Sussex Windmills and their Restoration

– a 1970s perspective

by

R. C. Pinney

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SUSSEX WINDMILLS AND THEIR RESTORATION – A 1970s PERSPECTIVE

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R.C. Pinney

With an Introduction by Don Cox.
Hon. Secretary, Sussex Mills Group

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Edited by Dr. Brian Austen, 1 Mercedes Cottages, St. John's Road, Haywards Heath, West Sussex RH16 4EH (Tel. 01444 413845). The Editor would be interested to hear from prospective contributors of articles of any length. Shorter notices can be included in the Society's *Newsletter* which is issued four times a year.

The annual subscription to the Sussex Industrial Archaeology Society is £10 payable on 1 April. Life membership is available at fifteen times the annual subscription. Members are entitled to copies of the *Sussex Industrial History* and the *Newsletters* without further charge.

Membership enquiries to the Hon. Secretary, R.G. Martin, 42 Falmer Avenue, Saltdean, Brighton BN2 8FG (Tel. 01273 271330).

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Introduction

After giving a talk to a local Christian Fellowship Group on *The Windmills of Sussex*, I was approached by a person who introduced himself to me as Ron Pinney. He said that he had written a book about windmills and was I interested. Thus I came to read this book in its typed version and realised that although he had been unable to have the work published in 1975 when it was completed, it deserved to be published even at this late date. Following consultation with Peter Hill and Brian Austen, it was agreed that the work should be published as an edition of *Sussex Industrial History*.

The book contains much of interest to the lover of windmills and in particular to members of the Sussex Industrial Archaeology Society and Sussex Mills Group. It is appreciated that some of the information has been superseded, and that in the years since it was written other research has increased our knowledge of windmills. However it is thought that this work shows the state of things in the 1970s and as the author saw it at the time. It also shows the restoration and the methods used at that time. Ron Pinney's text has been presented unchanged and updated in the references provided at the end.

Perhaps someone might be inspired to write a companion volume concerning the methods of restoration used and the state of the windmills of Sussex today.

The Sussex Mills Group

The Sussex Mills Group is a body formed by mill owners, mill societies and interested individuals to study mill history and promote the restoration, opening to the public and the operation of mills. It arranges programmes of visits and meetings. The Sussex Mills Group is a semi-autonomous grouping within the Sussex Industrial Archaeology Society. News items and articles on milling activities and history are published as a separate section in the SIAS quarterly newsletter and in *Sussex Industrial History*, the journal of the SIAS. For details of membership and activities apply to the Hon. Secretary of the Sussex Industrial Archaeology Society R.G. Martin, 42 Falmer Avenue, Saltdean, Brighton BN2 8PG (Tel. 01273 271330)

The Author

Ron Pinney was born in the early 1930s in South London and attended South Norwood Technical School. He left there to take up an apprenticeship as an engineer's pattern maker at an aluminium foundry. On completion of the apprenticeship he advanced from a pattern maker to castings development engineer, foundry manager, and various related jobs, during which he made the move into Sussex and bought a house in Sussex. By the beginning of the 1970s he was deriving less satisfaction from his industrial employment and with his past involvement with Scouting decided to take up teaching. He attended a teacher training course at Shoreditch College of Education. It was at this stage, needing to support his family, that he started to do some part-time work for E. Hole & Son Ltd. at Burgess Hill. This work with Hole's lasted for many years. With the completion of the course Ron obtained a teaching job at South Chailey Comprehensive School. On taking early retirement he did part time work as a technician at the Hassocks Comprehensive School. Now fully retired he devotes some of his time as a voluntary member of the County Footpath Maintenance Team. It was during his teacher training that Ron was required to submit a study in depth on a subject of his choice within the field of craft technology and design as part of the final course assessment. With Jack and Jill on the skyline the subject chosen was Sussex windmills and their restoration. Thus the work that follows was written. This involved many visits to the mills concerned. Most of the photographs are those taken by Ron Pinney.

Since the inauguration of Jack & Jill Preservation Society in 1978 Ron has been a member and carried out restoration work including construction of the wire machine.

Don Cox
Hon. Secretary,
Sussex Mills Group

Note

The ownership of mills and the times of opening given in the text show the position in 1975. For current (1999) information see the references on page 38

List of Illustrations

Front cover : Shipley smock mill under repair

Acknowledgements

My grateful thanks are extended to many people who have given me valuable assistance in compiling this study of *The Restoration of Sussex Windmills.*

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Stone Cross	Mr. R. Hall

CHAPTER 1

ORIGINS

Man, being an inventive person, discovered that he needed to supplement his diet and to cultivate the land by planting seeds, grain and the like to give himself alternative forms of nourishment. The deliberate sowing of seeds for growing crops for food was one of the most important advances that mankind has ever made since he developed the powers of speech and fire-making. It had a deeper significance, a wider application than any previous invention, but it also presented certain problems as he found it necessary to pound or grind some of his gathered crops into meal or flour to make it more palatable.

In the Neolithic cultures and frequently in the Late Bronze Age and Early Iron Age man discovered that by rubbing the grain between two stones he was able to grind it into usable flour. This was the beginning of what was to be known as a quern. The earliest form of quern was called a saddle quern which consisted of a lower stone, having the rough shape of a saddle, and an upper stone that was pushed backwards and forwards by hand.

Fig. 1 Saddle Quern

The saddle quern was in use in Britain c.2000 B.C., and was not superseded by an improved version the rotary quern until c.100 B.C., when it was probably introduced by Belgic invaders. (ref. *Archaeology A to Z*). The rotary quern consisted of two stones, the upper one pivoting on a spindle sticking up from the centre of the lower stone and revolving on it. There was a hole in the upper stone into which the grain was put, and it had a handle for turning. Variations of these are still used today by primitive tribes.

By the time of the Roman Empire c.100 B.C., the millstones had become larger and therefore alternative methods of propulsion were required. This took the form of slave or animal power which was used to turn these mill-stones. Around this time it was realised that the force of water, on a large paddle wheel, could be utilised very effectively to operate these stones. Watermill sites of Roman origin have been found in this country, and many were in existence by Saxon times. The Domesday Book c.1085 A.D., records the existence of about 160 mills, considered to be water mills, in the county of Sussex.

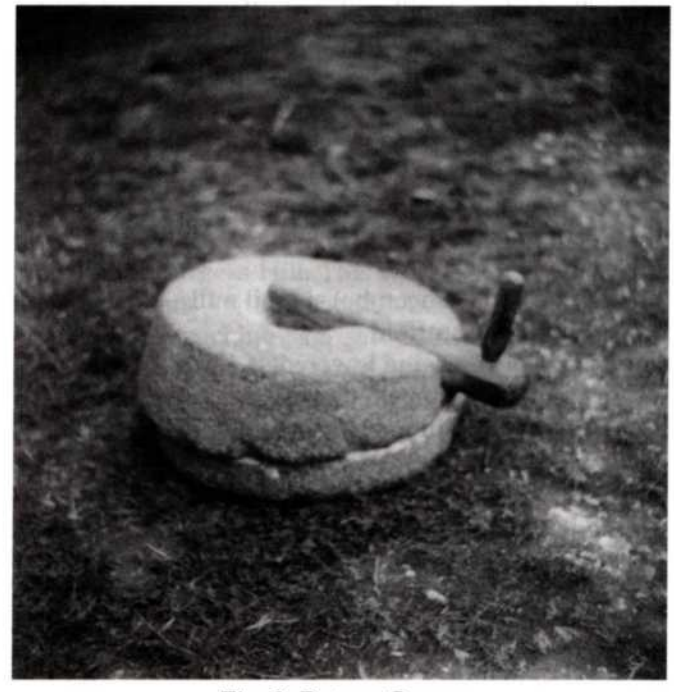

Fig. 2 Rotary Quern

The windmill, as we know it, came later. Who invented it or where it originated is not at all clear. There are a number of theories; that they originated in China, they were seen in the Middle-East and brought to Europe by the Crusaders, were invented in Europe or grew up independently in many parts of the world. What is known is that the first reference to windmills in this country occurs late in the twelfth century. In Sussex there is an account of Seffrid II, Bishop of Chichester, who died before 1200, giving a windmill to the church lands at Bishopstone, which is near Seaford.

The earliest windmills were known as post mills and they can be seen in contemporary illuminated manuscripts such as the Windmill Psalter which was written about 1270. Representations of windmills may also be seen in some churches where in carvings and paintings they are occasionally depicted. There is a view of a post mill in a fragment of a wall painting still surviving on the north wall of St. George's church at West Grinstead in Sussex. It is thought that this painting was made in the time of Henry VII, sometime between 1485 and 1509. (ref. *The Story of St. George's Church.*

This design of windmill existed up until the seventeenth century when major improved structures were known as tower mills. There were two distinct types of tower mill, the smock and the tower mill.

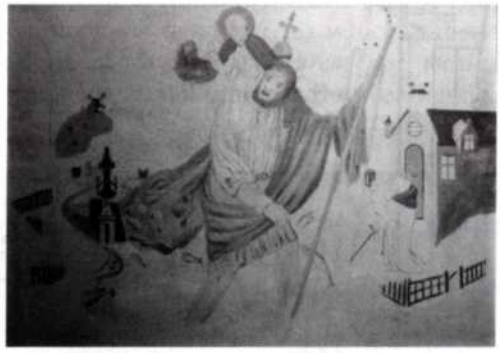

Fig. 3 Wall Painting, West Grinstead

Fig. 4 Post Mill

Fig. 5 Smock Mill

Fig. 6 Tower Mill

CHAPTER 2

DESIGN AND CONSTRUCTION

POST MILLS

The post mill, being the earliest recorded type of windmill as we know them, was of a very simple design. It comprised a large wooden "box-like" structure, which housed the "machinery". This structure was supported by an open trestle built of large baulks of timber in the form of a cross, which supported a *centre post* on which the whole of the body of the mill revolved. The remains of the Ringmer post mill shows the centre post being supported by the *quarter bars*.

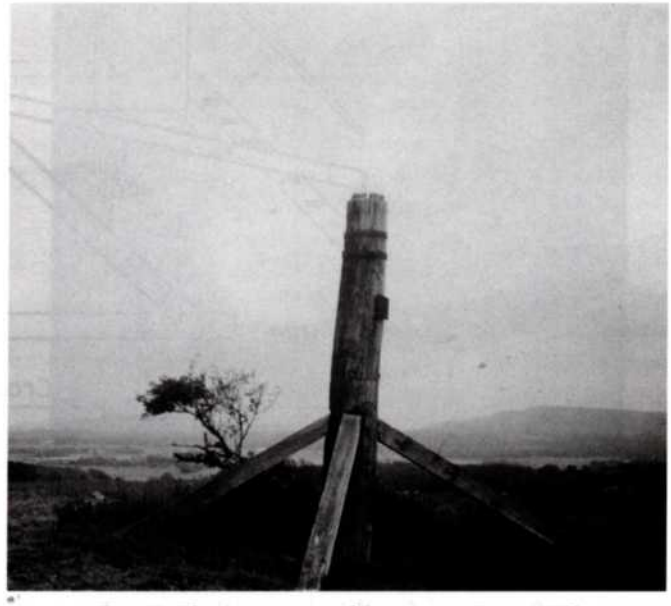

Fig. 7 The remains of Ringmer Post Mill

It was essential to be able to revolve the mill so that the sails, or sweeps as they are known in Sussex, could be set to face into the wind. To enable the mill to be revolved it was necessary to have some means of accomplishing this. Therefore most mills has what was called a *tail pole* protruding from the rear of the mill which was within reaching distance from the ground so that the miller was able to exert his weight on this tail-pole and actually push the whole body structure round. This meant that the construction of the mill needed to be carefully balanced around the centre post.

An excellent example of this type of mill is at Nutley which was built c.1670. A photograph of this mill is on page 14 and a detailed account of its restoration can be found in chapter six.

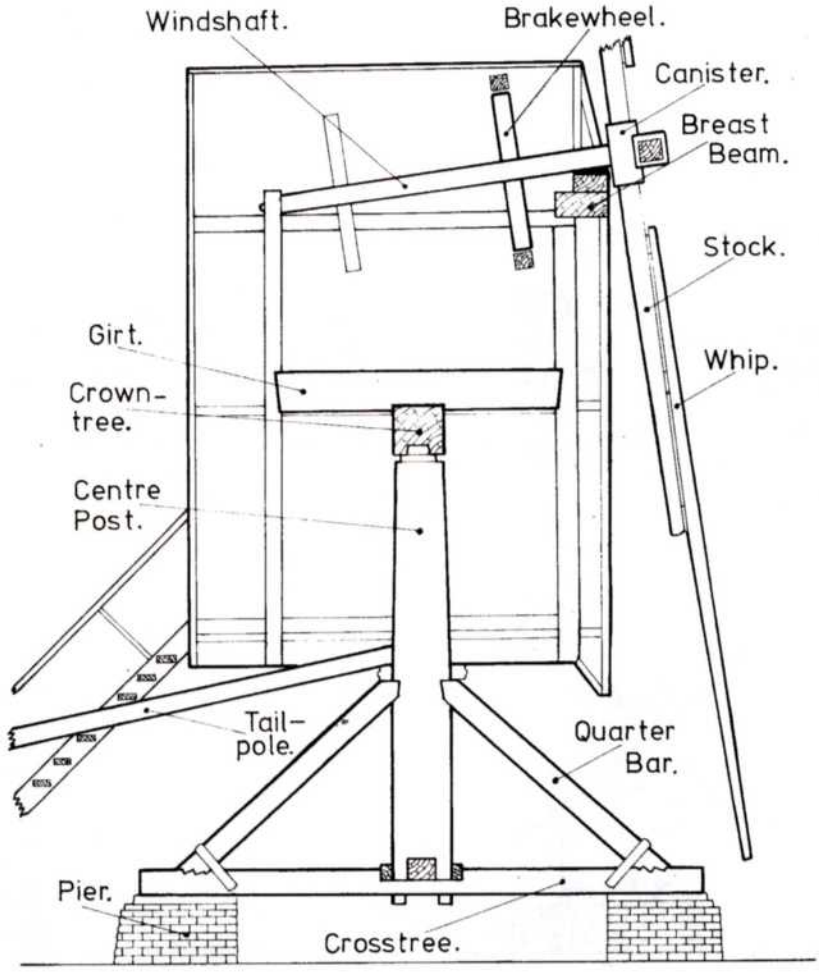

Fig. 9 Sectional view of a post mill

One of the improvements made to the design of the *open trestle post mill* was to construct a stone or brick *roundhouse* at the base of the mill. There were a number of reasons for this innovation, one being to protect the *trestle* from the weather and another was to give the miller extra covered space where he could store the grain or meal.

There are cases where the whole of the structure plus the trestle was raised upon brick *piers* to give added height not only to the roundhouse itself but also to the whole mill allowing it to have a less obstructed aspect.

In Fig. 9 there is a line drawing of a post mill without a roundhouse which will help to identify certain parts of its construction. The trestle is built up in parts as indicated. The *centre* or *main post*, which is supported by *cross-trees* and *quarter-bars*, sockets into the *crown-tree*. This in turn supports the *girts*. The posts themselves were normally built of oak, square at the base where they fitted over the cross-trees and either rounded or polygonal at the top. Argos Hill and "Jill" at Clayton have posts built up of pieces of pitch pine which are clamped together.

