

ART. IX.—*Cumberland windmills*. By J. HUGHES.

Read at Kendal, September 10th, 1971.

THE windmill is believed to have originated in Persia and some writers have suggested that it may have come through Islam via Morocco and Spain.¹ The date of the first windmill in England is not known, but it is clear that in origin it post-dates that of the water-mill. Windmills begin to be mentioned in late 12th-century documents, and Rex Wailes has pointed out that they were then a curiosity, in that each was specifically described as “*molendinum ad ventum*” to distinguish them from the more usual form of “*molendinum*”.²

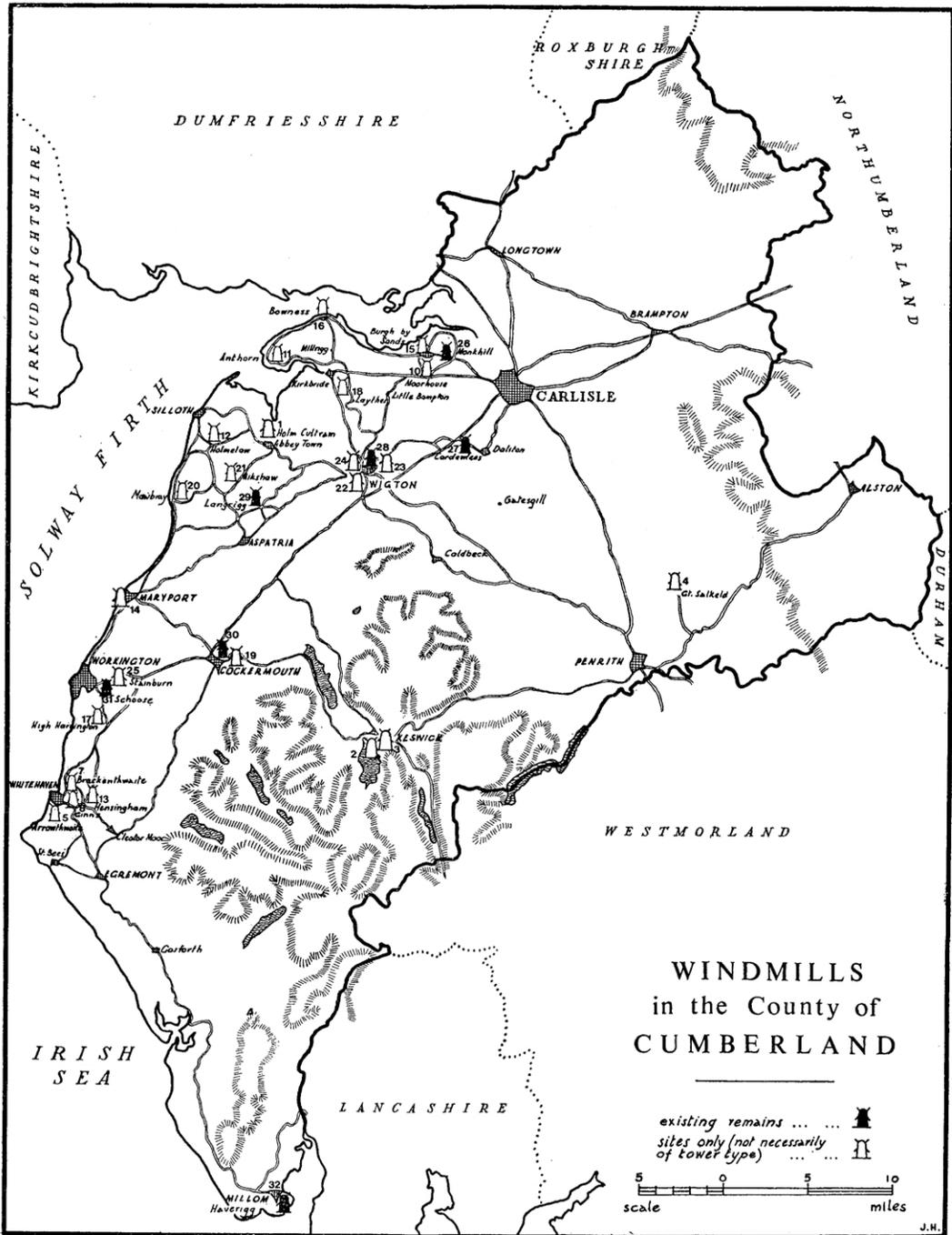
It may not be generally realised that the windmill was once a familiar sight in parts of Cumberland. Few visible remains are in evidence today, but it can be shown that over 30 have at one time or other been in existence.

The county has, for the greater part, an abundance of fast flowing streams and rivers, which from medieval times onwards have been utilised to provide the motive power for the grinding of corn, etc. However, on the Cumberland Plain suitable streams are much more infrequent. It is here that we find most of the county's windmills which take advantage of the prevailing south-west wind from the Irish Sea.

Water-mills do exist in this area, but the available streams are slow and sluggish and were probably much more so in former times when little attention was paid to good land drainage. Sited near a water-

¹ C. Singer, E. J. Holmyard *et al.* (eds.), *A History of Technology — Mediterranean Civilisation and the Middle Ages* (Oxford, 1958), 617.

² R. Wailes, *Windmills in England* (London, 1948), 2.



WINDMILLS in the County of CUMBERLAND

existing remains 
 sites only (not necessarily
 of tower type) 



mill, the windmill gave an alternative power form, and several such examples are known to have been under the same ownership.³ The district formed the best corn-growing land in the county.

The southern counties of England can boast of their timber smock-mills or their post-mills, but it is the stone tower type which still remains in Cumberland. It would be reasonable to suppose that this was usual and erected to withstand the more severe weather of the North. Available evidence shows only a single mill to have been a non-tower type.⁴ Most, but not all, were built in the familiar easily worked local sandstone. Quarries were numerous, Dalston (Chalk Quarry), Wigton, Aspatria (worked by the Graves family) and Allonby being the best known in the northern part of the county. The St Bees quarries supplied the needs of builders in the south-west. Apart from the usual red sandstone, several quarries had thinner bands of pale yellow or buff available. Such material, usually the more expensive, was used on at least one mill.⁵

It is interesting to note that in common with many water-mills more than one road led to each windmill. Most of the remaining towers are sited adjacent to the intersection of three or four road ends. The mill would be a centre of each agricultural community and roads would inevitably develop towards the mill from various directions. A case in point is Monkhill where the mill is situated on a hill 100 ft. O.D. Roads from Kirkandrews, Beaumont, Burgh and Moorhouse intersect at this point, no doubt developed from early farm-tracks. As expected, mills are more frequent in "corn" parishes such as Dalston, Burgh-by-Sands and Holm Cultram, but not necessarily in the centre of productive areas. Apart from town mills and those

³ Holm Cultram Abbey, Monkhill, and others.

⁴ Moorhouse.

⁵ Schoose, Workington.

attached to a particular farm, it would seem that more importance was attached to selecting well elevated sites.

All types of grain were grown and ground at the mills. Oats, of course, was the main cereal, but bigg (barley) and rye were also taken to the mills. Wheat was not a major crop, even in the Cumberland plain country. Canon C. M. L. Bouch and Professor G. P. Jones have shown that Celia Fiennes was wrong in declaring that only oats were grown in Cumberland during the 17th century.⁶ Further evidence can be seen in the Dalston Barony Rental of 1663 where land known as "Rie Park" was farmed by nine tenants.⁷ A much later Rental of 1791 states that Rye Park (Dentons Quarter) had been leased to John Nicholson, Esq., in trust for Ann Hall since 1766, and a tithe was paid of "15 Bushels of Rye, each Bushel 18 gal. Winchester measure Annunciation". Todderstack Quarter produced 14 bushels in tithe, whilst Stockdale Quarter gave $17\frac{1}{2}$ and Bacliff Quarter 18 bushels. Assuming that a tenth was claimed by the bishop these figures represent a considerable harvest of 645 bushels of rye.

