On Her Majesty's Service

THE VICTORIA HISTORY OF THE COUNTY OF ESSEX

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near the ports of grain-entry. This, combined with the introduction, between 1875 and 1885, of the new system of grinding by steel rollers, instead of by mill-stones, has altered the entire business so completely that most of the small inland mills, both wind and water, once so numerous in the county, are now closed and falling into decay. Forty years ago, no fewer than twelve windmills were worked regularly within the limits of the borough of Colchester, but of these only one remains in 1906. Of the few still existing elsewhere in the county, nearly all are employed in turning out meal and feeding-stuffs for the use of farmers, and scarcely one is now worked for the production of flour.

Mills of the modern type are few in number, but of great size. The largest, latest, and most perfectly equipped in this county are the Chelmer Mill at Chelmsford; the East Mills at Colchester; the Roller Mills at Maldon, belonging to Messrs. S. Garratt & Sons; and the Townfield Mills at Chelmsford, belonging to Messrs. T. D. Ridley & Sons Ltd. In the metropolitan portion of the county, near the London Docks, are also some flour-mills of very large capacity.

The returns of the census of 1901 show 774 persons as engaged in corn-milling in Essex.

The industry of CHARCOAL-BURNING, although still carried on regularly in Essex, has sunk to comparatively insignificant proportions and is now confined to certain localities only.

In former times, 'cole' (as charcoal was called) was used more generally than to-day. That its manufacture was once very prevalent and very widespread in Essex is shown clearly by the fact that no fewer than sixty fields, lying in fifty-three Essex parishes, still retain names which indicate beyond any doubt that, at some time, charcoal has been burned in them.[1] Such are Coal or Cole Field, Cole-burner's Field, and Cole-earth or Cole-hearth Field.[2] In all probability, too, the village known as Collier Row (on the border of what was once Hainault Forest) derives its name from the fact that 'colyers' (colliers) once worked there.

In the rolls of the manor of Great Waltham for May 1399, there is mention[3] of one John atte Hill, 'colyer,' who pursued his trade at Coleyer's Hill, at North End, in that parish. Again, in 1485, a 'colyer' named William Foster lived at Theydon Bois.[4]

In the seventeenth century, the industry must have been fairly general in Essex, or the County Justices would not have fixed the wages payable to those engaged in it when they met in Quarter Sessions at Chelmsford, on 8 April 1651, to settle 'the Particular Rates of Wages of all Manner of Artificers, Labourers, and Servants,' according to the Act of 1597.[5] The scale fixed for 'Making of Coales' was:

	s.	*d.*
The felling, cutting, and blocking of a dozen Coals, every Coale containing 24 Sacks, and every sack four bushels	2	4
The Making of a dozen of Coales . . .	2	0

Coming down to later times, we find that charcoal was required in large quantities for the supply of the Royal Gunpowder Factory at Waltham Abbey.[6] Between 1789 and 1815, considerable difficulty was experienced in obtaining sufficient wood of suitable kind to make the charcoal for the very large amount of gunpowder needed to carry on the French war.[7] In February of the former year, wood was purchased in Kent, but the factory authorities wished to give preference to Essex wood, both for their own convenience and for the benefit of neighbouring growers, and orders were given to purchase black birch and poplar wood at 15*s.* per cord, provided it should be found on experiment to make coal as good as that made from alder wood.[8] At this time, the 'Clerk-of-the-Cheque' was continually travelling about to purchase wood. In March 1793, he visited Fraton, in Suffolk, and 'the lower part of Essex'; on 5 July he visited the 'colliers' at work in 'the lower part of Essex'; and, on the 12th, he went to Navestock, where he bought, from Elizabeth Countess of Waldegrave, of Dudbrook, 79¾ cords of wood, which made 880 sacks of coal, the last of which reached the factory on 6 September, when also the colliers who had been sent to burn it returned.[9]

Up to this time, all the charcoal used at the factory had been 'pit-coal,' burned on a 'hearth' in the woods, in manner described hereafter; but, on 6 April 1794, a barge which had been sent to some place not named returned with a load of 'cylinder-coal'—the first received at the factory.[10] This was charcoal burned in closed metal cylinders, which were placed in a special kind of furnace. It was supposed to be cleaner than charcoal burned on a hearth and to give, in consequence, a more powerful powder. From this date onwards, 'cylinder-coal' was used mainly at the factory, which was supplied from certain 'cylinder houses' it established and maintained in Sussex, where suitable wood was obtained more easily than in Essex. The first

[1] See Mr. W. C. Waller's 'List of Essex Field Names,' in *Trans. Essex Arch. Soc.* (new ser.), v, 154–5; vi, 65 and 263; vii, 72, 295–6; viii, 86–8, 303–4; ix, 76 and 162.