Fig. 8 Icklesham Mill –
a typical post mill with roundhouse

The body of the mill is made up on horizontal beams known as upper, lower, and side girts, these with the four corner posts form the box-like shape. The top of the mill is formed with arched ribs that meet to form the ridge. This framework is covered with weather-boarding which is generally either painted or tarred. The weight of the *windshaft*, to which the *sweeps* are attached, is carried by the *breast* or *weather beam* which runs horizontally across the weatherside of the mill.

Fig. 10 Argos Hill Mill – centre post entering body of mill

SMOCK MILLS

The smock mill, being a later design than a post mill, is also more complicated in its construction. The fundamental difference between these two types of mill is that whereas a post mill is a complete structure which is *luffed* into the wind, a smock mill has a cap, which carries the sweeps and windshaft, and it is this part alone that revolves to face the wind. The lower part being a fixed structure houses the machinery. Like the post mill the main body of the smock mill is constructed of timber and is covered with weather-boarding. However, some have a brick base to them as has Shipley Mill (Fig. 27). More shape was given to the body of the mills by making them in the form of a regular polygon and in particular an octagonal shape was preferred although there are some in a hexagonal shape as West Blatchington Mill (Fig. 40). Generally speaking smock mills are larger than post mills and some have an external *staging* built on the outside of the mill as a catwalk to enable the miller to reach the sweeps so that he could set the sweeps in motion and also carry out any maintenance that may be necessary.

The cap sits on the body structure on what is called the *curb*. This is either a wood or metal track which is normally built up in segments. There are three forms of curb: one is the dead curb which has the cap sliding round on the curb on well greased pads. This arrangement is the most difficult to turn. The live curb has the cap running on iron rollers, and the shot curb is one with a great number of small rollers. To centre the cap there are *truck* or *centering wheels* which run round the inner face of the curb.

Fig. 11 Curb and centering wheels

As only the cap revolves, other means of making this operate had to be devised. Although the first smock mills had extra long tail poles extending to within reaching distance of the ground or staging, most of them had a platform built out at the rear of the cap which carries a *fantail*. This automatically propelled the cap round by mean of a rack, to face the sweeps into the wind as soon as there was any change in the wind direction.

This type of mill was originally called a frock mill because of their general shape and their white tops and walls giving the impression of a Sussex farmer's old fashioned smock-frock.

Those mills which have brick bases have heavy baulks of timber called *sills*, which are normally made of oak, resting on the top of the base wall and it is from here that the *cant posts* are erected these being braced into shape by beams of timber called *binders*.

Fig. 12 Shipley Mill – fantail and staging

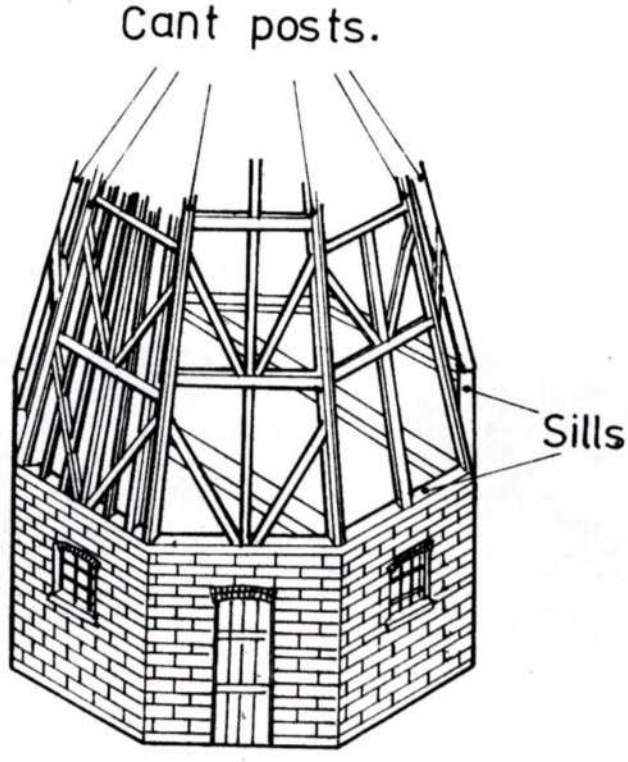

Fig. 13 Constructional view of a smock mill

TOWER MILLS

Tower mills are more orthodox in construction than the other two previously mentioned, particularly as far as the builder is concerned. These are built of either stone or brick and for a modest sized tower mill there can be as many as 100,000 bricks in them. The thickness of the walls is generally a minimum of 18 in., at least up to the *stone floor* and in some cases these could be as much as a couple of feet in thickness. The foundations for a tower mill need to be very substantial as the brickwork weighs nearly a hundredweight per cubic foot, and the total weight of a mill could be several hundred tons. This imposes considerable strain on its restricted ground area. Where there are windows in the walls these should never be vertically one above the next as this would increase the tendency for the walls to crack. Floor beams should run in opposite directions for each floor for the same reason.

As with the smock mill only the cap revolves and it is propelled in much the same way into the wind by a fantail. The cap is generally painted to contrast with the body of the mill.

Fig. 14 Patcham Mill –
a tower mill with contrasting cap

CHAPTER 3

TYPES AND DEVELOPMENT OF SWEEPS

Sweeps is the term used in Sussex for the sails of a windmill. These sweeps fall into three main types: common (canvas rigged), spring and patent or self-reefing. Some mills have a combination of common and spring sweeps as Nutley now has.

Fig. 15 Common and spring sweeps of Nutley Windmill (H. James)

Sweeps of all types have to be very carefully balanced to ensure free running, for although the actual revolutions per minute may not be very great, 12 to 16 r.p.m., the velocity at the tip is high and uneven balancing throws considerable strain on, not only the sweep itself but also the windshaft bearings. It is an easy matter to check if the sweeps are out of balance as it will be very difficult to get each sweep, in turn, to remain in the lowest position without using the brake.

Shuttered sweeps, as used on spring and patent sweeps, are by no means faultless and the shutters have been known to freeze up in hard frost which makes them impossible to move and therefore the mill is idle until these can be freed.

The total sweep span varies considerably but is usually limited to between 36 and 84 feet. The length of each sweep being half this. The sweeps are attached to the stocks which in turn are secured in a *canister* or on to a cast or wrought iron cross.

An unknown inventor discovered and resolved a fundamental principle of sweep configuration without which the theory of propulsion would not have been evolved. He discovered that if a vane were set at an angle to the wind it would revolve. This constant angle of the vane. from heel to tip, was accepted until about 1759 when John Smeaton, the millwright and light-house builder, conducted experiments to determine the best design and dimensions for windmill sweeps. He formulated a table of angles for the *weather* of the sweep, which varied from approximately 18 degrees at the heel to 4 degrees at the tip, thus giving the sweeps the sort of twist that is seen in a propeller blade. Most windmills in this country now have this sort of arrangement to a large degree.

At one time common sweeps, with canvas spread by hand over each sweep frame, were universal. However in 1773 Andrew Meikle devised an alternative method. His idea was to have a series of transverse rectangular pivoted wooden shutters controlled by springs and adjustable levers very like the slats of a venetian blind. In 1807 William Cubitt, who was a millwright, coupled a weight and rod mechanism to a set of Meikle's spring sweeps and operated through a *striking rod* and *spider* which enabled all the shutters to be adjusted together. This modification became known as the *patent* sweep and was generally adopted for later windmills. The main advantage of this method of operation was that any adjustment to the shutters could be carried out without stopping the mill from working.

Fig. 16 Shipley Mill – patent sweeps

Shipley Windmill has patent sweeps and Fig. 16 shows the shutter in the open position and the spider mechanism.

You will find that most windmills have four sweeps and although this is the normal arrangement there have been other mills with as many as eight sweeps. None of the Sussex windmills has as many as this as far as is known, but there was once a windmill at Kingston, near Lewes, which possessed six sweeps and was known, not surprisingly, as the "Six Sail Mill". Unfortunately this no longer exists having been blown down in 1916.

Fig. 17 Kingston (Ashcombe) Six Sail Mill
(Peter Hill Collection)

CHAPTER 4

MILLWRIGHTING PROBLEMS

The skills of the millwright were great indeed and were generally passed down from father to son. The majority of their knowledge was kept in their heads and they became expert in dealing with particular characteristics of their own mills. Although windmills fall into three categories there are considerable variations on the internal layout and mechanics of the individual mills. Very few millwrights ever thought about making drawings of their mills. The earliest accurate drawings of the windmills are sectional perspective views and are in Ramelli's *Le Divers et Artificiose Machine* of 1588. Even these are not working drawings but it is said that any millwright 'worth his salt' would have no difficultly in understanding and following them. It was not until 1726 that Pieter Limperch, a Stockholm millwright, publicised in Amsterdam actual working drawings. It is said that even to this day some windmills in Holland, built in accordance with these drawings, still survive.

Although the millwright had to work with some very large and heavy baulks of timber they needed to work very accurately particularly when setting out and cutting the mortices on the sweeps. These mortices need great care for if the necessary weather on the sweeps is not obtained in the first instance it could not be rectified afterwards.

An example of the importance of the care given to certain jobs by millwrights is given by William Coles Finch in his book *Watermills and Windmills.*

> "It is said that Boaz Medhurst, the last millwright of the Medhurst family of Lewes, used to shut his workmen out of the workshop when he was setting out the mortices on a pair of sweeps, chiefly so that he should be alone and undisturbed, to give concentrated attention to the job in hand. It is also said that his workmen, while busy with outside jobs in the yard, would give an occasional sly peep at their employer through the window and the remark would be that 'he never looks so wise as when he is on that job'."

Even after a windmill had been built the millwright was kept busy with the maintenance of the mill. This was needed, particularly to post and smock mills, because of their timber construction which deteriorated and required constant attention. The sweeps were always in need of something being adjusted or replacing. The shutters, where fitted, often required replacement as they were prone to failure due to their exposure to the pounding of the wind and the inclement weather.

One of the major jobs of the millwright was to renew, remove and erect a new set of *stocks* and sweeps. To appreciate the magnitude of this task it must be remembered that each of the two stocks will weigh about one ton and each of the four sweeps a further half ton. Therefore a complete set of stocks and sweeps will weigh in the region of four tons. The most generally accepted timber used for this renewal is long leaf pitch pine which comes from the Caribbean and experience has shown that this has a good weight to strength ratio. This is no light-weight material to work with as an average weight per cubic foot is 55 lb., and when it is realised that an average stock is some 35 feet in length and 12 inches square, it is obvious that handling this size of timber is a very difficult and arduous job. There is a certain amount of shaping to be carried out on the stock and different millwrights devise their own methods of achieving the desired shape. The whip, which is the backbone of the sweep, which is attached to the stock at a later stage, although not quite as heavy still presents a strenuous task for the millwright to form into shape. It is into the whip that the mortices are cut for the *sail bars*.

The following order of events are the procedure that a present day millwright adopts, when he can, for removing and erecting new sweeps and sweeps.

1. Layout and anchor two winches, one either side of the windmill, in a direct line with the sweeps and about 50 ft. out from the centre of the mill. This distance is subject to the availability of clear ground. If this is not possible these winches will need to be placed in whatever convenient position that can be found.

2. Attach long rope lines to the tips, outer ends, of the whips of three sweeps, leaving the one which is to be removed first. This is achieved by releasing the brake and disengaging the *stone nuts*, then with the help of a long pole with a hook on the end, the sweeps are pulled around so that in turn each one is in the vertical position and reachable from the ground or in some cases the staging where fitted.

3. After engaging the brake and securing the rope lines to the winches so that the first sweep that is to be removed is in the the lower vertical position, it is necessary to build a scaffold structure behind the sweep and leaning against the mill body. This structure must not prevent the sweeps from being turned at later stage, and it is built to a height suitable for the millwright to reach the canister (*poll end*) with ease.

4. The hatchway above the windshaft in the mill is opened, if there is one, to give added access to the canister. A strong chain-sling is placed around the stock above the canister to which a pulley block is fitted so that it hangs on the outside of the canister. A steel hawser from one of the winches is reeved through the block and is secured carefully to the sweep which is about to be removed. A small length of chain is attached around the top of the *whip* and the hawser to help to keep a tight control when the sweep is being lowered.

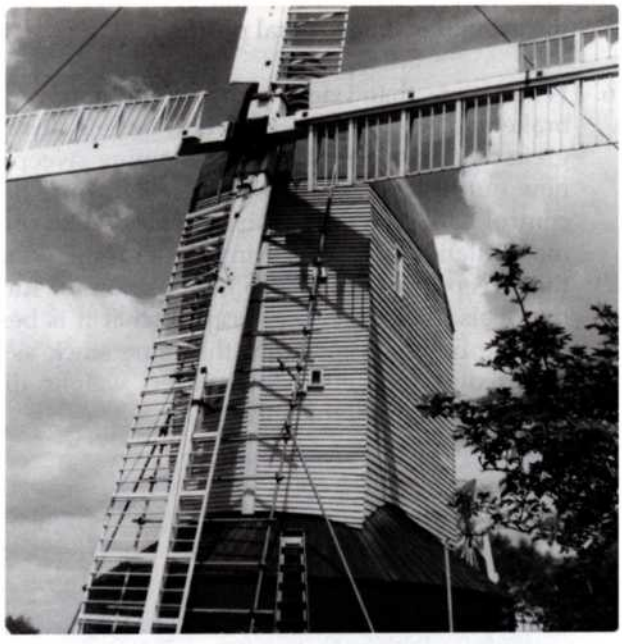

Fig. 18 Argos Hill Mill – first stage scaffolding

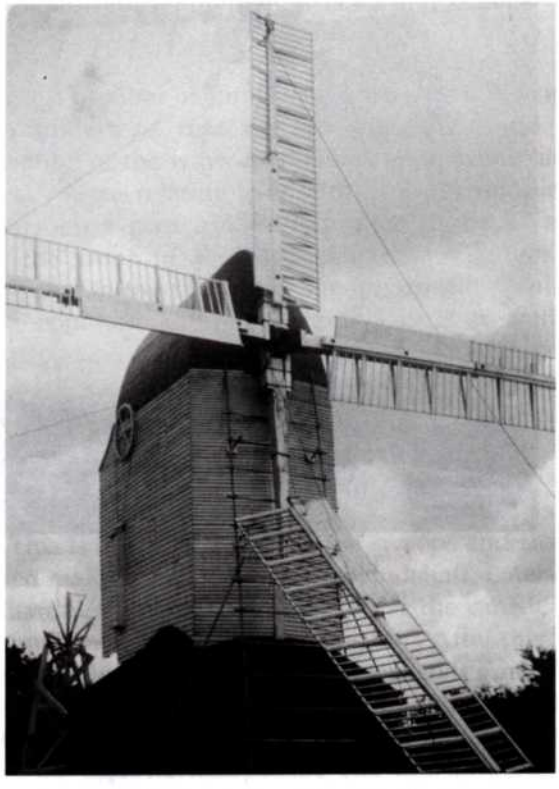

Fig. 19 Argos Hill Mill – first sweep being lowered

5. Sufficient tension is taken on the winch to hold the sweep while the *backstays, clamps* and bolts are removed from the sweep and the stock to which it is attached. When they are all detached the sweep can be lowered gently to the ground using the winch. The outer tip of the sweep is pulled away from the foot of the mill as the other end is supported by the hawser. This is continued until the sweep is clear of the mill body and is safe on the ground in a horizontal position.

6. When more than one sweep is to be removed the brake and securing lines have to be released with great care and control as the remaining sweeps are now out of balance and could easily swing out of control with dangerous consequences. With careful manipulation of the securing lines on the winches the sweeps are turned into the position for further removals. It is generally accepted that it is best to remove both sweeps from the same stock as this will reduce the effect of uneven weight distribution throughout the windmill.

