

OASTS IN KENT AND EAST SUSSEX

PART II

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In the first part of this study, we traced the development of oasts from the time of the introduction of commercial hop-growing to England, until the end of the eighteenth century. Little has yet been said about those who, through the centuries, laboured therein, and for whose use they were built.

PLACES OF WORK

The hop-drier has always been a man of vital importance on any hop farm. On his skill and judgement hangs the success or failure of the whole year's endeavour. Freshly picked hops contain 75–83 per cent moisture, which must be reduced to about 6 per cent before they can be safely packed and stored. This means that in order to produce one tonne of dried hops, just about three tonnes of water have to be driven off. The drier has to regulate the kiln temperature and air-speed so that this is done without scalding, scorching or discoloration. Since about 1790,¹ it has been his practice to fumigate each kiln-load of hops by burning beneath them a pan of brimstone, fumes of which impart extra brightness to the appearance of the dried product.

Most critical of all, he has to decide when the hops have reached the precise degree of required dryness before unloading the kiln. Dependent on a number of variables, including the ripeness and moisture content of the green hops and the ambient humidity of the air intake, the whole process usually takes between eight and twelve hours. The most economic usage of kiln space calls therefore for two loadings to be dried in a twenty-four hour cycle. In recent years the introduction

¹ A. H. Burgess, *Hops, Botany, Cultivation and Utilization*, (1964), 8.

of oil burners has ameliorated the drier's physical labour, but for centuries when all hops were dried by solid fuel, constant stoking and attention to the fires was necessary. The drier never left the oast from the beginning of the week to the end, merely snatching an occasional cat-nap on a palliasse, but ever vigilant over his precious charge.

Reynolde Scot (1574)² assumes that the hop-planter himself would attend to so important a task. Marshall (1798)³ refers to 'the judicious kilnman', and implies that he is a trusted and responsible farm worker. In either case, all hop-driers had to face the scorching heat of their furnaces, the dusty sweat of heavy stoking, draughts of chilly night air, the acrid fumes of burning sulphur, the sticky black resin of the hops and the battle against drowsiness through the long hours and days. More often than not, these men presented an appearance as black as any sweep, their bloodshot eyes rimmed with fatigue. They were, however, members of an élite.

There was a mystique about the rituals of their craft which depended entirely on experience and sensory perception, and owed nothing to scientific aids. William Ellis, referring to hop-drying in his *Modern Husbandman*, 1750, recommended the use of thermometers, lately invented by Dr Fahrenheit in 1714, but he added, 'common workmen trust to their skill'. Indeed, it was not until the 1930s that hop-driers were persuaded reluctantly to accept the aid of thermometers in their kilns. The author recalls one indignant old drier holding out a horny hand – 'This,' he said, 'is my thermometer' – and it must be admitted that his results were consistently excellent.

After being unloaded from the kiln, the dried hops are allowed to lie in golden heaps on the cooling floor in the stowage part of the oast before being packed in 'pockets'.⁴ These are cylindrical sacks about 2 m. high when filled, and containing some 75 kg. of hops.

Until the mid-nineteenth century the pockets were filled by treading. All that was required was a stout wooden frame let into the cooling floor, in which was cut a circular hole the exact size of the mouth of the pocket. Through this hole was suspended the pocket, its weight being taken by an iron hoop resting on the surface at floor-level. After a few shovelfuls of hops had been put in, a man descended into the pocket to tread them firm. As soon as they were compacted, an assistant above with a large shovel, or 'scuppet' as it is called, sent down a fresh supply, upon the head of the bagster (as yet beneath the floor), and so on until the pocket was filled with tightly trodden hops.

² *A Parfite Platfome of a Hoppe Garden*, reprinted 1653 under the title *A Perfect Platform of a Hop Garden*.

³ *Rural Economy of the Southern Counties*.

⁴ The term is an ancient one. There is a reference to 'pocketts of hops' in Riley, *Memorials of London*, (1551), 666.

