



The Artistry of Jack Frost Is Strikingly Illustrated by the Photographs on This Page.

JACK FROST DESIGNS JEWELS OF HIS OWN

By WILSON A. BENTLEY

A Consummate Winter Artist, He Exhibits His Crystal Treasures on Snow Bank and Window Pane

Those who are alert to the changes of the seasons and the magic of nature's art, there are vouchsafed thrilling glimpses of loveliness the year around. Spring, Summer, Autumn, Winter—each brings a new revelation of beauty. One has hardly ceased marveling at the resurrection of nature in the time of blooming flowers and leafing trees ere the Summer ushers in still greater beauties. Another turn of the kaleidoscope and Autumn stands revealed to us in all its glories of flaming forests, late flowers and Indian Summer days. Still another turn and the north wind blows, and old King Winter with his icy breath comes to rule for awhile.

Yet to those who can attune themselves to nature's harmonies and admire her in every mood, the Winter has much beauty of its own to gladden the eye and the heart. A wild day or night of winds and snows, and the earth and all thereon is transformed, covered and glorified with a mantle of glistening jewels, and hill and mountain and forest take on new charm and wonder. A cold zero night for the work of that most versatile artist, Jack Frost, and the jewels appear as if by magic on tree and brook and window pane.

The snow and the ice and the hoar frost furnish brilliants that are incomparably more beautiful than the gems of the Summer dew or those wrought elsewhere in nature's laboratory. The first revelation that the jewel season is at hand may come after a cold, calm,

clear night in late Autumn. We then find that Jack Frost has replaced the dew diamonds adorning the grasses with glittering columnar hoar frost. Commonly these Autumn sparklers are tiny, long hexagonal ice columns. Later on, when Winter is near or established and the cold is more intense, these often will be replaced in turn by more elaborate frost jewels of the veined butterflylike type of tabular frost crystals.

After a cold, blustering day or night in late Autumn or at the beginning of Winter, should we stray in fields and woods, at certain locations we shall be amazed to find shining icicles, not pendent from boughs of trees or building eaves but pushing up like stalagmites from wet, peaty or gravelly soil. Such may attain to a length of many inches; and at times they have a banded appearance, which is due to the soil that is absorbed as each new section is built upward. Singularly, the tips of many of them bend over and even in some instances turn downward like the sprouting stems of ferns. If we are curious enough to investigate, we shall find that the seeming ground icicles are built over tiny pores in the soil, through which water is drawn up from below by capillary attraction.

Once the Winter is established and ice covers pond and lake and river, Jack Frost's jewels become

even more elaborate. Exquisite clusters, fluted or leaflike, form during zero weather on the surface of the ice around open springs and the open rivulets flowing therefrom, and even at times on the surface of the snow or within cavities leading down therein. The undersides of objects embedded in snow and, more rarely, the old snow granules themselves may be coated with hoar frost treasures. Occasionally the prospector seeking frost gems is rewarded by finding among such the very rare and most interesting cubical form of frost crystal.

Fortunately Jack Frost's most elaborate and showy forms of jewelry are wrought upon the window pane within the rooms of dwellings, where all can easily see them and enjoy them. The most delicate, varied and beautiful of these window effects are true frost crystallizations. They do not form on wet glass as do window ice crystals, but always on dry glass and as a result of the crystallization of the moisture in the air of the room.

Window frost crystallizations of this nature assume a bewildering variety of shapes and are frequently wrought in the semblance of natural objects. At one point on a pane there seems to be a sprig of fern or a finely executed branch of coral. At another is a bit of lace of elaborate design, or a gleaming feather worthy to adorn my lady's hat. Over there in another part of

the pane may be an imitation of the firmament, full of glittering stars more beautiful than those that spangle the sky at nightfall.

Now and then Jack Frost, working with his unseen molecular artists, seems to be in fantastic mood. Then we may find on the window panes chaotic curving designs, or spiral or pinwheel effects.

One type of window frost gathers in linear fashion with-in scratches or striations in the glass, to be repeated in similar style from time to time. Most frost painting is affected by influences sometimes obscure. The temperature and the humidity of the air in the room, the varying thickness of the glass, the tiny air currents and eddies that flow over the surface, the particles of dust or of ice upon it, the presence or absence of other near-by frost crystals—all these things tend to determine the form and the direction of the growth of window frost crystals.

No one can hope for a close-up view of the actual creation of frost crystals. So delicate is the balance of conditions necessary to their formation that the heat of the body when near them, whether outdoors or in, disturbs their equilibrium and causes a stoppage in their growth.

Although Jack Frost seems loath to reveal to us the secrets of the

making of his true frost jewels, he is more generous with the secrets of his window ice designs. If we wish we can see the various stages of the growth of such going on before our eyes and in the comfort of a warmed room. If we are alert we can see the icy artists draw magnificent feathery plumes or vine-like designs or seeming representations of the pampas grass of warm Southern climes. And as these varied designs are metamorphosed from time to time as a result of melting and recrystallization, we see transitory effects in the semblance of castles, hills, mountains and tropical forests.

The methods employed to obtain photomicrographs of window and outdoor hoar frost are quite simple, and the apparatus for the work need not be very expensive. Any good photo lens well stopped down will serve, but one must have an extension camera. As with the dew, a dark background is best. Sometimes a natural background is dark and serves well, as when the hoar frost lines the edge of a spring or a rill, or when the crystals are taken on dark ice.

When a natural dark ground is missing, the crystals must be placed before an object such as a sooted boiler or a pail blackened inside. In the instance of window frost the lens and camera are placed indoors facing the window, and a black background is raised outside the window and a foot or two distant. This background should be just large enough and at the proper distance from the window so that it will barely darken the field of the frost crystals to be photographed.