Fig. 20 Argos Hill Mill – second sweep being removed

7. Once the sweeps have been revolved through 180° the brake and securing lines are re-engaged. The previous procedure is repeated to remove the second and any subsequent sweeps. To extricate the stock, when there is a canister, creates certain problems for the millwright because generally the overall length of the stock is greater then the height of the canister from the ground. This is the case with most post mills in Sussex. This prevents the stock being lowered straight out on to the ground. Sometimes it is necessary to erect further scaffolding to assist in its removal.

8. The chain sling is again positioned but this time it is placed around the horizontal part of the canister and the pulley block is fitted so that it hangs at the front end a little lower than the bottom of the canister. The hawser is reeved through the block and attached to the stock using a convenient bolt hole that has been left by the removal of the sweep. As with the procedure for removing a sweep, a small chain is used to secure the hawser close to the stock to prevent it swinging out of control when it is being lowered. Once the hawser has been made safe the tension is taken up by the winches. When under tension the wedges and upper clamping blocks are removed from and around the canister. This will enable the stock to be lowered in easy stages.

Fig. 21 Extra scaffolding being erected

The stock is lowered until the bottom end is near to the ground when a heavy rope is attached to this end. With the upper end of the stock still supported in the canister, the brake and securing lines are slackened so that the existing sweeps can be revolved slightly.

Fig. 22 Stock lowering

This is necessary as the lower end of the stock has to be slowly dragged, using the previously attached rope, from the base of the mill at an angle that will enable the upper end to be lowered through the canister. Before this is done however another small chain is placed around the upper end of the stock and hawser, just beneath the canister, to maintain adequate control. Once this has been completed the stock can now safely be lowered to the ground without too much difficulty.

9. The new stock is prepared by fitting one new clamping block to it at a position that will come to the lower end of the canister once it has been pulled up into position. The technique for accomplishing this is the reverse of the previous procedure. When the stock is in position, side clamping blocks are attached to the stock above the canister to prevent it slipping back. New wedges are hammered into position so that the stock is made tight and secure. Only when it has been made safe can the hawser and small chain be taken off.

10. Using similar techniques the new sweeps are erected on to the stock. The important part of this procedure is to have the hawser attached at the correct position so that it will not prevent the long bolts being located through the sweep into the stock. It is normal practice to have small pieces of packing between the sweep and the stock so that the sweep will stand away from the stock at an angle that will clear the roundhouse.

11. Before the scaffolding is taken down it is helpful to fit the shutters to the sweep. This is only necessary when a particular design of the sweep calls for them. Any final touching-up with paint is completed and then the scaffold is removed. The sweeps are then revolved into the recognised parking position and the brake is re-engaged. This completes one of the more difficult jobs the millwright undertakes when repairing or restoring windmills.

Fig. 23 Argos Hill with new stock and sweeps

There are a number of similar tasks that the millwright has to undertake that call for ingenuity and an appreciation of the ways and means of handling large and heavy items relating to windmills. One example of this is when a post mill has "broken its back" and where the front of the mill may be in danger of collapse due to the timbers of the girts rotting. This is quite a common failure where this type of mill is concerned and when it happens it requires a substantial rescue operation on the part of the millwright to prevent the complete destruction of the mill.

The first thing that the millwright has to tackle is to reduce the weight that the front of the mill has to carry. This is done by removing the sweeps and stocks and then making supports for the windshaft. Later the windshaft has to be "jacked up" under the canister to lift the mill back in to its correct position. After this has been achieved the millwright can then commence work on replacing or reinforcing the girts. A similar job to this was carried out on Argos Hill windmill some years ago. An account of this can be found in chapter 6.

In days long past the millwright had another mammoth task to contend with when a miller wanted to move a windmill from one location to another. This may seem an unlikely occurrence but there are many accounts of this actually happening. Windmills such as Cross-in-Hand, Hog Hill Mill, Icklesham, and Jill Mill, Clayton are just some that were moved during their life time. This particular task is not very frequent these days. There is however one account of a wealthy hotel owner who purchased a smock mill at Jolesfield, West Grinstead in 1959 and then commissioned a millwright to move it some miles to the grounds of one of his hotels (Gatwick Manor). This meant that all the heavy machinery, sweeps, stocks and windshaft, had to be removed from the mill and then the cap of the mill had to be lowered to the ground. After this the body of the mill was carefully cut into sections but not before each part of the 50 ft. high mill had been numbered and listed before it was actually dismantled. The mill was successfully sectionalised and transported by road to its new location. Unfortunately nothing was done by the new owner to have it re-assembled and it lay in parts on the ground for seven years until it was decided to rebuild it to provide a private power supply for the hotel. Needless to say, the timbers of the mill had by then deteriorated to such an extent that when the order was given to rebuild, nothing of the original mill was in a condition that was suitable. The only parts of the original mill that are still visible can be seen outside the hotel and they consist of the brakewheel, windshaft, a couple of mill stones and some odd pieces of gearing. In the grounds of the hotel there has been erected a "mock windmill" which has never operated.

Fig. 24 Gatwick Manor (Peter Hill)

CHAPTER 5

THE CONDITION OF WINDMILLS TODAY

Not all restorations are worthy of the effort or the money that has been spent on them. The kinds of restoration that have been carried out have been placed into four headings as far as this study is concerned:-

1. Fully restored to working order.
2. Restored but not operative.
3. Exterior renovations.
4. Those that have been converted into living accommodation.

The fully restored windmills, that are capable of demonstrating actual working procedures, are very few indeed. There are now only three in the whole county of Sussex.[1]

These are all open to the public on certain days in the year and are all well worth a visit if only to savour the atmosphere of bygone days and to appreciate the arduous nature of a miller's life. Quite often you will find someone in attendance at these mills to show you over them and to answer questions.

Fig. 25 Nutley (post mill)

Nutley windmill can be found in a narrow lane north of the Nutley to Crowborough road, approximately one mile from the main A22 London to Eastbourne road. This lane is not suitable for vehicles and visitors are requested to park in the recognized areas in Ashdown Forest. This mill is open on the last Sunday in each month, 2.30 p.m. - 5.30 p.m., from June to September and it will be set in motion weather-permitting.

Fig. 26 Polegate (tower mill)

Polegate windmill is located near Eastbourne, west of the A22, 200 yds south of the Polegate traffic lights. Take the turning opposite a garage. This mill is open for inspection on Sunday afternoons from May to October. This mill can be opened for parties of visitors on Wednesdays by prior arrangement.[2] There is a very interesting museum of milling equipment and tools attached to this mill that is well worth a visit.

Fig. 27 Shipley (smock mill)

Shipley windmill is right in the heart of the village of Shipley which is near Horsham. It is located west of the A24. Leave this road at West Grinstead and travel along the A272 in a westerly direction. Shipley is signposted about one mile along this road. It is open on the first Saturday and Sunday in each month, 2.30 p.m. - 5.30 p.m., from May to October.[3]

There is a further windmill in Sussex that has been fully restored and this is at Punnetts Town. The restoration of this mill had been carried out by the present owner Mr. Dalloway[4] and although it can be seen from the outside it is not open to the general public for visits.

Further details about the above three mills can be found in chapter 6.

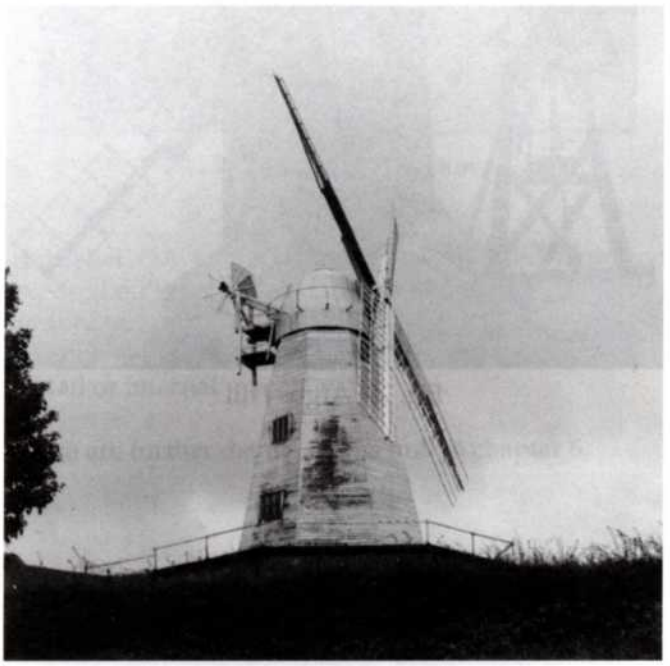

Fig. 28 Punnetts Town

RESTORED BUT NOT IN WORKING ORDER

There are three very carefully restored windmills, all post mills, but unfortunately these are no longer operative for one reason or another.[5] One of these is at Argos Hill (Mayfield) and is situated on the top of a ridge of hills, making a beautiful landmark.

This mill is open to the public at certain pre-arranged times[6] during the year and included in the roundhouse is an interesting exhibition of milling implements.

Further details about this mill can be found in chapter 6.

"Jill" mill at Clayton is one of two windmills, the other known as "Jack", which are owned by Mid-Sussex District Council and are situated next to each other in a prominent position on the South Downs seven miles north of Brighton. "Jill" is the post mill which has some of her machinery intact.[7] These

windmills can be visited by appointment with the District Council.

Further details about this mill can be found in chapter 6.

Fig. 29 Argos Hill

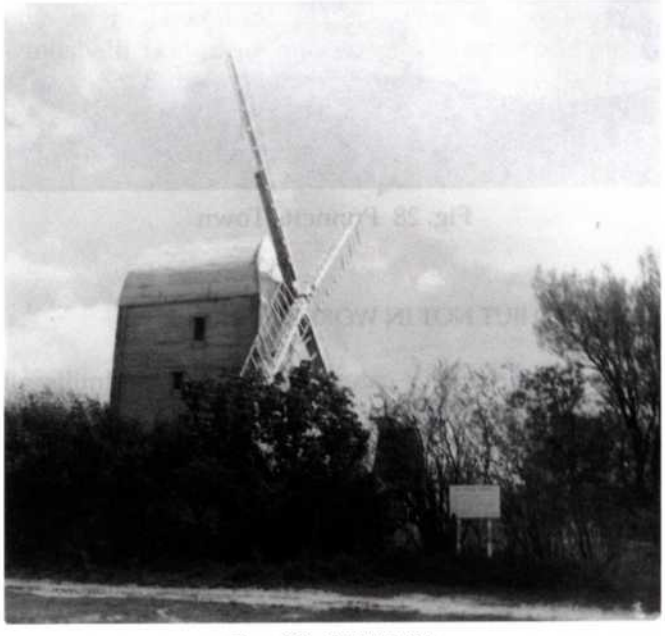

Fig. 30 "Jill" Mill

High Salvington windmill is north of Worthing and visitors are allowed to look over this well restored relic of the past.[8]

At one time it was thought that this windmill's centre post was composed of the trunk of a growing tree. However this has since been disproved when a millwright was at work on the mill he was able to place his hand under the centre post. Fig. 32 shows distinctly the clearance under the centre post.

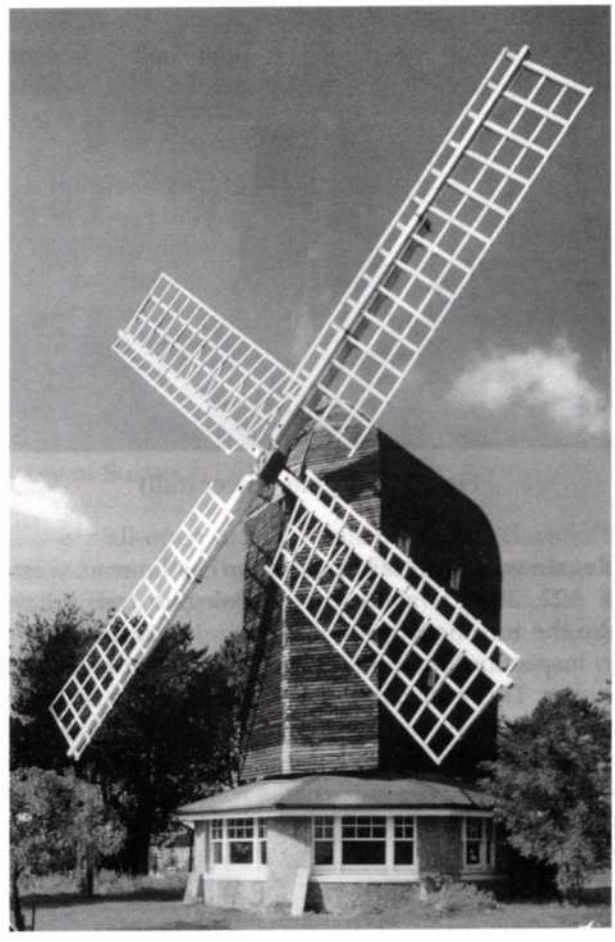

Fig. 31 High Salvington (Peter Hill)

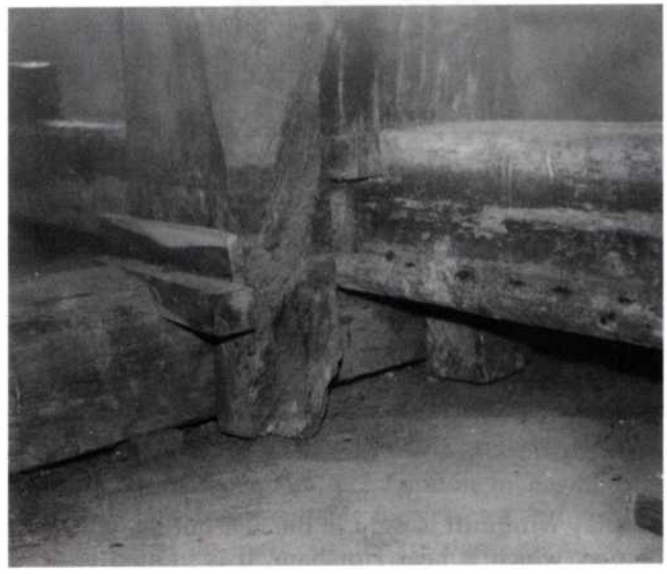

Fig. 32 Base of the High Salvington centre post

The roundhouse, which unusually is octagonal, was converted into a tea-house around the 1930s, but is no longer used for this purpose.

Further details about this mill can be found in chapter 6.

EXTERIOR RENOVATIONS

There are a number of windmills that although they look very attractive, because of certain exterior renovations, cannot be termed restorations as they are far from complete. These include the following all of which have four sweeps intact.

Chailey, North Mill. This is a smock mill and is located north of the A272, Haywards Heath to Maresfield road and nearly opposite the Chailey Heritage Craft School. The external condition of this mill is very good as it has recently had a "face-lift" when it was repainted in 1974. It possesses a fantail but there is no internal machinery. At one time is was used as a Boy Scout headquarters.