The author of a book devoted to hop-growing, published in 1838,⁵ wrote, 'this process of treading is a tedious and unpleasant work for the men . . . and occasions great thirst by the quantity of dust which arises, the treader being as yellow all over as a sovereign, and the yellow dust is very choking'. It must have been a great relief when this method was superseded by the mechanical rack-and-pinion press in the later nineteenth century.⁶

Even in buildings no longer used for hops, evidence of these holes in the floor can often be adduced from a square frame formed in the floor joists, visible from below. Where the hole was close to the wall of the stowage, one can assume that it was made for treading, but for the mechanical press it was necessarily positioned away from the wall to allow room for the crank handles to be turned.

Some of the early rack-and-pinion presses were made at Hurst Green, Sussex, by G. Pierson, ironfounder, or Tester and Son, but the great majority were produced at the Waterside, Maidstone, foundry works of W. Weeks & Son (successors to S. J. Knight). Examples are exhibited at Maidstone Museum and the Wye College Agricultural Museum.

Smallness of window area is a characteristic of oast stowages of all periods. This is due to the fact that excessive sunlight is deleterious to dried hops. Consequently, until the introduction of electric light, stowage interiors tended to be somewhat gloomy.

Crude accommodation was provided for the drier and his assistants, either as a lean-to annex or in a roughly screened portion of the stowage. Perhaps some bunks where the men could snatch a rest between their arduous labours, a fireplace where they could boil a kettle, and a table whereon to eat an evening meal brought to them by their wives after their own busy day picking in the hop-garden. In bygone days, in some oasts, there might be a barrel of beer provided by a thoughtful employer to assuage the 'great thirst' occasioned by the work.

Any connection between a white-cowled oast nestling in some remote and leafy farmstead and governmental bureaucracy may seem surprising, but connection there was for a century and a half. From 1711 onwards (until repeal of the impost in 1862), an annual visitor to every working oast was the exciseman. Every pocket or bag of hops had to be weighed in his presence for assessment of excise duty, which varied over the period between 1*d.* and 2½*d.* per lb. In some old oasts,

⁵ E. J. Lance, *The Hop Farmer*, (1838), 120.

⁶ A lever-operated press, illustrated by Lance, *op. cit.* 125, was a failure. H. H. Parker, *The Hop Industry*, 1934, credits the invention of the rack-and-pinion press to 'Mr Ellis of Barming'.

the iron staple or hook may be found from which the official scales were suspended.

A NEW AGE

The nineteenth century witnessed a further great expansion in hop-growing. Between the beginning of the century and 1878 the English hop acreage doubled, most of this increase taking place in Kent and East Sussex. Naturally, there was considerable experimentation and development in the techniques of cultivation and curing.

In 1838 the drying floors were said to be 'sometimes made of tiles perforated with numerous holes, and at others of wire or hair cloth'.⁷ Smokeless Welsh anthracite coal, hauled here first by inland waterway and then by the new railways, fuelled the customary open furnaces, above which were suspended sheet-iron baffle-plates to protect the hops from too-fierce radiant heat and sparks. But on some farms various types of enclosed iron stoves and cockles were being installed, most notable being Shew's Patent, which had zig-zag cast-iron flue pipes through the plenum chamber. Such appliances could utilize a variety of fuels, including gas-coke.

It was an age besotted with iron and steam. The above-mentioned author of 1838 describes a contrivance for drying hops by hot water pipes laid a few inches below the drying floor, connected to a boiler with a dome head 'which feeds them', he says, 'with a continual supply of boiling water and steam'. Applying heat by this method, he assures us, is the cleanest method of drying, but 'admittedly very questionable as to its success' (in fact it never got beyond the experimental stage.) It was soon realized that the thermal efficiency of the so-called pure air systems was particularly low, due to the fact that a large proportion of the heat generated was lost as it escaped with the products of combustion up the outside flue. In an effort to make more efficient use of heat, consideration began to be given to two-tier drying, which had already been tried on the Continent. This entailed two drying floors, one above the other, so that the green or moist hops could be introduced to the upper floor and later dropped down to the lower for final curing. The system was not popular in Kent or Sussex at that time, though it is now showing some signs of resurgence.

