# THE MOORSTONE AGE, PART II 

BY R. HANSFORD WORTH

## BASES OF CIDER PRESSES-CONT.

The olive presses in Tripoli, in the days when climate and soil were alike consistent with the extensive cultivation of the olive, were provided with very similar stone bases. I take a description from Cowper's Hill of the Graces, p. 149.
" These . . . are large slabs of stone lying generally flush with the earth, and, when in situ, directly in front of the senam itself. Their surface measurement is generally 6 feet to 8 feet square, but with a projection at one side. On the surface is cut a square or round groove or channel, 4 to 5 inches wide, and from this run two branch channels, one to one end of the projection, and the other to a side or corner. In all cases, the spout-like projection is turned away from the senam towards the enclosure."

It should be explained that the " senam " is a stone structure consisting of two pillars, usually monoliths, resting on the tops of which is a stone lintel or transom. Worked in the pillars are slots and recesses, in which it seems fairly certain that wooden beams were fixed. The corresponding structure in the Devon press is wholly of wood, and serves to adjust the lever by which pressure is applied to the crushed apples.

It is not impossible, but I think improbable, that our Devonshire press should be a copy of the Tripolitan device. It is more likely that similar needs were independently met by similar inventions.

## POUND-STONES, or CIDER MILLS

Crushing the apples preparatory to the extraction of the juice was accomplished in at least three different ways. For small quantities of apples, and for all soft fruit from which wine was to be made, the larger of the domestic stone-mortars were used, and at times one meets with press bases, little larger than the bases of the cheese presses, on which the juice was extracted. Such bases have deeper grooves than the cheese-press form.

For a long period of years, and, indeed, up to the present time, mills were in use, consisting of an annular trough in which runs a mill-stone, on its edge ; much like a type of

mortar-mill which can still be seen in action. In the applemill a horse was harnessed to the end of the axle of the millstone, and, walking in a circular track kept the edge millstone constantly rolling in the trough. This type of mill had many uses ; those used for apple crushing were reserved to that purpose ; but others served to grind bark for tanneries, to reduce rags to pulp for paper making, to grind paint, to crush grain to meal, and even to prepare coarse flour.

The apple-mills were not fitted to produce a smoothly ground pulp, but a pulp in which the cellular structure of the fruit was thoroughly broken up. The features of design were arrived at as the result of experience, and not with a knowledge of the cellular structure of the fruit. The floor of the annular trough was corrugated radially, even at times armed with radial iron bars, and the tread of the wheel was also corrugated. It resulted that the wheel did not move forward smoothly, but was continually lifted and dropped through a small height, and thus the pulp was at once ground and pounded. The operation of "pounding" was not regarded as having been completed until the pips of the apples were found to have been crushed. It is significant that the whole process was known as "pounding " and not as grinding.

All those pound-stones which I have seen are circular in plan, as is indeed necessary to the convenience of the track for the horse. A few of the larger are monoliths, but for the more part the stones are formed in two semi-circles, clamped together at the diameter. The stones varied considerably in size ; in my experience the largest have been found on the sites of monastic establishments.
(I). There was formerly a pound-stone at Buckfast Abbey, which was reputed to be the largest in Devon; it is now lost. In the year 1788, Andrews of Modbury, in his manuscript Journal of an Excursion on Dartmoor, describes this stone as being eleven feet in diameter and six feet high from the bottom, about half of it being underground. In the year 1792, Antiquarius Secundus, writing in The Gentleman's Magazine, gave the dimensions as nine feet diameter, eighteen inches underground and eighteen inches above ground. Laskey, who contributed a revised and enlarged version of Andrews' journal to The Gentleman's Magazine, in 1796, cites a "learned gentleman" as giving the diameter of the stone at nine feet four inches, and the depth three feet six inches, whereof one half was above and one half below ground. Andrews was a careful man, but it is to be feared that he fell in error, or was misinformed, on this matter. I conclude that the diameter of the stone was at most nine feet four inches, and I doubt the alleged depth of three feet six inches ;

