

ICE-HOUSES

By Francis W. B. Yorke, F.R.I.B.A., F.S.A.

THE ice-houses of this country are very much neglected monuments about which little appears to be known today. A large number of these structures still survive, although many good examples are fast disappearing, and it is time that those remaining in fair condition should at least be scheduled, and an effort made to preserve the best examples for posterity. Mechanical refrigeration is taken for granted by this generation. Refrigeration as it is known today was an innovation of the mid-19th century, and its introduction into private houses came at an even later date, after which the old ice-houses were generally allowed to fall into a state of disuse and disrepair. This new method of production gives complete independence of natural ice, the harvesting of which was, like the harvesting of many other commodities, subject to the whims of the weather. Some fifty years ago, when households and traders were dependent upon supplies of natural ice, an open winter was somewhat of a calamity, and the heavy work entailed by ice-peddling, and great blocks of ice being dragged about by means of heavy iron tongs, remain within living memory.

The use of ice and snow for the cooling and preservation of food and the tempering of wine was known and practised from ancient times and in many lands,¹ and there can be seen today on the road to Damascus a roadside ice-house which is supplied by snow from Mount Hermon. Efficient preservation for any length of time has always been a problem, the alternative to a cold store being the process of drying, salting or pickling. The storage of food in past days, particularly in the large country-houses, when open house and entertainment on a large scale was the order of the day, presented serious difficulties. Households were necessarily more or less self-supporting and salting and curing became an art, in as much as the external ice-box became a customary adjunct to the larger house, into which the ice was brought from the ice-store as required. From the 16th century onwards it seems that almost every sizeable country house had an ice-house, but the manner of construction, and particularly the layout, varied from time to time and from place to place.

¹ An 8th-century Caliph of Bagdad devised one of the first recorded air-conditioning systems, transporting snow from the Zagros Mountains via camel trains and packing it in the double walls of his summer home.

The date of the introduction of ice-houses into this country is not known, but in 1660 ice-houses were built in upper St. James's Park,¹ old plans showing that these were in the middle of what is now called Green Park. These were probably suggested by ice stores in France and Italy and other hot countries and introduced into England by the gentry who made the "Grand Tour", but there is a possibility that some of the earlier stone examples may be of monastic origin. Certainly ice-houses appear to have been in general use during the latter part of the 18th century through a period extending towards the end of the 19th century if not later. We have it on good authority that the ice-house at Elmdon was used until 1913, that at Croome Court as late as 1915, and that at Barford Hill until 1929. Although the great majority of ice-houses were constructed before the introduction of railways, a number appear to have been built afterwards.

Little is to be learned from works of reference. In the fourth edition of John Beckmann's *History of Inventions, Discoveries and Origins* published in 1846, there is a long chapter on artificial ice,² concluding with the American progress in production and transportation to England of many thousands of tons of ice for a variety of economical purposes. William Cobbett (1763-1835), politician and agriculturalist, a lover of the country and a strong and racy writer, first published his book *Cottage Economy* in 1821. The title-page gives a detailed account of its miscellaneous contents, including instructions for the erection of ice-houses after the Virginian manner. In this book he condemns the type of ice-house then in use in this country.³ He says "In England these receptacles of frozen water are generally underground, and always, if possible, under the shade of trees, the opinion being that the main thing, if not the only thing, is to keep away the heat. The heat is to be kept away, certainly, but moisture is the great enemy of ice, and how is this to be kept away either underground or under the shade of trees? Abundant experience has proved that no thickness of wall, no kind of cement will effectually resist moisture, and wherever the moisture enters, the ice will quickly melt. Ice-houses should therefore be, in all their parts, as dry as possible, and so constructed in themselves and the ice so deposited as to ensure the running away of meltings as quickly as possible whenever meltings come." And again, "Ice will not melt in the hottest sun so soon as in a close and damp cellar. An Ice House should never be underground nor under the shade of trees, but the bed of it ought to be three feet above the level of the ground, and the house should stand in a place open to the sun

¹ *Old & New London*, Ed. Walford. (Cassell).