[2] The circular area on which charcoal is burned is called the 'hearth.'

[3] See *Essex Review*, xiii, 72.

[4] See Add. MS. 28925; printed by Winstone, *Epping and Ongar Highway Trust* (1891), p. 287.

[5] 39 Eliz. cap. 12. There is a printed copy of the scale for 1651 in the British Museum (816. m. 15/44).

[6] For an account of the factory, see *post*, p. 451.

[7] See Winters, *Centenary Memorial* (1878), pp. 32–3, 37, &c.

[8] Ibid. 32. [9] Ibid. 39–40. [10] Ibid. 41.

'cylinder-houses' seem to have been established, in November 1795, at Fisher Street, in Sussex, but others were established soon after at Fernhurst, near Haslemere, in Surrey, and in other parts of Surrey and Sussex. The Clerk-of-the-Cheque was so busily employed in travelling backwards and forwards between Waltham Abbey and Sussex (at the rate of 1*s.* 7*d.* per mile) that he was obliged to discontinue a diary of occurrences at the factory which he had kept for several years.[1] In February 1800, the cylinder-house men petitioned for an increase of pay, on account of the high price of provisions at the time.[2] In 1827, there were five sets of three cylinders each at Fernhurst and the same number at Fisher Street, each establishment being capable of turning out seventy-three tons of charcoal annually.[3] The whole of this was either sent to Waltham Abbey and used there or supplied to manufacturers who were under contract to manufacture gunpowder for the Board of Ordnance at a certain price, provided the materials were found for them. The quantity of charcoal dealt with between 1808 and 1814 was as follows:[4]

Year	Used at the Factory				Supplied to Manufacturers			
	Tons	cwts.	qrs.	lbs.	Tons	cwts.	qrs.	lbs.
1808	132	12	2	17	145	0	3	8
1809	110	9	3	27	110	0	3	27
1810	142	1	0	0	142	4	3	16
1811	140	6	2	0	153	14	2	13
1812	170	1	3	0	171	8	1	12
1813	169	12	0	0	196	9	0	19
1814	140	19	3	0	107	10	1	23
Total	1,006	3	2	16	1,026	9	1	6
	Brought down				1,006	3	2	16
	General Total				2,032	12	3	22

Up to about 1827, most of the wood used for making charcoal had been purchased in Essex, Suffolk, Sussex, and Kent,[5] and no charcoal had been burned in cylinders at the factory itself, though one gathers that some 'pit-coal,' burned in the neighbourhood, was still used there. Some of the wood for this was grown, doubtless, actually on the lands adjacent to the factory, where, as early as 1789, plantations of dogwood, alder, and willow had been planted on purpose.[6] As the supply of wood from these increased, the cylinder-houses in Sussex and Kent were given up and the burning of charcoal in cylinders was begun at the factory itself. This appears to have been in 1831, when four experienced burners were transferred from a cylinder-house at Faversham to Waltham Abbey.[7] Thereafter, for many years, much attention was paid to these plantations. In January 1841, for instance, a large number of Dutch willows, 8,000 alders, and 1,500 dogwood trees were planted.[8] These plantations, some forty or fifty acres in extent, still exist.

In 1857, Major J. Fraser Baddeley described[9] in detail the methods of burning both cylinder and 'pit' charcoal as carried on at the factory. The process employed in burning the latter appears to have been identical with that still followed in the county.

> Great attention and experience are required [he says] in burning this charcoal, in consequence of which men from the forests are generally employed who are charcoal-burners by trade.

