Snow crystals

Stamps issued depicting snow crystals in some form are many, especially for Christmas. This presentation illustrates examples that depict primarily either a photograph taken through a microscope or a realistic drawing. A selection of appealing stylised examples are also included.

When snow falls in the milder British winters, snowflakes are typically the fluffy shapeless clusters of crystals (*right, Serbia 2003*). Colder weather is required for individual snow crystals to land and many of the finest depictions of crystals on stamps are sourced from the USA and Japan.

A very cold microscope with camera attached has to be used outdoors to quickly photograph snow crystals captured from Nature. A 19th century pioneer of such work was Wilson Bentley, a farmer in Vermont, USA. His published images have been the basis of designs on philately items (*e.g. left, Denmark 1966, 'Christmas Seals', three of a set of fifty, accompanying stamps to support charities*).

There is a long history of research into the factors affecting the formation of both natural and manmade snow crystals. Natural forms are typically seeded high in the atmosphere by dust specks but their final shape when they land is dependent on the variations in both temperature and humidity each crystal experiences as it falls.

Ukichiro Nakaya of Japan carried out pioneering studies in the first half of the 20th century including of artificial snow crystal growth (*left, Japan 2000 and right, 1999*). After many trials he found that a rabbit hair was a successful substrate to grow single crystals. Growing and studying manmade crystals require either walk-in freezers (used by well wrapped up scientists!) or cold cabinets.

The six-fold symmetry of snow crystals reflects the same symmetry of ice on the molecular scale. This crystal structure has sometimes been used as a design element on both stamps and postmarks e.g. on issues to celebrate conferences on crystallography (*right, Mexico 2014*).

A leading researcher and master photographer of snow crystals is Professor Kenneth Libbrecht, USA with a number of books published. Designs based on his stunning photographs have featured on stamp issues from the USA (2013), Austria (2016), France (2018) and Sweden (2010) (*left above, one of a set of five*).

Crystals have featured on holograms, Finland in 2016 issued an example on 'holographic foil' (*middle above*).

A wide variety of stylised snow crystal designs have featured on stamps.

Five stamps forming part of a larger set of 'Greetings Winter' were issued by Japan in 2013 with the snowflakes in the form of jewellery (*two shown left*).

Austria in 2017 (*right*) issued a Christmas stamp showing graphic designs including one unnatural eight sided example. The stamp features a Swarovski crystal sitting on a twelve sided example which Libbrecht notes is 'surprisingly common' (see Reference). He strikingly illustrates an example in his book and occur when two snow crystals collide at their centres to create a symmetrical form.

Reference. *The Snowflake. Winter's Frozen Artistry* by Kenneth Libbrecht and Rachel Wing, Voyageur Press, 2015.