² A patent was taken out in 1842 by A. Benjamin to preserve food by freezing.

³ A plan, section and perspective view of entrance, etc., to an ice-house, appeared in *Picturesque Designs for Mansions, Villas, Lodges, etc.* C. J. Richardson, 1870. (Atchley).

and air. This is the way that they have Ice Houses under the burning sun of Virginia. A Virginian with some poles and straw will stick up an Ice House for ten dollars, worth a dozen of those, each of which costs our men of taste as many scores of pounds."¹ After which he gives a full specification with diagram for building in the Virginian manner.

It is highly improbable that even a remnant of any examples of the foregoing type of ice-house recommended by Cobbett remain in this country although a number may have been built to his specification, but in Virginia there are a number of well-preserved examples. It is principally on account of ice-houses in this country being underground and thus being no encumbrance, that there are so many examples still remaining here, although the great majority have apparently collapsed or have been purposely demolished.

The late Mr. Barnard suggests that there is more than one obvious reason why our ice-houses were not successful, and he thinks the usage did not extend over a very long period, yet ice-houses were built in St. James's Park in 1660, and appear only to have been generally abandoned after refrigeration came into vogue, since that at Barford Hill was in use until 1929. Underground ice-houses were evidently unsuccessful in Virginia: Paul Leland Howarth, in his book *George Washington—Country Gentleman* says "To cool wine, meat and other articles, George Washington early adopted the practice of putting up ice, a thing then unusual. In January 1785 he prepared a dry well under the summer-house, and also one in his new cellar at Mount Vernon." Note well that both ice-houses were constructed underground, as in the Old Country, and this was in Virginia. MSS. show that Washington was unsuccessful, which may account for ice-houses generally being later built above ground. The Americans packed their ice in sawdust and straw.

The majority of ice-houses examined to date are of the egg section, usually having a side entrance and often an eye in the top of the dome, and it would seem that this form was generally the accepted one in this country—an assumption which appears to be confirmed by the fact that an ice-house so far away as Castle Newe in Aberdeenshire is similar to many in the Midlands. No doubt it had been proved by experiment to be the best form of construction, arched on every section of its surface, so that earth pressure externally would keep every brick in its place. Moreover, the dome is explained by the fact that it would have been somewhat difficult in those days to have covered an area of the size and shape adequately in any other way, and the dome too was better adapted to the shape of the mound of earth by which these structures were usually