Among other places in Essex at which charcoal was burned largely a century or so ago was Thundersley, around which place there were and still are extensive woodlands. Arthur Young, writing in 1807, says:[10]

> part of the copse is cut, at eleven or twelve years' growth, into lengths of three feet for burning into charcoal. The burner is paid 20*s.* per 100 sacks, each of eight pecks. He does not cover the heaps with turf or earth, but with rushes, fern, thistles, long grass, weeds, or stubble, which the master finds; but, if the burner gets them, he has 2*s.* per 100 more. He burns two heaps a week the year round, five cords in a heap. The master buys the wood at 14*s.* to 17*s.* the cord of twelve feet long, three and a half high, and three broad. A team of five horses, in a six-inch-wheeled waggon, comes every week from London and takes 200 sacks [or over 10,000 sacks in the course of a year].

In Epping Forest, too, charcoal-burning has been carried on for a long period. At a Court of Swainmote held at Chingford on 22 February 1498, one of the woodwards of Waltham Forest reported[11] that

> Stoker of Lamburn hath destroied and felled the Kyng's vert withoute anie licence from any keper; also [that] Thomas Parker of Knott's Hill destroyeth the Kyng's vert in makyng of cols and selling [them] aboute by the sakk, to the grete destrucion of all the covert.

The business has ceased since this fine stretch of woodland came to be used solely as a pleasure resort, but an old coal-hearth is still perceptible in Lord's Bushes.

In Essex, the industry has long been declining, partly because gunpowder is now largely replaced by more powerful explosives, partly

[1] Winters, *Centenary Memorial*, pp. 47, 48, 52, 53, 62 and 63.
[2] Ibid. 56. [3] Ibid. 99.
[4] Ibid. 81. [5] Ibid. 63 and 99. [6] Ibid. 118.
[7] Ibid. 102. [8] Ibid. 105.
[9] *Pamphlet on the Manufacture of Gunpowder*, pp. 5–8.
[10] *General View* (1807), ii, 147.
[11] P.R.O., D. of Lanc., Forest Proc. 3-20 (see Mr. W. C. Waller in *Essex Review*, xiv, 203).

because the drying of hops (for which charcoal was used) has ceased in the county and partly for other reasons. The amount of charcoal now produced annually in Essex is about three thousand bags,[1] or less than one-third of the quantity formerly made at Thundersley alone. The industry is, moreover, confined to three localities only—the woods around Billericay, the Ramsdens, and the Hanningfields; the woods round Easton; and the High Woods of Writtle, Fryerning, and Blackmore. It has survived, in all probability, in the two last-named districts because in each a large stretch of woodland happens to be in the hands of one owner and under one management —that of the Countess of Warwick and Lord Petre respectively.

At Ramsden, some years ago, an attempt was made to burn charcoal in cylinders, but it was not successful and the 'still' now lies, abandoned and overturned, beside a drive in the woods. Elsewhere in Essex, charcoal is still burned on a 'hearth,' exactly as Young says it was at Thundersley a century ago. The following is an account of the process, as I have seen it in operation at the Hanningfields and in the High Woods:

Copse-wood of eleven or twelve years' growth is cut into lengths of about three feet three inches. These lengths are built into stacks, twelve feet long by three feet six inches high and three feet three inches broad. Such a stack constitutes a 'cord' of wood. Sufficient time (say twelve months) is allowed for the wood to dry before it is burned. The hearth for burning is a circular space, about eight yards across. In the centre, a large stake or post is set up and, round this, a pile of the 3-ft. sticks is built, in triangular form, to a height of three feet or rather more, the sticks being laid *horizontally*, their ends crossing at the corners of the triangular pile. Around this central pile, other similar sticks are heaped, these being set *upright* with their tops leaning towards the centre. The piling up is continued until a mound of wood nearly six feet in height has been built, and from four to five cords of wood have been used (Fig. 12). The stake is now drawn out, leaving a central triangular-shaped cavity. The whole heap is next covered with dry bracken or straw, and over this is spread a thin layer of 'hearth-dust,' consisting of the fine black ash of previous burnings, the aim being to keep the smoke from escaping and to prevent rapid combustion. If much wind is blowing, the layer of dust must be thicker on the windward side of the heap: otherwise, a hole would be quickly burnt in that side. Finally, the pile is lighted from the top by shovelling into the triangular central cavity the glowing ashes of burnt faggots or bushes, together with layers of small charcoal or 'charm,' and burning 'brands' (that is, unburned ends), until the space is quite filled up. Some twenty-eight to forty-eight hours are occupied during the whole process of burning. The slower it is done, the better is the quality of the resulting charcoal and the longer the sticks. From time to time, the fire within burns through the outer covering of fern and hearth-dust, showing the glowing coals within, and the burner has to be constantly on the watch to close these holes with a wooden rake as soon as they appear. He is enabled to reach even the middle of the heap by means of a rude ladder. As the burning progresses, many parts of the heap become covered with a very curious, yellowish-brown, fungus-like growth—probably a sublimate due to the destructive distillation of the wood. When all smoke has disappeared and the heap has sunk from about six feet high to about three feet, the dust is removed from the middle of the heap, several pailfuls of water are poured into the centre of the fire, and the dust is immediately replaced in order to keep the steam in. This process is repeated until the fire is 'quenched' to the bottom of the heap. After three or four hours, holes are made in the heap and some twenty or thirty pailfuls of water are poured in. After another period of about twelve hours, the heap is found to have cooled. It is then opened, when the sticks are found to be completely charred, except an inch or so at the bottom. These half-charred ends, called 'brands,' are broken off and used for starting the fire in the next operation. The burner must not leave the fire whilst it is burning: indeed, he has to watch his burning heap constantly to see that the fire does not burn through the covering, in which case the charcoal would be spoiled. Consequently, he has to live beside his hearth for weeks at a time, in the heart of the woodlands. His hut (Fig. 13) consists of poles arranged in a circle, inclined to meet together at the top, and covered with turfs, with an aperture left for entrance. Within is a hearth, over which a cooking-pot is hung, and a couch of bracken. These huts are a delightfully picturesque feature of the Essex woodlands.

In addition to 'cord-wood coal' (the production of which has been described), brushwood is sometimes burnt for 'small coal,' and stubs, stumps, and knotty pieces for what is called 'all coal.'

Almost any kind of wood is used in Essex for making charcoal—oak, hornbeam, beech, alder, willow, sallow, ash, birch, and maple. Oak makes a heavy charcoal: willow, a light and porous. The latter is worth twice as much as the former and it is used in gold and silver smiths' work. For gunpowder, charcoal made from dogwood, alder, or willow is employed. Charcoal is also in demand for the tempering of gun-barrels; for filters; as a deodorizer; for medical purposes; in pyrotechny; and also, it is said, to mix with blacking, lamp-black, and blacklead.

[1] A 'bag' contains 2 to 2½ bushels.

A cord of cord-wood is now worth about 9*s*., and the cost of burning it—that is to say, the wages of the burner—is 4*s*. 6*d*. From one cord, thirteen to fifteen bags of charcoal are obtained. The wholesale price given by the London merchants is 1*s*. the bag, and for small coal 10*d*. the bag. The profit on charcoal-burning is, therefore, very small. The cost of burning remains about the same as it was a century ago, but the value of the cord-wood has fallen from between 14*s*. and 17*s*.[1] to 9*s*. This accounts largely for the decline of the industry in Essex. Charcoal (for which there is some local demand by builders and others) is now sold retail in Chelmsford at 2*s*. to 3*s*. the bag. In London, the best picked charcoal fetches retail 3*s*. 6*d*. the bag.

The trade of charcoal-burning has now so nearly died out in Essex that it is no longer mentioned in the *Post Office Directory*; yet it is still carried on by at least two individuals—Mr. Harber, of Easton, who works for the Countess of Warwick, and his one-time pupil, Mr. Samuel Collard, who lives at Ramsden and works in the woods there, as well as in those at the Hanningfields, in the Writtle Highwoods, and wherever else his services are desired.

The QUARRYING OF CHALK for agricultural and other purposes and for LIME-BURNING has long been, and still is, an important industry in the two small portions of Essex where the chalk formation appears at the surface—namely, around Saffron Walden, in the extreme north-west, and around Stifford and the Thurrocks, in the extreme south.