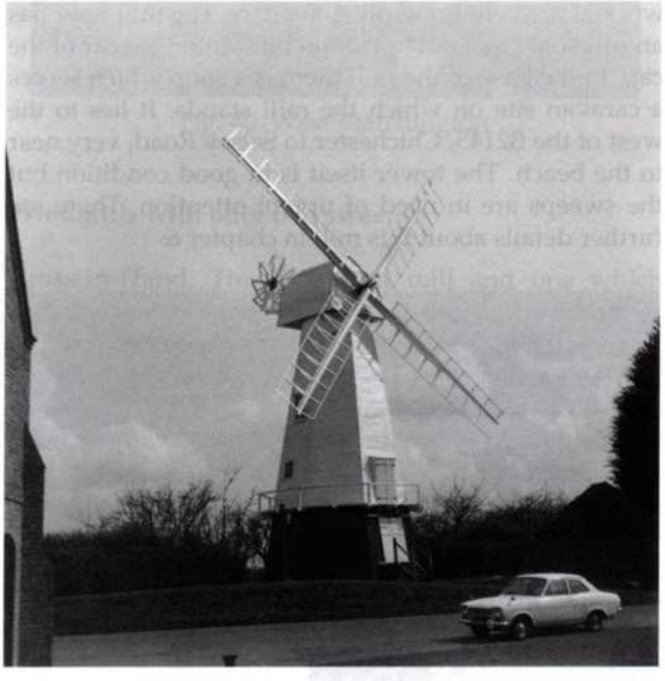

Fig. 33 Chailey

"Jack", Clayton. This is a tower mill and it stands close to another windmill, "Jill" which is a post mill referred to earlier. These two windmills stands prominently on the South Downs at Clayton which is about seven miles north of Brighton on the A273 Burgess Hill to Pycombe road. The condition of "Jack" is good and he looks very smart with his gleaming cap and a set of open framed sweeps which were erected in 1973. There is no fantail or internal machinery.

There are further details of this mill in chapter 6.

Fig. 34 "Jack", Clayton

Halnaker. A tower mill which is located high and exposed on the hills north east of Chichester and to the west of the A285, the Chichester to Petworth road. The exterior condition of this mill is good but it has no fantail or internal machinery.

There are further details of this mill in chapter 6.

Fig. 35 Halnaker

Icklesham, Hog Hill Mill. A well preserved post mill of some particular note as it is considered to be the oldest post mill in Sussex being built about 1672. However it has not always stood in its present position. This mill possesses a fan tail which is attached in an unusually high position on the roof of the mill. This mill can be seen to the south of the A259 Rye to Hastings Road. It stands on private property adjoining a house.

Fig. 36 Icklesham

Rottingdean. This is a smock mill which is suffering from its exposed position, overlooking the sea, on the South Downs east of Brighton on the A259 Brighton to Newhaven road. This mill is in poor condition and is in the process of being renovated. There is no internal machinery and the inside has an extensive girder structure which supports the mill. There are further details regarding this mill in chapter 6.

Fig. 37 Rottingdean

Rye, Gibbet Mill. This is a smock mill and although it does not possess sweeps it has its stocks in place. The condition of this mill is good and it possesses a fine fan tail. It is located right in the heart of Rye and is the farthest west of the Sussex windmills. It stands just north of the A259 road.[9]

Fig. 38 Rye

Selsey, Medmerry Hill. This is a tower mill which is thought to have been built around 1750 and has not worked actively for about 100 years. The mill now has an unusual "lookout" position built into the rear of the cap. In the base of the mill there is a shop which serves a caravan site on which the mill stands. It lies to the west of the B2145, Chichester to Selsey Road, very near to the beach. The tower itself is in good condition but the sweeps are in need of urgent attention. There are further details about this mill in chapter 6.

Fig. 39 Selsey

West Blatchington. This is a small and unusual smock mill which has six sides instead of the more usual eight. It has been built above what was a barn in which

the machinery was housed. It is located north of Hove on the north side of the A27 near Brighton. This mill is in a reasonable condition.[10]

There are further details about this mill in chapter 6.

Fig. 40 West Blatchington

Windmills with only two sweeps:-

Cross-in-Hand. This is a post mill and one which actively worked until 1969 and is the last windmill to work commercially in Sussex. An interesting feature of this mill is that it possessed a large tail pole fan tail similar to the one on Argos Hill mill. This mill is in poor condition and is badly in need of some urgent attention to save it from complete ruin. There have been several attempts to organise some renovation and East Sussex County Council have been approached to assist to these ends. The mill is located near the junction of the B2192 and the A267 roads near Heathfield.

There are further details about this mill in chapter 6.

Earnley. This is a smock mill that unfortunately is in a very poor condition. Very little has been done for this mill since the last miller, the late Mr. William Ellis, died in 1942. It is located S.SW of Chichester and is on the B2198 Birdham to Bracklesham road.

I am pleased to report that the owner, Mr. C. Darby, has recently commenced repairs to the mill. He hopes the work will be completed within the next nine months.

Fig. 41 Cross-in-Hand

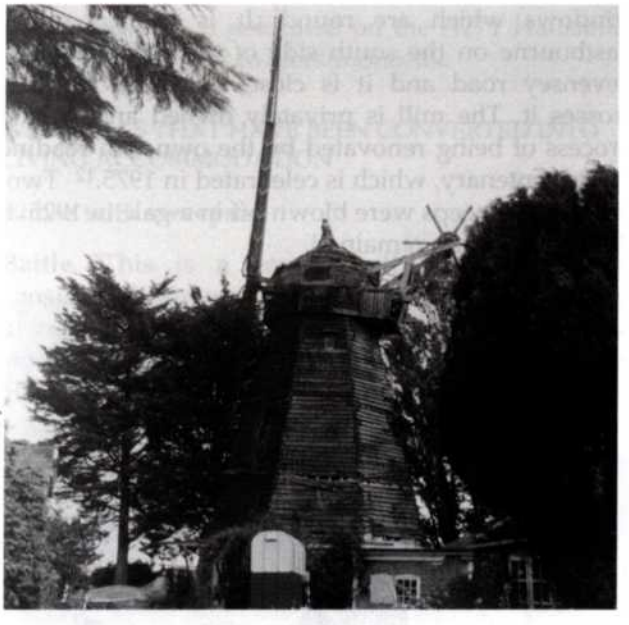

Fig. 42 Earnley

Oldlands, Keymer. A post mill which has a large floor area and said to be one of the biggest post mills in Sussex. It is maintained by the Sussex Archaeological Trust.[11] It is located north of the South Downs and is in the sight of "Jack and Jill" the Clayton windmills. This mill is in need of an external repaint and some structural repairs to prevent further deterioration from the weather.

Fig. 43 Oldlands Mill

Stone Cross. A tower mill with an unusual shape to its windows which are round. It is located near to Eastbourne on the south side of the A27 Polegate to Pevensey road and it is close to where the B2104 crosses it. The mill is privately owned and is in the process of being renovated by the owner in readiness for its centenary, which is celebrated in 1975.[12] Two of this mill's sweeps were blown off in a gale in 1925 and that is how it has remained.

Fig. 44 Stone Cross

Barnham. A tower mill and one where the miller made valiant efforts to keep pace with the progress of time. The original mill was built around 1790 and after a century of work had a considerable re-fit. With the advent of gas-powered engines this mill had its sweeps removed and in 1910 was converted to this form of power. In its later years it was again converted and this time to electric power and the mill stones were removed and replaced with rollers. The tower and cap of this mill are in good condition. It is located on the A2024 road near Yapton which is a village between Littlehampton and Bognor Regis.[13]

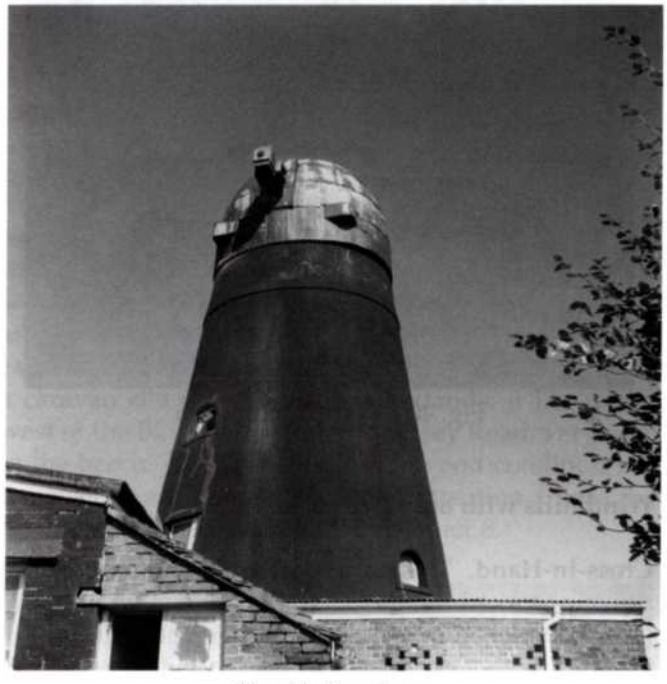

Fig. 45 Barnham

Lowfield Heath is a post mill and the most northerly of the Sussex windmills. Its condition is deteriorating as the roundhouse has no roof to it and the trestle is exposed to the weather. Apart from this the mill is in a reasonable state but it really needs attention as soon as possible to prevent further damage. It is located on the A23 just south of Gatwick Airport between Horley and Gatwick.[14]

There are further details about this mill in chapter 6.

Winchelsea. This is a post mill and in a report drawn up in 1952 it was stated that this mill was "all but gutted". The body of the mill appears to be in a reasonable condition and it has its mill steps and wheels intact. It is located in a prominent position north of the A259 road at Winchelsea.[15]

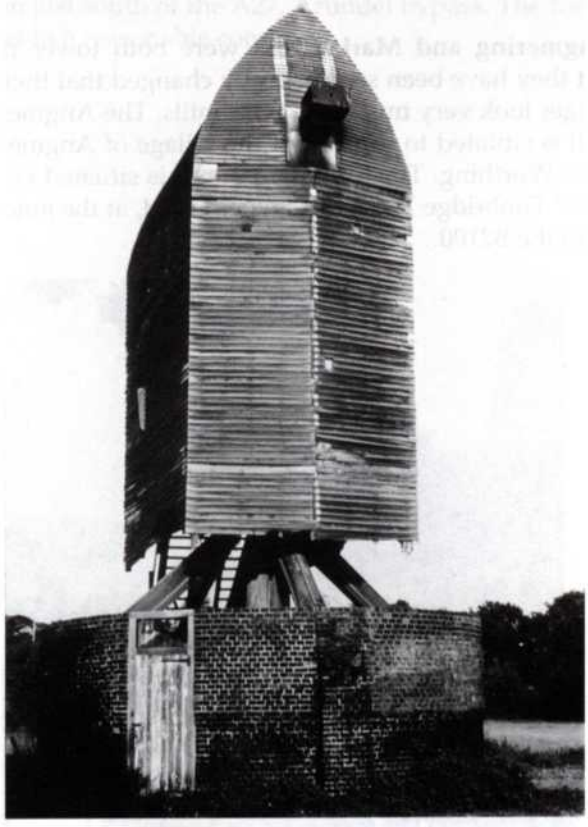

Fig. 46 Lowfield Heath (Peter Hill)

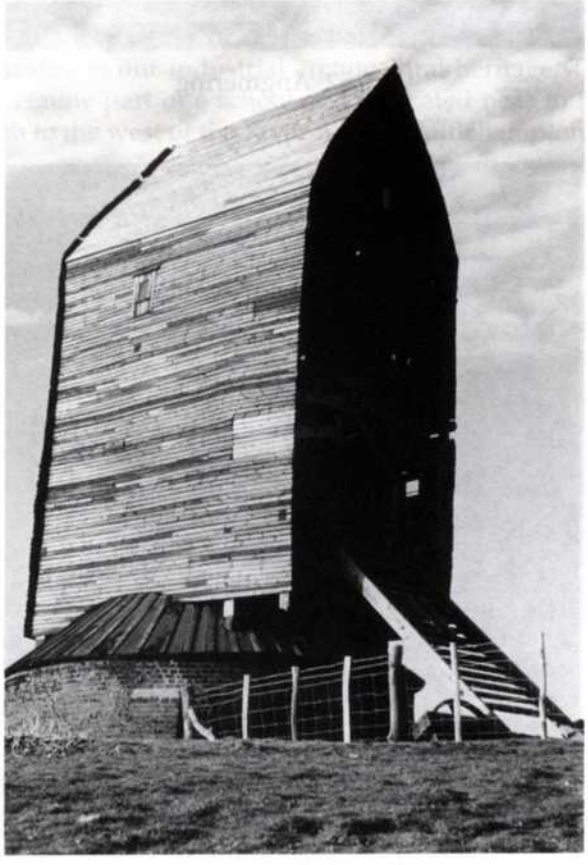

Fig. 47 Winchelsea (Peter Hill)

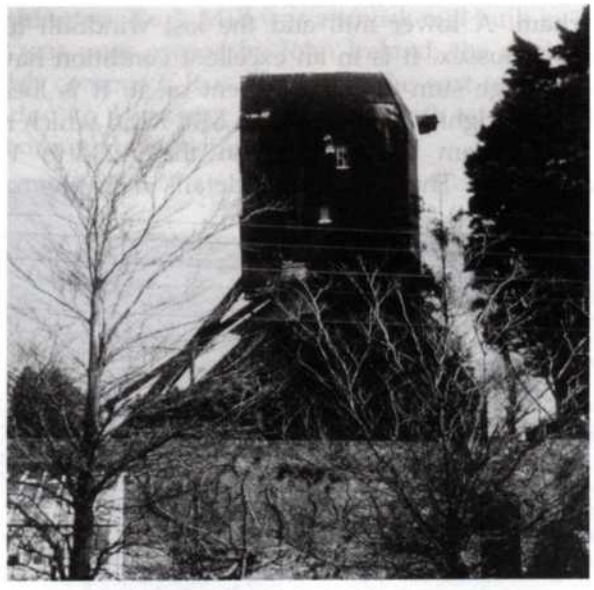

Fig. 48 Windmill Hill (Peter Hill)

Windmill Hill is also a post mill and this one is sheathed in metal sheeting. It looks very stark and forbidding perched high on its roundhouse. It is in a poor condition. It is located on the A271 Hailsham to Ninfield road, near to Herstmonceux.

WINDMILLS THAT HAVE BEEN CONVERTED INTO LIVING ACCOMMODATION

Those with sweeps:-

Battle. This is a smock mill which has had a considerable amount of money spent on it. It is now in a very good condition although it only possesses stocks. It is located to the east of the A2100 Battle to Hastings road. There are further details in chapter 6.

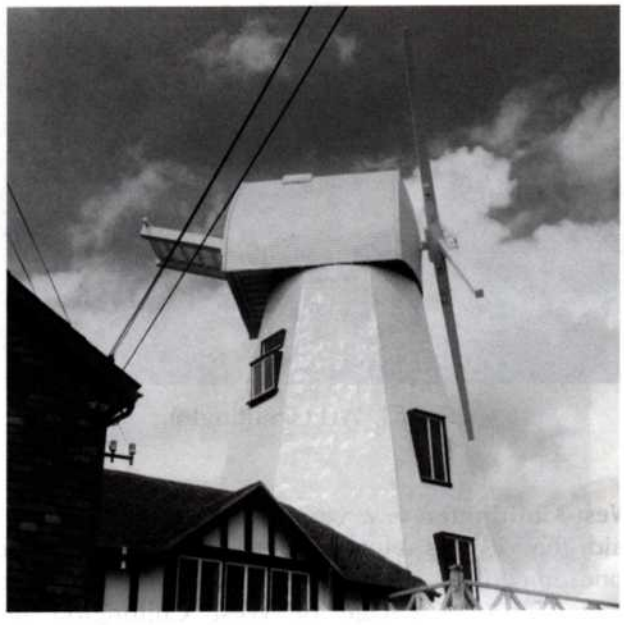

Fig. 49 Battle

Patcham. A tower mill and the last windmill to be built in Sussex. It is in an excellent condition having had a large sum of money spent on it. It is located north of Brighton and stands in Mill Road which runs from Patcham cross roads on the A23, to West Blatchington. There are further details in chapter 6.