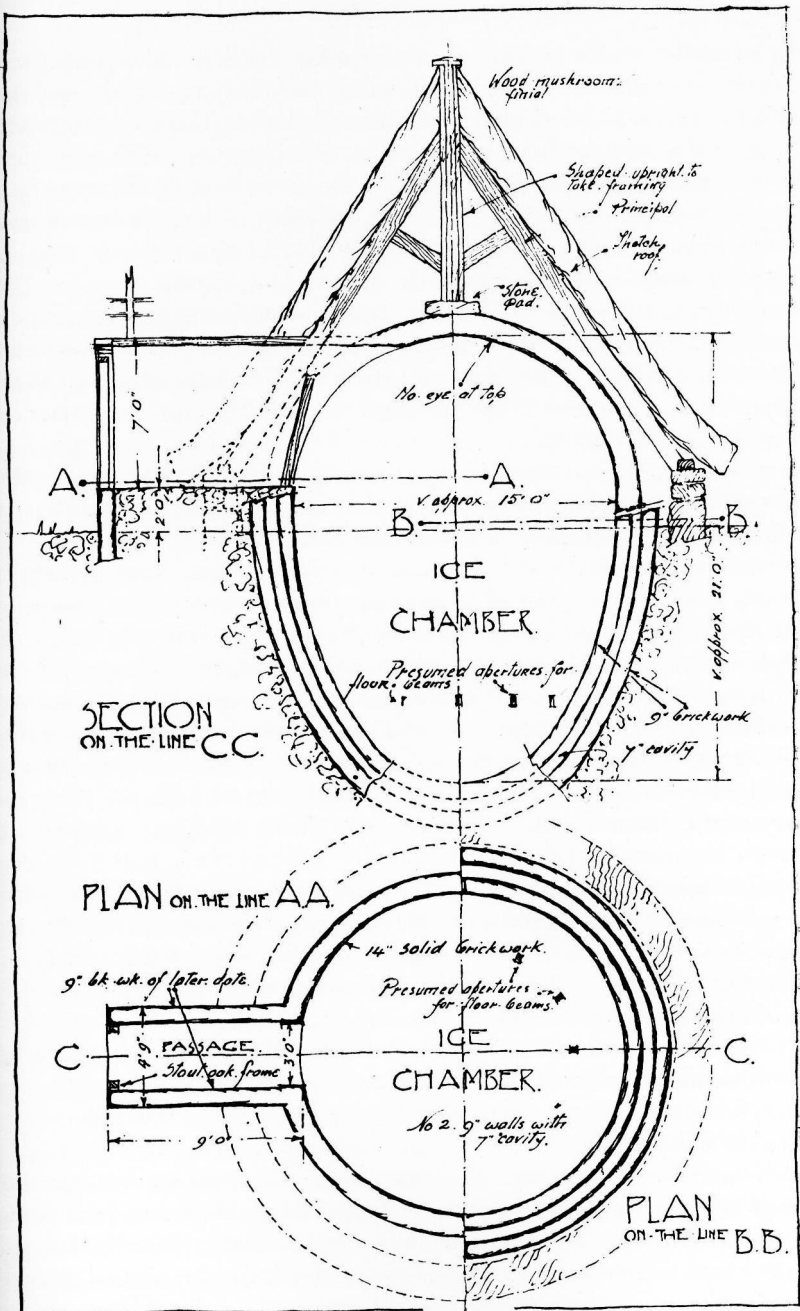
¹ Cobbett served as a sergeant-major in New Brunswick, returned to England about 1800, and again visited America from 1817 to 1819.

covered. It will be seen that an elongated passage was sometimes necessary to negotiate the mound of earth. It is worthy of note that of the large number recorded no two ice-houses have been found quite alike.

In ice harvesting and storage, the problems included when to harvest, what thickness of ice could be safely cut (this sometimes having to be strong enough to take the weight of men and tackle)—and obtaining a bulk worth cutting. The temperature in this country being so variable from day to day made the task more difficult. The ice was usually taken from a pond adjoining the house. Although the manner of harvesting seems very general, the manner of storage varied slightly. Sometimes the ice was broken down and rammed tightly in chopped straw, and some old men who in their youth harvested the ice, recall that layers of straw were laid alternately with layers of broken ice, and again that the walls of the ice-houses were lined with straight straw thatch-wise. From such interviews with those who actually helped with the old ice harvests—although their accounts vary somewhat in detail—a very fair picture of the usual procedure may be formed, from which it can be inferred that generally ice-houses were good and effective, providing ice all the year round. They also, in some cases, formed a cool place for the storage of game, meat, etc., when the ice-house was built near the mansion. One instance of this was the ice-house at Elmdon, which was definitely used for the dual purpose. It would appear that the ice was usually packed in the well to about ground level. Sometimes the eye at the top of the dome served for both access and lighting, but when there was a side entrance the ice was removed this way, the eye serving only for lighting. If, of course, the ice were packed above the side entrance, it might have been removed through the aperture at the top of the dome until it was reduced to ground level. The house with the side entrance was undoubtedly the more convenient, as it obviated the necessity of using a long ladder and deep hoisting. As already mentioned, the side entrance necessitated a passage-way through the soil covering the dome.