In 1669, one Samuel Irons, a lime-burner, of Purfleet (in West Thurrock), issued a halfpenny token on which a lime-kiln was represented. In 1681, one 'Smith, a lym burner,' was buried at Stifford.[2] The quarries at Purfleet from which these men got their chalk, which were probably ancient even in their day, are still worked. In 1768, Morant wrote[3]:

> Near Purfleet, among the hills, are very great chalk-pits and lime-works, which bring considerable profit to the Bricklayers Company that took a lease of them from Caleb Grantham, Esq.

Another Essex historian, writing in 1771, says[4] under Stifford that,

> from the chalk-pits in this and the neighbouring parishes, a very considerable trade has been carried on by several lime-kilns, even to the extent of thirty miles and upwards, for many years past.

The pits in Stifford here mentioned are, doubtless, the two, of immense size, now disused and overgrown with trees, which exist on either side of the narrow road between West Thurrock and Stifford, near the top of the hill.

In 1807, the Purfleet quarry belonged, as it does still, to the Whitbread family. Young gives[5] a large folding view of the pit, which shows that it was, even then, of very great extent. He says that Mr. Whitbread had recently discarded the use of carts, in favour of tipping-trucks, running on 'iron rail-ways,' whereby four horses were enabled to do work for which twenty-five had been required previously. These trucks were evidently regarded at the time as an ingenious novelty, for Young gives several diagrams showing the details of their construction. The rails were laid near the face of the sloping chalk cliff, and the loose chalk was shovelled down, being guided into the trucks by large wooden hoppers. When five or six were filled, they were made into a train and drawn by a horse to the kilns, just as is done at the present day. The lime, when burned, was put again into the trucks and taken by another railway to the waterside, where it was tipped directly into the ship's hold for transport.

In 1826, the Purfleet quarries and kilns were worked by the firm of Meeson, Hinton, & Co., and the greater part of the population of the place was employed in them.[6] Later, they were taken over by Gibbs & Company Limited, which in 1871 was 'reported to be paying large dividends.'[7] At this time, other chalk pits had been opened in the adjacent parish of Grays Thurrock, but the Stifford pits above-mentioned had long ceased working, probably because, being nearly two miles from the water, they were less economical to carry on than those close to the bank of the river.

Apart from the quarrying of chalk for making lime, large quantities were quarried also in the eighteenth century, in the Stifford and Thurrock district, for the use of farmers in manuring their land. This practice was, at the time, very general over the whole of the south, east, and north-east of Essex. Kalm, the Swedish naturalist, who visited England in 1748, says[8] that

> The farmers in [those parts of] Essex where there is no chalk to be found come down, even those who live a long way off, come hither down to the banks of the Thames, where there are chalk-pits, to buy here many loads of chalk, and carry them a long way overland.

Again, Arthur Young, travelling in 1767 from Billericay to Tilbury, speaks[9] of 'eternally meeting with chalk-waggons, themselves frequently stuck fast' in an atrociously bad road, chalk being, he says, 'the principal manure they use about Billericay.' Morant says[10] that, in 1768, the pits at Aveley afforded 'good manure for the country adjoining'; while another county

[1] See Young, *General View* (1807), ii, 147.
[2] Palin, *Stifford*, p. 83.
[3] *Hist. of Essex*, i, 93.
[4] Gentleman,' op. cit. iv (1771), p. 364.
[5] *General View* (1807), ii, 224–5.
[6] *Pigot's Directory*, 1826, 535 & 536.
[7] Palin, *Stifford*, pp. 28, 83.
[8] *Visit to England in* 1748 (1892), p. 416.
[9] *Six Weeks' Tour* (1768), pp. 72 & 69.
[10] *Hist. of Essex*, i, 84.

