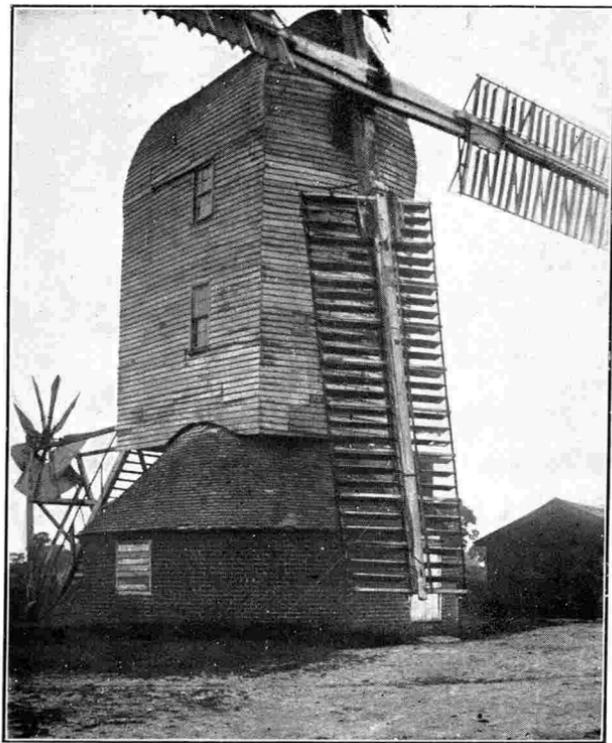




ALDEBURGH, Suffolk, 1924. The men shewn were there to dismantle and pull down the mill.



HAUGHLEY, Suffolk, 1927, shewing how near the sails approach the ground.



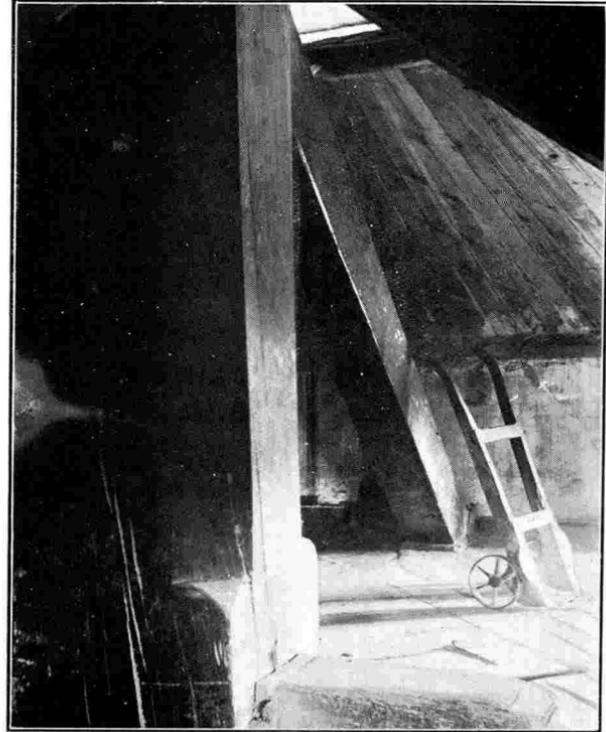
Eight sailed Mill at HECKINGTON, Lincs., 1928.



HAVERHILL, Suffolk, 1923.



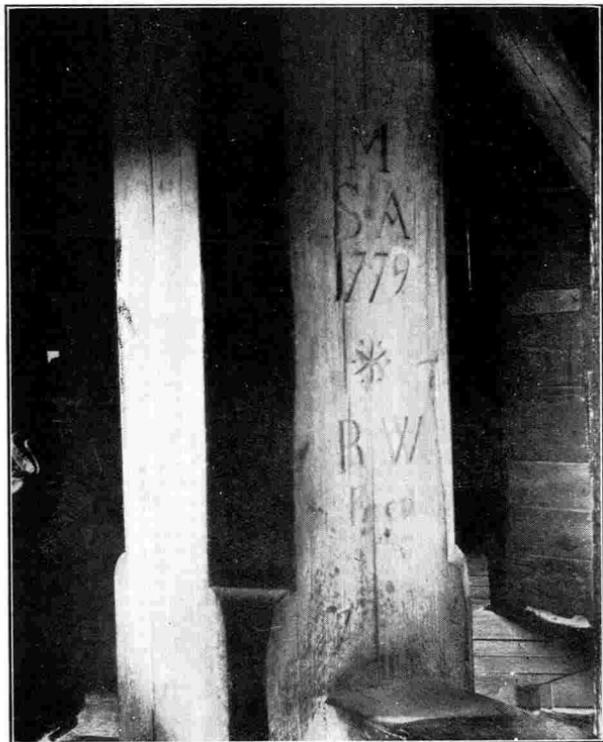
THORNHAM MAGNA, Suffolk, 1928, with two cloth sails and two "patent" or vaned sails.