Admittedly the amount of wheat grown was small, and even by mid-17th century it was said only the rich could afford a peck in the course of a year, and that generally at Christmas.⁸ From September 1671 to May 1672, Sir John Lowther's mill at Whitehaven (Arrowthwaite) ground a total of $226\frac{3}{4}$ bushels of corn. Only $1\frac{3}{4}$ bushels were wheat, and one bushel of this, from the home farm, was ground on 23 December. Of the remaining grain, approximately 15% was bigg (barley) and 84% mixed malt. Sir John Lowther, as impropiator of St Bees Priory, was possessed of tithe barns at Ehenside, Arrowthwaite and Whitehaven. It

⁶ C. M. Bouch and G. P. Jones, *The Lake Counties, 1500-1830* (Manchester, 1961), 99.

⁷ Record Office, Carlisle, DRC/2/31.

⁸ *Whitridges Northern Miscellany* (1847), 54.

is of interest to note in the estate account for 1678 that the ratio of tithe received was 24% bigg, 76% oats and wheat nil.⁹ In 1797 an old labourer of eighty-five stated that when he visited Carlisle market as a boy with his father he wished to indulge in a penny loaf of *wheat* flour, but, alas, it was quite unattainable.¹⁰

Even as late as the beginning of the 19th century the accent was on the growing of barley and oats in preference to wheat. John Christian Curwen, who did so much to improve Cumberland agriculture, stated in his Presidential Report to the Workington Agricultural Society that the return of grain from his own farm at Schoose for the year 1807 amounted to:

1,661	stooks of wheat or	18.16%
4,088	,, ,, oats or	44.70%
3,395	,, ,, barley or	37.13%
9,144		

Curwen at this period was probably not typical and grew more wheat than anyone else. Even he grew less in the 1820's, having altered his system of farming by converting much of his land to sheep pasture.¹¹

The mill was more than a mere building or a piece of machinery: it represented the means of life itself, and the local farmers and yeomen were much affected by the charges imposed by the miller, just as the poor were desperately concerned when corn was exported.

Protectionist legislation of the 17th and early 18th centuries restricted the import of agricultural produce and fostered the export of corn and other commodities. Landlords and yeoman farmers greatly benefited with export bounties at five shillings a quarter on corn, but the effect on the general population was to force up prices for home consumption.¹² There was much

⁹ Record Office, Carlisle, D/Lons./W.

¹⁰ *Whitridges Northern Miscellany* (1847), 54.

¹¹ Record Office, Carlisle, John Grainger's diary, 7 August 1826.

¹² G. M. Trevelyan, *English Social History* (London, 1944), 270-271.

suffering amongst the poor of Whitehaven — hungry mouths witnessed the export of sorely needed foodstuffs grown in Cumberland fields. To alleviate their sufferings, desperate men attempted to take the law into their own hands. Carlisle Spedding, Chief Steward to the Lowther Estate, wrote to Sir James Lowther:

Whitehaven, April 23rd 1728.

Sir,

. The Mob rose yesterday to rescue some Oat Meal that was bought up for Exportation to Ireland, and they have bin very Insolent & are hardly yet dispersed. Mr Gilpin was very Active in quelling them but what he did rather Encouraged them; God knows where such things will end.

On 22 November of the same year Spedding reveals

. The Dearness of Corn hinders Workington prodigiously for no body there keeps ye leading, but such only as have horses lying out, so that they ship very few coals for want of Leaders. Scarce a ship of 80 Ton can be loaden there in a week from both sides of the River.

A further letter to Sir James on 27 November continues in the same vein:

. Corn is rising every day and is like to be excessively dear. Oats are at 7^s and the best Bigg at 12^s a Bushell in Cocker-mouth market and the Carryers lay on 6^d a Bushell for bringing it to this Town.¹³

The correspondence makes no reference to any contributory factors such as poor crops, but 1728 was a notoriously bad year. Elsewhere it has been recorded as “. . . a very wet spring and late seeding and cold summer, so that corn did not get its feeding. . . . It was also a very sickly summer . . . corn proved very dear . . . the poor have a hard year, oate meale so ordnary that wheat bread is most used”.¹⁴ T. S. Ashton, in his *Economic History of England : The 18th Century*, gives the following average prices of wheat per quarter at Michaelmas:

¹³ Record Office, Carlisle, Lonsdale Papers/Spedding letter books.

¹⁴ J. D. Marshall (ed.), *The Autobiography of William Stout* (Manchester, 1967), 201.

1726 — 38/-	1729 — 47/-
1727 — 42/-	1730 — 34/-
1728 — 54/-	1731 — 24/-

However, great economic developments took place in the county between 1740 and the mid-19th century. It is significant that many of the windmills date from this period. Despite fluctuations and years of distress Cumberland farming developed until it was exporting even wheat. By 1812 J. C. Curwen was able to report to the Workington Agricultural Society that in his opinion the county must then have been producing wheat greatly in excess of that required for internal consumption. With a population estimated at 150,000 and $\frac{2}{3}$ rds assumed to consume wheat, he reasoned that 33,300 acres producing 24 bushels to the acre was sufficient for home consumption. With 633,000 acres of available arable land¹⁵ this meant that one acre in nineteen was sufficient. As the ratio was more likely to be one in fifteen it would leave a surplus of 9,000 acres capable of producing 72,000 Cumberland bushels¹⁶ for export, which at 30s. would represent £108,000. He considered this to be equal to the amount for oats and barley.

I should not hesitate in stating the export of the present year to exceed the amount of two hundred thousand pounds. Gratifying must this picture of the County's prosperity be to every member of the Society. And I believe it to be by no means over-rated.

It cannot be questioned that the county is in a most prosperous and rapid state of advancement.¹⁷

Prosperity, ever ephemeral, was not necessarily related to production. Curwen, in his annual report for the following year, reluctantly admitted:

In consequence of Cumberland becoming an exporting instead of an importing county, the prices of grain are fallen below

¹⁵ i.e. land capable of producing wheat.

¹⁶ The Carlisle bushel (24 galls.) was equivalent to 3 Winchester bushels.

¹⁷ Record Office, Carlisle, *Proceedings of Workington Agricultural Society*, 1812.

other districts. This must naturally make a change in the corn trade, as the farmers in the Holme will ship their grain at Bowness and other ports; the supply of Workington and Whitehaven must come from other quarters. The enclosures, in the immediate neighbourhood, will be able to furnish nearly 30,000 pounds worth of grain.¹⁸

Such was the agricultural scene in Cumberland, with windmills playing an important part in the economy of the county. Throughout the 18th century and into the 19th century they formed one of the principal sources of motive power for grinding corn. Some, however, were put to other uses: at least one was used for the grinding of snuff and another was used for the pumping of water.

Vanished mills.

1. HOLM CULTRAM, M.R. 174513.¹⁹

The Cistercian monastery of Holm Cultram was possessed of a windmill at the Dissolution. The 1535 Survey lists

Abbey corn mill	£8.
Water mill	13s. 4d.
Windmill	20s.
Water mill called Dubmylne	£5. 18s. ²⁰

This windmill may not have survived many years after the downfall of the Abbey, for a later inquiry of 1573 makes no mention of it. "There are two water corn-mills: Abbey Mill, demised with the site to Robert Chamber for £10 yearly, and Dubmill, demised to Richard Benson at £6."²¹ Apparently it was not out of mind in 1664, for reading the "Articles to be inquired off" by a survey Jury one notes:

¹⁸ *Ibid.*, 1813.

