

Limekilns in Avon

Eric Taylor

The heating of limestone to a temperature of about 900°C in a kiln to convert it to calcium oxide or quicklime, goes back at least 2000 years to the Roman Empire, and possibly further to the Ancient Greeks. The Romans certainly knew of the uses of 'burnt lime' and the writings of Cato¹ describe the construction of a limekiln, little different from those built to perform the same task in this century. The Romans also knew how to use the burnt lime to manufacture mortar and plaster for building, and of the benefit of lime added to the soil to improve the growth of vines. As burnt lime is not easy to transport, due to its affinity for moisture the Romans would probably have burnt lime locally in the construction of their towns such as Bath and Cirencester.

The early limekilns would have been fuelled by wood or peat, and concern was being expressed by the 13th century, at the denudation of forests for lime and brick burning. In 1275, 500 oak trees were taken from Wellington Forest to fuel the King's limekilns². Towards the end of the century coal was being used. In the early 14th century, coal was prohibited as fuel for London limekilns because of the increased nuisance from smokes³.

Little has been found of medieval limekilns around Bristol, but they must have existed to supply lime for mortar, for churches, castles and other stone buildings. Outside the area, a 13th-14th century limekiln was excavated with the saxon and medieval palaces at Cheddar⁴. Remains of a 13th-14th century limekiln can also be seen in the grounds of Ogmore Castle, South Glamorgan.

By the 17th century, limekilns were well established in the Bristol area, and records show that lime was being burnt in the Avon Gorge:-

(c1625) **Joanne Batten** widow holdeth two tenements with a limekill and divers parcells of land . . . One tenement and a limekill with yard, garden and backside abutting on Rowenharn Ferry . . .

Her tenement with limekiln was probably near the bottom of Granby Hill⁵.

On March 19th 1626 an indenture was made between Sir Hugh Smythe of Long Ashton, and John Baylie, limeburner of Clifton:-

Witness that Sir Hugh leases to Baylie, one cottage adjoining and one Lyme Kill with all the quarres and stones within the quarres fitt for the making of Lyme situated in the slade under Stokley Wood between the land of John Garland alias Tovie below Rownham and the wood called Lye Wood . . .⁶

A further indenture of November 9th 1660:-

Indenture of this date between Thomas Pigott of Long Ashton Esq and Florence his wife of the one part, and John Painter of Bedminster Brickmaker of the other part.

Witness that the first named parties have demised and granted for a yearly rent to the said John Painter all that the Quarre and Stones within the Quarre fitt for the making of lime with the appurtenances in Stockley Coombe neere unto the view of the old Bloome House there between the haven and Stockley Wood, scituat, lyeing and being within the parish of Long Ashton and now in the tenure of the said John Painter, to hold the same for the term of five years, paying the yearly rent of Forty Shillings.⁷

Nothing remains of these early kilns.

At this time limekilns also existed within the city, as shown on maps and by the following century, in both maps and directories. Jacob Miller's *Plan of Bristol*, 1673, clearly shows two limekilns by the site of The Passage, which is now St Philips Bridge. Sketchley's *Bristol Directory* 1775, records five limeburners, one in Limekiln Lane, which is now St Georges Road. Matthews's *New Bristol Directory* 1793-4, gives three.

Outside the city boundary limekilns were plentiful, the area of St Vincents Rock, Hotwells was extensively quarried for its limestone. Matthews's *Directory* describes the rock:-

' . . . It is frequently used for chimney pieces, but principally for making of lime, for which purpose there is not any stone in England so good as this, nor is any lime so strong fine and white, which excellent properties occasion a very great demand for it from abroad'.

In 1784 a letter to Felix Farley's *Bristol Journal*, following the trial of a limeburner for short measure states:-

' . . . There have been in this neighbourhood for upwards of 25 years past upwards of 28 limekilns, and they may on a fair calculation have been reckoned to draw on an average 240 bushels a week each'.

This produced an estimated 350,000 bushels per year from 18 limekilns of which one third was exported⁸ (presumably at the time of writing, there were 18 working limekilns). Lime was at this time being exported to the West Indies for use in the refining of sugar.⁹

From the end of the 16th century lime had been used increasingly as a soil conditioner or 'manure' and its extensive use throughout the country enabled areas previously incapable of being cultivated to grow crops.

