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H. L. Herbert
Publisher

Hans Stefan
Santesson
Editorial Director

Virgil Finlay
Cover Design

shapes
in
the
sky

by . . . *Civilian
Saucer Intelligence*

A report on what the authors identify as "the sky-ice age"—another aspect of this past UFO-aware decade since Arnold.

IN THE late 1940's there appeared in the skies of this planet a new phenomenon. As yet unrecognized by science, it is now attested to by a multitude of reliable witnesses. Conventional explanations are put forward to account for the observations; invariably, on closer investigation, it turns out that they do not fit the case. In 1950 the British Air Ministry called it "one of the biggest mysteries of the century."

Flying saucers? Not at all. The Air Ministry was referring to *the fall of masses of ice from a clear sky.*

So far as we can ascertain, this phenomenon *never occurred before the modern UFO age*—which is conventionally dated from Kenneth Arnold's observation of June 30, 1947. We may be wrong about this, of course. Those who have previously written on the subject of "ice-falls" have emphasized the fact that Charles Fort collected many 19th-century instances of the fall of extraordinarily large chunks of ice; indeed, this was a subject of particular interest to that great discoverer. (*Books of Charles Fort*, pp. 180-191.) But look up Fort's references, as we have done. You will find that in no case is it asserted that

The Research Section of Civilian Saucer Intelligence now turns to another subject of interest to students of Ufology, and briefly referred to in Ivan Sanderson's recent article in the February issue. CSI, a New York research group, publishes a newsletter and holds occasional open public meetings.

these iceblocks fell from a clear sky. Wherever details are available, it is stated that they fell *in a violent hailstorm, or with a tornado*. If Fort in his heroic researches ever came upon a single record of the greater marvel—boulders of ice tumbling from a cloudless sky—he refrained from referring to it in any of his four books.

And yet, in the brief period 1949-1957, this has occurred at least fifty times.

There is no doubt that great masses of ice have always fallen in tempests, and are still doing so. Even this is so incredible and inexplicable that, in Fort's words, "against these data there is a silence on the part of scientific men that is unusual." According to the calculations, based on actual experiment, of Bilham and Relf (*Quart. J. Roy. Met. Soc.* 63 [1937], 149), true hailstones more than a pound and a half in weight and five inches in diameter—about the size of a grapefruit—cannot conceivably be formed in nature. They found that to support a five-inch stone in mid-air while it is growing requires an upward air current moving at "only" 110 miles per hour, not much faster than the most violent hurricanes; but to support a six-inch one a 260-mph updraft would be called for. (The most powerful thunderstorm updraft yet measured is about 40 miles per hour: H. Weickmann in *Thunderstorm Electricity*, U. of Chicago, 1953, p. 109.) Grapefruit-sized hailstones are known: some fell at

Potter, Nebraska, in July of 1928 (Weickmann, p. 116.) As a matter of fact, stones well above the Bilham-Relf "maximum" are known, too: see *Hailstorms of the U. S.*, by Snowden D. Flora, for a photograph of a four-pounder.

But above this, it seems fair to say, we enter the realm of the really phenomenal—ice lumps so huge that no one can think that they were formed and sustained in mid-air—the realm of the "damned." On April 2, 1957, in a hailstorm near Texarkana, Ark., fell an 8½" hailstone weighing six pounds (AP wire story, April 4.) Off Cette, France, October, 1844, ships were sunk by hailstones weighing up to 11 lbs. (Flammarion, *The Atmosphere*, p. 34.) As we write this article, it is reported that the town of Dubai, in the Trucial Oman on the Persian Gulf coast, has been devastated by a storm in which hailstones "described as a foot long" killed fifteen persons and wrecked hundreds of houses, in what British officials called "the worst disaster of this century in the area" (*N. Y. News* and *London Telegraph*, Nov. 25, 1957.) Near Seringapatam, in southern India, May 22, 1851, in a storm, fell many hailstones as large as pumpkins (*Repts. B. A. A. S.*, 1855, p. 33.) At Salina, Kansas, Aug., 1882, in a hailstorm, fell a flat slab of ice 29" x 16" x 2", weighing eighty pounds (*Scientific American*, 47 [1882], p. 119.) In Lungsi, Kansu province, inner China, on May 18, 1936, in a terrific hail-