The following notes on some ice-houses in the Midlands will illustrate the principal forms of these buildings :

Barrells Hall, Ullenhall, Warwickshire: This ice-house is situated on the edge of the former Deer Park, and is partially covered with shrubs and beech-trees for shade. It is a substantial structure in brick, with a dome 8' 0" to 10' 0" above the ground level. The rest of the structure is below ground, with total internal height of 17' 6" and a diameter of 13' 8" at greatest circumference. In section it resembles an egg with the larger end uppermost, and is typical of many in the district. The strength of the dome may be judged from the fact that the roots of the trees above have left the brickwork undisturbed. The building is entered at ground level



ICE-HOUSE AT CROOME COURT, WORCESTER.

by a small corridor facing due east, having a gate at either end, one a heavy outer door with grille providing the only ventilation, and the other a heavy oak door, both having massive locks. There were formerly steps down into the box, but these have disappeared. Although there appears to be no drain, the pit is dry, a deep trench down the slope from its external base suggesting there was probably a drain at one time to carry away meltings. There is no indication of age, unless it may be assumed that it was constructed at the time or directly after the Hall passed into the hands of the Newton family in 1856, when some additions were made. This assumption was confirmed by the late Mr. Barnard (January 26th, 1951) immediately after its discovery, when he dated the period at 1845-60. This ice-house is probably the best-preserved example in the district.

Pardon Hill Farm, Gloucestershire: There is at Pardon Hill Farm, near Gotherington, Bishop's Cleeve, an odd but interesting ice-house. It is situated on a steep bank under an artificially terraced lawn, and so is constructed at a depth of less than 2' 0" underground. Built entirely of stone, it is extremely small, measuring internally only 8' 0" wide by barely 12' 0" long, and ceiled with one complete semi-circular vault 6' 6" high to its crown. The floor is stone paved, and the entrance is 3' 0" wide between its 3' 9" thick flanking stone walls. Externally the narrow entrance side (the only exposed wall of the chamber) extends in either direction to form the retaining wall of one side of the before-mentioned lawn. An old door and frame, not original, are set back 18" from the face of the external wall. The floor level of the ice-house is barely 12" below the normal of the hillside.

It is many years since this house was used for storage of ice, but it is in a good state of preservation. Its interest is heightened by the fact that the farm itself is reputed to be of monastic origin. It is possible, therefore, that the ice-house was a *Glaciel Repositorium* when the house was still in ecclesiastical hands. Mr. V. A. Newman, the present occupier of Pardon Hill Farm, relates a local tradition inferring that the name of Pardon Hill was derived from a place where pardons were sought, and that the house had some relation to Hayles Abbey some few miles away, near Winchcombe.

Malvern Hall, Warwickshire: This structure (not marked on the Ordnance Map) is in a tolerably good state of preservation, the house itself being intact so far as may be seen. Similar in shape to that at Barrells Hall, the egg-shaped section bears much the same relation to the normal ground level. There is a square opening at the centre of the dome, from which the lid and frame have disappeared. The lower part being filled in with rubbish, it is impossible to trace any sign of provision for drainage. The

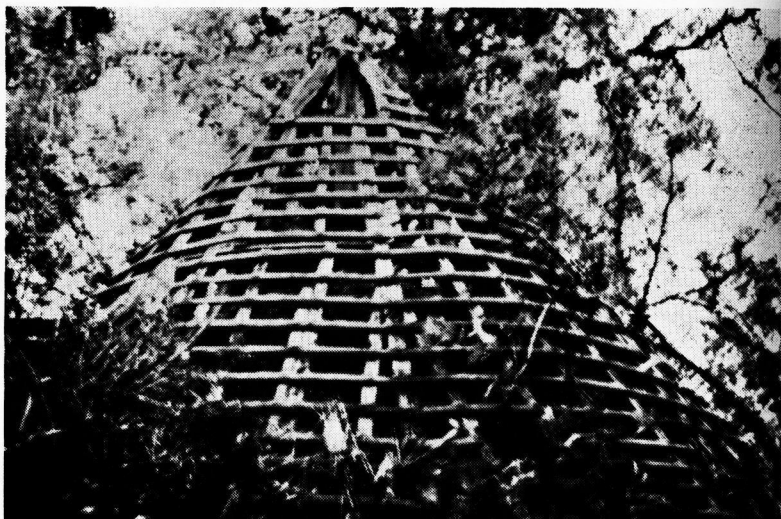
well, entirely of brick, is approximately 22' 0" high to the crown of the dome internally, and some 15' 0" in diameter at its widest circumference. The vaulting of the passage is somewhat broken beyond a distance of 4' 0" from the entrance; so also is the wall at the right-angle turn in the passage, which angle I believe an unusual feature, and rather a variation of the passage at Williamsburg, Virginia. The vaulted ceiling of the passage is groined into the roof of the main structure.