## CIDEP-MILLS, AND PRESS.


few such stones are more than two feet deep at the circumference.
(2). Though there was undoubted rivalry between the monastic establishments in south-west Devon, it is unlikely that it extended to the provision made for the manufacture of cider: but in that matter Buckland Abbey excelled Buckfast. There is still preserved at Buckland a poundstone, now forming part of a fountain, which stone is ten feet two inches in diameter, and twenty inches in depth at the margin. It is a monolith.
(3). I have been unable to find at Tavistock any poundstone which could be identified as having one time been the property of the Abbey; but the Priory of the Isles of Scilly, the buildings of which were on Tresco, was a daughter house of Tavistock, and on the summit of Dolphin Hill in that island there is a pound-stone ; the workmanship is less regular than that shewn by the Devon examples. The diameter is eight feet four inches; the depth of the stone cannot be ascertained except by excavation. This stone is a monolith .
(4). At Shilston in the parish of Modbury is a fine example of the monolithic pound-stone. Its diameter is nine feet two inches ; the depth at the margin is two feet, and two feet four inches at the centre, where, as in some other instances, the central boss stands higher than the margin. This stone is no longer in use, having been replaced by the later device of a pair of granite rollers.
(5). At Lower Collard, in the parish of Shaugh Prior, is one half of a two-piece stone; the diameter is seven feet six inches, and the depth at margin is one foot eight inches.
(6). At the old home of the Elfords, Longstone in Sheepstor parish, the remains of a cider mill are complete, the poundstone, edge runner, and granite vat to receive the juice. These have been re-erected by the Plymouth Corporation, but not for use.

The pound-stone is in two parts; its diameter is six feet six inches, and the thickness at the rim is one foot seven inches.
(7). A stone at Torquay was at one time a part of the collections of the Torquay Natural History Society. It was too large to be displayed, and passed to the possession and care of Mr. L.. E. Currey, to whom I am indebted for measurements which I neglected to take when I had the opportunity. It is a one-piece stone; its diameter being eight feet three inches, the depth at the margin is eighteen inches, and the same at the centre. The channel is armed with one inch

MOPTAPS \&C.


Plate L, Figs. 1, 1a, ib, 2, za-North Bovey Church Figs. 3, 3a-Plymstock
diameter bars of iron, set radially. The stone came from Ilsham Manor. Approximate weight four and a half tons.
(8). Eight hundred yards to the east of the westernmost rocks of Sourton Tors, a few yards south of a track which at that point forms the boundary of Bridestowe parish (Devon, six inch O.S., lxxxviii, N.w., lon. $4^{\circ}-3^{\prime}-29^{\prime \prime \prime}$, lat. $50^{\circ}-4 \mathrm{I}^{\prime}-14^{\prime \prime}$ ) lying on the open moor will be found the half of a two-piece pound-stone, from the margin of which a fairly large piece has been broken. Not far to the west of this point can be found the spot where the stone was worked. It was abandoned in consequence of an injury which it received in transport. The diameter of this stone is seven feet six inches. Its thickness at the margin is one foot five inches, and at its centre one foot ten inches. The effective depth of the annular trough is seven inches, but the width of the margin is also seven inches, and it is fairly obvious that the rim was intended to be heightened in wood, as was not unusual.

It would be easy to supply details of many more poundstones but the above eight are fully representative.