storm, fell a slab of ice weighing more than 100 pounds; on May 22, 1937, *at the same place*, an even worse storm occurred, in which there fell several blocks of this size, and one angular slab some 6' x 3' x 10", weighing more than 500 pounds. This ice was found to be permeated with dirt—a description that we shall encounter again. (Father Paul Müller, in *Natur und Kultur* 33 (1936), 332; 34 (1937), 480: with photographs of both ice-blocks.) On August 6, 1849, at Muir of Ord near Inverness in the Scottish Highlands, after a tremendous peal of thunder, fell a mass of ice about seven feet in diameter. "It had a beautiful crystalline appearance, being nearly all quite transparent and composed of diamond-shaped squares from 1 to 3 inches in size, firmly congealed together—if we except a small portion of it, which consisted of hailstones of uncommon size, fixed together." (*Edinburgh New Philosophical Journal*, 47 (1849), 371.) In April, 1838, "a mass of hailstones cemented into one block" fell at Dharwar, near Goa, in India; "it was 19 ft. 10 inches in its largest diameter" (*Repts. B. A. A. S.*, 1851, p. 31). And about 1800, at Seringapatam, there fell a block of ice the size of an elephant. (Hyne, *Tracts on India* [1814,] p. 29.)

These giant ice-masses cannot be considered as hailstones. They do not even resemble hailstones. The really big ones are flat, angular slabs, looking as if broken from ice-floes;

or else they are flattish masses of frozen-together hailstones; or both together, as at Muir of Ord. Fort drew attention to this flat, or flake-like formation of ice from the sky. (He gives many other references to the fall, in hailstorms, of flat, angular pieces of ice of less titanic dimensions than those cited here.) To account for it, he conceived of aerial ice-fields floating in a kind of gravitational "inversion layer" at stratospheric heights: "I shall have to accept that, floating in the sky of this earth, there are fields of ice as extensive as those on the Arctic Ocean." It was his idea that the upper-air disturbance created by a violent thunderstorm sometimes dislodged some of this aerial ice and brought it crashing down to earth.

Weird as this theory may appear, it has more in its favor than the alternative supposition that these immense masses of ice are *true meteorites* (originated by Schwedoff, *Repts. B. A. A. S.*, 1882, p. 453.) The ice-meteorite theory was an especially congenial one to the followers of Hans Hoerbiger's pseudo-scientific *Welteislehre* (Cosmic Ice Theory), popular in pre-war Germany: for example, the handsomely printed *Mitteilung des Hoerbiger-Instituts* (Aug., 1939, pp. 104-131) reprinted the Kansu cases, arguing that they should be considered as meteorites. Ice meteorites are certainly possible (though it seems likely that they would be entirely volatilized in passage through the atmosphere); but the ice-meteorite theory as ap-

plied to such ice-falls is absurd, because it totally fails to account for their very conspicuous association with violent storms—an association which persisted *until the UFO age*.

Actually, the first ice-fall of the "modern" type known to us occurred as recently as September 11, 1949. The place was the Tipton Ranch, northwest of Breckenridge in north central Texas, and the witness was a physician, Dr. Robert Botts, who was hunting doves. At 4:30 p.m. a hot sun was shining, "a few thunderheads were in the sky, but none overhead," when Dr. Botts heard a whistling sound, and looked up to see something white tumbling down toward him. It crashed to the ground only five yards away and smashed into fragments: a block of ice, its weight estimated at forty pounds. Dr. Botts's companions, Dr. Treadwell and Dr. Tipton, arrived soon afterwards and also saw the shattered ice on the ground. Dr. Tipton said that it "had somewhat the appearance of hail, except for the dimensions"; it was not clear ice, but *milky*. Someone had the idea of tasting it, and found that it had a *soapy flavor*. As we shall see, these curious properties are highly typical of "sky ice." For this well-reported case we are indebted to a letter from Lewis Matthews printed in *FATE*, Aug., 1950, p. 86.