ROUNDELS

Perhaps the most notable development in oast construction in the nineteenth century was the introduction of the circular kiln, known as the roundel. A number of contemporary writers are agreed in crediting

⁷ Excise regulations of 1835, quoted by H. H. Parker, *op. cit.*

this invention to the fertile mind of John Read who died in 1847, aged 87, and was for many years an inhabitant of Horsmonden.⁸

It had long been recognized as of vital importance to good hop-drying that the current of hot air should be evenly distributed over the whole area of the drying floor. Many growers were under the impression, erroneously as we now know, that there was a tendency for the hops in the corners of a square or rectangular kiln to receive less than their fair share of air movement. It was John Read who showed them how to construct a kiln without corners, and moreover one requiring the minimum amount of walling to enclose a given area. This was the origin of what was to become one of the most typical features of the landscape of Kent and East Sussex, an aesthetic form quickly discovered by innumerable painters and photographers,⁹ but now a sadly wasting asset, due to disuse, decay, demolition and unsympathetic conversion to other uses.

The introduction of circular kilns coincided with the great nineteenth-century prosperity of the industry, the speculative nature of which appealed to the aleatory, risk-taking spirit of the age. Landowners, eager to get on the newly profitable band-wagon, were hastening to equip their farms, and the popularity of the roundel soon spread. Among the earliest was one at Benenden (c. 1812)¹⁰ and another at Court Lodge, Brook, dated 1815. By 1848 S. Rutley, a Kentish farmer writing in the *Journal of the Royal Agricultural Society*, recorded that 'circular kilns are becoming every year more general throughout Kent and Sussex, and are now brought to that perfection that double the quantity of hops are dried on the same space and in a superior manner'. Older kilns of 9–14 ft. square were being replaced by roundels of up to 20 ft. in diameter, a substantial increase in drying area. Occasionally, as at little Bewlbridge farm, Goudhurst, on the Scotney Castle estate, roundels were added to an oast already equipped with square or rectangular kilns (Fig. 1), all served by a single stowage.

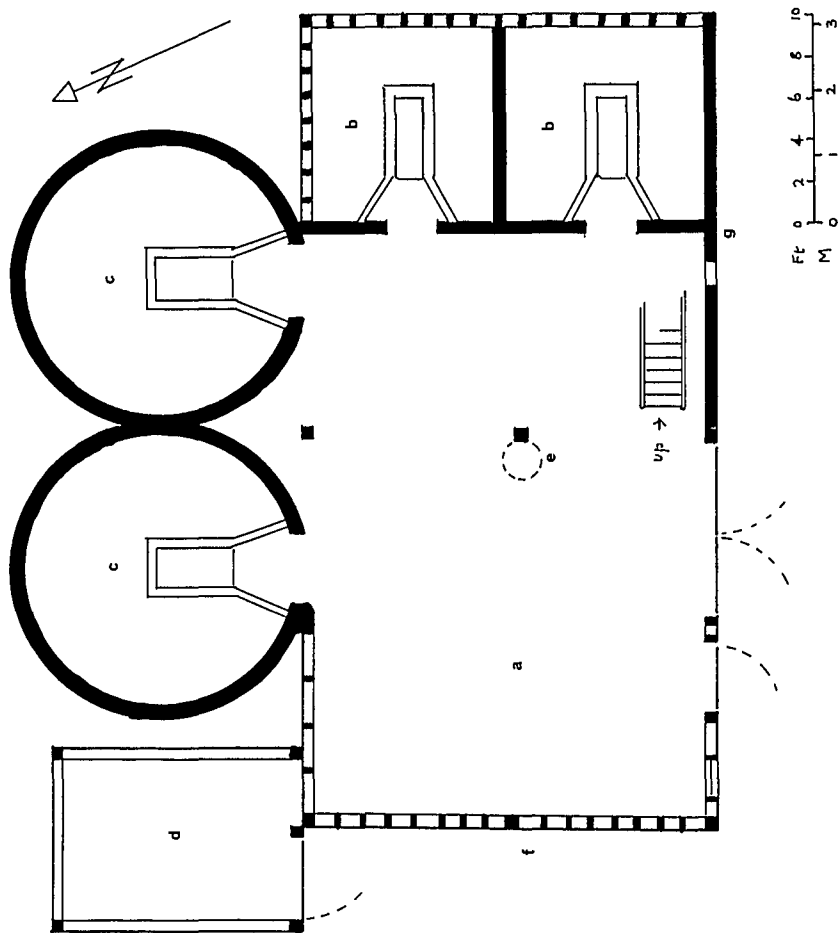
In spite of the rapid proliferation of roundels throughout the region, there were those who resisted such innovation, such as another mid-century writer¹¹ who opined that 'with respect to the mode of drying hops, the open square hopper kiln is most recommended, whereby the

⁸ A memorial bust of John Read, who was credited also with other inventions including the stomach pump, may be seen in Horsmonden Church; *vide* A. Cronk, *St. Margaret's Church, Horsmonden*, (1967), 73.

