

Rings of ice

Slowly revolving in freezing northern rivers, large discs of ice are posing the same questions as crop circles before them. Are they monstrous hoaxes, alien artefacts, or simply wonders of nature? BOB RICKARD traces the advent of this frigid phenomenon

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The photograph of the River
St. Lawrence, Ontario, was taken in January
1950, around the low-tide mark. The
whirlpool areas of thin, slushy ice can
be seen, especially at the outer
edges of the ditch in which
the plate of ice
is revolving.

A new phenomenon is a rare and interesting event. We want to explore its nature, its origins and why we haven't heard of it before.

The most recent example is the crop circles which have swirled before our eyes for more than a decade now. At first the only serious investigation and data-gathering was done by people with an interest in UFO-related phenomena or by 'rogue' scientists. Only later did the subject come to worldwide attention. A similar process has attended the arrival of ice discs. It is clear that scientists do not know much about the phenomenon: the most extensive discussion to date has been in the pages of the very journals that so diligently pursued the enigma of crop circles.

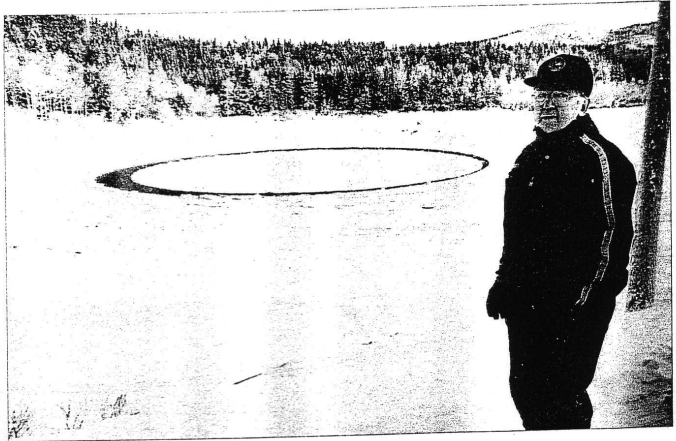
Like crop circles, ice discs have an immediate visual appeal. In essence, they are circular plates of ice many metres across, circumscribed by a narrow, usually ice-free ring, a 'ditch', in which the disc slowly revolves. I could find no reference to the phenomenon in any of the standard meteorology or hydrology textbooks; nor from a quick

poll of specialists could I find any professional awareness of the phenomenon (apart from those scientists mentioned later).

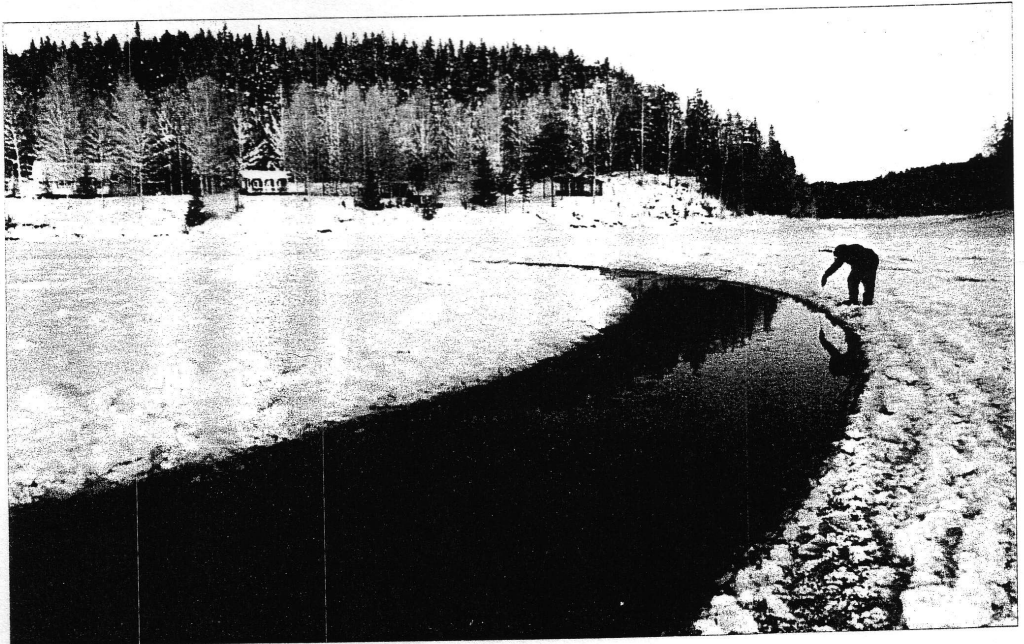
The geometric perfection of the ice discs, like that of their cereal cousins, has been taken by the gullible and the ignorant as incontrovertible evidence of alien intervention. Arriving at a time when crop-circle mania was at fever pitch, the ice discs impressed with their comparable size and the perfection of their edges and shapes. Like crop circles before, there were scientific-sounding explanations involving vortices - only this time it was