More than a year after this, on the morning of Nov. 11, 1950, a sheep farmer of Popham, on Exmoor in southwestern England, found one of his ewes lying dead, a fifteen-

pound ice-block half-buried nearby, and other masses of ice "as big as dinner plates" scattered over the ground for a distance of four miles. The weather had been unusually warm, but he had not been aware of any thunderstorm. It is said that in 1910, in almost precisely the same place, three sheep had similarly been killed by falling ice. (Harold T. Wilkins in *FATE*, May-June, 1951, pp. 22-27; this article is the source of all our information about English ice-falls, unless otherwise stated.)

This sheep-killing ice, thrown down in such quantity over a four-mile path, fell in much greater abundance than in any other modern case. Since it was not actually seen to fall, we suspect that both this and the 1910 Exmoor ice-fall may really have been ice-falls of the "old" or "Fortean" type, associated with intense local hailstorms. Like tornadoes, to which they are closely related, ice-spewing tempests concentrate their fury in a remarkably narrow path. In the *Trans. Roy. Soc. Edinburgh*, 1823, p. 187, is an account of a ferocious storm of ice that injured cattle and killed sixty geese on the Scottish island of Stronsay—yet went unsuspected by people no more than a mile away. There are many other examples of this localization. This may have happened on Exmoor.

Be that as it may, the epidemic of ice-falls that shortly thereafter broke out in the vicinity of London were definitely unconnected with hailstorms. On the evening of Nov.

24th, a foot-square chunk of ice struck the roof of a garage in Wandsworth (in southwestern London) with such a crash that the watchman thought the boiler had blown up. The ice, which had punched a two-foot hole in the roof, was given to the British Air Ministry, which reported on the 30th that it was "cloudy in appearance" and that it "probably had been formed against some smooth, relatively flat surface."

On November 27th, at the village of Braughing, 40 miles north of Wandsworth, motorcyclist D. J. Tunmore noticed something white in the blue sky, which he thought at first was a piece of floating paper; it plummeted down and landed on a grass plot only a yard away from him. It was a five-pound block of ice, a foot long and four inches thick. Prof. F. A. Paneth of Durham University, an authority on the chemistry of meteorites, thought this might possibly be an ice meteorite; but he was mistaken, because it is not acceptable that ice meteorites should fall again and again in London and its environs. Two days later, an iceblock 15" x 7" x 4" plunged into a garden at Hampstead Norris, 45 miles west of Wandsworth (AP story in *N. Y. Herald Tribune*, Dec. 1.) On December 3rd, Wandsworth was struck again: a 2-pound block fell on a house there. On the 7th, a schoolboy of High Wycombe, 25 miles west-northwest of Wandsworth, saw a nine-inch-square block

shatter on the road near him. On the 21st, a girl named Margaret Pater-son, alighting from an "electrical tram car" in Tooting, three miles southeast of Wandsworth, was actually grazed by a falling one-pound iceblock; and on New Year's Day, 1951, a massive chunk of ice knocked a hole three feet wide in the roof of a house at Windsor, approximately halfway between Wandsworth and Hampstead Norris. Finally, on April 7th, an iceblock weighing more than thirty pounds fell in a garden at Purley, ten miles SSE of Wandsworth. (This and the Windsor case are cited in Wilkins's book *Flying Saucers on the Attack*, Citadel Press, 1954, p. 101.)

The falling ice created something of a furor in England. The Government took prompt action: on Nov. 28 the Air Ministry, calling it "one of the biggest mysteries of the century," set up "Project Ice-Bolt" to investigate the sky ice, and asked that all specimens be brought in for examination as soon as found. (Wilkins article, and AP story in *N. Y. News*, Nov. 29.) On Dec. 13, the Parliamentary Secretary of the Ministry of Civil Aviation reported in the House of Commons that "There is no evidence that aircraft were involved; it is not considered that meteorological phenomena were responsible; the investigations are being continued." It appears that nothing more was ever published.