Pound-stones, Summary

| Serial | One | Two | Diameter | Depth | Depth |
| :---: | :---: | :---: | :---: | :---: | :---: |
| No. | Piece | Piece |  | at margin | at centre |
| I | x | . | $9^{\prime}-4^{\prime \prime}$ |  |  |
| 2 | . | X | $10^{\prime}-2^{\prime \prime}$ | $\mathrm{I}^{\prime}-8^{\prime \prime}$ | $\mathrm{I}^{\prime}-8^{\prime \prime}$ |
| 3 | X | . | $8^{\prime}-4^{\prime \prime}$ |  |  |
| 4 | x | . | $9^{\prime}-2^{\prime \prime}$ | $2^{\prime}-0^{\prime \prime}$ | $2^{\prime}-4^{\prime \prime}$ |
| 5 | . | $\lambda$ | $7^{\prime}-6^{\prime \prime}$ | $1^{\prime}-8^{\prime \prime}$ | $\mathrm{I}^{\prime}-8^{\prime \prime}$ |
| 6 | , | X | $6^{\prime}-6^{\prime \prime}$ | $\mathrm{I}^{\prime}-7^{\prime \prime}$ | $\mathrm{I}^{\prime}-7^{\prime \prime}$ |
| 7 | X | . | $8^{\prime}-3^{\prime \prime}$ | $\mathrm{I}^{\prime}-6^{\prime \prime}$ | $\mathrm{I}^{\prime}-6^{\prime \prime}$ |
| 8 | . | X | $7^{\prime}-6^{\prime \prime}$ | $\mathrm{I}^{\prime}-5^{\prime \prime}$ | $\mathrm{I}^{\prime}-\mathrm{IO}^{\prime \prime}$ |

## EDGE RUNNERS

The granite wheels which are the actual crushing implements are never more than one in any cider mill, although in some other uses of the same type of mill two wheels will be found. In the cider mill the wheel is plane on the side toward the centre of the pound-stone, and convex on the side toward the circumference. It is usually about nine inches thick at the rim, and a foot thick at the centre, where it is pierced by a hole about seven inches square. The tread of the wheel is slightly rounded, and is fluted parallel to the axle. It generally weighs about thirteen hundredweight. The following examples are representative.

| (1) Lower Collard | $4^{\prime}-0^{\prime \prime}$ | $9^{\prime \prime}$ | 12 " | $\begin{aligned} & 7^{\prime \prime} \times 7^{\prime \prime \prime} \\ & 6^{\prime \prime} \times 6^{\prime \prime} \end{aligned}$ | $25^{5 \prime \prime}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| (2) Longstone | $3^{\prime}-7^{\prime \prime}$ | 9 9' | I2" |  |  |
| (3) Notter, Cornwall | $3^{\prime}-7^{\prime \prime}$ | $8{ }^{\prime \prime}$ | $10{ }^{1 / 2}$ |  |  |
| Doe Tor |  |  |  |  |  |
| Farm, Lydford | $3^{\prime}-5^{\prime \prime}$ | $7 \frac{1}{2 \prime \prime}^{\prime \prime}$ |  | $6 \frac{1}{2 \prime}^{\prime \prime} \times 6^{\prime \prime}$ |  |
| Ilsham |  |  |  |  |  |
| Manor | $3^{\prime}-11^{\prime \prime}$ | II' | $12 \frac{1}{2}^{\prime \prime}$ | $7^{\prime \prime} \times 7^{\prime \prime}$ | 6 |

Approximate weight fifteen hundredweight.
The stone at Doe Tor is unfinished ; it is set in the outer fence of the enclosures (Devon, six inch, O.S. lxxxviii, s.w., lon. $4^{\circ}-4^{\prime}-19^{\prime \prime}$, lat. $50^{\circ}-38^{\prime}-12^{\prime \prime}$ ) The perforation to take the axle is incomplete, extending less than halfway through the stone.

As the stone now stands one can not see the failure or imperfection which probably accounts for its abandonment.

See Plates J and K.