whirlpools, not whirlwinds.

As with crop circles, if this was indeed a natural phenomenon, people wondered why they had never heard of it before. Thus were sown the seeds of doubt which flowered into explanations of hoaxing. Their hoaxing presented certain difficulties in shaping the chosen material and any supposed method would have to be similar to basic crop circle-making methods. Like crop circles, too, there was a question of motive: why go to all that trouble in places so remote that it was unlikely your work of art would ever be seen by the human eye?



Two views of the massive ice-disc at Preälven in northern Sweden found by Gösta Nilsson (pictured). Nilsson observed its formation from a collection of smaller islands in December 1986 to the huge plate, photographed here in January 1987, which could bear the weight of a snow scooter and several people.



Significant discussion of ice discs has taken place over the last couple of years, but the attention of UFO researchers was first drawn to the subject in 1987, when Clas Svahn, the head of UFO-Sweden and editor of its journal *UFO-Aktuellt*, published an account of his visit to two rivers in northern Sweden that January. ¹

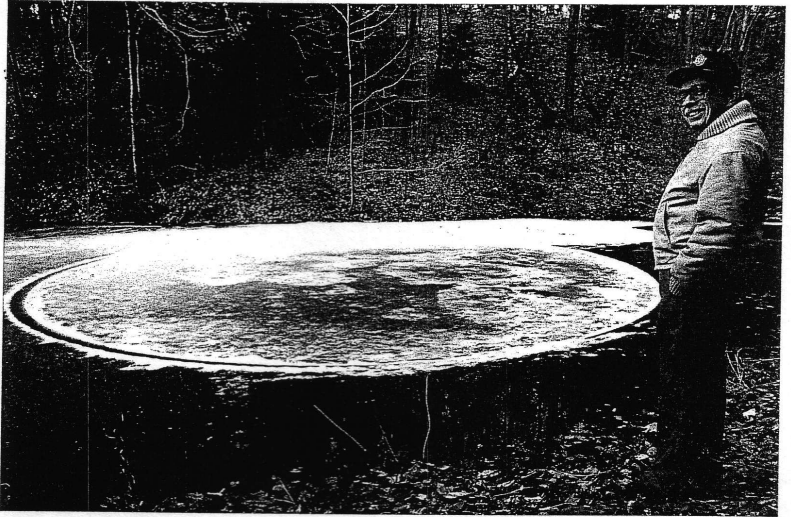
The first ice disc was located a few kilometres south of the town of Älvsbyn, at a bend in the Piteälven ('the River of Pitea'). It measured 50 metres in diameter and was first noticed in mid-December 1986 by a local man who observed the whole formation of the ice disc. "At first, all that could be seen was a large central area of ice surrounded by many smaller chunks, all moving in a circle," Svahn told *FT*. By 22 December, this rotating system of ice planets was frozen together, and when Svahn visited in early January the huge circle was complete. The ice was 50cm thick, deep enough to support the adventurous ufologist who completed a revolution in eight minutes. "It was great fun," said Svahn.