⁹ One of the earliest representations in art is a watercolour landscape by Edward Duncan (1803–82), *Fork Common (sic), near Sevenoaks*, now in the Fitzwilliam Museum, Cambridge. Modern artists, e.g. Rowland Hilder and Kenneth Denton, have made much play with this subject.

¹⁰ Noted by P. H. Grattan, *A History of Oasthouses*, (1961) (unpublished MS).

¹¹ H. M. Manwaring, *A Treatise on the Cultivation and Growth of Hops in the Kent Style*, (1855).



Key to Fig. 1

- a Stowage.
- b Original kilns, eighteenth century (external weatherboard, internal lath and daub).
- c Roundels, nineteenth century (brick and tile construction).
- d Charcoal store.
- e Pressing hole above.
- f Weatherboard cladding.
- g Sandstone ashlar wall.

Fig. 1. Oast at Little Bewlbridge Farm, Goudhurst.

hops are dried more quickly and regularly, and are rendered of a better colour and quality. A description of the kiln,' he says, 'may not be out of place. If the kiln be twelve feet square at the top, it should be twelve feet high from the fire, and the staddle should be six feet and a half square; and so proportionably in other dimensions. The fireplace should be about a foot square, and over it a small door or shutter about eighteen inches square, which assists to regulate the heat. The bed should be made of laths or rails, very even, about an inch thick and the same distance apart, and covered with an oast hair . . . A fire should then be made of charcoal, coke of Welch coal, keeping it of a regular heat, using brimstone at the front of the grate....'

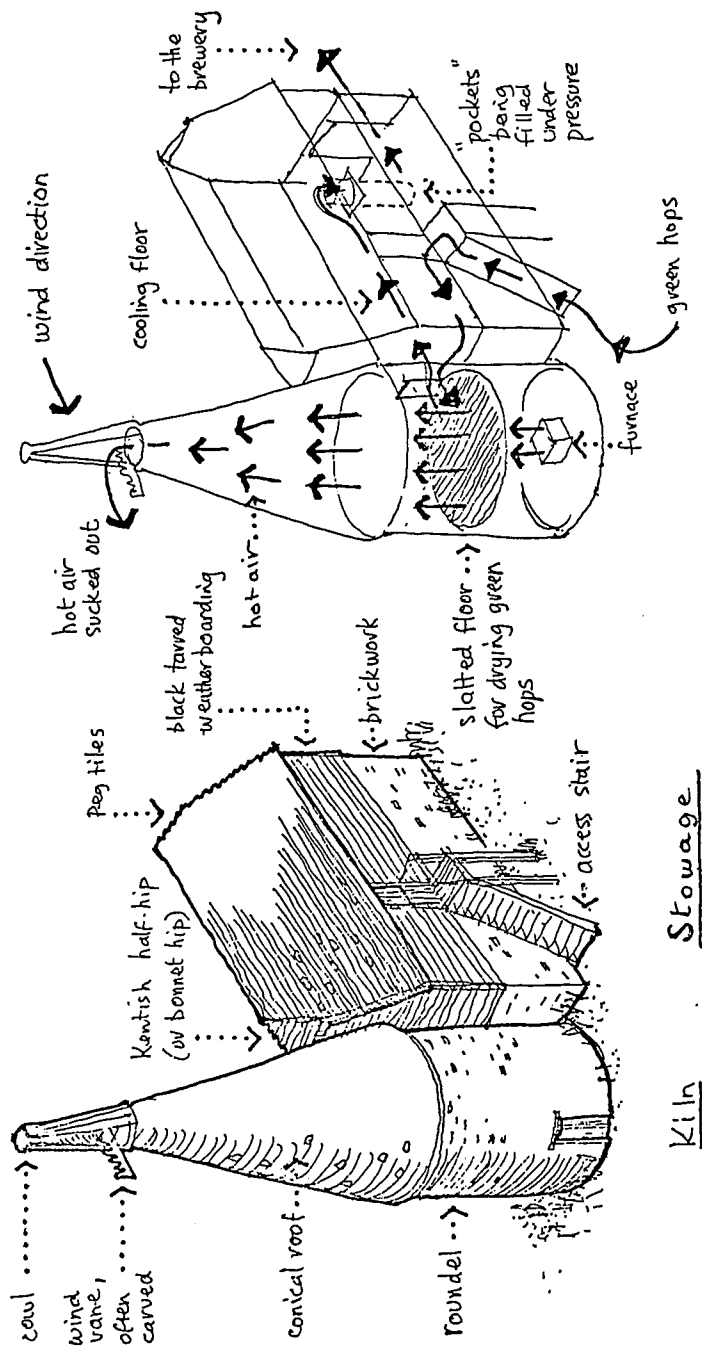
As the century wore on, however, it was the circular kiln which came to predominate. Necessarily, it was built as an integral structure, having its own conical roof, independent of the rectangular stowage building to which it was attached and to which it communicated at both ground-floor (or furnace) level and at drying-floor level, which for open coal firing had to be some four feet higher than the level of the cooling floor. On the smaller farms a single roundel would be attached at one end of a rectangular stowage, and the majority of oasts were on this simple scale (Fig. 2). The average hop acreage on individual nineteenth-century farms was less than six. In 1878, there were some 40,000 acres of hops in Kent alone,¹² which suggests a total of nearly 7,000 oasts in the county at that date.