Fig. 50 Patcham

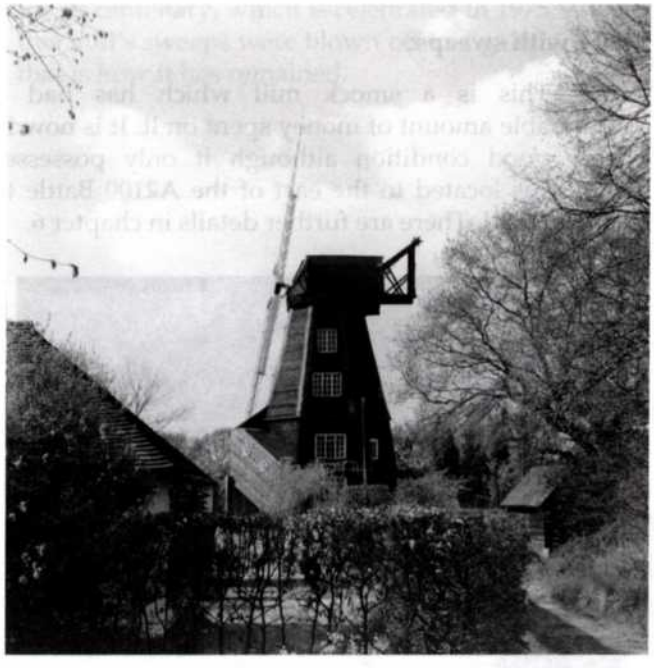

Fig. 51 West Chiltington

West Chiltington is a very old smock mill and it is said that it was built around 1688. It is in good condition but has only two sweeps and no fan tail. It is located in the village of West Chiltington near Pulborough. There are further details in chapter 6.

Lived in windmills without sweeps:-

Angmering and Mark Cross were both tower mills but they have been so drastically changed that they no longer look very much like windmills. The Angmering mill is situated to the east of the village of Angmering near Worthing. The Mark Cross mill is situated on the A267 Tunbridge Wells to Mayfield road, at the junction with the B2100.

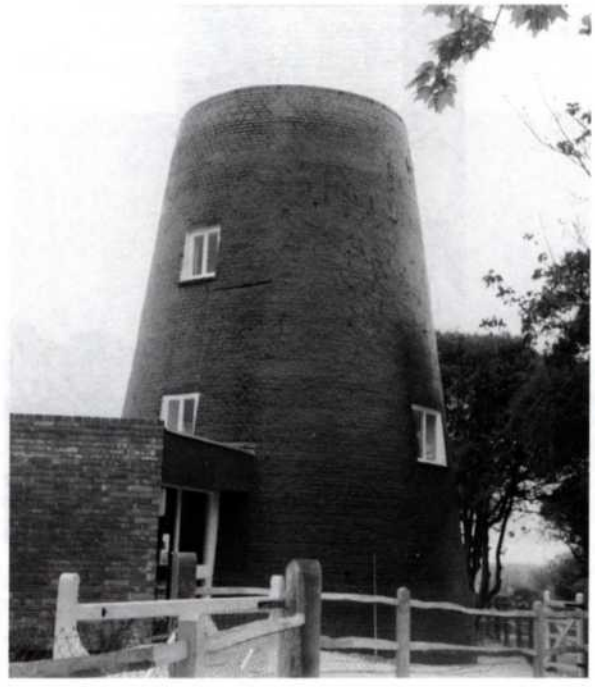

Fig. 52 Angmering

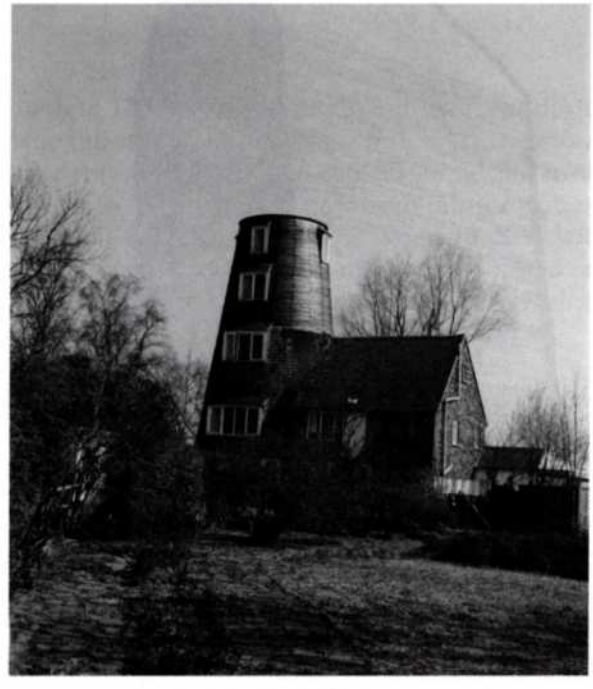

Fig. 53 Mark Cross

Arundel is a tower mill which stands by the River Arun just south of the A27, Arundel bypass. The tower looks in a reasonable condition.

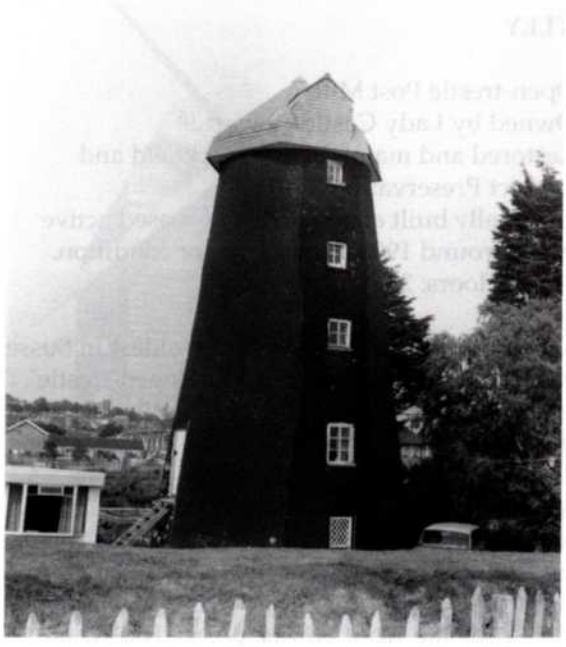

Fig. 54 Arundel

Climping was a fine old smock mill until it was desecrated when the cap and part of the structure was removed without the permission of the local authority and to the disgust of a number of people that are interested in our industrial architectural heritage. The mill is now part of a school and is located near to the beach to the west of the River Arun at Littlehampton.

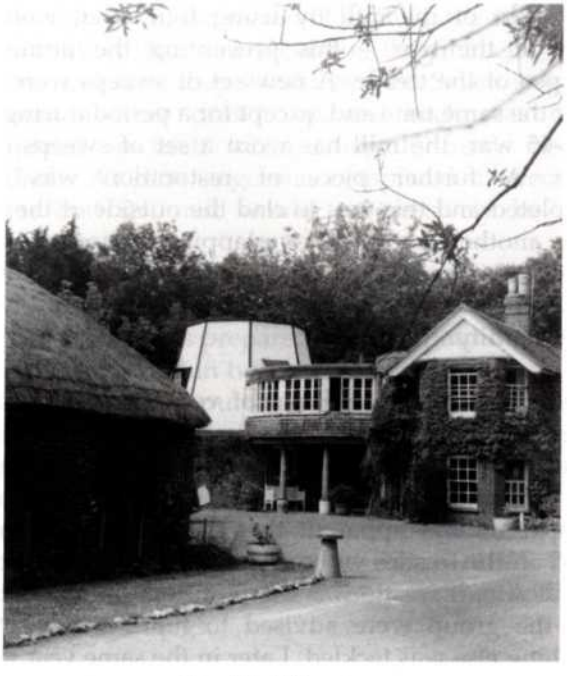

Fig. 55 Climping

Washington, Rock Mill was a smock mill built in 1837 and was once owned by John Ireland, the celebrated British composer. It is located to the east of the A24, London to Worthing road, just north of the A283, Pulborough to Steyning road.

Fig. 56 Washington

SOME OF THE SAD SIGHTS OF DERELICT WINDMILLS

East Wittering. This mill ceased active work in 1891 when an accident damaged the fan. It has been sweepless since 1926. The cap and fan tail of this mill were blown off in a gale around 1930.

Fig. 57 East Wittering (Peter Hill)

Nutbourne. This mill ceased active work in 1930. It stands isolated in the middle of an orchard.

Fig. 58 Nutbourne

Nyetimber. This mill ceased active work in 1915. It was finally destroyed by fire in the mid 1960s.

Fig. 59 Nyetimber (Peter Hill)

CHAPTER 6

WORK CARRIED OUT ON INDIVIDUAL WINDMILLS

NUTLEY

Open-trestle Post Mill.
Owned by Lady Castle Stewart.[16]
Restored and maintained by Uckfield and District Preservation Society.
Originally built about 1670 and ceased active work around 1908 due to its poor condition.
No. of floors: 2

This post mill, considered to be the oldest in Sussex, is now the only one which has an 'open-trestle'. This means that it has no roundhouse, unlike all the other existing post mills in the county.

It started to suffer drastically from decay and structural failures towards the end of the nineteenth century. One of the critical structural weaknesses occurred in the side girts with the subsequent distortion of the front corner posts. The whole of the front of the mill began to collapse and this caused the *sheers* to crack. An effort was made to strengthen the whole of the front of the mill to prevent the *breast beam* from falling out.

It wasn't until 1929 that the present owner, Lady Castle Stewart, put into effect the instructions to radically strengthen the whole structure. This was done by building two brick piers which were supported by steel girders and were erected under the front part of the mill by using four stout wooden posts at the rear – this preventing the imminent collapse of the trestle. A new set of sweeps were put up at the same time and, except for a period during the 1939-45 war, the mill has worn a set of sweeps ever since. A further piece of restoration was also completed and this was to clad the outside of the mill with another layer of overlapping boarding. This served two purposes; one to prevent the weather getting at the body structure and the other to give it more rigidity.

It was in 1968 that a group of voluntary enthusiasts investigated the possibility of carrying out some sort of restoration of the mill. It was clear that the trestle was useless, and that the breast beam was in a state of collapse. It was apparent that the weight had to be lifted off the trestles without delay if the mill was to be saved. A new trestle was the first item on the agenda and the group were advised to replace this before anything else was tackled. Later in the same year short supporting timbers were placed beneath the four

corner posts, and a single post was erected beneath the windshaft.

Fig. 60 Nutley Mill –
showing the two brick piers (Brian Austen)

By the following year plans were sufficiently advanced for the owner to accept a formula for the complete restoration of the mill under the auspices of the local voluntary group. Two important aspects had been resolved by then; the method by which the restoration would take place, and secondly, the financial implications and how they would be met. Seven stages of restoration were drawn up and each was to be completed in itself when adequate funds became available. As each stage was completed it effectively meant that the mill would progressively be more sound than before.

An appeal for funds was launched with the knowledge that the owner was prepared to pay a pound for every pound raised. Within two months there was sufficient money available to purchase the timber for the trestle. Further assistance and encouragement was given when the East Sussex County Council agreed to a £500 grant subject to satisfactory work being carried out. Another source of income came from the general public mainly through the good offices of the Water and Windmill Section of the Society for the Protection of Ancient Buildings.

The early months of 1970 saw the completion of the work on the trestle but it became evident that more than 'first-aid' was required if the mill was to be satisfactorily repaired. Major timbers, uncovered for inspection, proved to be beyond reasonable repair and it was realised that the extent of the distortion in the mill body framework required a considerable amount of rebuilding if soundness of structure, in the long term, was to be achieved.

Fig. 61 Nutley Mill –
the new trestle taking shape

Below is an outline of the work which needed urgent attention:-

Shoring and Supports to take the weight of the mill body.
Trestle. Some 2½ tons of oak, in six pieces suitable for the cross-trees and quarter-bars, were required to be replaced to give a sound base to the mill.
Collar. A new collar, to fit between the trestle quarter-bars and the sheers was made and fitted, incorporating the cast bearing rings from the original.
Crown-tree. This is made of a baulk of oak 10 foot x 20 in. x 20 in. and it was found that an area of some 3 foot in length x 8 in. wide and 10 in. deep was badly affected by rot. This was cut away enough to enable a rolled steel joist and oak packing pieces to be inserted.
Sheers. One sheer had cracked open about 4 inches at its outer end due to the unequal displacement of weight brought about by the failure of the side girt. The weight was taken off the sheer before it was able to be strapped up and the crack closed.
Tie-bars. It was found necessary to install diagonal adjustable tie-bars from the crown-tree to the breast and tail beams. These were used in an attempt to untwist the distorted body structure.
Rear corner post. As the rear main corner post was worse than first thought a completely new post was hauled into place beside the old one before the latter was cut out.
Side girt. Again the original plans to strengthen and straighten the broken girt had to be abandoned in favour of a complete renewal. It was found necessary to install this new girt in three sections to facilitate handling problems.

Lower rails. The lower rail supporting the bottom edge of the side of the body, on the same side as the broken main girt, had itself distorted and cracked. This had to be strengthened and made good with old oak and the inclusion of a *dog iron* from Smarden windmill.
Front end Rebuild. During the actual process of dismantling, it was found that the woodwork was in an even worse state than had been anticipated. The old weather beam was literally torn out by hand, and the left hand corner post fell out in three pieces. It was felt that once the old framework was taken out the new basic framework had to be positioned without delay so as to restore the balance to the structure and to give rigidity as soon as possible. Much of the preliminary work on the new framework had been carried out outside the mill and fortunately little difficulty was encountered when actually fitting this framework into the mill body. The windshaft was lowered on to its bearing on the weather beam. It was then possible to square up the mill body which had developed a considerable cant to the east since the main timbers had started to fail many years before.

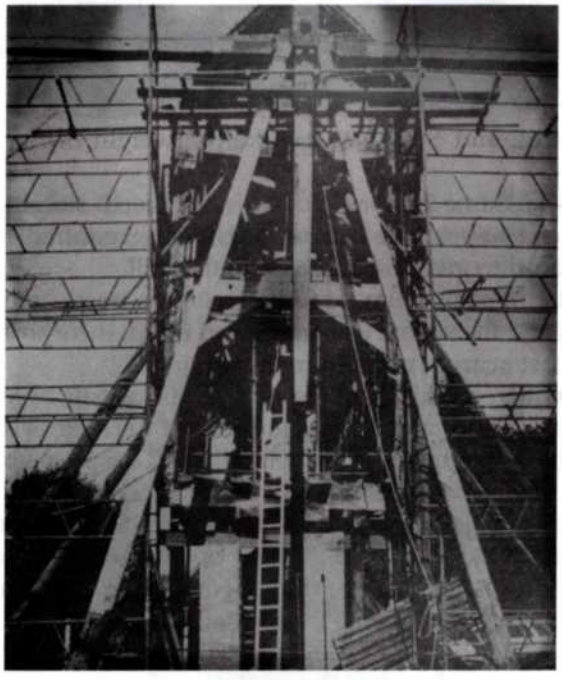

Fig. 62 Nutley – showing the elaborate supports and scaffolding needed to carry out major restoration.