According to Svahn, the rate at which the Piteälven ice disc revolved slowed from about once in two minutes in its early stages to about ten minutes weeks later. This was presumably due either to variations in the flow beneath it or, more likely, to the slush freezing in its ditch – or possibly both. A few weeks later, Svahn was called to Kalixälven where he saw a similar but smaller ice disc which didn't revolve because its ditch had frozen, fastening the disc to the rest of the ice sheet. Clas also told us that in January 1992, a pair of discs, both frozen *in situ*, had been found on Hotagssjön, a lake near Östersund. ²

An 'immature' disc formation, and one of the most beautiful, can be seen in the earliest photograph reproduced here. It dates from early 1930, and was brought to the attention of *The Journal of Meteorology* by Christopher Chatfield. ³ Under the heading 'Jack Frost Describes a Circle', this Canadian formation was described by an anonymous reader of *The Illustrated London*

News. It was located: "...in the Valley of the River Don, within a few miles of Toronto, Ontario, at a sharp turn in the stream where there is a slow-turning whirlpool, or eddy. When this part of the river froze over, a sheet of ice in the shape of a perfect circle was formed in the centre of the whirlpool. This disc floated on a round patch of

Mzha in the Ukraine. It had been sent to editor Dennis Stacy by MUFON's Russian correspondent Vladimir Rubtsov, and Stacy also wrote it up for *The Journal of Meteorology*. ⁶ The circle was found on 7 January 1990 by Mr A.E. Vorontsov, a resident of Merefa (about 30km SSW of Kharkov), who had cycled to the river to check his



Conrad Serfass stands by this startling simulacrum of the moon in Cranberry Creek, behind his home in Tannersville, Pennsylvania, in January, 1993. The 0.5m disc was discovered by his wife while walking the dog.

water, which was surrounded by ice on all sides, and turned slowly around with the water beneath it." ⁴

When he enquired at Sweden's meteorological and hydrological institute (SMHI), Svahn was referred to Mrs Birgitta Raab, who took more than a passing interest in the phenomenon. She told him: "I know of three or four rivers in Sweden and Norway in which rotating discs of ice have formed, but as far as I know this phenomenon doesn't yet have a name." Mrs Raab said that a particularly large disc formed every spring in the River Ljusnan in central Sweden, and had been known to measure an astonishing 200 metres in diameter.

In Raab's opinion the critical factor is the way a river current flows through a bend or narrow part to form a suitable back eddy. It was possible, she said, that the shape of the shore line in some lakes can also influence the currents to form ice discs. ⁵

The October 1991 issue of *MUFON UFO Journal* carried an account of a circular formation of ice on the River

baited fishing lines. Vorontsov claims he saw a huge, top-shaped object resting on the ice or hovering just above it. After 10 minutes the luminous object, as glorious as a 'sunset', sped eastward leaving the large disc of ice to sink into the water and rise again.

By chance, the story came to the attention of Dr Pyotr I. Kutnyuk of the Kharkov regional UFO group the very next day, and he promptly surveyed the site. Kutnyuk noted that the ice layer was thin – it could not support a man, never mind a glowing UFO some 75 metres across. When Rubtsov himself visited the site five days later on 13 January, the ice had thickened enough to support the weight of a man, and both researchers believed this ruled out a hoax. Rubtsov was intrigued by the metre-wide ring, which comprised a number of concentric ridges, "as if it had been made by a giant milling machine cutter." The rings were still visible at the end of January, but it was a relatively warm winter and thereafter the ice soon melted.