At the upper end of the scale, on the farms of larger acreage, huge edifices were constructed with anything from three to six, seven or eight roundels arranged along one or both sides. These were the mark of the great specialist hop-farms in that golden age of hop-growing.

The materials of which oasts were constructed tended to be vernacular to the different parts of the region. Walls were sometimes of brick, sometimes of local stone, such as Kentish rag or flint. Perhaps the lower part of the kiln walls would be of stone, giving way to brick above. At the eaves it was a common custom throughout the nineteenth century for the vertical kiln walls to be topped with brick dentil and sailing courses. Occasionally, ragstone roundel walls were built so massively thick, as at Mote Farm, Ightham, that it was necessary for the rafters to be sprocketed, and the eave tiles flared out like the rim of a bell. Stowages might be of brick or stone to first-floor level, with timber framing and weather-boarding above. For the conical roofs of roundels, special clay tiles were made, slightly tapered to allow for the conical shape of the work.

Covering a roundel with slates called for the highest degree of the slater's art, but examples may still be seen at Cowlees, Hothfield, and

¹² F. Taylor, *Hops and the Hop Trade*, (1909), 38.



Kiln Stowage

Isometric view of building Diagrammatic view of operation

Fig. 2. Typical nineteenth-century single-roundel Oast (Flow Diagram).

also at Sheerland Farm, Pluckley (dated 1838), where incidentally the cowl vanes are ornamented with the *horse passant sable*, the crest of the Dering family of whose estate the farm was part.

Another technique for roofing a roundel which also called for considerable skill was to build the lofty cone in $4\frac{1}{2}$ in. brickwork, the exterior of which would be cement-rendered and coated with a mixture of tar and pitch, applied hot. This being the only pattern of roundel which requires neither internal plastering nor external tiles or slates, it has the lowest maintenance cost.¹³

In some parts of Kent, the 'hopper' principle, already noted in connection with the square kilns of the previous century, was adapted to fit the new roundels. The open furnaces were sited in the centre of the circle and were tended from a circular passage inside the kiln wall, formed by arched brickwork creating a kind of inverted cone-shaped plenum chamber under the drying floor (Fig. 3). Most of these have disappeared, but a sectioned example has been preserved in the oast which forms part of the Wye College Agricultural Museum.

Among the rarities, mention should be made of a pair of octagonal kilns built of sandstone ashlar, of an oast now converted into a dwelling in Stream Lane, Hawkhurst; and also a curious irregularly pentagonal kiln at Littlebourne, occasioned by a corner of the site being restricted by the left bank of the Nail Bourne.