But on December 3rd the Ice-Bolt investigators had stated that "the mystery of the ice 'bombs' that fall

from the sky is solved." Two of the chunks, they said, "*were found to contain scented soap and kitchen waste*" (quoted in UP story, N. Y. *Herald Tribune*, Dec. 5) and had therefore come from "the mundane source of wash basins of passenger aircraft." According to the UP story, "the waste must have frozen in freak air currents before reaching the ground," a thing manifestly absurd; actually, to judge by Wilkins's article, it seems that the Air Ministry investigators' theory was that water sprayed from drainpipes had repeatedly struck against some cold surface of the airplane, thus gradually building up a frozen mass "which may fall when the plane descends lower."

Our information is too scanty to assert positively that this *never* happens, but two facts may be pointed out: (1) In this country, at least, airplanes are *not permitted* to dump waste water or anything else while in flight; yet there have been more ice-falls in the United States than in England; (2) ten days after putting forth this "solution," the Air Ministry was obliged to acknowledge in Parliament that the problem was still unsolved.

The statement that "soap" was present in some specimens is an arresting one. If this was *not* a wash-basin product—and we are entitled to doubt that it was—it seems very likely that this ice that fell from a clear sky over London in 1950 shared the chemical peculiarities of the ice that fell from a clear sky over

Texas in 1949. We shall meet them again.

Two years after the English ice-falls, there was another epidemic of falls of ice from a clear sky—this time in France. We must admit that all we know about these incidents may be found on pp. 154-5 of Jimmy Guieu's *Flying Saucers Come From Another World* (English trans. pub. by Hutchinson, 1956); but there is no doubt that they were identical with those of England. On March 26, 1953, for example, at Cintray (about 60 miles west of Paris), Mme. Grimpart heard a prolonged whistling followed by a terrific thud: an iceblock weighing several pounds had fallen a few yards from her. (The incidence of narrow escapes, in these ice-falls, is phenomenal; these iceblocks are lethal, and someone is certainly going to get killed by one before long.) Shortly before this, at Rueil-Malmaison in Paris, an iceblock had torn a limb from a tree as it fell. An engineer named Boclet published a detailed report in the French saucer magazine *Ouranos-Actualité* for May-June, 1953: he concluded that the ice masses (he called them "glasteroids") could not be accounted for either as hailstones or as ice from airplanes. A significant finding was that the ice was frequently *permeated with dirt*, sometimes to the extent of turning it amber-colored. Guieu does not mention whether anyone reported a soapy taste.

For the period 1951-1956 in the United States, our records contain

eleven instances of falling ice chunks, eight of them in California. The iceblocks punctured roofs, damaged automobiles, and narrowly missed women and children in their gardens—but caused no actual injury. The most remarkable of these was a two-minute fall of about fifty immense "pieces of glass-clear ice," some of them four feet long and weighing 300 pounds, in a two-block area in Long Beach, California, on June 4, 1953. A witness, H. A. Boyd, said he "heard a zizzing sound, looked up, and saw the air full of white stuff coming down." Another witness, Charles Roscoe, aroused by the "gun-blast" sound of the first slabs striking the ground, ran out and looked up to see "the sun shining on big pieces coming from 2,000 feet up. They rolled and twisted and shimmered like a waterfall. I looked for a plane and couldn't see any." These ice-rocks damaged three cars, smashing one so severely that its motor protruded.

So persistent are the stereotyped explanations that even this mammoth shower, which continued for two minutes over a single two-block area and brought down a ton or more of ice, was automatically attributed by local meteorologists to "a high-flying plane"! Not surprisingly, an Air Force spokesman finally denied the possibility of any such origin. (FATE, Nov., 1953, pp. 5-6.)