Whatever Mr Vorontsov saw may have had nothing (or everything) to do

with the ice rings, and there is material here for the same line of reasoning that linked glowing masses inside plasma vortices and the formation of crop circles. There is no sign of corroborative data in our other stories, and for all we know Mr Vorontsov might have made up the story to retroactively explain the ice circles; after all, this had occurred in the crop circle circus. Nevertheless, it is clear that the Mzha River ice rings are related to ice discs, and probably represent a variation in the process of formation.

One interpretation of the ring of ridges is that they might be frozen ripples. This was proposed by another MUFON investigator, Paul Rosenfield, in connection with a set of clearly defined concentric rings in the ice over a stretch of the Charles River that runs through the Mount Feake Cemetery in Waltham, Massachusetts. Rosenfield spotted the rings while out jogging on 15 January 1991. His investigation was subsequently submitted to *MUFON UFO Journal*.⁷ Fascinated by reports of the crop circle phenomenon, Rosenfield made the visual connection immediately and ran home for his camera. The circle was about 6 metres (20 feet) in diameter and 12 metres (40 feet) from the bank. As Rosenfield judged that the ice was not safe and there were no footprints or tracks near the circle, it did not appear likely that anyone could have hoaxed it.

He tried unsuccessfully to get a few scientists to look at his photos; then he met Dr Jerome Carr, who had an interest in geophysics, geology and limnology. Dr Carr's considered opinion was that the circle effect had been created by the near-perpendicular strike of a meteorite and the resulting wave patterns overlapped to produce rings of broken ice. Just how the pattern of breaking and re-freezing would create perfectly circular rings, he did not explain.

Later, in early March, Rosenfield learned that a police diving team would try to salvage a small sunken boat not far from the ring site, and he managed to convince them to search the river bottom in the vicinity of the ring (which had long since melted) for any unusual rocks that might be meteoric. After 20 minutes – the water was 12-14 feet deep and visibility good – the divers returned with two quite

Jogging ufologist Paul Rosenfield found this concentric formation in the Charles River at Waltham, Massachusetts, in January 1991. One scientist thought the rings marked the fall of a meteorite.

“Fearing the outbreak of another mania on the scale of crop-circle fever, British sceptic Peter Williams proclaimed that ice discs are made by hoaxers using an ice saw.”

unremarkable rocks; there was no sign of anything meteoric.

Rosenfield learned that a few other visitors to the cemetery had also reported seeing the circles. Others suggested to him that perhaps an underwater spring or pipelines had caused the effect, although it is never said precisely how. Underwater pipes could leak or create eddies, but the state Water Resource Association assured him that there were no pipes in the area, and if there were they would have been buried below the river bed. If a spring was responsible, there has been no sign of any similar formation there since that time.

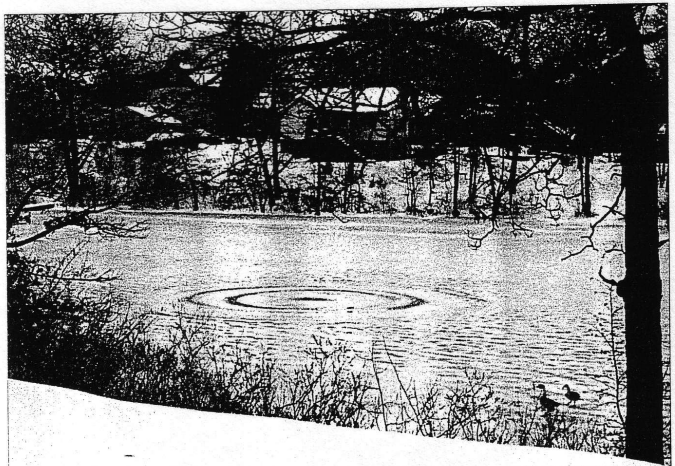
In late January 1993, Myra Serfuss was walking her dog along the bank of Cranberry Creek behind her house in Tannersville, Pennsylvania, when she noticed the perfect 8.5 metre (28 feet) diameter circle of ice in the slow-moving water. She called her husband Conrad and daughter to see the wonder. Conrad called the local paper. Mark Treinen, a reporter for the Pocono Summit *Record*, phoned a number of physicists he knew, including some at East Stroudsburg University, to discover that none had heard of the phenomenon, though several surmised that it was probably due to the way ice formed in an eddy.⁸