¹⁹ Mills of same locality are grouped together, otherwise arranged in earliest known date order. Map references: 1-inch O.S. sheets 75, 76, 82 and 88.

²⁰ F. Grainger and W. G. Collingwood, *Register and Records of Holm Cultram* (Kendal, 1929), 159.

²¹ *Ibid.*, 160 and 168.

Q. 16. To inquire whether there was not a wind Mill of ye yearly rent of x x s, where it stood and where convenient to be erected for ye good of ye Lordship.

A. 16. As the sixteenth we find that there hath bene a wind Mill upon ye Sandenhouse Moore, but ye same is that hath bene utterlie ruinated byond ye memory of man.²²

2. KESWICK, VICARS ISLAND. M.R. 262224.

The building of a windmill in the 16th century was undertaken by German miners at Keswick. The site chosen was Vicars Island (now known as Derwent Isle) on Derwentwater. The following extracts from the ledgers of the Company of Mines Royal are of interest and suggest the mill was worked in conjunction with the brewery, probably for the grinding of barley in the production of malt.

16 January 1571. Brewhouse; boards from Barras and birches from Brandelaw to Vicar's Island; stone from Barratal and timber for the windmill etc. £1. 7. 8. John Harison of Graistockh, bringing a millstone from Pireth (Penrith) to the windmill £1. James Sandes, hooper, making 18 beer pots for the mines 9/- . . . also lime and making sales to the windmill £12. 13. 9. . . . tailor for making sails to windmill 4/4; cutting a millstone 11/4, lime £2. 6. 0. and carriage from kiln to Island £4. 5. 4. Richard Wilson, our miller, 1 year's wages £3.²³

A further entry, two years later, indicates that a new sail was required at a cost of £1. 11s. 10½d.

The mining company suffered extensive damage to their works during the Civil War which compelled them to go out of business. The mill probably fell into disrepair about this time.

3. KESWICK, near St John's Church.

A water-colour in the Fitz Museum, Keswick, shows a view of Bassenthwaite from Keswick painted by

²² Record Office, Carlisle, Collection of papers, Manor of Holm Cultram.

²³ W. G. Collingwood, *Elizabethan Keswick* (Kendal, 1912), 103.

J.A.H. in 1849.²⁴ A fine timber smock-mill with domed cap is depicted in the foreground and appears to be sited on elevated ground near St John's Church. A single broken sail would seem to indicate that the mill had reached the end of its working life by this date. With an abundance of fast flowing rivers in the immediate area it would be tempting to believe that the mill was romantic licence on the part of the artist. However, an earlier artist, W. Westall, showed the same mill on an engraving of "The Vale of Keswick" in 1836.²⁵

This eight-sided type of mill, though common enough in other counties has not been found elsewhere in Cumberland.

4. GREAT SALKELD, site unknown.

Reference to Feet of Fines, 14 & 15 Elizabeth, shows that Thomas Myddleton and Margaret his wife conveyed a windmill at Great Salkeld with a messuage and land to John and Eleanor Myddleton in 1572.

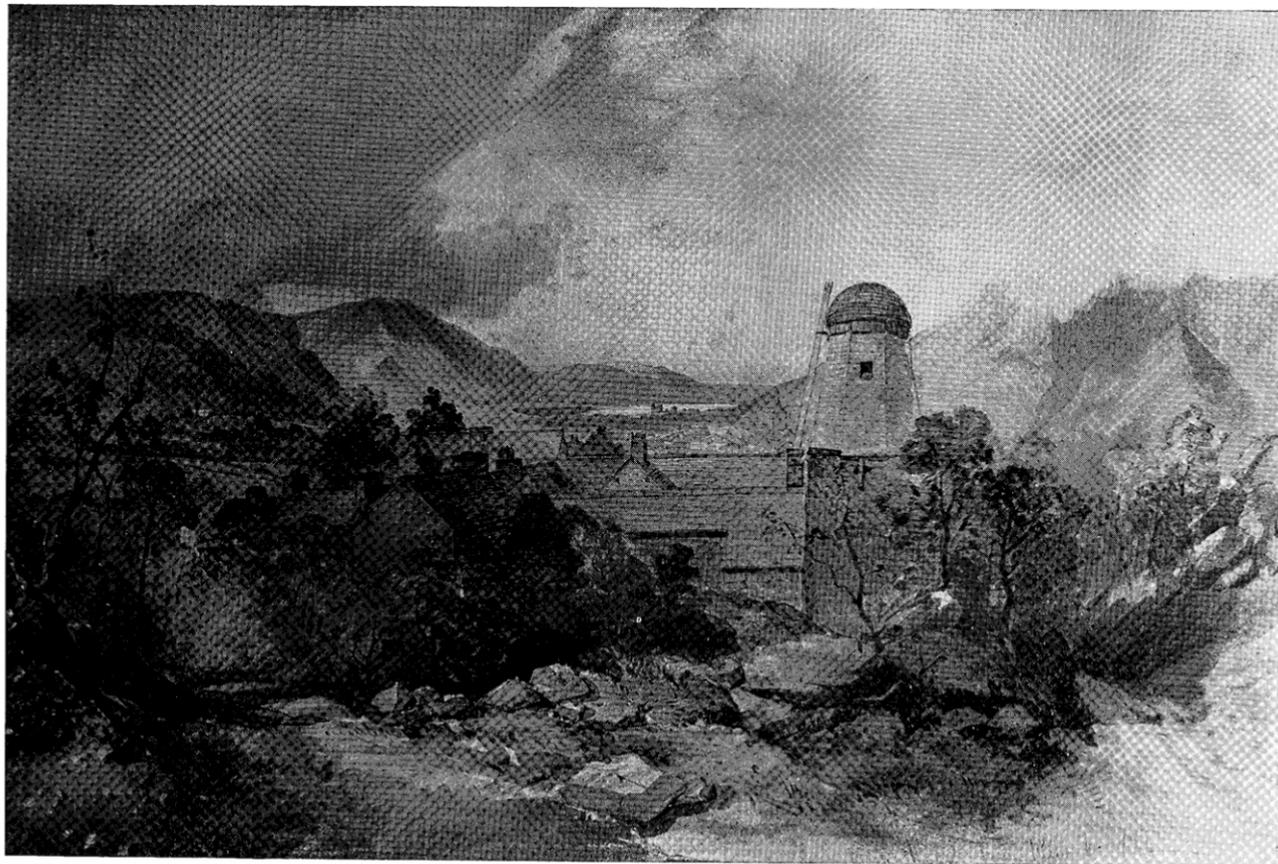
5. WHITEHAVEN, Arrowthwaite. M.R. 968178.

"... the windmill near Harrowthwaite, conspicuous in the view of 1642 which has only ceased to revolve within living memory." So wrote William Jackson in his *Papers and pedigrees of Cumberland and Westmorland*.²⁶ He somewhat doubtfully suggested that this 17th-century mill had survived from the days of Edward I when it was used to grind corn for his army advancing into Scotland. The mill can be seen in a view of Whitehaven in 1815 by Joseph Farrington as an illustration to Lyson's *Magna Britannia*. It stood adjacent to the Castle View Inn, and a number of pieces of its masonry can still be seen in adjoining

²⁴ Presented by our member, Mr B. L. Thompson.

²⁵ In the Armitt Library, Ambleside.

²⁶ Vol. II, 90. The view was drawn by R. Shepherd and engraved by W. H. Lizars.



