

CHEMISTRY

Snowflakes Become Synthetic Fossils in New Plastic Molds

Single Flake Laid in Drop of Solution, Then Covered With Another Drop, Leaving It Encased

See Front Cover

CASTINGS of snowflakes, preserving permanently in synthetic fossil form all details of their delicate microscopic lacework, have been made in one of the new chemical plastics by Vincent J. Schaefer, of the General Electric Research Laboratory. (*Science*, March 7.)

Apparatus and technique, Mr. Schaefer says, are quite simple. All that is needed is a board or light table covered with black velvet or other suitable material, a toothpick or bit of wire for picking up the snowflakes, some glass microscope slides, and a bottle of thin solution of the plastic known by the trade name of Formvar 15-95. The entire kit is kept in a sheltered place outdoors, so that it will be at the same temperature as the surrounding air when a snowstorm comes on.

When the flakes begin to fall, the black table is set out where it can catch them. A suitable flake is selected and laid in a drop of the plastic solution. If it is a big flake, a little more of the solution may be dropped on top of it. Soon the solvent evaporates, leaving the flake encased in a solid mold of hardened plastic, which preserves every detail of its structure. It may then be taken indoors and studied or photographed through a low-power microscope.

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SCIENCE NEWS LETTER

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The snowflake molds have a thickness of 20,000 Angstrom units.

A slight modification of the method can be used in making permanent records of other ice-crystal forms, such as hoar-frost, breath-patterns and common frost crystals.

In technical terms, the solution used by Mr. Schaefer consists of 1% of polyvinyl formal resin in ethylene dichloride.

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ENGINEERING

Earthquake-Resistant Brick Used in Los Angeles

BRICK wall construction which resists cracking in an earthquake even better than reinforced concrete is now in general use in Los Angeles, states J. A. Muller, Jr. (*Bulletin, Society of American Military Engineers*, February.)

"Research and experimentation by the War Department," he says, "especially in regard to the resistance of impact of the explosives, may result in its greater use in fortifications."

In addition to building walls, he declares, the "reinforced grouted brickwork," as this type of construction is called, has also been employed in retaining walls, bridges, conduits, etc. He suggests that it would be adapted to structures intended to withstand the wind forces of tornadoes in the Midwest, or the hurricanes of the southeastern parts of the United States.

To make such a wall, of eight inches thickness, for example, a series of $\frac{3}{8}$ -inch steel reinforcing rods is placed vertically 24 inches apart. Bricks $3\frac{1}{2}$ inches thick are built up on each side of the rods, leaving about a one-inch space between them. As each course is laid, a liquid grout, consisting of one part of cement and five parts of sand, mixed with water, is poured into the space between the bricks. With wider walls, bricks are floated in the grout to give extra solidity. The grout hardens, and binds the two sets of brick and the steel rods into a single solid structure.

Mr. Muller says that the method was developed as a result of an investigation made following the disastrous Long Beach earthquake in 1933, which did its principal damage to brick buildings, constructed in the usual way. This caused the public to lose confidence in such materials.

Forty-three brickwork jobs with some form of grouting and reinforcement had been built before this quake, and even those in the vicinity of Long Beach showed no cracks. These buildings afforded the basis of the new design, which has been tested with artificial earthquakes on a shaking table.

"It has been found," he announces, "that reinforced brickwork is more elastic than reinforced concrete and, therefore, less likely to crack under seismic strain."

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ANTHROPOLOGY

Wrist-Bone from Africa Stirs Up Discussion

APE or human? A small bone from a South African cave is stirring up discussion among British scientists, despite the distractions of war.

A short time ago, the British journal, *Nature*, (Jan. 18) carried an account of a wrist-bone found in the same cave at Sterkfontein, S. A., that had yielded the skull and other remains of a remarkably man-like extinct ape species known as *Plesianthropus transvaalensis*. The bone was considered to belong to the same species by the discoverer, Dr. Robert Broom of the Transvaal Museum. It was very much like the corresponding wrist-bone of a woman of the primitive Bushman people.

Now, in a subsequent number (*Feb. 1*) of the same magazine that has succeeded in running the gantlet of the Nazi bombers and submarines, the veteran British anthropologist, Sir Arthur Keith, expresses his opinion that the bone not only looks human but actually is human.

It is so like the Bush specimens, and so unlike those of other races of man and ape, declares Sir Arthur, "that I regard the Sterkfontein bone, not only as being human, but also as representing a prehistoric Bushman. If I am wrong in this inference, then we have to accept Dr. Broom's supposition that the Sterkfontein ape had a truly human hand—one modelled on the small and delicate lines of a Bushwoman."

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