*Glasshampton, Worcestershire:*¹ The ice-house at Glasshampton is on the south side of Dick Brook, surrounded by a wood, a thick and wild jungle of undergrowth on a steep hillside. Again, the entrance is L-shaped, and the actual ice-house a shallow well dug into the side of the hill. The walls, with the exception of one stone retaining wall, are of brick, presumably one and a half bricks thick. The well and the entrance are arched over. These bricks are old thin bricks probably re-used after the demolition of old Glasshampton House at the time the new mansion was built in 1809-10. It seems then that the ice-house was constructed about the same date, otherwise there would have been no reason for its construction, as the new mansion was burnt down soon after its completion. The vertical section of this ice-well is again egg-shaped, about 13' 0" in diameter, the total height being about 20' 0", and a ladder must be used to reach the bottom. The chamber appears to be dry, although there is no sign of drainage, and is covered with soil several feet thick. In the dingle about 60 yards below the ice-house is a broken dam which once retained the water of a small brook running from the pools of Redmarley and Hill House farms and joining Dick Brook at the corner of the wood 150 yards below.

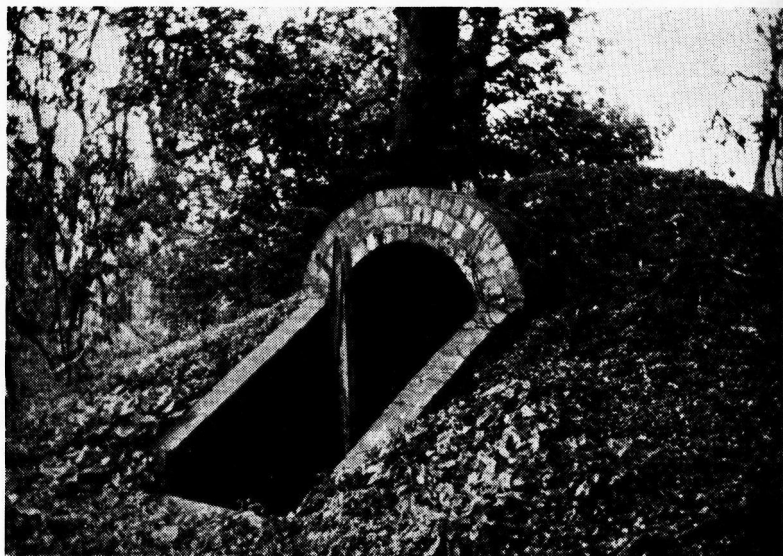
Abbey Manor, Evesham, Worcs.: There is another odd ice-house here, actually on the roadside and situated near the Manor. Like the ice-house at Watchbury House, it is not true to type. Unfortunately the entrance is now walled up, but a sketch made by Mr. W. A. Cox at that time, shows that it was constructed in brickwork and built 15' 0" below ground level. It is 10' 0" square by 6' 0" high, and the interior is reached by a straight flight of brick steps, the roof of which is arched brickwork from top to bottom. Here, in the winter months, blocks of ice from the pond were packed away between layers of straw, and the ice-house filled to half-way up the steps. I am assured that this ice-house was efficient and provided ice all the year round. Mr. Cox considers the structure to be approximately 200 years old, and that in this case the pond was dug 100 yards away expressly to supply the ice.

Mr. Barnard dated this ice-house at 1852, the year Evesham was first

¹I am indebted to Mr. L. J. Thompson, Hon. Secretary of Kidderminster Field Club, for information regarding this ice-house.



CROOME COURT, WORCESTERSHIRE.



BARRELLS HALL, WARWICKSHIRE.