The nineteenth century brought little or no change in the design or construction of the cowls, in respect of which, as already noted, tradition was sacred. There was, however, one bold attempt at improvement. W. H. Perkins, a Hertfordshire inventor, was in 1827 awarded a silver medal by the Society of Arts (now the Royal Society of Arts) for designing an ingenious cylindrical cap cowl which, on being raised or lowered by means of a chain pulley, permitted the exhaust aperture to be fully opened, or if desired entirely closed to exclude the weather.¹⁴ Although primarily intended for malt kilns, Lance (*op. cit.*, 151) postulates its applicability to hop drying. Whether it was actually tried for that purpose is not known.

Deserving special mention is one unique departure from the general tradition in cowls, still extant, and now the property of the National Trust. The interesting early nineteenth-century ragstone oast of three kilns, each 18 ft. square, at Outridge Farm, Brasted Chart, has not dried hops for at least eighty years, but has been maintained in good structural order. Each kiln carries a cowl of octagonal form, enclosed on six of its sides by vertical boarding under a neat octagonal cap surmounted by a knob finial. The vanes terminate in the form of a crosslet.

¹³ There were at one time many examples in the Tonbridge-Maidstone area.

¹⁴ *Transactions of the Society of Arts*, Vol. 45, 129-130.

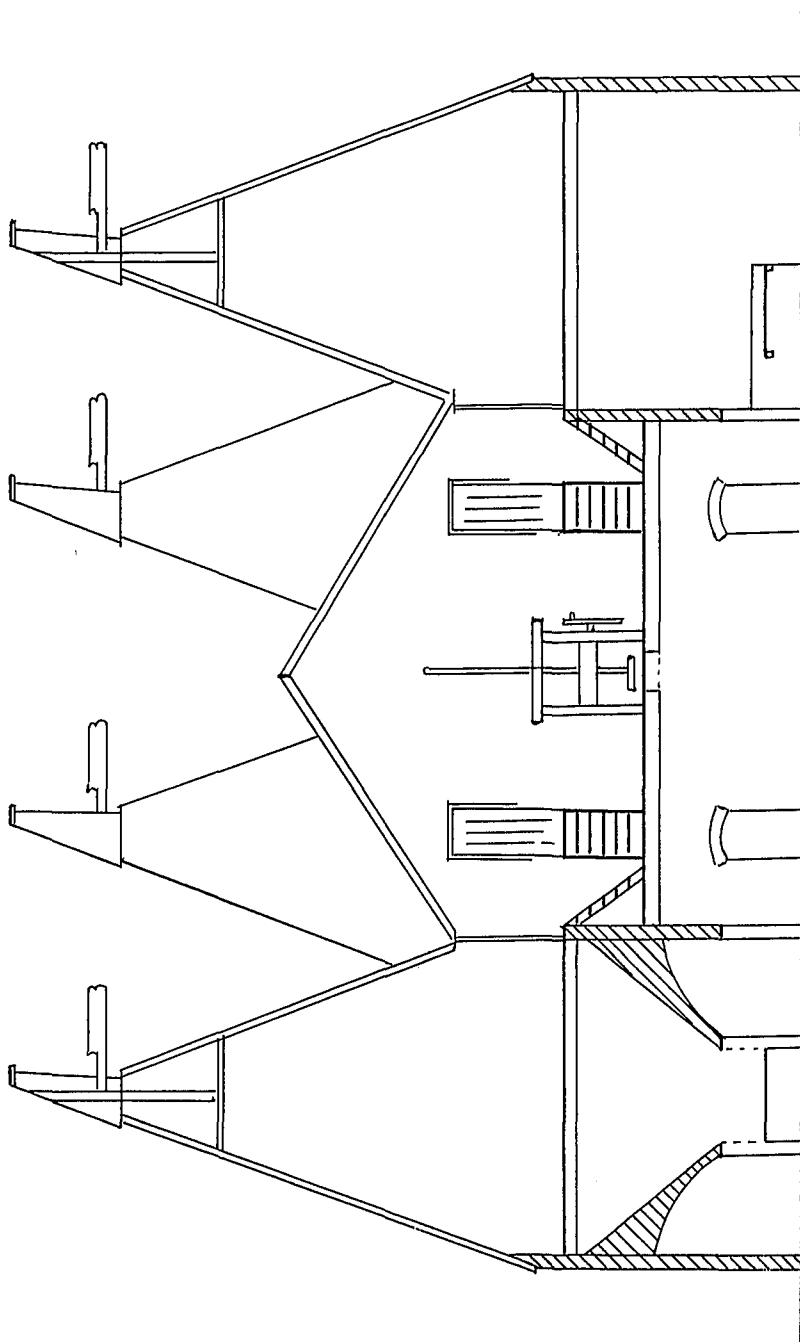


Fig. 3 Typical late-nineteenth-century multi-kiln Oast (Hopper-type Kiln shown left).