' . . . This trade of liming hath been more used within these thirty or forty years than in times past, and it destroyeth the furze, fern, heath and other like shrubs growing on the land, and bringeth forth a fine and sweet grass and quite changeth the hue and face of the ground and greatly enriched those that used it.'¹⁰

John Billingsley in 1797 describes the construction and cost



Jacob Millerd's Plan of Bristol, 1673

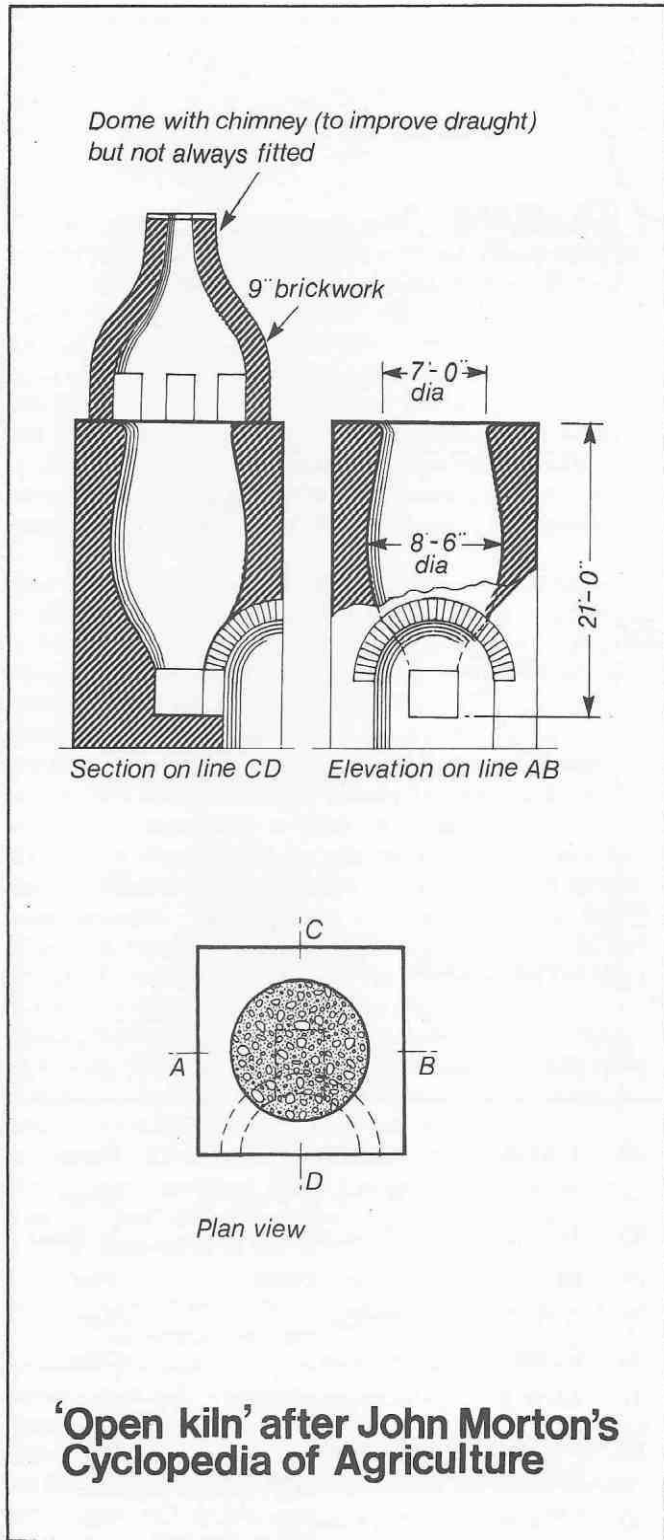
of a Somerset limekiln of the type that would have been found on many a farm.

As lime is the grand manure of this district, by which the improvements of cultivation are in great measure brought about, kilns for burning it are numerous, and generally thought well constructed; their form is that of a French bottle, the height seventeen feet, the length of the neck, in which the calcination is wholly effected, seven feet; its diameter four feet. They are built on the side of a hill, by which means the top is on a level with the adjacent rock . . . In such a kiln, may be burnt four hundred and eighty bushels of lime per week.¹¹

The majority of the 19th century (and possibly 18th century) limekiln remains from the area of the Mendip Hills to south of Bristol, indicates kilns of smaller dimensions than those described by Billingsley. This could account for the different production figures between Billingsley and those quoted in Felix Farley's *Bristol Journal*.