A little later, Jim Rourke, a corre-

spondent to the paper, said he “humbly begged to differ with the experts.” Rourke argued, as “an avid outdoorsman and nature observer”, that the phenomenon must be the result of a fresh spring directly below the ice ‘burping’ aerated water. The water rises until it hits the ice above and then the bubbles coalesce and spread out to the perimeter where they help the ice to form evenly on the circumference. In Rourke’s view this accounted for the whiter ice of the disc (containing bubbles) and the black (clear) ice of the ditch. The merits of this explanation we shall have to leave to wiser council, but there is no mention of locals saying they had seen anything like it before or since.⁹

Fearing the outbreak of another mania on the scale of crop-circle fever, British sceptic Peter Williams launched a pre-emptive explanation of his own. Ice discs are made by hoaxers, he proclaimed, using an ice saw, an adapted chainsaw used in ice manufacture since its invention in the 1920s. Williams envisaged one man standing at the centre holding a rope which acts as the radius. Thus guided, his partner carves the inner edge of the ‘ditch’, then the outer, and then both smash up the ring to set the disc free.¹⁰

All would be peachy with this theory except that Continued on page 27 ▶



THEORIES AND SPECULATIONS

Alien hordes, natural gas, submerged pipes, snow flurries, upside-down traffic control helicopters – the Harvard eggheads are queuing up to crack the icy enigma

In early February 1993, Donna Coveney, a staff photographer for the Massachusetts Institute of Technology newspaper *Tech Talk*, published an enchanting picture. It showed frozen swirls enlivening the ice on the Charles River where it flows past the MIT campus in Cambridge, Massachusetts. "What are they?" she asked her academic colleagues. The range of responses – printed in the following issue [14] – sheds much light on the enigma of ice discs and rings, although said experts were not aware of the occurrence at Waltham, further up the Charles River, nor of any other of our cases.

Seizing the opportunity for an alfresco tutorial, Professor John Marshall led students from the Earth, Atmospheric and Planetary Science Department in a (cautious) foray onto the ice. The dark areas were iced-over slush on which the powdery snow was melting. "In the bitter cold we started speculating," he said. "These speculations included: frozen-in eddies spawned by the sluggish flow of the Charles over the bottom; point sources of effluent from submerged pipes; wind-driven patterns akin to the crop circle phenomenon; [and] upside down traffic control helicopters." A number of callers to the *Tech Talk* office suggested that the "same aliens" responsible for the crop circles in

England had "come to the Charles for water."

The wind was the favoured culprit of theorists who thought eddying winds blew the snow into spirals and rings which then froze. Eric Lamarre and Marie-Lyse Bergeron, a husband and wife team of Ocean Engineering graduates, thought instead that vortices created by the Harvard bridge were responsible. "The dimension of the circles seems to match the separation between the bridge pillars.

The largest group of suggestions speculated on upwellings from the river itself: underwater springs; natural gas bubbling up; municipal aeration of the water; something decomposing; sewer outfalls; underwater currents; and warm water from industrial outflows. Several calls to municipal authorities revealed that aerators designed to stir up sediment to clean the river had been installed long ago but the "compressors had not been turned on for at least a couple of years."

