only our snow-on-the-mountain carries the decorated-leaf motif all the way down its stem.

It shows its kinship again by its milky juice. Most euphorbias bleed white when they are cut. A most important example is the Para rubber tree, whose latex really runs into big money.

When a succulent plant is left standing alone in a well-grazed pasture it is a pretty good sign that for some reason the cattle don't like its taste. Snow-on-the-mountain, again like most euphorbias, is very bitter, and would probably poison stock if they ate it. Another related plant, the common castor-bean, contains the deadliest vegetable poison known; and certain tropical euphorbia vines yield arrow poisons used by primitive tribes.

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## SEISMOLOGY

## Explosive Used to Produce Earth Tremors Artificially

**Y**OSEMITE National Park was the scene recently of several earthquakes, the first artificial tremors of their kind produced for purely scientific purposes. They were engendered not by the slipping of rock layers along a fault line, as in real earthquakes, but by the explosion of charges of explosive.

The experiment was launched jointly by the Carnegie Institution of Washington, D. C., and the California Institute of Technology, Pasadena, Calif., under the direction of Dr. John P. Buwalda, chairman of the geology and paleontology division. Dr. Beno Gutenberg, professor of geophysics and seismology at the Institute, and Henry Salvatori and assistants of Dallas, Texas.

Two methods of producing tremors were used. A tunnel, more than 2,300 feet long, was dug by the National Park Service into the cliff east of Bridal Veil Falls. In this tunnel, several hundred feet underground, several hundred pounds of dynamite were exploded twice daily. Vibrations set up by the explosives were registered on instruments, many miles distant from the source of the disturbance.

Smaller charges were exploded on the surface and the vibrations set up in the solid granite recorded with instruments placed some thousands of feet away.

Dr. Buwalda reported that the "Yosemite Valley is a deep, narrow and ver-

tical-walled chasm, and when vibrations were caused on one side, the surface waves which usually confuse the readings of seismograms were eliminated because they were reflected back when they struck the vertical cliffs on the side of the valley from which they radiated. A network of telephone lines made it possible to send precise time signals from the point of explosion to the recording point."

Three problems were studied. The first was to determine the velocities of earthquake waves in the several different kinds of granite. This was done by determining the exact thousandths of a second required for the vibrations to travel a measured distance through the granite.

The second problem was to determine the effect of a vertical-walled canyon or valley on earthquake waves when they travel approximately at right angles or across the valley. Each explosion, Dr. Buwalda said, set up three kinds of tremors and it was important to know which reached the other side of the canyon and which was eliminated by being reflected back by the canyon wall.

The third problem was to record the echo in the rock wave by reflection from the bottom of the granite itself.

The explosions were so slight that tourists in the park did not feel the tremors created.

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## Orchids That Look Like Girls, Doves and Swans

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But if you get to wandering through the spring woods there will be no end to the pictures that the flowers will show you. Where Jack-in-the-pulpit grows, not far away you will be sure to find clumps of Dutchman's breeches. And here the resemblance has no need for the easy faith of children to make it good; the grownuppest person in the world will admit without argument that it is washday in fairyland's Amsterdam.

And how many of us stop to think that the violin, the most nearly human thing that was ever carved out of responsive wood, got its name from the violin? The violin's elder sister, the alto

member of the family, is known as the viola; and *Viola* the violet has been in Italy, the home of the greatest violin-makers, ever since the days of Romulus and Remus.

There is another flower that gives children great delight whenever they get a chance to see it.

This flower is the little elephant, once known botanically as *Elephantella*. Its slender spire stands up a foot or so high, crowded with little pink elephant's heads sticking out toward all points of the compass, like decorations on a temple in the Javanese jungles.

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