John Morton of Gloucestershire in 1840 describes an even larger limekiln:-

The best proportions for this kind of kiln are as follows: Inside of kiln twenty-one feet high, seven feet in diameter at the top, three feet in diameter at the bottom, and eight feet six inches in diameter at the belly part of the kiln. It ought to be made gradually to increase in size from the bottom to the belly, or widest part. This should be eleven feet from the bottom, and from thence it should go up about four feet perpendicular, and then narrow in to the size at the top. . . Thus a kiln, constructed the size described, will hold about 700 or 800 bushels, and about 250 bushels per day can be drawn . . . It is not necessary, of course, to make the kiln the size described, but it will be found best to construct it on this model, and in the proportions named, and it will be found competent to burn the same quantity of lime as the above in proportion to its size. Kilns constructed on this principle are certainly not economical, as will be seen by the following:- To burn 100 bushels of lime from the mountain limestone of Gloucestershire will take about six tons of stone, and from twenty-five to forty cwt of slack coal, varying according to the quality of the coal and nature of the stone.¹²



The majority of the small farm limekilns were no longer in use at the end of the 19th century and those still in production or being constructed were of a larger size such as that described by Morton. With the advent of artificial fertilisers the demand for lime on the soil diminished.

During World War II, with its black out restrictions, the old method of burning lime, with open top kilns glowing red hot, either had to cease or the kilns had to be covered. Many of the kilns that shut down for the war were never relit. Those that survived gradually lessened in number,

closed down by the decreasing demand for lime and competition from more economical gas fired, and rotary kilns. The last traditionally worked limekiln in this area, owned by Oliver Keeling, of The Keynsham Hydraulic Lime Works, ceased production in the 1970s.

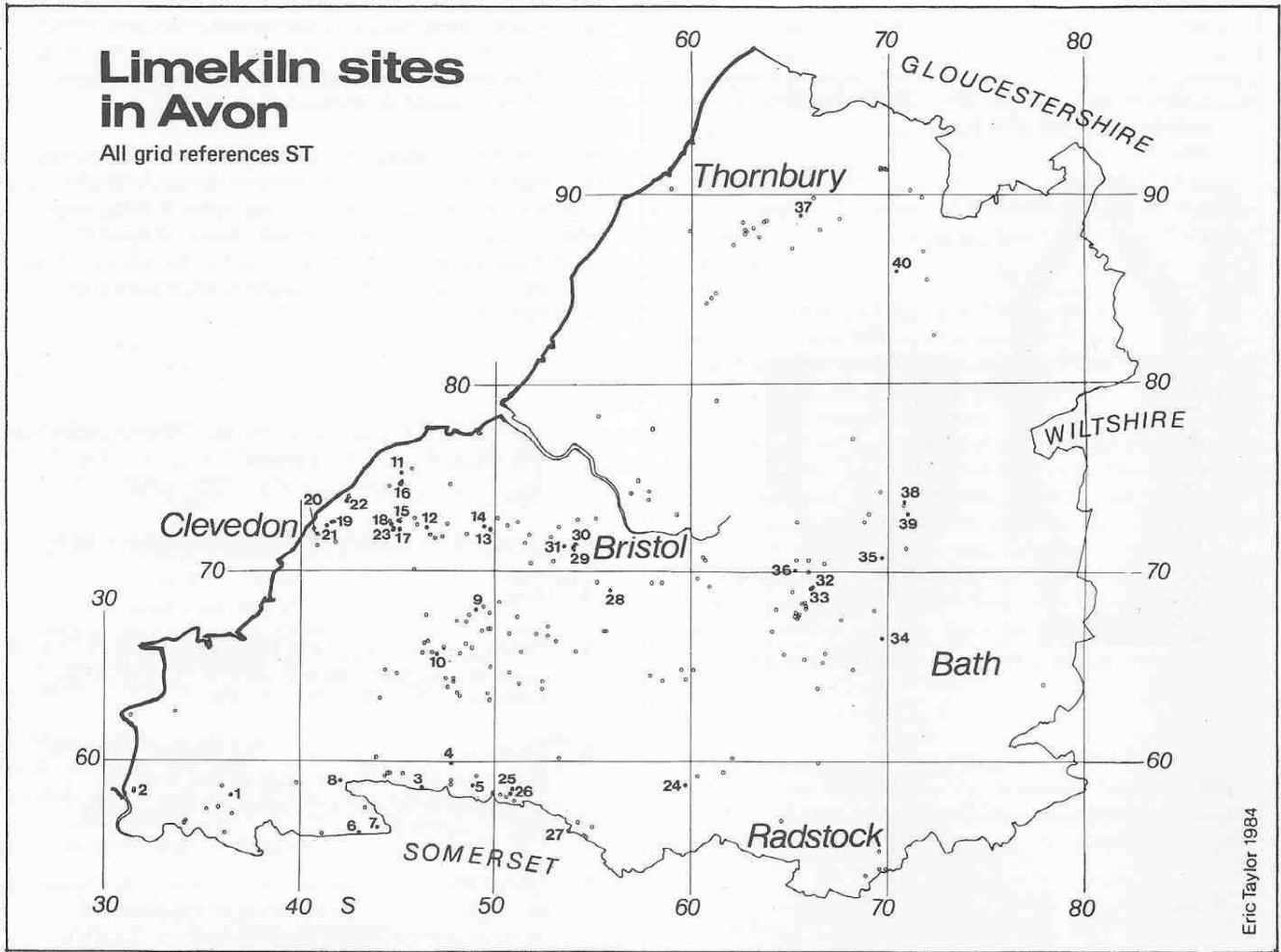
In the area covered by the present County of Avon, there have been at least 250 limekilns since the early 1800s.¹³ The distribution map shows the positions of those kiln sites that can be positively located. Many of these still exist, their remains varying from barely identifiable heaps of stone to structures little decayed from the days they were worked.