Keswick Windmill — water-colour by J.A.H., 1849.

Photo: B. L. Thompson

gardens. Local inhabitants still refer to the inn as the "Stump" — a direct reference to the once derelict tower as it stood for a number of years.

The spelling of this location seems to have varied considerably in the last eighty years or so. Jackson gives it as Harrowthwaite — today, according to Ordnance Survey maps, it is Arrowthwaite and forms part of the Kells district of Whitehaven. The mill has been variously known as Thwaite Mill or Nelson Terrace Mill and was worked in conjunction with a horse mill prior to 1671. Presumably this arrangement catered for the vagaries of the wind. Until 1684 the mills were operated by the Lonsdale Estate. Careful accounts were kept by Thos. Tickell, the chief steward. These show that although milling was mostly done for the home farm, local farmers were also accommodated. A monetary charge was made on both alike. As no mention is made of multure from these farmers, they were probably freeholders. Multure at $\frac{1}{16}$ th part was taken from customary tenants which, in 1683, amounted to 58 bushels. Mr Henry Hind, the miller, was given his food and paid a wage of 25s. per annum.

From a lease of the windmill dated 1 December 1689 to John Satterthwaite and John Stoddart at £3 per annum, we learn that windmills, like ships, were of the feminine gender :

. Sir John Lowther to make *her* fitted with a new wheele and six arme etc.²⁷

It was good milling practice to have six arms to a mill, in that when one sail was damaged its opposite member could easily be taken out of commission without seriously upsetting the train or balance. To gain added height the mill was built on an artificial mound some 26 yards in diameter at the base, sloping to 24

²⁷ Record Office, Carlisle, D/Lons./W. Professor G. P. Jones has suggested to me that perhaps here was a case of *la donna e mobile*, as undoubtedly the mill would be at times!

yards at the top — the ground being raised about one yard high.

In 1955 Mr James Skelton, a retired joiner then 71 years of age, recalled as a boy seeing the mill in its later days. The tower had then been converted into three flats, housing three separate families. It was finally demolished about 1893.

6. WHITEHAVEN, site unknown.

There is evidence to show that Whitehaven possessed several windmills. One with six sails supplied the motive power for a "wind engine" which Sir John Lowther, in 1685, introduced into his coal-pits for raising water from the mines.²⁸

7. WHITEHAVEN, Brackenthwaite. M.R. 976185.

At the beginning of the 18th century Whitehaven had become a major market centre for West Cumberland, caused by the growth of coal, tobacco and shipping business. Not far from the harbour a Mr Hamilton erected a windmill at Brackenthwaite for an unknown purpose. A letter to Lord Lonsdale from Spedding, his agent, dated 15 November 1717 states:

I have had some talk with Mr Hamilton . . . have enclosed ye dimensions of ye ground he proposed which would pile up a square of 54 yds. and therefore will doubtless deserve a far better price than he offers though the ground be irregular and so hilly that it is incapable of being laid out into streets. . . .²⁹

Matthias Read's well-known painting of Whitehaven in 1738³⁰ clearly shows this four-sailed mill sited on the hilly foreground. An interesting feature is the cap which was turned by hand with a long "tail" reaching to the ground. On the end of this tail and resting on the ground were two wheels to assist the operator to turn the sails into the wind. It is possible that horses

²⁸ James Wilson (ed.), *Victoria County History* (Westminster, 1901), 360.

²⁹ Record Office, Carlisle, D/Lons./W.

³⁰ Preserved at Holker Hall.

or oxen may have assisted in this operation — the mechanical fan-tail not being invented until 1745.³¹ This mill has long since disappeared, but “Windmill Brow” persisted until comparatively recent times.

8. WHITEHAVEN, Ginns. M.R. 973174.

Trade continued to flourish and a thriving pottery industry sprang up in the Ginns area during the 19th century. The 25-inch scale, 1st edn., O.S. map (surveyed 1862/63) shows a windmill in plot no. 207 on the site of a pottery at the junction of Coach Road and Front Street. Such a mill would be required for the heavy task of grinding and mixing clay.

9. GATESGILL, site unknown.

There is place-name evidence of an early windmill at Gatesgill, near Carlisle. Lucy Head was compelled to sell part of a messuage and tenement previously held by her deceased husband in order to clear his debts. In an indenture, dated 16 April 1675, she sold half an acre called Windmilne and a rigg called Little Windmilne.³²

10. MOORHOUSE. M.R. 327572.

An estate map of the Barony of Burgh,³³ of 1690, includes a delightful drawing of a windmill at Moorhouse. If, as seems probable, it is meant to be a pictorial representation, it shows it to be a four-sailed timber post-mill — the only one of its kind known to the county. No doubt it was worked in conjunction with “Sturdy’s water-mill” shown quarter of a mile away. The windmill is also shown on G. Smith’s map of the “Route of the Rebels”, produced in 1746, and may well have been a local landmark for the Highland

³¹ Patented by Edmond Lee (erroneously attributed to Andrew Mickle), C. Singer, E. J. Holmyard *et al.* (eds.), *A History of Technology — Renaissance to the Industrial Revolution* (Rex Wailes on Windmills), 89.

³² CW1 xxxiii 263.

³³ Record Office, Carlisle, D/Lons./L.

troops. Prince Charles set up his lodging within half a mile of the mill.

11. ANTHORN. M.R. 177576.

Little is known of this 18th-century mill. Thomas Donald's map of Cumberland of 1774 shows the common arrangement of it being sited near to the water-mill. It is noted that Greenwood's map of Cumberland, 1823, makes no reference to a windmill here.

12. HOLMELOW. M.R. 128522.

This mill has been variously known as Abbey Holm or Colt Park and must have been of considerable size. About twenty years ago its base outline of approximately 30 ft. diam. could still be traced. When in use it housed a pair of French Burrs and was fitted with three pair of grey stones, together with the usual barley and dressing-mills. Tradition records a tragedy concerning this mill. It is said that a young girl, sent to the mill to inform the miller to come for dinner, was struck by one of the sweeps on leaving the mill and died.

13. HENSINGHAM. M.R. 175995.

John Moor of Hensingham was possessed of a windmill on the outskirts of the township in 1779. At that time it was offered for sale and was fitted with French stones and the usual pair of grey stones. It was acquired by Lord Lonsdale and is shown on an estate plan *c.* 1804.³⁴

14. MARYPORT. M.R. 033363.

A release from Philip Nelson to Humphrey Senhouse of 1793 gives a precise location of a windmill at Maryport: "All that windmill lately erected and built situate

³⁴ *Ibid.*

on the S.W. side of River Ellen fronting Waggon Road on N.W.”

15. BURGH-BY-SANDS, DYKESFIELD.

M.R. 339592.

Another 18th-century mill was situated at Dykesfield, near Burgh-by-Sands. This was of the usual tower type and had four sails when working. On demolition the timber sails were used in the construction of a roof in neighbouring farm buildings. It stood on the opposite side of the road to the existing house known as “Mill Grove”. Although the mill has now completely disappeared the drying kiln is still standing. It consists of a low brick building in three distinct parts. Double doors at one end give entry to an unloading bay where the grain would be off-loaded from the farm carts. The centre portion of the building consists of the drying platform which is about five feet above the loading bay. Under this platform would be lit the coke fires — these have latterly been sealed off and the chimney removed. A small timber chute leads from the drying platform to a small separate room at the rear of the building. Here the dried grain would be re-bagged for transference to the adjacent mill. Dykesfield mill was offered to let or for sale several times in the early 1820’s. The construction of the Carlisle canal was not lost on the advertiser:

. The intended canal will adjoin the Orchard, and the distance being only six miles from Carlisle renders this property very desirable for a Man of Business, especially as it lies in good Corn Country.³⁵

In 1826 the reader was further informed that . . . “a profitable market is opened for the exportation of meal and Flour with Liverpool and other large towns”.³⁶

³⁵ *C.J. (Carlisle Journal)*, 5 February 1820.