VICTORIAN SPLENDOUR

Throughout the century the quest continued for increased draught. Kilns were built taller, and sited to derive the maximum benefit from the prevailing wind.

On the larger farms, the increased size and multiplicity of kilns called for more extensive cooling room and stowage. Sometimes stowages were constructed with a second floor, above the cooling room, for reception of green hops prior to loading the kilns.¹⁵ This entailed using a pulley-hoist to raise the pokes of green hops to an external door at second-floor level from the waggons below.¹⁶ In such cases the upper pulley was often housed in a lucarne, or bonnet gable above the eave.

Such majestic buildings had never before been seen on English farms, and helped to earn for the larger hop-grower a reputation, as one writer put it, as 'the aristocrat of agriculture'. Contemporary aristocratic fashions in architecture began to creep in, too. Pseudo-gothic windows to the stowage were a whim at Bowhill Farm, Yalding. The high-Victorian *ornée* style was adopted for the magnificent oast at Patribourne for the Marquess Conyngham in 1869 – fussy barge-boards, spiky finials mounted on up-swept dormers and gables, and a date-stone bearing his lordship's crest. A description of this edifice appeared in *Country Life*. The great cooling floor, it was reported, was 'easily convertible for dancing'.

Perhaps the most impressive was a compact group of four detached oasts, each comprising five roundel kilns, at Beltring. They were built for that *primus inter pares* of Victorian hop-growers, Mr. E. A. White, and were subsequently acquired by Whitbreads. The poet Siegfried Sassoon (*b.* 1886) whose home was nearby, recalled in one of his autobiographical works¹⁷ the impression they made on his childhood. 'It was unusual,' he wrote, 'to find more than two hop-kilns on a farm, but there was one that had twenty, and its company of white cowls was clearly visible from our house on the hill; I would count them over and over again . . . I felt that almost anything might happen in a world which could show me twenty hop kilns neatly arranged in a field'.

SQUARE AGAIN

In the closing years of the nineteenth century, the fashion in oast building reverted once again to the square kiln. The reputed advantages of the roundel having been found to be illusory, few have

¹⁵ A type first noted in the Canterbury district by Marshall (*op. cit.*), (1798).

¹⁶ A horse or pony could be employed to haul on the hoisting rope, although the waggons, especially in the Weald, would sometimes still be drawn by teams of oxen.

¹⁷ *Memoirs of a Fox-hunting Man*, (1929).

been built in the present century, and then only in special circumstances. In cases where increased drying capacity was required, prior to the First World War, it is not unusual to find that an additional square kiln was attached to an oast which already boasted one or more roundels, while new oasts of that period were almost invariably provided with square kilns of up to 20 ft. dimensions.

The reasons for the resurgence of the square kiln are various. For instance, no special bricklaying skills were required, and standard tiles or slates could be used for the pyramidal roofs. Also at this time some kilns were equipped with a new invention, 'roller hairs'. In these the hair cloth on which the hops were laid was made to pass over a large roller running the whole width of the kiln. On the roller being turned by means of crank handles, the dried hops could be automatically unloaded onto the cooling floor, and this was thought to minimize breakage and pulverization of the hop-cones at their most brittle stage immediately after drying. In a few oasts, roller hairs are still in use (e.g., Paley Farm, Staplehurst).

Square kilns also facilitated further experiments in two-tier drying, in which the upper floor consisted of pivoted shutters, which could be made to precipitate the half-dried hops to the lower floor at the operation of a lever. In another experimental design, the hops were placed in half-a-dozen removable bins, which during drying occupied the whole area of the kiln, but which when ready could be pulled out on casters onto the cooling floor for unloading beside the press.