Roof. Of the twenty four ribs which supported the roof, nine had to be replaced with new timber and several of the others needed repairs. The heavy oak rails, which topped each side wall, were rotten to a state beyond repair and were replaced. Two roof skins were added: felt laid on close boarding ensuring a rain-proof roof while the second and outer layer of boards preserved the correct weatherboarding appearance.
Sweeps. Major repairs were carried out to two of the sweeps with minor repairs to the other two. Modifications were made to all sweeps, two being converted to common sweeps, and two to resemble more closely the Sussex type of shuttered sweep.
Tailpole and talthur. The existing tailpole, although appearing to be badly affected by rot, has proved capable of turning the mill. A *talthur* has been made and fitted so that the steps may be lifted in order that the mill can face into the wind.

Many other items have needed attention and there will be many more small but very important jobs to be done to maintain this mill in working order.

This programme of restoration has now been completed and all credit must be extended to the many people behind the project. This mill can be visited at certain times and can be seen working when the weather permits. A more comprehensive account of the restoration of this windmill can be found in the official booklet *Nutley Windmill Restoration*, by A.K. Shaw and K.W. Hamlin, published by the Nutley Windmill Appeal Uckfield and District Preservation Society. This is available when visiting the mill.

My gratitude goes to the men behind the restoration of Nutley Windmill for allowing me to use extracts from their booklet.

SHIPLEY Smock Mill

Owned by Mrs. Jebb.[17]
Restored and Maintained by West Sussex County Council.
Originally built in 1879.
No. of floors: 5.
Considered to be the tallest remaining smock mill in the county being nearly 100 ft. high.

By 1922 this mill had ceased general working and although it functioned spasmodically until 1926, its active life came to an end. Between the wars efforts were made to preserve the general fabric of the mill, but when the Second World War came, and for some years after it was over, labour and materials were so scarce that it became impossible to keep it in proper repair.

However, in 1950 the owner, who at that time was the writer Hilaire Belloc, showed an interest in undertaking repairs to the mill and Mr. Rex Wailes was asked to make an examination and report on the work needed to effect this. This report stated that one of the 'cant posts' required strengthening, the dust, stone and meal floors needed some attention as did two doors. The exterior required some weather-boarding on the body as well as the cap, lead sheeting was needed over the windshaft hatch, the joists of the

staging had to be cut out and renewed and the hand rail around the staging strengthened. The exterior was also in a dire state and needed painting and tarring. An estimate from a millwright was received to carry out this work which came to a little under £800. Unfortunately it wasn't until after Mr. Belloc's death in 1953 that it was decided to make an attempt to save the mill from ruin and by this time it had deteriorated further.

Suggestions were made by various members of the locality that an application should be made to Mr. Belloc's friends to see of they would like to subscribe towards a fund to put the mill into good repair and make it local memorial to him. This appeal was made in 1954 and the response was generous so a committee of 'Shipleyites' was formed. The committee decided to go ahead with repairs and to put the work in the hands of a millwright. Almost as soon as this decision was made the West Sussex County Council approached the committee with a proposal to help financially in the repairs provided the public had the opportunity of visiting the mill. The Shipley committee agreed to this arrangement, and a large programme of repairs was put in hand. This led to a further examination by Mr. Wailes who found a considerable amount of extra work now required to be done if the mill was ever to work again, for this was the intention. The work that was going to be carried out was far more than just repairing, it was going to be a restoration so that it would be possible for the mill to 'run', not for commercial purposes, but for demonstration and interest.

This work was put in the hands of E. Hole and Son of Burgess Hill, who have for many years been well known for their good work on windmills. They worked in association with Mr. Wailes and the West Sussex County Council. It wasn't until 1958 that this was completed at a cost of around £4,500 which included a complete treatment for all the timbers in the mill with Xylamon to combat rot and woodworm infestation. More work needed to be done but it was decided to leave this to a later date.

An interesting point to note as an example of the change on money values is that the estimated cost of building the mill in 1879 was £800, though it actually cost £2,500, while the cost of the work undertaken in 1958 was £4,556.

A large number of people, including many friends of Mr. Belloc and members of the County Council, were present at a big opening day that had been arranged once the work was complete. At this meeting a memorial plaque, designed by Mr. Edmond Warre, an old friend of Mr. Belloc, was fixed above the entrance door of the mill. Engraved on this plaque are the following words:-

LET THIS BE A MEMORIAL TO HILAIRE BELLOC WHO GARNERED A HARVEST OF WISDOM AND SYMPATHY FOR YOUNG AND OLD. MDCCCLXX-MCXLIII.

As with all mechanical equipment, the windmill needs continual maintenance to keep it in good working order and so with Shipley, particularly as she had stood idle for 30 years. By 1965 more work was required on the moving parts of the mill. The old breast beam was removed and a new one fitted in its place. To achieve this meant removing the sweeps, to reduce the weight, and then jacking up the windshaft. This enabled the millwright to effect this difficult task. Finally, the sweeps were refitted at an overall cost of something over £1,000. About this time new segments were fitted to the curb, work was done on the fantail spindle and also the cap.

In 1969, two of the sweeps were fitted with new shutters, quite a job when one considers that each sweep measures 34 ft. x 8 ft. and contains 66 shutters which all have to be linked by the *shutter bar* so that they operate together. Fig. 63 shows this linkage and a millwright working on a sweep.

The sweeps on any windmill always require the most attention and more repairs were carried out on them in 1970 and 1974. In Fig. 64 one can see where the weather has caused the outer edge of one of the sweeps to rot away. If this is not renewed promptly considerable damage can be caused due to parts breaking away and crashing on to other parts of the mill and then to the ground. This could be very dangerous to people around at the time.

Fig. 63 Shipley – showing shutter linkage and a millwright working on the sweeps

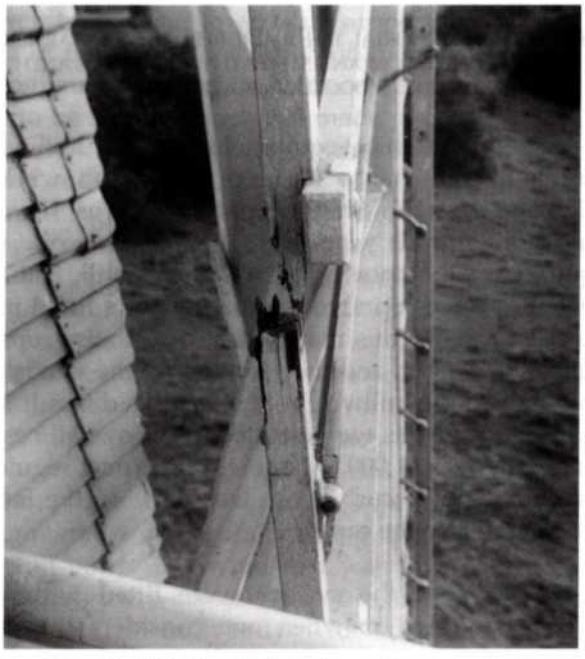

Fig. 64 Shipley – showing where rot has occurred on the outer edge of a sweep

POLEGATE Tower Mill

Owned by the Eastbourne Civic Society Preservation Trust.[18]
Restored and maintained by the above trust.
Originally built in 1817 and worked commercially by wind until 1943, then it was converted to electrical power and continued milling into the early 1960s.
No. of floors: 4.

On the retirement of the miller the windmill was put on the market and permission was being sought for the site of the mill to be used for housing. This would have meant the destruction of this mill. However, urgent measures were put forward to try and save the mill and in 1962 a report was compiled following an inspection made by Mr. Rex Wailes, on behalf of the Society for the Protection of Ancient Buildings, and a Sussex millwright.

This report made a number of rather startling comments about the condition of the mill and it was considered that the cap must be completely rebuilt. The timbers of the fantail frame were in a dangerous state and needed removal for safety's sake. There was also dry rot developing in certain parts of the mill and if this was not treated urgently it would spread throughout the mill. The cap needed to be turned so that the sweeps would be over ground belonging to the mill. This had to be done so that they could examine more closely the stocks and sweeps as they appeared to be in a poor condition and it was unwise to leave them in this state too long. It was anticipated that these sweeps, or at least some of them would require replacing soon. The millwright estimated the cost of carrying out the necessary repairs and replacement at £2,400. This was only to prevent the mill from further deterioration and did not cover things such as internal decoration.

The following year, 1963, the newly formed Eastbourne and District Preservation Society campaigned for the mill's retention and after numerous meetings with the last owner it was agreed that the Society should purchase the mill for £1,000 which was only a fraction of the value of the site. An appeal was launched in 1964 with the sum of £3,500 as a target which could be used to purchase the mill as it stood and provide some finance to enable the mill to be renovated. Subsequently a preservation order was confirmed on the property and the East Sussex County Council made grants. With generous donations from various interested people, councils, trusts, and a kind gesture made by Rank-Hovis-McDougall Limited, sufficient funds were raised and in April 1965 it was agreed to go ahead and make the purchase. As soon as the mill became the property of the Society arrangements were made for its renovation.

No time was lost and in November of the same year work had begun on the renovation. Much of the fan-stage had collapsed by the time the millwright was able to set to work on the mill and the remainder was in such a critical condition that it was necessary to remove the whole structure. A new one was assembled on the ground, in sections, these being pieced together before it was erected into its position behind the cap. This was a complicated operation and Mr. E. Hole, the millwright, devised some ingenious methods to achieve this as some of the new beams of the fan-staging had to be placed in positions which meant that the cap and windshaft had to be raised. To enable this to be done it was necessary to prefabricate a *jib and jack* which was erected outside the mill under the canister on the windshaft.

Fig. 65 shows the extent of the scaffolding required by the millwright and the jib and jack under the canister.

With further jacks inside the mill the cap and windshaft were raised enough to allow the fan-staging to be fitted. Once this had been completed work commenced on the cap itself. This required certain replacements to roof ribs and a complete covering with new boarding, finally a covering of two layers of roofing felt was laid, the top one being treated with a white mineralised compound giving the cap its original white appearance. These two major items completed, the millwright turned his attention to the sweeps, little more than a routine task for him and his

men apart from the fact that the condition of the old sweeps was far worse than had first been thought. It was found necessary to renew one of the stocks and two of the sweeps completely and make substantial repairs to the remainder.

Fig. 65 Polegate – Renovations in progress (Lawrence Stevens)

Apart from the professional work carried out on the windmill there was a strong band of volunteers ready to make themselves useful on things like interior painting etc. Much is owed to these volunteers who helped and also continue to maintain the mill in their spare time.

The renovations were completed and the mill was opened to the public at weekends in 1967. In its first year over 1,500 people visited the mill and in 1968 over 2,400 visitors were received.

In addition, 1968 was the year that a museum room was opened but this was not completed until the Society, through the Trust, purchased the adjoining malthouse which now houses a very extensive collection of old milling equipment.

Fig. 66 Polegate – Museum Room

This museum and the windmill are open to the public every Sunday afternoon during the summer months, May to October.[19] A small charge is made which goes towards the maintenance of the mill.

Even though Polegate has its band of dedicated enthusiasts, things can still unfortunately go awry. During the summer of 1974 Polegate mill lost one of its 20 ft. long sweeps which crashed to the ground after snapping off at the canister. It was lucky that no one was hurt in this accident as there were visitors viewing the mill at the time. Since the accident the opposite sweep and the remaining part of the stock has been removed so that the mill is now quite safe again. The Society have had urgent discussions to see what could be done to have the sweeps replaced. Unfortunately the cost of this will be in the region of £1,000 as the material used for the stocks and whip is long-leafed pitch pine and is only obtainable from the Caribbean. Further discussions are taking place to see if there is an alternative method or material suitable.

I wish to thank members of the society for allowing me to refer to certain information that is printed in the *Polegate Windmill Guide.* Any person wishing to learn more of the details and history of this mill could purchase this excellently produced guide.

ARGOS HILL. Post Mill

Owned by East Sussex County Council.
Restored and maintained by Wealden Rural District Council.
Originally built c.1835.
No. of floors: 3

This windmill has three notable features which makes it particularly interesting even though two of these features are found in two other Sussex post mills. The feature which is peculiar to itself is that this is the only post mill which has an extension at the rear of the body. This extension gives the mill an extra 4 foot of length to the stone and spout floors. In one corner of this extension on the spout floor can be seen an area where the miller did his "office work".

The tail-pole fan-tail is another very interesting feature, one which is shared with Cross-in-Hand Windmill which can be seen when looking south from Argos Hill, These two distinguishing features can be seen in Fig. 67 which is a copy of a line drawing by Mr. F. Child and to whom I am indebted.

The other unusual feature of this mill is that the centre post has been made up of four lengths of pine which are clamped together with steel straps. The more normal arrangement for the centre post is that it is built of oak, as is the remainder of the trestle. "Jill", the post mill at Clayton, also has a pine centre post.

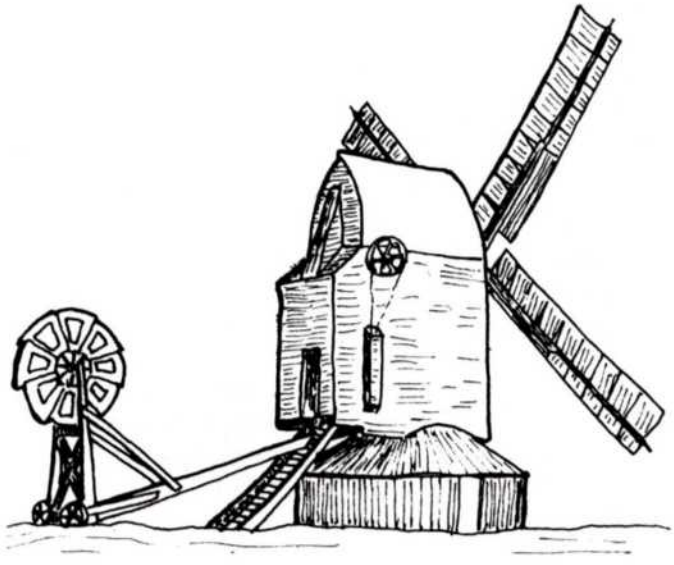

Fig. 67 Line drawing of Argos Hill

Unfortunately there are no official records of when this very fine windmill was built. However it is generally dated to c.1835. It worked until 1923 when it became idle for a short while until it was taken over by Mr. N. Richardson, a member of the Neve family who were a well known local millwrights. He worked the mill until about 1927 when it became idle once more, this time never to work again commercially. Nothing much was done to maintain the mill for the next 28 years and despite this it remained in a fairly reasonable condition. Unfortunately this state of preservation did not last for in 1956 a report stated that "There was a serious weakness developing in the front of the mill which was affecting the framework and making the mill a very dangerous structure". This front frame was breaking away from the main part of the mill and if it did it would completely wreck it.

To understand the necessity for urgent and positive action if the mill was to be saved, it is essential to know a little about the considerable weight that is being supported on the structure of a post mill.

The whole body of a post mill is pivoted on the centre post, across the top of this is a horizontal beam called the crowntree, and in the case of Argos Hill Mill this beam is 11 foot long by 2 foot by 2 foot. On each end of this beam are further beams called girts, and from these two girts the whole of the body of the mill is suspended with a weight of about 3 tons. In addition to this must be added the weight of the four milling stones which weigh about 25 cwt. each, the windshaft, brakewheel and gearing is another 2½ tons, the stocks and sweeps approximately a further 4 tons, giving a total of nearly 15 tons. Over half of this weight is concentrated forward of the crowntree on the point of the breast beam. This weight is transferred back to the girts and it happened that both of the girts had decayed where they joined the corner posts of the front frame. By the time of the report the front frame of the mill had already sunk 8 inches.