³⁶ *Ibid.*, 7 January 1826.

16. BOWNESS-ON-SOLWAY. M.R. 223628.

Bowness-on-Solway also possessed a windmill which was in existence until 1880-85. It was a four-sailed type with surrounding gallery and was situated at the southern end of the village on the site now occupied by "Airey Hill". On the opposite side of the road were originally two cottages known as Mill Cottages. These were converted to one house, the residence of the late Captain Wood who recalled that as a boy he assisted in the demolition of the mill. An attempt was made to pull the timber superstructure from the stone tower by means of ropes. Even with the assistance of practically the whole village the attempt failed, and it had to be demolished piece by piece. The only part still in existence is a stone of cylindrical shape now converted to a garden roller.

The mill was unusually high and when removed caused some little worry to the people on the opposite side of the Solway who thereby had lost an excellent landmark. After the demolition many local farmers took their grain to the Wigton mills.

17. HIGH HARRINGTON. M.R. 008248.

Reference again to Greenwood's map of 1823 shows a windmill on the road between High Harrington and Distington. It was still in existence at the time of the 1864 Ordnance Survey, when it is almost certain that Jackson Moor was the miller. The mill ceased work prior to 1896, when Matthew Clark was using the premises to operate his market garden business.

18. LAYTHES. M.R. 242562.

This mill, situated on the low-lying area near Kirkbride, flourished during the first half of the 19th century, when it was operated by the Taylor family. Ten years ago it had been reduced to a few segmental stones almost completely overgrown in a roadside

copse. In recent years the site has been completely cleared.

19. COCKERMOUTH. M.R. 127533.

Though well served with water and possessing numerous water-mills, Cockermouth had at least two windmills. One stood in Long Croft Lane, now known as Windmill Lane. It is shown on John Wood's town plan of 1832. In 1829 the miller was Mark Hall, a man of considerable ability. Ten years later the *Carlisle Journal*,³⁷ reporting on Cockermouth Independent Chapel, stated it possessed "a powerful and fine-toned organ built by Mr Mark Hall, a poor man who resides at the Windmill, near this town". Another windmill which stood near the Castle will be described later.

20. MAWBRAVY, BANK MILL. M.R. 087478.

This coastal mill, as its name implies, stood on the raised Mawbray Bank a little over a mile due west of Holme St Cuthbert. It was working in 1858, but the site is now occupied by a house which older inhabitants in the area still refer to as "The Windmill".

21. AIKSHAW, Hards Mill. M.R. 130472.

Farmers in the Holme St Cuthbert area were conveniently served with a second windmill near the hamlet of Aikshaw. Both mills flourished together in the 19th century. Hards Mill was marked on Admiralty charts which were used prior to 1840. This important landmark was a point by which navigators sailing to Port Carlisle could check their bearings.

22. WIGTON, rear of High Street. M.R. 255482.

This thriving market-town became a centre for textiles and associated industries at the beginning of the 19th century. Its population nearly doubled

³⁷ 14 December 1839.

between 1801 and 1829. During this period at least four windmills were in operation.

Until a few years ago the Crown and Mitre Inn stood opposite St Mary's Church in High Street. At the rear of this tavern stood one of these mills. When demolished about 1830-40 some of the stones were used to build outbuildings in the Crown and Mitre yard. In its last years it was used as a snuff mill. This would have required little in the way of alteration. The millstones would be removed and replaced with small tubs to grind the snuff in — one for coarse grinding and one for fine.

23. WIGTON, Stoneybank. M.R. 260483.

Near the site of Wigton Baths, on a bank known as Stoneybank, stood a windmill which was demolished more than a century ago.

24. WIGTON, near Wigton Hall. M.R. 252483.

Another mill was located behind Wigton Hall and was last used by M. Matthews, a brother of the Revd. Richard Matthews of Wigton Hall. The ruins of this mill were removed about 75 years ago.

Today the remains of a fourth mill can still be seen in Old Lane (to be described later).

25. WORKINGTON, STAINBURN. M.R. 015288.

From its proximity to the now defunct Sunnyside Tannery this was probably a bark-mill. A tannery operated here in 1829 and the windmill was shown on the O.S. map, 1900 edn. No site evidence now remains.

OTHER MILLS.

The location of long since defunct mills can be gleaned from a study of place-names. Windmill House at Little Bampton is mentioned by Whellan;³⁸ Millrigg,

³⁸ W. Whellan, *History and Topography of Cumberland and Westmorland* (Pontefract, 1860), 174.

near Dacre (as early as 1363) and Millhill in Kirk-andrews-on-Esk would seem to be indicative of lost windmills, particularly as they refer to elevated situations far removed from a natural watercourse. Others may have existed at Millhow, Loweswater (1550); Miller Hill, Waterhead (1589);³⁹ and Millrigg near Kirkbride.

Visible remains.

Today seven tower-mills are still standing, all, alas, without their sails or "sweeps". They are to be seen at Monkhill, Cardewlees, Wigton, Langrigg, Cocker-mouth, Workington and Haverigg.

26. MONKHILL, near Carlisle. M.R. 342585.

Monkhill may be taken as fairly typical and consists of a tower of red sandstone minus roof, cap or sails. It is located at the crossroads about half a mile from Beaumont. The walls are of 12 in. thick coursed ashlar, with workmanship of a very high standard. The stone probably came from the famed Chalk Quarry near Cumdivock. At the base of the tower is a neat and well dressed stone plinth. The ground floor, known as the meal floor, is entered through a 4 ft. 6 in. wide doorway. The existing iron crooks on each jamb of the doorway indicate that a set of double doors originally hung here. A smaller single door was placed diagonally opposite the main doorway.

The meal floor, lit by two small windows, measures 21 ft. 6 in. in diameter, and from remaining internal stone corbels it can be seen that this room was approximately 8 ft. 3 in. high. It was here that the meal (ground on the floor above) would be bagged and stored ready for collection by the grower or buyer. There is no evidence that a flight of stone steps ever

³⁹ A. M. Armstrong, A. Mawer *et al.*, *The Place-Names of Cumberland* (Cambridge, 1952), 101, 116, 189, 412.

existed at Monkhill — it is much more likely that the upper floors were reached by a timber ladder or stairs.

Time, neglect and decay have wrought much havoc to the timber parts, all upper floors having long since disappeared. From the few remaining beams and stones with their main drive shaft now lying on the ground floor it is, however, possible to picture its inner workings.

The first floor was known as the stone floor, so called because it was at this level that the millstones were situated. Naturally this floor had to be of very sturdy construction. Apart from the usual timber joists it was supported on a pair of oak beams, spaced 4 ft. 7 in. apart and situated directly under the huge stones. In addition, four timber uprights supported these beams from the ground floor. The stones consisted of a pair of millstone grit type, 5 ft. in diameter, and a pair of stones measuring 4 ft. 9 in. in diameter, imported from France. The latter consist of a number of small pieces of nodular flint cemented together and surrounded by $1\frac{1}{4}$ in. by $\frac{3}{4}$ in. iron bands. The "running" or upper stone has seen a certain amount of use. It measures 6 in. deep against the 9 in. of the fixed lower, or "bed", stone. Such stones would be capable of grinding 5 bushels of wheat per hour.