FIG. 12. 'CORDWOOD' BEING PILED ON 'COAL-HEARTH' BEFORE BURNING
(*Photographed by Mr. Miller Christy in the Writtle Highwoods*)

FIG. 13. ESSEX CHARCOAL-BURNER (SAMUEL COLLARD) AND HIS HUT
(*Photographed by Mr. Miller Christy in the Writtle Highwoods*)

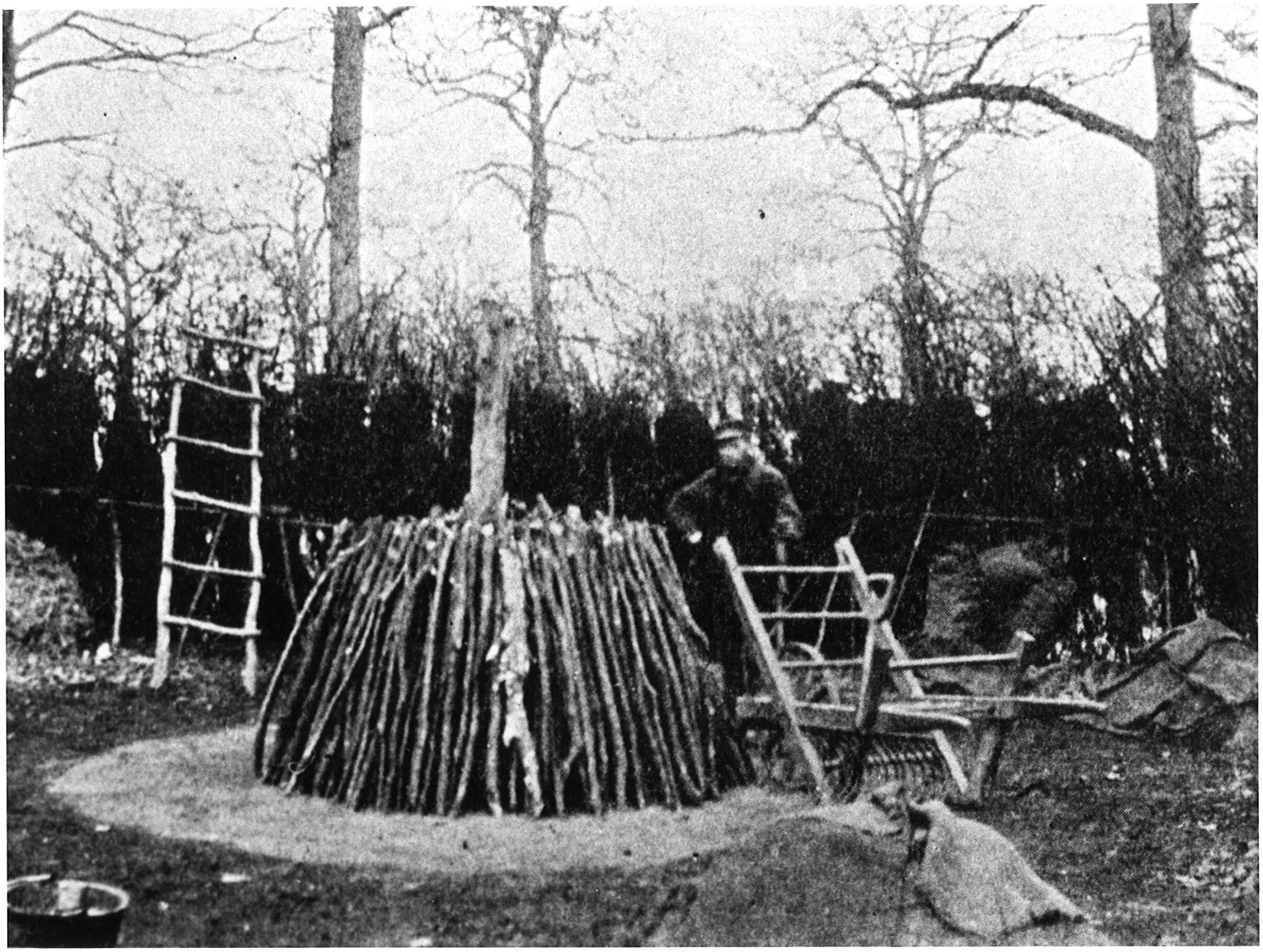

Fig 12

"Cordwood" being piled on "Coal-hearth" before burning.

(Photographed by Mr Miller Christy in the Writtle Highwoods)

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Fig 13

Essex Charcoal-burner
(Samuel Collard) and his hut.

(Photographed by Mr Miller
Christy in the Writtle
Highwoods)

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