MIDLAND ICE-HOUSES.

brought into railway communication with Worcester. Soon after this period, ice was being conveyed in summer more or less by rail at a number of places in the district at very low rates. It appears that Abbey Manor was one of the households then supplied. Ice would be brought up in one of the estate wagons and deposited in the ice-house, the entrance of which faces the road. Whether or not ice was harvested from the pond after that is not clear, but these dates are contradictory. It may be assumed that this ice-house was built entirely for the purpose of housing ice imported by rail, as the date 1852 synchronizes with the date of the first railway communication, and this may account for its being of such an odd type and being built with its entrance so near the road. It is interesting to note that Councillor Wilson Russell of Evesham writes "In 1861 Edward Charles Rudge succeeded at the Abbey; he was generous in distributing ice to the sick in Evesham."

Croome Court, Worcestershire. This ice-house is so well hidden that it could not at first be found on my first excursion, but upon a second attempt, with the aid of a local guide, it was discovered in the shrubbery near old Croome Church, a remote and desolate place, being a most interesting house—not only in point of its construction, but on account of its sheer picturesqueness. Moreover, it was in a far less dilapidated condition than was expected. The house is of the general "egg shape" type, the portion below the ground line being constructed with two 9" brick walls with a 7" cavity, and that above ground with a solid 14" wall terminating in the usual domed top. The more unusual feature of this structure is that the brick dome is not covered by the usual mound, but is surmounted by a heavy polygonal timber roof, some of the thatch of which still remains. The main timbers of the roof are supported at their base by a circular stone wall. These principals at their heads are framed into a stout shaped and tapered vertical post which is supported on a large stone base resting upon the crown of the dome, and terminating above the apex of the roof in a mushroom-shaped cap under which the top of the thatching was tucked. This pitched roof on the low stone wall is reminiscent of the construction of a New Stone Age hut.

The chamber itself is approximately 23' 0" high internally, with a diameter of approximately 15' 0" at its greatest circumference, the brickwork being in a very nearly perfect condition. The entrance passage is only 4' 9" over its external 9" walls, leaving a passage little more than 3' 0" wide, and 7' 0" to the top of the wall-plate above the floor which is now of broken earth and approximately on a level with the greatest diameter of the ice-house, and some 2' 0" above the normal ground level externally. The house has lost its roof, which was also presumably of thatch.

This ice-house is perhaps unique in its way. Apart from its roofing, it has an approximately level site, and there seems to be no possibility of drainage. The bottom of the ice-house, now inaccessible, is filled for several feet up with rubbish and broken timber, but six recesses, probably 4' 0" from the bottom, and large enough to take the ends of stout timbers, are clearly visible. It is suggested that originally there was a floor at this point, and that the meltings from the ice found their way into the pit provided below. There would be no undue weight upon the floor, as the converging sides of the well would carry the solid frozen ice like a wedge. An inclined piece of framing at the edge of the pit suggests the jamb of an inner door at this point.

Railway communication revolutionized the methods of ice supply to this house too. At one time, during the summer months, ice was certainly supplied to Croome Court from Worcester, and this was probably stored in this old ice-house, which it was reported in 1945 had still been in use 25 to 30 years previously.

In conclusion, there are a number of literary references to ice-houses, of which two are worthy of quotation. In the introduction to the Biglow Papers there is a poem which purports to have been written by Homer Wilbur, referring to one Farmer North, a thrifty farmer who

"With frugal care,
Laid up provision for his heir,
Not scorning with hard sunbrowned hands
To scrape acquaintance with his lands:
Whatever thing he had to do
He did and made it pay him, too:
He sold his waste stone by the pound,
His drains made water-wheels spin round ;
His ice in summer-time he sold,
His wood brought profit when 'twas cold."

Finally, Osbert Sitwell in his *Gemini Rising* recalls the ice-house at Renishaw:

"... Sometimes, again, we would only walk, in the wood called the Settings; as far as the ice-house, a strange forbidding cave, seemingly ancient as the beehive tombs of Mycenae, to peer down its shaft, full of a century's drifting of dead leaves, a place still set apart for winter even in the midst of summer. ..."