To effect salvage of this mill meant that it had to be fitted with a series of metal tie-rods and brackets and this coupled with other structural reinforcements prevented the mill from being lost to posterity. An unfortunate part about this structural weakness is that the mill is now fixed in one position, facing the prevailing wind and, in my opinion, will not ever turn again under wind power.

In 1966 further work was carried out on the breast beam and in 1967 work was done on a new stock and two new sweeps. A point of interest here when comparing costs is that in 1967 to make one stock, two sweeps, and to fit to the mill cost around £640. A similar job in 1974 cost twice the amount £1287. The timber used for this job is long-leafed pitch pine, which has to be imported, and has risen in price from around £2 per cubic foot in 1967 to £4.90 per cubic foot in 1974. When you consider that one stock requires a length of timber 35 foot long by 1 foot square you can

understand how the cost of maintaining a windmill has escalated.

In 1969 the iron work of the *fly-frame* was restored and fixed to a new tail-pole. By the end of that year the mill was once again in a presentable condition to enable it to be opened to the public by arrangement with the Engineer and Surveyors Department of the Rural Council. This has now been taken over by the Department of Leisure Activities of the Wealden Rural District Council.

One modern innovation that has been found necessary to incorporate on this mill is to fit it with a lightning conductor. This has been advisable as the mill has been struck by lightning on two separate occasions causing damage to the stocks and sweeps which you can now readily appreciate is a costly business to rectify.

Now housed in the roundhouse is a collection of milling implements from the past, and one can marvel at the ingenuity and skill that the millers possessed to enable them to carry on their everyday business using such tools. This display has been arranged by Mr. F. Child.

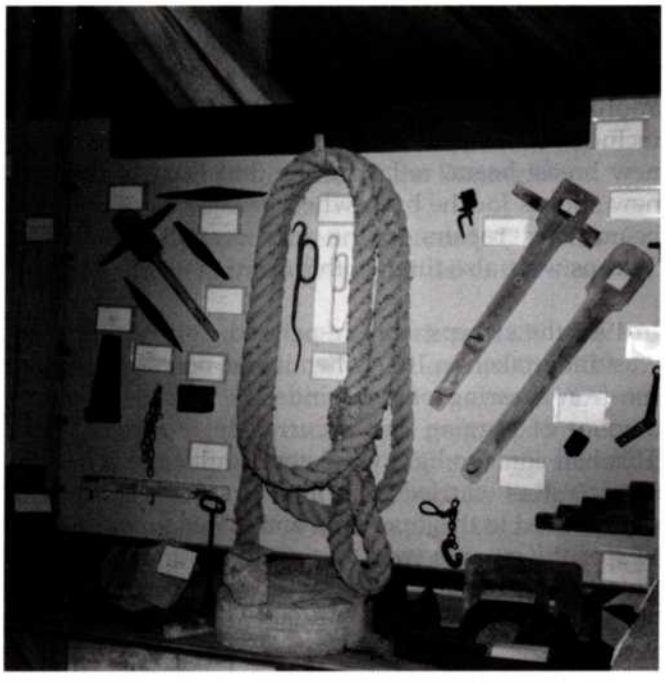

Fig. 68 Argos Hill collection of milling equipment

CHAILEY, North Mill. Smock Mill

Owned by the Chailey Heritage Craft School.[20]

This mill was given a complete face-lift when it was repainted in 1974. Fig. 69 shows the mill before the face-lift.

Fig. 69 Chailey before face-lift

To paint a windmill like this could cost as much as £1,200. It is necessary to hire scaffolding and this alone could cost £300 per month so you can see that this is an expensive business. Fig. 70 shows the extent of the scaffolding required when painting the exterior of a windmill.

It is 10 years since the mill was last renovated and at that time the cost was only about half of what it is now.

The illustration on page 17 shows the mill after it had been repainted.

The mill was decapitated in a gale in 1928 and the present cap is of a "Waggon Roof" design.

This mill was once used as the Headquarters of the Heritage Boy Scout Group.

Fig. 70 Chailey – extent of the scaffolding necessary when painting a windmill

CLAYTON, "Jill" Post Mill
"Jack" Tower Mill

Owned and maintained by the Mid-Sussex District Council.
Originally built: "Jill" about 1821 but not on this site as she was moved to this location in 1859. "Jack" was built in 1866.

These two windmills ceased active work early in the twentieth century and in 1909 "Jack" suffered a bitter blow when two of its sweeps and the fantail were broken off during a severe storm. Later the two other sweeps were removed, also the machinery, and the mill was converted into living accommodation.

In 1958 the two mills were handed over to the local authority who are now custodians and keep them in good order although neither of them is in a working condition. In 1959 "Jill" was fitted with new sweeps which she has proudly worn to this day and although there has been a certain amount of sinking of the stone floor this mill is in good condition.

"Jack" is no longer lived in and in 1973 had a certain amount of work carried out involving fitting a new breast beam, back cross beam, stocks, sweeps. Also the cap and fantail staging was strengthened. Unfortunately the cap no longer revolves and the sweeps have been fixed in one position as they are only open framed. The cost of this work was in the region of £3,000. Fortunately, for the local authority, the money for this work was provided by a film company who used the mill for some location shots. The film was called "The Black Windmill" and it starred Michael Caine.

Arrangements to visit these windmills can be made through the District Engineers Office of the Mid-Sussex District Council, Haywards Heath, Sussex.[21]

HIGH SALVINGTON Post Mill

Owned by the Worthing Corporation.
Maintained by The Borough Engineering and Surveyor's Office.[22]
Originally built about 1724.

An interesting feature of this windmill is its very large brakewheel which is about 10 ft. in diameter and possesses 111 cogs. At present this brakewheel is under repair by a millwright. This brakewheel is built up with three different kinds of wood so that their various constructions and stresses would counteract each other and maintain stability. Oak and beech were used for the wheel itself with the cogs of hornbeam.

This mill had deteriorated very badly around 1954 and when the Worthing Corporation bought it in 1959 it was riddled with death watch beetle and had serious damage through dry rot. To rid the mill of these and to make certain renovations cost the local authority approximately £5,000. This work carried out in 1961 included a compete renewal of the roof of the mill, a new breast beam, re-laying the first floor of the mill, new spokes for the brakewheel, new ends to the cross beams and repairs to the roof of the roundhouse. Sweeps were also fitted at this time.

In 1967 the sweeps were re-painted, and further work was undertaken in 1971 when it was necessary to raise the front bearing of the windshaft because a certain amount of sagging had occurred in the front frame. This had come to light when the regular turning of the sweeps was carried out and great difficulty was experienced in this operation and it was found that the tips of the sweeps were hitting the roundhouse roof. This regular turning of the sweeps is carried out every six months to prevent permanent distortion of the timbers.

This mill is open to visitors.

HALNAKER Tower Mill

Owned and maintained by West Sussex County Council.
Originally built in 1740.

This windmill is thought to be the oldest tower mill still standing in the county. It last worked in 1900 and as far as it is known it had its first exterior restoration in 1934. This was ordered by Sir William Bird and was in memory of his wife.

During the 1939-45 war the mill deteriorated in condition although it played its part in the war effort and it was used as an observation post.

In 1973 several jobs were undertaken on the mill and these included the manufacture of a new *storm hatch*, repairs to the roof, sweeps, and stocks. These were also repainted at this time. It was necessary to make certain alterations to a false floor which had been erected earlier. This was to allow the brakewheel to turn and enable the millwright to move the sweeps. In the same year the mill was treated with a solution to combat deathwatch beetle.

As this windmill is in an exposed position high on a hill it has been fitted with a lightning conductor.

ROTTINGDEAN (Beacon Hill) Smock Mill

Leased and maintained by the Rottingdean Preservation Society.
Originally built sometime before 1802 as this was the year the mill was moved to this site.

This windmill ceased active work in 1880 and was bought by the parish of Rottingdean in 1929 for preservation. In 1956 an appeal was made to raise money for this preservation and with this in mind a village fair was organised. In 1967 the mill sustained structural damage when it was struck by lightning and it was fortunate that the local fire brigade was in attendance promptly to prevent its complete destruction.

The Preservation Society sought the advice of a millwright in 1970 and asked him for three alternative suggestions on what was needed for the mill.

The first suggestion was that only the exterior of the mill should be tackled including the sweeps. This was rejected as this was considered to be insufficient as the body of the mill had distorted badly and there was a real need for some internal reinforcement.

The second suggestion was to concentrate on the structure of the mill and to build a steel tower inside the mill to give it rigidity. The cost of this would be in the region of £3,000.

The third suggestion was to renew various corner posts and floor timbers amounting to almost a re-build. The cost for this was estimated as being between £8,000 and £10,000.

These prices came as a severe shock to the Preservation Society, however they appreciated that something positive needed to be done if the mill was to be saved. After much deliberation it was decided that the second proposal from the millwright was what the mill required as it fell within their budget. Once this decision had been made the millwright was instructed to make a start on erecting some steel girder work inside the mill. This work commenced in 1971. The idea of this girder work was to secure the whole of the body of the mill and to prevent it distorting further, for this would have meant its subsequent collapse. There were a couple of other items included in the instructions at this time, making good the first floor and making and fitting a steel door. These, and the girder work, cost the Preservation Society over £1,500.

This initial work achieved its objective and the mill will now withstand the winds that prevail in this exposed position. This was later put to the test in 1974. Although the mill sustained some superficial damage, the steel structure prevented the mill from being blown over by severe gales.

The Preservation Society had a desire to put the mill into working order and in 1973 they approached a millwright for an estimate for this work. The figure they received 'set them back on their heels' as it was £25,000. Needless to say nothing more was done about this at the time. However in 1974 it was decided to have the steel structure extended to relieve the weight of the cap on the curb which had sagged as much as 3 inches in one corner. This work was completed later the same year.

The Society, still attempting to maintain the mill in a reasonable condition, again sought prices for further work that the mill required such as making and fitting two new pitch pine sweeps and creosoting the stocks and the sweeps. The price they received was around £1,600. Making good the exterior weatherboarding, and creosoting the whole body, including the hire of scaffolding would cost a further £1,500.

I am pleased to say that the Preservation Society has recently placed an order with a millwright to carry out some exterior renovation work on this mill. It is hoped that this will be completed in 1975.

RYE (Gibbet Mill). Smock Mill

Owned by: Mr. A. Webb.
Originally built over 100 years ago but it was destroyed by fire in 1930.
This present mill was built on the original brick base.

This replacement mill, whose sweeps have never turned, cost just over £800 and is nothing but an imitation of the original and possesses no machinery inside. It is said that this imitation cost more to maintain than the price paid to have it built in 1930. One of the reasons for the high cost of maintenance was that cast iron pins were used in its construction rather than the galvanized ones which should have been used. These cast iron pins simply fell out after a comparatively short space of time and therefore the mill fell into disrepair. However Mr. Webb was determined to keep a mill on this site so in 1968, at a cost of £1,200, he had the mill covered completely in a fibre glass plastic which was sprayed all over the outside.

It was first necessary to have the mill body rubbed down as far as the original woodwork before any attempt was made to plastic coat it. It is said that 2,500 sq.ft. of glass-fibre was used in this operation and the whole thing was finished off with a white pigment gel-coat resin.

It is hoped that this treatment will preserve the appearance of the mill for many years to some. Only time will tell because once you prevent the air circulating in a wooden structure various types of rot can quickly form.

WEST BLATCHINGTON Smock Mill

Owned by the Hove Borough Council.
Maintained by The Surveyor's and Engineering Department.[23]

It was in 1938 that the Hove Borough Council acquired this windmill for preservation. Certain parts of the mill had attention shortly after this time but it was not until 1966 that the council approved expenditure of £1,500, less any grant that may have come from The Ministry of Housing and Public Works, for the mill's restoration.

The majority of this money was to be spent on fitting new stocks and sweeps which were of an unusual design because of the type of attachment for the stocks at the windshaft. This is by the use of a fixed cross to which the stocks are bolted as opposed to the more normal cast canister where the stocks are wedged inside the canister.

The work was carried out in 1968 and it included new stocks in oak, repairs to the sweeps using cedar wood, as this was what the earlier sweeps were made in. A protective coating of polyurethane was applied to the sweeps. The stocks had to be halved together so that they fitted the cross and then they were bolted through while being held in position. A crane had to be hired for this operation as the more usual method of using winches was out of the question because of the location of the mill. To use winches on a job like this requires a clear area each side of the mill and in this case this was not available because of public roads which run close to the sides of it.

This mill, like a number of others in Sussex, needs to have its sweeps turned regularly to prevent various parts of the mill from twisting and distorting. This procedure is normally carried out by a millwright as he will be conversant with the various locking devices fitted to parts of the sweeps, windshaft, and brake-wheel.

CROSS IN HAND Post Mill

Owned by Mr. C.J. Newnham.[24]
Originally built in 1806.

Although this windmill was built in the early nineteenth century it has not always occupied this present site. In fact it has had a nomadic existence being built in Uckfield, then in 1855 it was moved to Cross-in-Hand and then again in 1868 it had a further move to its present location.

This is a tall mill for a post mill having a double storied roundhouse, and it appears very formidable as it is sheathed in flat galvanized iron plate making it look like an armourplated giant. This sheathing was erected sometime before 1930. The mill was painted white in 1958 and looked very impressive until unfortunately in 1959 the mill was struck by lightning. This caused damage to one of the sweeps and to a door and its frame which was ripped off costing somewhere between £300 and £400 to repair.

This was the last windmill in the county of Sussex to work commercially but this was brought to an abrupt end when in 1969 one of the sweeps broke while it was working. This caused a considerable amount of damage when it fell. Since this time there have been several attempts made to raise enough money to have the mill restored. The problems of repair are considerable and there seems to be some reluctance to make a start.

A report was drawn up in 1971 by a consultant millwright who considered that both stocks and all four sweeps needed replacing. The centre post was breaking up at the top, the breast beam required attention, the girts and frame was generally in a poor condition and the body needed repairs as some of the cladding needed renewing, It was considered that the mill would not work again without a great deal of money being spent on it.

In 1973 some of the men who masterminded the successful restoration of Nutley windmill offered the owner a stage by stage scheme of work, and their experience, in an attempt to save the mill. By this time further damage had been sustained and the mill was beginning to tilt in a forward direction due to the decay of the crowntree and breast beam. The tail pole had broken away from the fantail carriage and it had also lost some of its fan blades.

Further attempts are being made at this time to raise the money to restore this windmill but it is too early to know whether it can or will be saved.

LOWFIELD HEATH. Post Mill

Owned by Mr. Vokes.[25]

This windmill ceased active work late in the last century and its appearance suggests that not very much maintenance has been undertaken since.

Estimates were drawn up in 1963 for work to the roof which required rebuilding with 20 new curved oak cap ribs and then weatherboarding. The trestle needed attention with work on the quarter bars and cross trees. Certain floors were to be renewed and it was to be fitted with new sweeps. This work was to have been completed at a cost of £4,000 but unfortunately at that time nothing was done about getting on with the work.

Five years later some work was carried out on the mill in an attempt to prevent its complete destruction. This included a new back frame which was double clad with weatherboarding and creosoted. A section of the outside stairs was renewed using oak. The cost of this came to £1,000.