As this is written, a series of ice-falls in southeastern Pennsylvania and western New Jersey, now four

months old, appears to be still in progress. In these four months, at least ten cases of falling ice have occurred, all at places within 75 miles of Reading, Pennsylvania. Thanks to the fortunate circumstance that a consulting chemist living in Reading, Dr. Malcolm J. Reider, had his curiosity aroused, they have been better investigated than any ice-falls since ice-falls began. (Since we are writing at Thanksgiving time, let us also be thankful that the Air Force has not stepped in to make the investigation its own exclusive province and bungle it. The Civil Aeronautics Administration is investigating, but there has been no question of any "security" restrictions.) Most readers of this article have doubtless heard of these falls before: they were mentioned in the February *Fantastic Universe* by Ivan Sanderson, and before that they figured in a series in the Philadelphia *Bulletin* and an admirable review article by Martha Martin in the N. Y. *Sunday News* of Oct. 27, 1957. But what may not have been stressed before is the *chemical* findings of Dr. Reider, which proved to deepen the enigma.

Early in the evening of July 30, 1957, Edwin Groff was watering a plum tree on his farm at Bernville, a few miles northwest of Reading, when he heard "a whooshing noise." He looked up and saw a large, round, white object sailing down at him from the clear southern sky. It was a fifty-pound ice cake two feet in diameter, which crashed and shat-

tered within a few yards of him. A few seconds later, another one of half the size followed it from the same direction and struck in a flower bed near him and his wife. The Groffs notified a meteorologist in Reading, Dr. Matthew Peacock, who called in Dr. Reider to examine the sky ice.

By the courtesy of Dr. Reider, we have seen his report on this ice. He found it to be rather peculiar stuff. It was cloudy and white from dissolved air (proof of rapid freezing); it was permeated throughout with "sediment"—dust, fibres, algae—and it had a structure which he compared to "a popcorn ball." It was, in fact, a frozen-together mass of hailstones, each stone no larger than one inch in diameter.

The large masses of ice that fall in storms have often been described in similar terms (*e.g.*, Muir of Ord, Dharwar); and this fact has been considered, in the past, as an indication that they did not really fall at all.

It has been assumed that a heap of fallen hailstones, lying in a depression of the ground, became frozen together (a process technically called "regelation") and was found after the storm by astonished rustics, who jumped to the false conclusion that the mass had fallen "ready-made." Regelation on the ground *does* occur (hailstones are often well below freezing temperature), but this Bernville case, whose fall is undisputed, presents us with the astounding fact that it can also

take place *in the sky*—and, *nota bene*, in a clear sky.

The chemical contaminants of the Bernville ice were not those of terrestrial ice, and not those of hailstones. Iron and nitrate were entirely absent, which is never true of ordinary "ground water" or ice made by rapidly freezing such water; in contrast, salt and other dissolved minerals were present in an amount that would be excessive in drinking water, and the ice was *alkaline*: technically speaking, its pH was 8.8. Alkaline substances have a bitter, flat, soapy flavor—one thinks of the soapy taste of the Texas ice, and the "soap" of the London falls. The ice showed no radioactivity.

Dr. Reider was bewildered by these results. He could only suppose that the ice was atmospherically formed, but "in its genesis had picked up alkaline dust raised from certain arid-alkaline areas of our western states," subsequently being "carried thousands of miles across our country by air streams" to be dropped on Mr. Groff's farm.

This theory found, to put it mildly, no favor with meteorologists. Dr. Peacock pronounced it "poppycock" (*Reading Times*, Aug. 8), and Paul Sutton, chief of the U. S. Weather Bureau at Harrisburg, Pa., said unequivocally that the ice "was not formed by natural processes known to meteorology" (*ibid.*, Aug. 28). The jet stream, relied upon by Reider to deliver the ice, was actually far to the north of Pennsylvania at the time; in any case (as Curtis

Fuller pointed out in FATE, Dec., 1957), the horizontal jet-stream winds would have no more power to keep ice-cakes aloft than would calm air. Since it was definitely known, according to Sutton, that hail-forming conditions had been absent near Bernville, the meteorologists closed their eyes to Reider's demonstration that the Bernville ice was a mass of fused hailstones, and preferred to suppose that it "must have" fallen from some airplane.

Airline and Air Force spokesmen had to explain again, as others had explained before in England, France, and California, that large ice chunks simply do not form on airplanes, and that planes are not allowed to dump water. A TWA spokesman made the further point that "if this ice were coming from planes, we certainly would have had these occurrences all along." (FATE, Jan., 1958, p. 9) None of these statements was really necessary, since Reider had shown that the ice was chemically and physically quite unlike anything that might be associated with an airplane.