The main drive shaft to the stones was placed centrally down the tower. It is made of timber, averages 1 ft. 3 in. diameter and is at present 17 ft. long. It tapers slightly in each direction from a large spur wheel which was about 5 ft. 3 in. from the lower end. I am greatly indebted to Mr J. N. T. Vince for pointing out that the shaft in its original state may well have been much longer and that the spur wheel is so positioned that the millstones could have been under-driven. He has further indicated that all missing parts, i.e. windshaft, wallower (crown wheel), etc., were very probably of iron. Today there is a complete absence

of iron parts which may well have been removed at the time of the scrap-iron drive in the 1940's. The easiest way to have removed the upper ironwork would have been to saw through the main timber drive, thus reducing it to its present length.

The height of the first-floor room was similar to the meal floor and likewise was lit with two small windows. Due to the "batter" of the walls the diameter of the stone floor was reduced to 19 ft diameter.

The central shaft passed through the upper floor, known as the bin floor. It was here that the grain was housed prior to being fed to the stones on the floor below. Some form of hoist, geared from the wind shaft, would be incorporated to raise the heavy sacks from the ground. This grain store was only approximately 6 ft. 6 in. high.

Over this the stone wall was carried up about 2 ft. 6 in. higher, making a total height of masonry of 25 ft. 6 in. (not very high as windmills go, and certainly one of the smallest of the remaining Cumberland windmills). The wall is surrounded with a circular oak curb 6 in. deep. All trace of the movable timber cap has vanished, but it was on this curb that the cap rotated. The cap was probably dome-shaped and housed the shaft which transferred the drive of the sails to the main drive. A fan-tail would be fitted to the cap which, when actuated, would turn the sails into the correct direction of the wind.

It was probably erected in the latter half of the 18th century and was under the same ownership as the nearby water-mill. In 1805 the two mills were let at a combined rent of £140 per annum. The owner, Wm. Langcake, in advertising the premises in the local press was anxious to point out that they

are well situated for Inland Consumption or Exportation, on account of their near situation to Sandsfield, where Vessels sail once a fortnight for Whitehaven, Liverpool and other parts on that coast.

By 1823 the Carlisle to Port Carlisle Canal had been completed and passed close to the windmill. This fact was not lost on the owner who, wishing to sell the mill that year, advertised it thus: "The premises are only four miles from the City of Carlisle and within a quarter of a mile of the Carlisle Canal and well situated either for County custom or Export Trade." But times were hard and there was little trade at home or abroad. Langcake was still vainly trying to sell his windmill twelve months later.⁴⁰

Despite the lack of a purchaser at this time the mill continued in business for many years, and it is noted that several of the longest surviving mills functioned in the Carlisle market area.

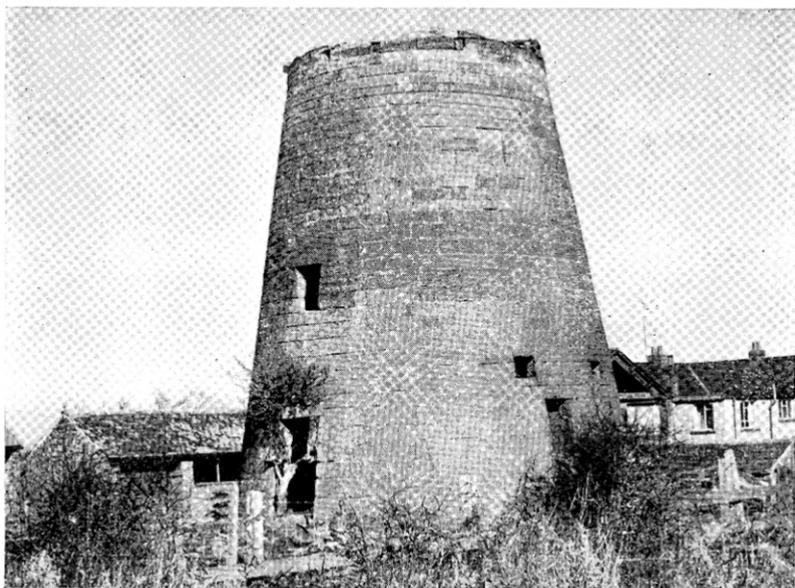
27. CARDEWLEES, near Carlisle. M.R. 350512.

This mill lies a short distance from the main Carlisle-Thursby road. Like Monkhill it is minus cap and sails but is in a fair state of preservation, due to the provision of a slated roof. The tower walls are of coursed sandstone rubble and are 1 ft. 8 in. thick. The meal floor, entered by a 3 ft. 6 in. wide door, measures 24 ft. in diameter. A flight of stone steps, cantilevered from the wall, leads to the stone floor above. The original timber floors are still existing and, as at Monkhill, a pair of substantial beams are in position which would be directly under the millstones.

All mechanical parts have long since disappeared; one running stone and a portion of one bed stone remain — the latter at present doing duty as an efficient step adjacent to the main doorway. (This stone, although now broken, has been little used, being a full 9 in. thick.) An adjoining brick building may have been the grain drying kiln.

The mill is not marked on Donald's map of Cumberland (1774), but was certainly in existence at the turn

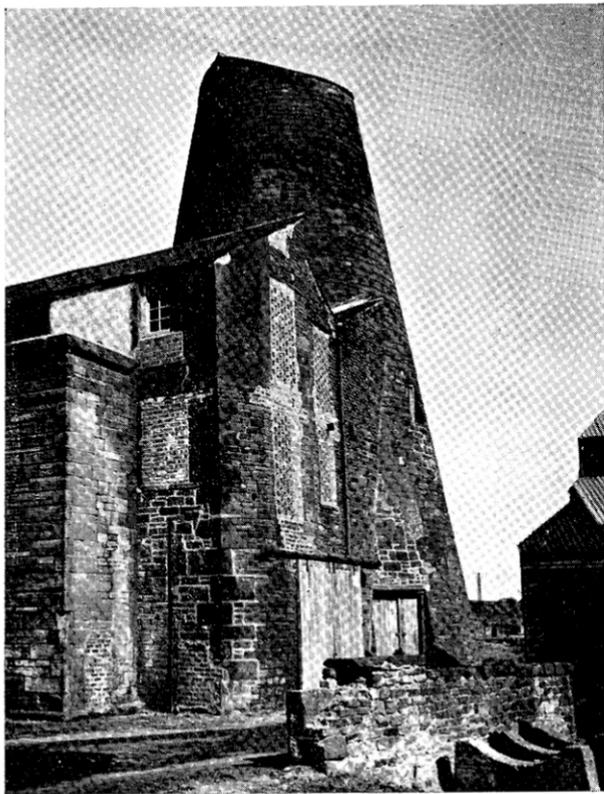
⁴⁰ C.J., 17 August 1805, 15 March 1823 and 22 January 1825.



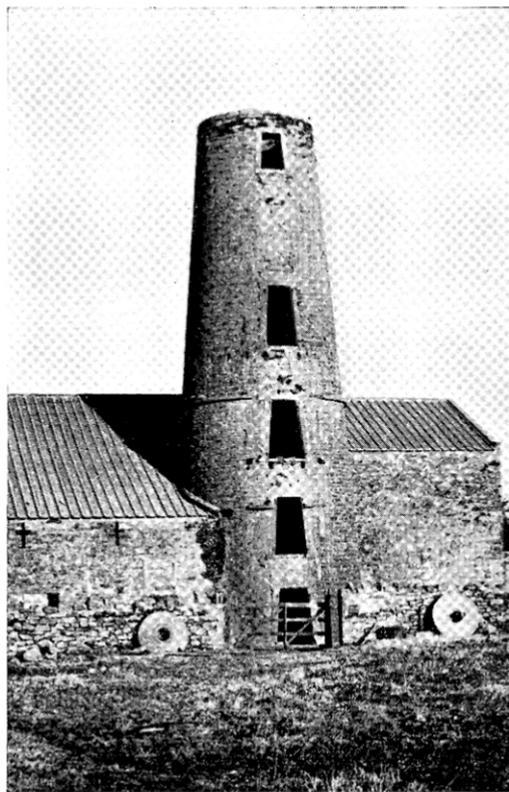
Monkhill Mill.