References

- 1 Marcus Portius Cato. 234-149 BC. Roman statesman and Historian. *De Agricultura*, XXX, VIII, 1-4. English translation, Heineman, 1934, p 55.
- 2 Davey, N. *A History of Building Materials* (1961).
- 3 Ibid.
- 4 Rahtz, P. 'The Saxon and Medieval Palaces at Cheddar' *Somerset Archaeology and Natural History*, 108, (1963-4), p 111. Soc Trans p 108.
- 5 Upton Way, L J. 'Survey of the Smaller Manor of Clifton' c1625. *Transactions of the Bristol & Gloucestershire Archaeological Society*, XXXVI, Part 2 (1913) p 230.
- 6 Upton Way, L J. 'Ashton Court Papers:- An Account of Leigh Woods'. *Transactions of the Bristol & Gloucestershire Archaeological Society*, XXXVI, Part 1, p71 (1913).
- 7 Ibid.
- 8 Felix Farley's *Bristol Journal* (23 August 1784).
- 9 Latimer J, *Annals of Bristol*, Vol 2. 1970, p 459 originally published by the author 1893
- 10 John B. Pembrokehire. Referring to a 'Description of Pembrokehire', by George Owen of Henllws. completed in 1603 but not published until 1893
- 11 Billingsley, J. *General View of the Agriculture of Somerset*, (1795), pp 90-1, 105-6.
- 12 Morton, J C, *A Cyclopedia of Agriculture*, Vol 2, (1840). pp 166-7.
- 13 25 ins to 1 mile O/S Maps. First and subsequent editions.

Acknowledgements

My thanks to Ed Denison and Ron Fullagar for the lists of limekilns they contributed and to all other people who have helped and encouraged this survey.



1	364581	Upper Canada	Good	21	414724	Clevedon	Good
2	315584	Uphill	Poor	22	424737	Walton In Gordano	Good
3	462586	Rowberrow	Good	23	448720	Tickenham	V.Good
4	477590	Burrington	Good	24	597587	Bishop Sutton	Poor
5	488687	Burrington	Good	25	509585	Blagdon	Fair
6	430561	Shute Shelve Hill	Fair	26	508582	Blagdon	Good
7	440564	Callow Hill	Fair	27	537563	Compton Martin	Good
8	420590	Sandford	Good	28	559690	Highridge	Good
9	491681	Backwell	Poor	29	540712	Long Ashton	Good
10	470657	Cleeve	Good	30	541714	Long Ashton	Fair
11	452752	Weston In Gordano	Poor	31	535713	Long Ashton	Poor
12	465723	Tickenham	Fair	32	662692	Willsbridge	Good
13	497722	Wraxall	Poor	33	661691	Willsbridge	Fair
14	494724	Wraxall	Good	34	697664	Kelston	Good
15	452726	Tickenham	Poor	35	697707	Upton Cheyney	Good
16	452746	Weston In Gordano	Fair	36	653701	Willsbridge	Poor
17	451722	Tickenham	Poor	37	675887	Tytherington	Fair
18	447724	Tickenham	Good	38	708737	Wick	Fair
19	417725	Clevedon	Fair	39	710730	Wick	Poor
20	409720	Clevedon	V.Poor	40	704859	Rangeworthy	Good