## ROLLER MILLS for APPLES

Later in date than the pound-stones, and often replacing them, were the roller mills ; in which the apples were passed between two, often slightly grooved, cylinders of granite. The axles of these cylinders were placed horizontally, and over them was built an open bin with sloping sides. Apples placed in the bin were perforce conducted to the rollers, gripped and crushed. This type of crusher is still in use, neither it nor the poundstone being wholly obsolete.
(1). In the year 1931 one of these rollers was still to be seen in the village of Holne, lying in a heap of miscellaneous objects and materials just off the roadside ; it was probably thought that it might be of some further use. The roller was of normal dimensions, although larger are to be found. Its length was fifteen and a half inches, and its diameter thirteen and a half inches.
(2). In the hamlet of Michelcombe, in the parish of Holne, there was, in 1931, a pair of closely similar cylinders, which also lay very near the roadside.
(3). At Coldstone, in the parish of Shaugh Prior, is a similar cylinder taken from a dismantled cider mill ; its length is seventeen inches and its diameter sixteen inches.
(4). When the pound-stone (4) at Shilston was disused, it was replaced by a pair of cylinders or rollers, which, in the year 1934, were in use, and are, I believe, still used.

I am much indebted to Captain A. Rodd of Yelverton for supplying certain measurements of the pound-stone at Buckland Abbey; and to Mr. L. E. Currey of Torquay for measurements of the Ilsham Manor stone, now in his garden. Mrs. M. M. Currey, in view of my interest in the matter, kindly sent me a sketch by the late Louis Upcott, a Devonshire man, of a woodcut by E. Calvert (died 1883) which is reproduced in Laurence Binyon's Landscape in English Art and Poetry. Calvert also was of Devon birth.

The title of this cut is the Cider Feast. I agree with Upcott's comments :- " This is a mixture of classical fancy and rustic reality. No doubt the Devon girls danced with the men, but no Devon farm-girl dressed like that. The figures and draperies have been copied from Greek vases. . . . The cider-making process is shown. In the centre is a stone trough with a stone wheel drawn round by a yoke of oxen. . . A girl is pouring apples into the trough from a bucket : another comes balancing the basket on her head. The cider press is shown behind, under a thatch-roof. . . . The apple juice is shown flowing into a shallow vat. . . . . in all the pounds I knew the apples were not pulped, as here, but sliced by revolving knives like the common turnip-cutter or hay-chopper."

For myself I would add that the mechanical details in the cut appear to me to present difficulties at least as great as the costumes and attitudes of the figures. The interest lies in the yoke of oxen. I do not think that the artist, although his imagination could introduce the classic dance in our county's orchards, would in the interest of art have supplanted the horse by oxen, had the horse supplied the normal motive power in his experience.

The bruised and crushed apple pulp was built up on the stone base of the cider press in alternate layers of straw and pulp, the whole covered with a board to which pressure was applied by means of a lever of the second order, the length of the lever being not infrequently thirty feet. At the end of the lever a weight was hung. By this means an approximately constant pressure was maintained ; the more constant in that the height of the fulcrum could be adjusted from time to time as the height of the column of straw and pulp became less from the loss of apple juice.

The weight used was a block of granite of convenient size, usually but roughly wrought. The block carried an iron eye by which it could be slung. These weights were sufficiently heavy to be inconvenient to handle, and tripods and blocks were often used to lift them when the lever was being set.

The weight at Longstone is two feet nine inches in length and two feet three inches in breadth, approximately rec-
tangular with a depth or thickness of fourteen inches, and its weight approximately $\mathrm{I}, 200 \mathrm{lbs}$.

In the Dartmoor area the apple juice was received in a granite vat. The use of granite extended some distance from the moorland; for example a stone vat was in use at Shilston, Modbury. The charge that cider was responsible for Devonshire colic could hardly be maintained in such instances, however true it may have been where lead-lined containers were employed.

The vat at Shilston, now used as a trough for the pump and rain-water, is approximately circular, the stone being forty-two inches in diameter and sixteen inches in depth; the inside measurements are thirty five inches in diameter and nine inches in depth; thus the capacity of the vat is 31 gallons when filled to the brim.