Monkhill Mill — remains of drive-shaft and millstones.



Wigton, Old Lane Mill.



Workington, Shoose Mill.

of the century. It is not known when it ceased to operate as a corn-mill, but has since done duty as a blacksmith's shop, a butcher's shop, and today it serves as a hen-house. Mill House stands adjacent—obviously the one time residence of the miller.

28. WIGTON, Old Lane. M.R. 254488.

Proceeding south, the next remaining tower is at Wigton. It stands near the Railway Station in what in former times was known as Old Lane. Prior to the advent of the railway in 1842 the road from Wigton to Aikton passed in front of this mill. Built of the usual red sandstone in uncoursed rubble, it is one of the largest of the remaining mills. It stands approximately 55 ft. high. A recent survey carried out by Mr M. Davies-Shiel indicates that the tower is not circular, the external dimensions at ground-floor level being 37 ft. on its East-West axis and 35 ft. on its North-South axis. The survey also showed that the "batter" of the external walls was not symmetrical. Mr Davies-Shiel points out that the mill may have had a fixed cap since the eastern batter is greater than that on the west (to resist the prevailing wind). This later 18th-century mill was advertised to let in 1810 as consisting of "one pair French Burrs, a pair of Grey Stones, a Barley Mill and Cylinders, and a Bark Mill".⁴¹ Although the sails have long since been removed, sufficient remains to indicate that this must have been one of the finest windmills in the county. The late T. W. Carrick of Wigton stated that after a spell of hydraulic power it was again adapted to become the first steam mill in Wigton.

29. LANGRIGG. M.R. 170455.

A fourth remaining windmill is at Langrigg and similar in size to Cardewlees, standing about 30 ft.

⁴¹ *C.J.*, 10 March 1810.

high. The usual adaptations of a pitched roof have been carried out in lieu of the original timber cap, but the conversions have gone further to transform this mill into a comfortable dwelling-house. The stone walls are 1 ft. 10 in. in thickness and provide very warm and dry rooms. Langrigg may be of the same age as Cardewlees and Wigton, but it is significant that it is not recorded on the map of Cumberland by C. & J. Greenwood, published in 1823. Whellan, in his *History of Cumberland and Westmorland*, states a mill on Langrigg Bank was worked "alternately by water and steam" in 1861. Presumably this reference was of a windmill after it had been converted to steam power.

30. COCKERMOUTH. M.R. 122308.

The remains of a tower mill can still be seen at Cockermouth. It lies almost in the shade of the castle walls near to the Castle Brewery. A unique feature is that it is built of brick instead of the familiar sandstone. Time has dealt unkindly with the structure, which has undergone more than one adaptation and alteration. The usual pitched roof has been substituted for the movable cap, and a number of windows seem to have been added from time to time — all of domestic character. Today it is little like a windmill, but a close examination shows that the upper bin floor has a correctly trimmed opening in the centre through which would pass the main drive from the wind-shaft. The tower walls are 14 in. thick and rise to a height of approximately 25 ft. It is similar in size to Monkhill but is probably older and most likely erected sometime in the 18th century. It can be seen with four sails on a small picture in oils at present hung in the vestry of All Saints' Church, Cockermouth. The mill ceased to work about 100 years ago when the building became a foundry.

31. WORKINGTON. M.R. 014279.

An imposing tower mill exists at Schoose Farm, Workington, built almost certainly under the personal direction of John Christian Curwen.

Apart from milling it is clear that he also used the motive power for threshing. In his Presidential Address to the Workington Agricultural Society,⁴² he declared "The work I have to do in threshing, cutting straw, carrots, besides all the assistance I have from water, requires four horses and the work is very severe. I have found it absolutely necessary, therefore, to adopt some other method. The choice was between a fire engine and a windmill. The expense was nearly equal. The fire engine the more certain but the more dangerous. This decided me in favour of the windmill. I can by this machine dress in two hours as much or more than employed four horses a whole day and I expect to thresh only on wet days when I have no other work."

He continued . . . "The expense has been very considerable and perhaps greater than was necessary. The machine is well constructed and calculated to perform a great deal of business and does credit to the architect, Mr Dunn of Coldstream."

The 3 ft. thick walls are of coursed rubble freestone with dressed stone openings. The overall height of about 60 ft. and a meal floor of only 15 ft. 6 in. diameter give the mill pleasing proportions. The ground floor has a height of 9 ft. 9 in. with stone and bin floors each 8 ft. high. Its advanced design incorporated an upper third floor (Dust Floor), giving extended height to the tower and allowing well elevated sails. An external cantilevered gallery ran round the mill at the height of this floor to facilitate inspection of the sails. Each floor had an external doorway fitted

⁴² 1809.

with timber double doors and hoist. All timber work has now disappeared.

32. HAVERIGG. M.R. 184783.

A ruined tower on the coast at Haverigg (Hodbarrow Point) is built in limestone in preference to the local slatestone. The latter may have presented difficulties in building a tower of sufficient stability to withstand high wind pressures. It is said that after its demise it was used as a powder-house for the nearby iron-ore mines.⁴³

Cumberland windmills, in common with other parts of the country were serviced and maintained by the millwrights. These craftsmen did all maintenance work from renewing defective beams to re-cogging the great driving-wheels. Although generally undertaken by the miller, many millwrights were skilled in the dressing of millstones, i.e. the picking of the grinding furrows and grooves. They attended both wind- and water-mills and at the one time must have been almost as numerous as the mills themselves. Wigton had six in the middle of the last century. In 1955 one millwright alone served the entire south Cumberland area.

Lazonby Quarries, possessed by five generations of the James family in 1815, had been long famous for the production of superior millstones. A quarry at Barn Ghyll, near Whitehaven, was also noted for good stones. Grey millstone grit types were brought from Brockholme Quarry, near Haltwhistle, Northumberland. Imported French Burr stones were from time to time offered for sale at the Carlisle Canal warehouse. Transport costs were considerable, as can be seen from the following excerpt:

⁴³ See plate II to *The Hodbarrow Iron Mines* by A. Harris and R. B. Davis, CW2 lxviii, 151.

Whitehaven Horse and Windmill Accounts, 21 October 1685.⁴⁴

paid Jo. Brindle for ridding the Quarry	0 : 10 : 0
and for getting one paire milstones	2 : 10 : 0

The passing of the windmill was gradual. Several factors contributed to its demise. Over the years the power of the manor court declined and compulsion to use the manorial mill became less effective. Improved transport, both road and rail, and the widening of markets all contributed to deny the local miller his monopoly. As with water-mills, the advent of the steam engine hastened the end of windmills.

Millers who could afford the expense carried out conversions of their premises. Richard Lawson of Bowness, in his will dated 19 October 1852, left his windmill upon trust to his wife Sarah with profits from his estate, "provided that my said Trustee shall and may raise money thereon for the purpose of providing the said Mill with steam as power for the working thereof in case he shall deem it advisable so to do". The new engines provided power which was readily available, unlike the older methods which depended on the vagaries of the wind. The nearness of the Cumberland coalfield and the cheapness of coal gave the steam mill an added advantage.