Whirling snow flurries were ruled out by Keith Alverson, a graduate of Earth, Atmospheric and Planetary Sciences, because they would need to be stationary over the static ice for long enough to create an effect. He also rejected the idea of eddies created by the riverbed topography to conclude that "the patches must be formed

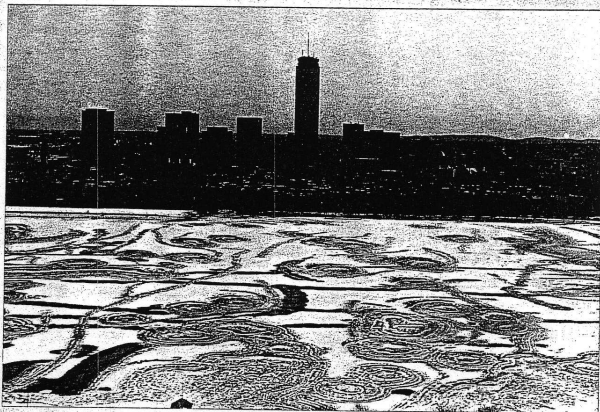
by a process inherent to the ice itself." Alverson thinks the important factor is the colour of the ice: the darker it is, the more solar energy it absorbs and therefore freezes more slowly than the more reflective ice. Patches of the darker, wetter, more slushy ice will spread outwards until the temperature drops sufficiently to freeze it completely, and (if I read him correctly) over time a series of thaws and freezes can create an outward progressing tree-ring effect.

In contrast, David Ricks, also of Ocean Engineering, offered a first-hand observation: "I walk across the Harvard bridge twice a day, and here's what I saw over a few weeks. First, a smooth sheet of ice formed over most of the river. Then, large holes were formed by ice moving around...some came from the piers of the Harvard bridge on a windy day that pushed the ice downstream. Other holes were created as the old smooth sheet separated into large pieces [as it was] pushed around. Then, these areas of open water froze over...[the new ice] included air and small broken plates of ice [giving it] a rough texture and a different color [highlighted by] the dusting of wind-driven snow."

"It's interesting how these holes froze in circular patterns, even though they had irregular shapes when they were created," said Ricks. "I saw that the ice grew into the holes from the outside in. Evidently this made the holes more circular." As the strength of the wind, the currents and freezing conditions varied over a few days, so the patterns of roughness and air content varied and distributed the swirls around the river.

These scientific worthies were hardly in agreement, and many of their ideas do not seem applicable to some of the other cases mentioned here. Nevertheless, it is quite possible that they represent variations of the same formative processes, whatever those may turn out to be.

Frozen swirls on the Charles River snapped from the roof of the Green Building at Massachusetts Institute of Technology by Donna Coveney.





This multi-ringed formation on the River Mzha, near the Ukrainian city of Kharkov, was discovered on 7 January 1990 by a man who said it had been created by a hovering UFO.

quite a few of our accounts involve ice that was too thin for any anchorman and chainsaw maniacs – and besides, the Piteälven disc was observed throughout its formation, as the Ukrainian rings were in stages.

As the phenomenon becomes better known, there will undoubtedly be attempts to wrong-foot the researchers, but it is by no means certain that natural processes have been ruled out of the game.

To balance the notions of UFO backwashes, frozen meteoric ripples and chainsaw maniacs, I can imagine a naturalistic scenario involving a slow-moving river current forming a slow-turning eddy. Perhaps the relatively still centre of the whirlpool is conducive to the first formation of ice and it spreads outwards. Maybe, at a distance from its centre, determined by such factors as ice thickness, hardness,

rotational speed, air and water temperature and resistance, it begins to merge with the ice spreading from the bank and shearing circularly.¹¹

The tangential passage of the main water flow past the disc keeps it revolving, perhaps eccentrically. It begins to push the ice slush outward to form the edge of a ditch, strengthening it. Over many slow revolutions, the circular motion of the disc then grinds out the edges of the ditch to perfection. Sometimes the ditch fills with slush or ground-off fragments and then wholly or partially freezes over, halting the disc. As more ice forms, making the disc homogeneous with the ice sheet, or as snow falls to cover it all, this wonder of nature becomes more difficult to see.