## DOMESTIC MORTARS

There is a small type of domestic mortar which I have never known to be made in either moorstone or Roborough stone ; the material used, in my experience, being either Cataclews stone, or one of the kindred rocks of Devon or Cornwall. Even as the bases of cheese-presses, and both the upper and lower stones of querns, have been accepted as ecclesiastical antiques, so to a greater extent have these small mortars, while a larger type is not infrequently claimed as an early font. There are five or six small mortars in the parish church of Dittisham, and one at North Bovey. I have heard varied explanations of their use. It is claimed that they were holy-water stoups; alternately they are identified as the begging bowls of mendicant friars ; and yet, again, it is said that the grain for the cucharistic wafer was ground in these mortars.
(1). North Bovey Church. A good example of the small type of mortar. Approximately circular, with projecting lobes as handles. The overall width at the handles is one foot, and at right angles to this it is ten inches. The depth of the stone is four and a half inches. The basin is six and a half inches in diameter, and three inches in depth; the bottom is rounded, the section approximating to a semicllipse.

There are varied forms which defy classification. Many were cup-shaped with a slight lip ; some of these may possibly have been lamps.
(2) Churston Ferrers, found built into the wall of an old cottage. This object is now in the Royal Albert Memorial Museum, Exeter. The material is not granite, but sandstone. The greatest diameter of the stone is nine and three-quarter inches, and the least is one inch less ; the height is seven
inches. The outline is not truly circular, but one deviation from the circle is obviously intentional, since it provides a lip. The cavity or cup is five inches in mean diameter, and four and a half inches deep at the centre. The bottom is relatively flat, rounding into the sides. This may be called a cup-shaped object, although it has no handle.

My attention was kindly called to it by Dr. Blackie, curator of the Royal Albert Memorial Museum.
(3). From the bottom of a well at Turnchapel, in the parish of Plymstock. A shallow bowl with a lip, material Roborough Stone. This was shewn to me by our member, Mr. J. J. Judge, to whom I am much indebted.
The outside diameter of the bowl is ten inches ; its circular outline is fairly regular, but broken by a half-inch projection at the lip. The top edge is fully rounded in section and the curve of the inner surface merges in the curve of the outer. The height of the stone is four inches, and the cavity of the bowl is two and a quarter inches in depth. The bowl has a flat circular base three and three-quarter inches in diameter. The size is too great to allow one to be tempted to identify this bowl as a lamp; the base too small to admit any but light grinding or crushing.
(4). North Bovey Church. The shape of this mortar is, in my experience, unusual. In plan, square with slightly curved sides, and fully rounded angles ; fourteen inches by fourteen inches at top and base. Height thirteen inches. At the centre of its height the stone is constricted to eleven and a quarter inches. The cavity is also square on plan, with rounded angles, and measures at the top nine inches by nine inches ; it is four and a half inches square at the bottom, which is slightly rounded ; and six and a half inches deep. The material is granite.
(5). The larger mortars usually show better workmanship and finish, and are sometimes claimed as fonts. Because it is under present conditions the easiest of access for me I have selected as an example the mortar in the church of SS. Nicholas and Faith, Saltash, Cornwall.

Mr. Worth's paper remains unfinished most unfortunately.
GATES.
WOOD-AND-STONE

Plate A. Reference Trans. Deg. Assoc. Lxxxi, p. 314.

THE MOORSTONE AGE. PART I



STILES.


Plate D. Reference Trans. Dev, Assoc, ixxxi, p. 322.


Plate E. Reference Trans. Dev. Assoc. Lxxxi, p. 327.

P.HW

INS. 12 Guluil
Plate F. Reference Tyans. Dev. Assoc. lxxxi, p. 328.

QUEPNS.


Plate G. Reference Trans. Dev. Assoc. lxxxi, p. 328.


Plate H. Reference Trans. Dev. Assoc. lxxxi, p. 329.


Plate I. Reference Tvans. Dev. Assoc. Lxxxi, p. 329.