Alternatively, another practicability in association with a square kiln is the drier's carriage. This consists of a timber plank running the width of the kiln, having a pair of wheels at either end which enable it to run on rails affixed to the side walls of the kiln, just above the hop-bed. Riding on this device, the hop-drier can pull himself across the kiln in order to rake the green hops level, and later to inspect the progress of the drying.

All these practical factors have contributed to the square (or rectangular) kiln's return to popularity.

POWER

As the twentieth century progressed, two very significant technical developments in hop-drying took place, both of which influenced the design of new oasts, as well as giving rise to modification of existing ones. They are the provision of forced draught, and the introduction of oil firing.

Until about 1920 the large majority of hop-kilns in England still depended on natural convection for their draught, which left their efficiency at the mercy of the vagaries of atmospheric conditions. As

long ago as the mid-eighteenth century, Christopher Smart's epic poem on hop-growing mentioned with enthusiasm the use of a fan to produce a draught for drying.¹⁸

Constant and moderate (he says) let the heat ascend;
Which to effect, there are who with success
Place in the kiln the ventilating fan.
Hail, learned, useful man whose head and heart
Conspire to make us happy; deign t'accept
One honest verse; and if thy industry
Has served the hop-land cause, the muse forebodes
This sole invention both in use and fame,
The mystic fan of Bacchus shall exceed.

Despite such eulogy, this early 'ventilating fan' and its 'sole inventor' have faded into oblivion. It was not until the present century that forced draught for hop-drying became an accepted reality. Fans to increase the flow of air through the hop-bed now fall into two categories: the so-called bottom fan, which forces the air into the plenum chamber and up through the hops from below; and the top fan, which extracts air from the kiln from above the hops.

An early type of installation, under the trade name Sirocco, consisted of a centrifugal bottom fan, used in conjunction with an enclosed furnace with heat-exchanger, and belt-driven by a steam engine stationed outside the oast. With the spread of rural electrification, the most popular, and cheapest to install, were axial-flow electric top-fans mounted at a level a little below the base of the cowl.

Forced draught having now become universal, the traditional pivoted cowl has come to serve no practical purpose other than keeping out the rain from the top of the kiln. In some cases, it has been superseded by fixed louvres of less picturesque design. However, it is fortunate for the landscape that many growers, perhaps out of sentiment, continue to maintain the characteristic tall kilns and cowls. Generally speaking, modernization of the older oasts need not drastically alter their external appearance.

Within, however, the comfortable glow of open coal furnaces has given way almost everywhere to the thunderous roar of sophisticated oil burners, and some of the romance has gone out of hop-drying. No longer would Rudyard Kipling be able to delight in giant potatoes baked in the ashes.¹⁹ Gone is the wonderful scene described by Richard Church: 'The light of the fire throws grotesque shadows up the circular

¹⁸ *The Hop Garden*, (1752).

¹⁹ *Puck of Pook's Hill*.

walls, menacing shapes that leap and bow and mow like gigantic bats flickering round the more substantial objects, though they too have lost all semblance of form and solidarity. It is a Walpurgis Night scene, and one suspects the making of strange potions and communications from Endor . . .'²⁰ Equally nostalgic are the evocative stanzas of V. Sackville-West.²¹

In the space of a single generation, the old-time methods of hop-drying, and a great many of the traditional oasts, have become a subject of regional industrial history.²²

ACKNOWLEDGEMENTS

The author expresses grateful thanks to the owners and occupiers of all the many oasts examined in the course of this study. For Fig. 2 he is indebted to the Weald of Kent Preservation Society, who issued it in connection with their conservation campaign.

²⁰ *Kent*, (1948).

²¹ *The Land*, (1926); also *Country Notes*, (1939), 147–152.

²² The trends of modernization, concentrated specialization, and some decline in the demand for hops have led to hundreds of oasts becoming redundant. Like the old Kent barns, their companions for generations in so many farmsteads, they are not easily adapted to other present-day agricultural needs, though many have been saved from demolition by conversion to non-agricultural purposes.

The modern-built oast, efficient as it may be, is less likely, one imagines, to delight the heart of the landscape artist. Kilns and stowage are once again incorporated under a single roof, as they were in Reynolde Scot's day. Exhaust vents are located once again in the roof-ridge, but the roof is probably of asbestos cement sheeting and the vents a row of fixed louvres.