Perhaps – but the principal difficulty with any explanation based on meteorological and environmental

conditions hinges on why there should be so little in the way of comparative observations or discussion. This is the primary enigma – a genuine natural phenomenon cannot just spring out of nowhere. It may be that, like many other things that were 'there all the time', we have not noticed the historical records¹², just as we have been blind to yet another wonder of the natural world.

At least, in the words of Paul Fuller, "this is further proof that nature can and does produce precisely-defined geometrical traces without the need for alien intervention."¹³

REFERENCES:

1. Clas Svahn, *UFO-Aktuellt* (Jan 1987). Plus correspondence between Svahn and Dennis Stacy, Paul Fuller and the author.
2. Reported in *Ostersunds-Posten* (24 Jan 1992).
3. C.R. Chatfield (letter), 'Jack Frost describes a circle', *J. Meteorology* (Dec 1992; v17, p344).
4. Anon, 'Jack Frost describes a circle', *Illustrated London News* (15 Feb 1930; v176, p239).
5. Correspondence with Clas Svahn.
6. Vladimir Rubtsov, 'Soviet ice ring', *MUFON UFO Journal* (Oct 1991, n282, p16). Dennis Stacy, 'Soviet circle on ice reported', *J. Meteorology* (Jan 1992; v17, pp19-22).
7. Paul Rosenfield, 'Charles River ice ring', *MUFON UFO Journal* (April 1992, n288, pp12-13).
8. Mark Treinen, 'Ice formation's perfection cries for an explanation', *Pocono Summit (PA) Record* (1 Feb 1993).
9. Jim Rourke (letter), 'Explanation for creek ice circle', *Pocono Summit (PA) Record* (? Feb 1993).
10. Peter Williams, 'Ice rings explained', *The Crop Watcher* (Sept-Oct 1993, n19, p27).
11. In a letter to *J. Meteorology* (July/Aug 1993; v18, p209f) Richard White compares the above ice disc notices with his experiments with layers of scum on vortices over the plug holes in sinks and baths, concluding that "a primitive ice disc must grow in thickness by accretion, but the possibility of lateral growth, and how friction itself influences the flow, should be considered." He also thought that the appearance of near-perfect concentricity "suggests a mechanical origin...perhaps even a deliberate hoax." He doesn't say how this could have been done under the known circumstances.
12. And yet...From time to time there have been reports of large and unexplained holes in sheets of ice whose appearance has puzzled locals. See, for instance a rash of holes in Finland in *FT45:47*, and in Sweden and the USA in *FT24:41*.
13. Paul Fuller, 'UFO landing mark?', *The Crop Watcher* (Nov-Dec 1991, n8, p36).
14. Donna Coveney, 'What are they?', *MIT Tech Talk* (10 Feb 1993, v37 n22). Donna Coveney, 'Theories abound on how the river got those patterns', *MIT Tech Talk* (24 Feb 1993, v37 n23).

HISTORICAL CHART OF KNOWN ICE DISCS

LOCATION	DATE	DIAMETER	TYPE & ROTATION	REFS
R. Don, Toronto (Ont)	Jan 1930	4.6m	single, 2.5min	3, 4
Piteälven (Sweden) *	Dec 1986- Jan 1987	50m	single, 2-10min	1
Kalixälven (Sweden)	Feb 1987	Unknown	single, fixed	1
R. Ljusnan (Sweden)	through 1990s	200m	single, fixed	1
R. Mzha, Kharkov (Ukraine) *	Jan 1990	20.7m	single, rings, fixed	6
R. Charles, Waltham (MA)	Jan 1991	6.1m	single, rings, fixed	7
Hotagssjön, Östersund (Sweden)	(Jan 1992)	20m, 5m	two, fixed	1, 2
Cranberry Creek, Tannersville (PA)	Jan 1993	8.5m	single, unknown	8
R. Charles, Cambridge (MA)	Feb 1993	varied	multiple, fixed	14

* = process of formation observed (in part) over several days.
(Date) = date reported.