Iceblocks continued to fall in the same area. On the evening of August 14th, at Gowen City (near Shamokin), thirty miles northwest of Bernville, a 25-pound cake fell from a clear sky. Dr. Reider examined it: he reported that it was a cloudy, alkaline mass of fused hailstones, permeated with dirt particles, *chemically almost identical with the Bernville ice*. On the evening of Sept. 8, a mass of more than 100

pounds crashed through the slate roof of an unoccupied house in Chester, Pa., 60 miles southeast of Bernville; just as at Wandsworth, the ice was of milky appearance, and was "smooth and flat on one side" (FATE, Jan., 1958, pp. 6-9.) Four days later, a big chunk fell through the roof of a sheet-metal warehouse in downtown Philadelphia, scaring the workmen: it was described as "rather peculiar-looking: milky, with brown spots in it." (AP story in Newark [N. J.] *Star-Ledger*, Sept. 13.) It now developed also that one morning in April, at Quakertown, forty miles east of Bernville, a block of ice had been seen to crash onto the garage roof of the post office; fortunately, the postmaster had kept a sample in his deep freeze. (Easton, Pa., *Express*, Sept. 23.)

Dr. Reider examined the Chester, Philadelphia, and Quakertown icebolts. He found that they were all cloudy masses of hailstones, with alkaline contamination.

In the meantime, sky ice of a different kind had made its appearance. On August 27, at Camp Hill, Pa., fifty miles WSW of Bernville, there had fallen a flat cake of ice which contained the typical alkaline contaminants, but was *not* an aggregation of round hailstones. Instead, it exhibited large hexagonal "columnar crystals, giving it the appearance of a honeycomb." (Easton *Express*, Sept. 23, 27.) As Fort remarked of a similar case, "this is a datum profoundly of the damned"—for it

shows that this ice, wherever it had formed, had crystallized *very slowly*, from an undisturbed expanse of water. Again, on Sept. 18, a forty-pound slab was found in a field near Annandale, New Jersey—65 miles ENE of Bernville—and this slab, 3' x 18" x 4", was of the same striking honeycomb structure as that of Camp Hill. Although alkali was, for the first time, absent, the unique crystal structure positively identified this as sky ice, and not the work of a prankster. (*Easton Express*, Sept. 27.)

The description of the Muir of Ord iceblock should be recollected. In all probability, the "diamond-shaped squares" of that ice might more correctly have been called "hexagons."

Since September, there have been three more ice-falls in the Reading area: Mechanicsburg, 10 miles WSW of Camp Hill, October (a flat slab of columnar ice); eastern Philadelphia, Nov. 6 (a ten-pound cloudy chunk); and Belle Mead, N. J., forty miles east of Quakertown, Nov. 12 (a football-shaped mass of clear ice a foot in diameter with a horizontal-layered structure and dirt inclusions) (*Philadelphia Inquirer*, Nov. 7; Somerville [N. J.]

Messenger-Gazette, Nov. 14.) Dr. Reider's findings on these are not yet available.

What sense can be made of all this? Very little, it must be admitted. Although the patterned repetition of falls around a central point looks purposeful, one can hardly believe that visiting spaceships would choose to drop "popcorn balls" of soapy-flavored ice, in preference to some more intelligible form of message. One might, of course, imagine that they do so *by accident*: that in their comings and goings from space, they punch holes in Fort's aerial ice-fields, knocking fragments loose which fall to the earth far below. Absurd, of course; but what theory of these incredible phenomena is *not* absurd?

All that seems to be certain is this: Large masses of very peculiar ice, such as formerly fell only in violent storms, have for the past eight years or so been tumbling out of the clear blue sky. What invisible upper-air agency is now supplementing the storms in bringing this ice down, nobody knows; but some of us suspect that the coincidence in time between the UFO Age and the Sky-Ice Age may be more than a mere coincidence.