Further estimates were made in 1971 which would have virtually renewed the body of the mill. This would have meant removing all the weatherboarding and making good the oak studding from the girts to the roof plates, lifting the windshaft and fitting a new tail bearing beam. Two new storm hatches were to be made and fitted into new front and back frames which would be clad all over.

The roundhouse of this mill has been without a roof for many years which is not doing the trestle any good at all as it leaves it exposed to the elements. As it happens there is an unusual arrangement for the cross trees and the roundhouse had been built so that they protrude through the wall, therefore allowing the weather to attack the ends of them.

Fig. 71 Cross tree protruding through the roundhouse wall, Lowfield Heath

Fig. 71 shows one of the ends of the cross trees sticking through the roundhouse wall. The photograph has been taken from the outside of the roundhouse and the reason for the bright light showing each side of the cross tree is because there is no roof to the roundhouse.

In 1972 a price of £700 was quoted to re-roof the roundhouse. At the same time a price of £2,000 was received to make and erect open framed sweeps complete with stocks.

Unfortunately nothing has been done recently to make an effort to save this mill which is a pity because it stands in a very prominent position just south of Gatwick Airport and deserves urgent attention.

BATTLE, Caldbec Hill Smock Mill

Owner Mr. McNally.[26]

This windmill is another example of where modern technology has helped to preserve a symbol of bygone ages.

A number of years ago the owner had the stocks and sweeps removed from this mill because the cap had become unsafe due to decaying timbers. He discovered, to his horror, the cost of rebuilding the cap in timber. So he, with the support of the local council, looked around for other means and materials to

replace the original wood. They were looking for something that would be cheaper although they realised that it would not be authentic. Their search was rewarded when it was found that it was possible to use fibreglass to construct the cap and that it would also be far less expensive. What is more important, as far as this mill is concerned, is that it also had the advantage of being a much lighter structure therefore relieving the weight on the body of the mill.

At a later date it is hoped that this mill will be fitted with sweeps completing an impressive sight.

PATCHAM Tower Mill

Owned by Mr. P. Benning.
Originally built in 1885 and was the last windmill to be built in Sussex.

This windmill ceased active work in 1924 and was sold for £50 in 1926. It was converted into living accommodation many years ago and it came on the market again in 1946 when it was sold for £4,000 which included a cottage and the adjoining ground.

In 1957 the mill was repainted on the outside and the then owner maintained that they had spent £8,000 on improving the property. By 1968 the mill was again changing hands and it was put up for auction and was considered to be worth £12,500. As it happened the mill was sold for the "knock down" price of £5,500.

The mill sustained damage during a gale in 1970 when one of the sweeps crashed to the ground. This incident worried the new owner and he had the remaining three sweeps removed for safety's sake. An estimate of £2,200 was obtained to replace the stocks and all four sweeps.

I am pleased to state that with financial assistance from the Brighton Corporation the owner has been able to have the stocks and sweeps replaced making the mill a very imposing sight standing proudly on a downland hill on the outskirts of Brighton.

Once again the mill is up for sale for offers over £60,000. For this money one would get a beautiful windmill with a modern octagonal extension. The mill has two bedrooms, one with a cloakroom/w.c. and a study guest room. There is also a spiral staircase that once graced St. Paul's Cathedral.

WEST CHILTINGTON Smock Mill

Owner: Mrs. H. Roscow.

In 1965 certain restoration was carried out to the exterior of this windmill with financial assistance from the local authority through the auspices of the Historic Buildings Act 1962.

By 1971 the mill only possessed two sweeps and these were becoming dangerous so the County Planning Department were asked to consider some alternative proposals:-

To repair the existing sweeps.
To remove the existing sweeps and erect new ones.
To replace both stocks and all four sweeps.

The final proposal was considered unwise because the weight of a full set of stocks and sweeps would be too great for the structure of the mill to bear.

An estimate was sought from a millwright and it was presented as follows:-

To turn the cap, remove existing sweeps and stocks, transport to workshop, hire of scaffold and tackle	... £280
To produce 1 new stock to existing pattern in Long Leafed Pitch Pine	... £340
To produce 2 new sweeps in Long Leafed Pitch Pine complete with framing and bracers	... £600
To produce 1 short stock in Long Leafed Pitch Pine to replace existing piece	... £80
To erect new stock and sweep including scaffolding and tackle	... £380

I am pleased to say that this estimate was approved in 1972 and the new stocks and sweeps were replaced in 1973.

CHAPTER 7

THE DECLINE OF THE ACTIVE WINDMILL

The question is sometimes asked: Why is it that windmills, with their "free" power, should have been abandoned in this county?

Their decline started at the time of the Industrial Revolution, in the late eighteenth and early nineteenth century. The advent of steam power enabled the millers to become independent of the fickle wind, when some days there was insufficient wind blowing to operate the windmill and on other days there might be too much wind to work them without fear of them "running away" with themselves and going out of control. Other reasons for their decline were: with the progress in efficient means of transportation it was no longer necessary for the farmer to think parochially. They were now able to move their grain to other areas where much larger power-driven roller mills were situated giving financial economies. In some case the farmer himself was able to do his own grinding now that the motive power was more readily available. All this had a disastrous effect on the millers. They found it difficult to make their business pay without some additional employment such a joining forces with a local farmer. If the windmill was devoid of an alternative source of power, windless days would mean idleness and delays with subsequent financial hardship.

Fig. 72 Nutbourne – A derelict windmill

The weather also had a hand in the decline of active windmills because of deterioration of the moving parts particularly sweeps, shutters, and fantails. To maintain and replace such parts cost the miller a considerable amount of money, and without the business coming their way, they were unable to keep their mills in good working order.

CHAPTER 8

AN AWAKENING OF INTEREST

As the decline in the number of working windmills continued, their scarcity proved a stimulus to windmill preservation. These preservations were generally undertaken by local and county authorities as the cost of this work became too much for the mill owners. Beneficial as it is to preserve windmills in any form, these early attempts were frequently of a poor standard. The reason for this could be that skilled millwrights were not employed on this work and even when they were they were under strict instructions, from the authority's Surveyors or other such people, who had no knowledge of the finer points of windmill construction. These restrictions were apparently attempts to keep the cost to a minimum therefore much of this preservation was only superficial and no consideration was given to the structural stability of the mill in question. In the concern for the aesthetic appearance of the mills, frequently insufficient attention was given to making them weather-proof. The rain was allowed to penetrate into the interior structure and it was not surprising that rot quickly set in.

It has not been until comparatively recently that the local authorities, with the support of voluntary interested bodies, have made efforts to restore windmills to a state nearing their original. Excellent examples of restoration have been achieved by individuals forming committees or trusts, to raise money by various means and also supply voluntary labour. The results are often close to original and many may even be restored into a condition where they actually work. Some of these windmills are opened to the public at specific times during the year and are well worth a visit.

One society which has had the future and interest of windmills and windmill enthusiasts firmly in mind, not only in Sussex but throughout the country, is the Society for the Protection of Ancient Buildings who have a section devoted to wind and watermills. This section goes from strength to strength with an encouraging sign of support coming from younger members who have helped to increase the membership of the society. There is now a published list containing about 118 mills, both wind and water, which are open to the public and it is stimulating to find that so many mills are being acquired for preservation although some are for conversion into living accommodation.

I am pleased to say that there has been an encouraging development recently in windmill restoration. This is that the Essex County Council has employed a full-

time millwright to maintain the mills in its care. This is a hopeful sign that in at least one county the windmill is to be preserved for people to enjoy and to wonder at in the future.

Recently a group of the younger members of the Society for the Protection of Ancient Buildings have formed the East Kent Mills Group with the sole intention of fostering interest in both wind and watermills in the county of Kent. It is hoped that this might be the beginning of many such groups that could follow in other parts of the county.

To give an example and to prove the interest that some windmills have with local inhabitants and amenity groups, it was reported that there was an outcry when an owner of a windmill had the sweeps removed. This protest was to such an extent that the local District Council had to take action to get them renewed, making the building look once more like a windmill.

There is a re-awakening of interest in using wind power for generating electricity. Specially developed windmills, more like "wind-speed" impellers, coupled with recently developed low speed alternators are beginning to be taken seriously. There is a considerable amount of experimental work being undertaken, at the present time, with this in mind.

CHAPTER 9

CONCLUSION

It does not require me to draw attention to the fact that these picturesque relics of the past are disappearing rapidly from our countryside. I urge all whom it may concern to do everything in their power to conserve and maintain these building. In a number of districts the windmill is a really beautiful, important, and distinctive feature of the landscape, and public action and private generosity might very fittingly be devoted to their restoration and maintenance for our future architectural heritage.

In Sussex we are fortunate to have some dedicated people whose intention is to assure the future of the windmill, without them many would fall into derelict heaps. If this were to happen, generations to come would only be able to imagine what a windmill looked like. Once gone they can never be replaced.

References

1. High Salvington, Jill (Clayton) and Lowfield Heath (now in Surrey) Mills are now capable of milling and will shortly be followed by Stone Cross and Barnham.
2. Now open from Easter to the end of October each Sunday and Bank Holiday, also Wednesdays in August.
3. Now open the first and third Sundays of each month, April to October.
4. Archie Dalloway died in 1994. The mill is now owned by his relatives Mr. & Mrs. Tasker.
5. This number has since altered considerably. A leaflet describing all Sussex mills open to the public is published by the Sussex Mills Group and is available from any of the participating mills.
6. Currently open on the last Wednesday of each month, March to September.
7. Now fully restored and working. Jill Mill is open Sundays and Bank Holidays, May to September 2 to 5 p.m. Jack is now privately owned.
8. Open to the public on the first and third Sundays of each month from April to September.
9. Rye Mill burnt down 13 June 1930 and the present structure is almost entirely a new construction bearing only a superficial resemblance to the former mill. Currently part of motel complex.
10. Now fully restored as a museum of milling history and open Sundays and Bank Holidays, May to September 2.30 to 5 p.m.
11. Now owned by the Hassocks Amenity Association and maintained by a group of volunteers.
12. Currently owned by the Stone Cross Mill Trust and at present under restoration to full working order.
13. Undergoing restoration and open Tuesday to Sunday and Bank Holidays 10 a.m. to 5.30 p.m.
14. Moved in 1987-89 to a new site in the grounds of Gatwick Zoo at Charlwood (Surrey). Now fully restored and working.
15. Blown down in the storm of October 1987.
16. Now owned by the Uckfield & District Preservation Society.
17. Now owned by Charles Eustace. Mill leased to the Shipley Windmill Trust.
18. Now known as the Eastbourne & District Preservation Society.
19. See reference 3 for revised hours of opening.
20. Mill leased to Chailey Parish Council.
21. Jill Mill restored and maintained by the Jack & Jill Windmill Society. For opening hours see reference 7.
22. Mill owned by the Worthing Borough Council and leased to the High Salvington Mill Trust.
23. Mill owned by the Brighton & Hove Council and maintained by the Council and the Friends of West Blatchington Mill.
24. Owned by the Newnham family.
25. Owned by the Lowfield Heath Mill Trust.
26. Battle, Patcham and West Chiltington (p.35-36) are still in private ownership and not normally open to the public.

Glossary

BACK CROSS BEAM	A timber beam which supports the tail end of the windshaft.
BACK FRAME	Supports the weatherboarding at the rear of the mill.
BACKSTAYS	Bracing timbers which serve to maintain the weather of a sweep.
BIN FLOOR	Contains the grain bins.
BODY	Upper wooden part of a post mill.
BRAKE WHEEL	The primary gear wheel in the mill which is attached to the windshaft.
BREAST or WEATHER BEAM	Supports the head bearing of the windshaft at the front of the mill.
CANT POSTS	The corner posts of a smock mill.
CANISTER or POLL END	Where the stocks of a windmill are attached.
CAP	The moving part at the top of a smock or tower mill.
CENTRE or MAIN POST	The main vertical timber which supports the whole of the body of a post mill and around which it revolves.
CLAMPS	Secure the stocks in the canister.
COGS	Are the wooden teeth that are inserted into a gear wheel and are used for driving the machinery. Usually made from Applewood.
COLLAR	Supports and steadies the body of a post mill on the centre post.
COMMON SWEEPS	Early type canvas covered sweeps.
CROSS	Alternative method of attaching stocks to the windshaft.
CROSSTREES	Form a part of the trestle in a post mill and are sometimes supported on piers.
CROWNTREE	The main horizontal beam of a post mill which carries its weight.
CURB	The ring on which the cap of a smock or tower mill revolves.
DOG IRON	A hooked iron strap for holding timbers together.
FAN STAGING	A platform at the rear of a cap of a smock or tower mill to provide access to the fan-tail.
FANTAIL	Automatically turns the sweeps into the wind.
FLY FRAME	Supports the fantail.
FRONT BEARING	The bearing which supports the weight of the windshaft at the front of the mill.
FRONT FRAME	Supports the weatherboarding at the front of a mill.
GIRTS	Timbers which extend the whole length of the side of a post mill and spread the weight of the mill.
LOWER RAILS	Supports the bottom edges of the sides of a post mill.
MEAL or SPOUT FLOOR	Where the ground grain emerges from the mill stones.
MILL STONES	Grind the grain.
OPEN FRAMED SWEEPS	Used where the mill is no longer used but to give the appearance of authenticity.
PATENT SWEEPS	The shutters on the sweeps can be adjusted whilst the mill is in motion.
PIERS	Are brick or stone supports for the crosstrees.
POST MILL	The entire body of the mill turns on a centre post.
QUARTER BARS	Form a part of the trestle in a post mill and are diagonal supports of the centre post
QUERNS	Hand operated mills used for grinding corn before the invention of water and windmills.
ROUNDHOUSE	Is a building erected round the trestle of a post mill to protect it and provide extra storage space.
SAIL BARS	Transverse bars of a sweep.
SHEERS	Are beams which pass from the front to the back of a post mill under the spout floor.
SHUTTER BARS	Link together all the shutters on a sweep so that they can operate as one.
SHUTTERED SWEEPS	Are similar to Venetian blinds and are found in spring or patent sweeps.
SMOCK MILL	A wooden tower with a revolving cap. Some are built on a stone or brick base.
SPIDER	A device for opening and closing the shutters and operates between the striking rod and the shutter bars.
SPRING SWEEPS	A shuttered type of sweep controlled by a spring. Each sweep has to be adjusted separately.
STAGING or CATWALK	A gallery round a smock or tower mill.
STOCKS or MIDDLINGS	The main timber arms which support the sweeps.
STONE FLOOR	Where the mill stones are situated.
STONE NUT	The final pinion which drives the mill stones.
STORM HATCH	Allows access to the canister from within the mill.
STRIKING ROD	Runs through the middle of the windshaft and operates the shutters through the spider.

SWEEPS	The Sussex name for the sails of a windmill.
TAIL BEARING BEAM	Supports the rear end of a windshaft.
TAIL POLE	Used to turn the early windmills into the wind by hand.
TALTHUR	A lever used for raising the stairs on an early type post mill when turning the mill.
TOWER MILL	A stone or brick built tower with a revolving cap.
TRESTLE	The main supporting substructure of a post mill.
TRUCK or CENTERING WHEELS	Centre the cap on top of the tower on a smock or tower mill.
WEATHER (as applied to sweeps)	The twist built into a sweep to give it driving power.
WHIP	Is the back-bone of a sweep.
WINDSHAFT	The main axle of the sweeps from which all the mechanism of a windmill is operated.

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