By 1886 the larger milling firms had introduced new methods of milling flour, improved machinery made some processes automatic and the steel roller was superseding the old-fashioned millstone. In that year Cummersdale Flour Mills fitted a new roller plant enabling the owners, Messrs Thos. Martin & Sons, to produce a whiter and finer flour. A report in the *Carlisle Journal*⁴⁵ declared that with the new machinery the product of a bushel of wheat was much greater, in that the "seconds" or "sharps" formerly sold separ-

⁴⁴ Record Office, Carlisle, D/Lons./W.

⁴⁵ 19 March 1886.

ately for coarser bread could now be ground into the finest flour.

Meantime Messrs Carr & Co. were building a large mill besides the then new dock at Silloth. Built in the remarkably short period of nine months, it was opened before the end of the year. A feature of the new mill was the great silo at the west end, having a capacity of from 10,000 to 12,000 quarters to accommodate home and foreign grain. It was then said to be the third of its class in England. The same firm bought the mill of Mr John Irving at Maryport and converted it to the roller system. Port facilities offered great advantages and Messrs Pattinson & Winter of Penrith moved to Whitehaven.

A revolution had taken place in the milling trade. The private householder no longer bought two or three bushels of wheat or oats in the grain market and took it to the "batch" miller to be ground. Eating habits had changed, the Cumbrian exchanged his centuries-old diet of oatcake and "poddish" for the new wheaten flour loaf.

Some of the dwindling number of individual millers continued grinding animal foodstuffs. Owners of both wind- and water-mills, finding it uneconomic to keep up the repair of both, generally preferred the more reliable water-mill. By the turn of the century the windmill era had come to an end.

APPENDIX I.

Horse and Windmill Accounts, Arrowthwaite.⁴⁶

1671.	Disbursements at horse and wind milne.	
Sept. 6.	paid for hay 25 truss and to the miller of the horse mill as part of wages.	1:16:2 0:8:0
Oct. 5.	paid for one truss of hay and for 3 old bushell of oats to Mr Nicholson.	0:1:5 0:10:0
31.	milne horse 10 winchester bushels oats.	0:10:0
Nov. 30.	oats 2 bushells.	0:2:0
23.	One lock to horse milne chest 10 ^d & key to a door.	0:1:4
Feb. 3.	paid Mr Gale for 11 yards harden for 2 milne sailes.	0:5:11
	Ca'sar Barnes for exchange of the wind miln great rope.	0:15:0
	Isaac Milner note for nailes, soape, candles, thread, sailes etc. for milnes.	1:3:5
21.	Jo ⁿ Whiteside a day work at windmiln.	0:1:0
22.	paid Mr Gale for 2 lb. 3 oz. steele (for) wind mill and to old Miller Tomson for crownening & flooring a new stone in the horse milne.	0:1:0 0:5:0
Mar. 9.	paid Mr Milner for 1 lb. $\frac{3}{4}$ steel to horse miln.	0:0:9
1672 25.	the horse miller 2s. 6d.	0:2:6
May 2.	The milne horse oats in all from 28 Aug. last is 36 weeks at 2 bush. a week makes 72 of which there is placed above 21 bush. paid now for 51 bush.	2:11:0
	paid smith worke for sharpening etc. per note particulars	0:8:0
	and Mr Miller note 2s. 9d. etc. new sailes & cord 8s. 3d.	0:11:0
	and the horse Miller wages in full for 8 months	0:14:0
	and to Mr Belshasar Turner, miller at wind- milne	1:16:6
	and for both millers diet 8 months.	6:13:4
		<hr/>
		18:17:4
		<hr/>

⁴⁶ Record Office, Carlisle, D/Lons./W.

APPENDIX II.
List of known Windmills.⁴⁷

No. (See Map)	Location.	Nat. Grid Reference.	Use.	Earliest known Reference.	Remarks.
1	Holm Cultram	174513	Corn	1535	In ruins 1644.
2	Keswick, Vicars Island.	262224	Corn	1571	
3	Keswick, Nr St. John's Church	—	unknown	—	In ruins 1836.
4	Great Salkeld.	—	prob. corn	1572	Site unknown.
5	Whitehaven, Arrowthwaite.	968178	corn	1642	
6	Whitehaven.	—	water pumping	1685	Site unknown.
7	Whitehaven, Brackenthwaite.	976185	unknown	1717	
8	Whitehaven, Ginns.	973174	in connection with pottery.	1862	
9	Gatesgill.	—	unknown.	1675	site unknown.
10	Moorhouse.	327572	prob. corn.	1690	Timber Post Mill.
11	Anthorn.	177576	prob. corn.	1770	
12	Holmelow.	128522	corn	1770	
13	Hensingham.	175995	corn	1779	John Moor, owner 1779.
14	Maryport.	033363	unknown	1793	
15	Burgh-by-Sands, Dykesfield.	339592	—	18th cent.	
16	Bowness.	223628	—	1823	
17	High Harrington.	008248	—	1823	
18	Laythes.	242562	—	1823	John Taylor, miller 1829. W. Taylor & Sons, miller 1858.
19	Cockermouth, Long Croft Lane.	127533	—	1823	
20	Mawbray, Bank Mill.	087478	—	1858	
21	Aikshaw, Hards Mill.	130472	—	1823	
22	Wigton, rear of High Street.	255482	snuff.	—	Demolished c. 1830-40.
23	Wigton, Stoneybank.	260483	unknown	—	Demolished prior to 1855.
24	Wigton, Nr. Wigton Hall.	252483	unknown	—	Demolished c. 1895.
25	Workington, Stainburn.	015288	bark?	1829	
VISIBLE REMAINS.					
26	Monkhill, Nr. Carlisle.	342585	Corn	1805	
27	Cardewless, Nr. Carlisle.	350512	Corn	1770	Joseph Moore, owner. Geo. Ruddick, miller, c. 1800. John Chicken, miller 1858.
28	Wigton, Old Lane.	254488	Corn	1810	T. Townson, miller 1858.
29	Langrigg.	170455	Corn	—	Brick Tower.
30	Cockermouth.	122308	unknown	—	
31	Workington, Schoose Farm.	014279	Corn	1809	in ruins prior to 1905.
32	Haverigg.	184783	unknown	—	
PLACE NAME EVIDENCE.					
	Dacre, Millrigg.	450300	—	1363	
	Loweswater, Millhow.	135205	—	1550	
	Kirkandrews-on-Esk, Millhill.	342678	—	1576	
	Waterhead, Miller Mill.	591664	—	1589	
	Kirkbride — Millrigg.	231590	—	—	

47 *Ibid.*

Acknowledgements.

I gratefully acknowledge the considerable help and assistance I have received from Dr A. Harris, M.A., Ph.D., Prof. G. P. Jones, M.A., Litt.D., and Dr J. D. Marshall, B.Sc.(Econ.), Ph.D., and for allowing me to use much of their material. My thanks are also due to Mr M. Davies-Shiel, B.Sc., Lt-Com. P. N. Wilson, O.B.E., D.S.C., M.A., and Mr J. N. T. Vince for valuable technical information. I am greatly indebted to Mr B. C. Jones, M.A., and his staff at the Record Office, Carlisle; Mr C. Roy Hudleston, M.A., F.S.A., and Mr B. L. Thompson, M.A., F.S.A., for the receipt of considerable documentary evidence.

Postscript.

After the completion of this article Dr J. D. Marshall kindly drew my attention to the following extract from the *Cumberland Pacquet*, 6 January 1778: "We are informed that Mr Penry of Maryport has erected a windmill, which grinds and dresses ten Carlisle bushels of wheat in an hour."