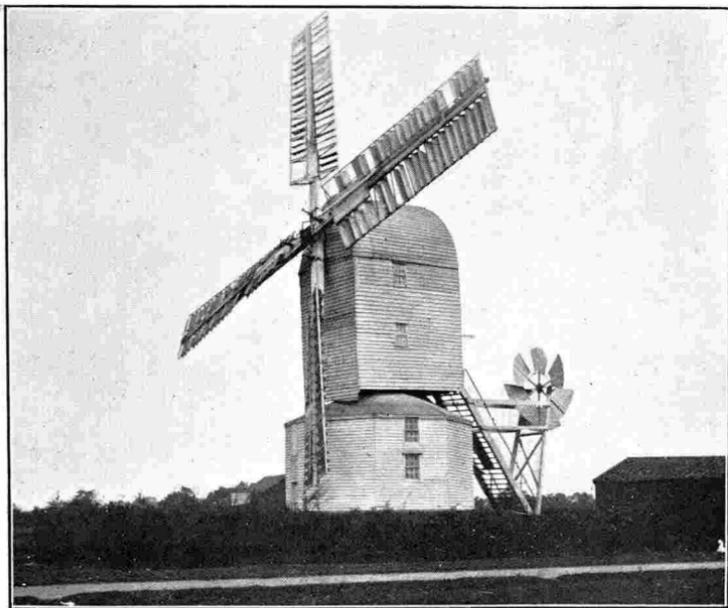
THORNHAM MAGNA Mill, shewing interior of round house, 1928.



STRADBROKE, Suffolk, 1925.



EYE, Suffolk, 1929, shewing dated centre post



FRESSINGFIELD, Suffolk, 1927.



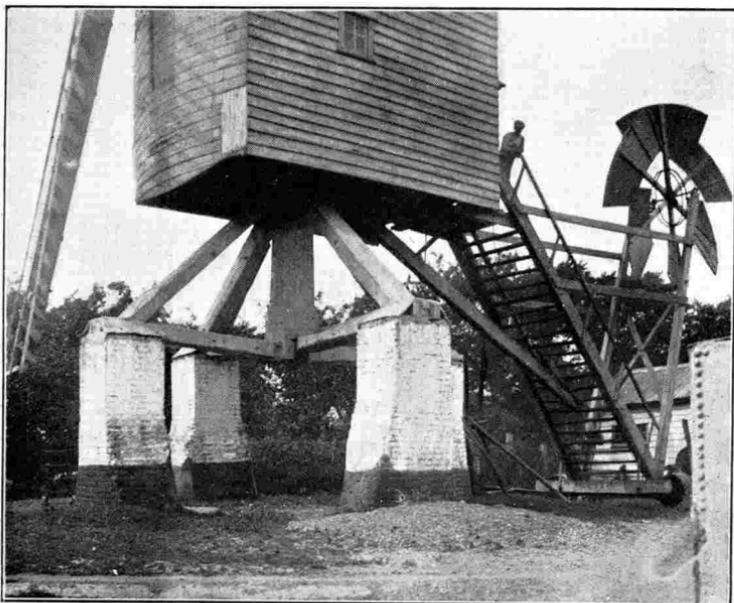
HUNTINGFIELD, Suffolk, 1927. This mill is now dismantled.



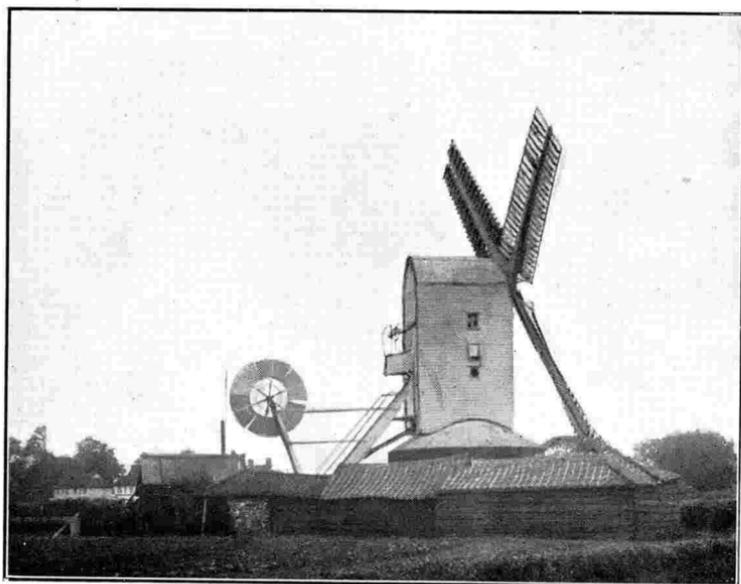
EYE. Suffolk, 1929. This mill is now dismantled.



HALESWORTH, Suffolk, 1927.



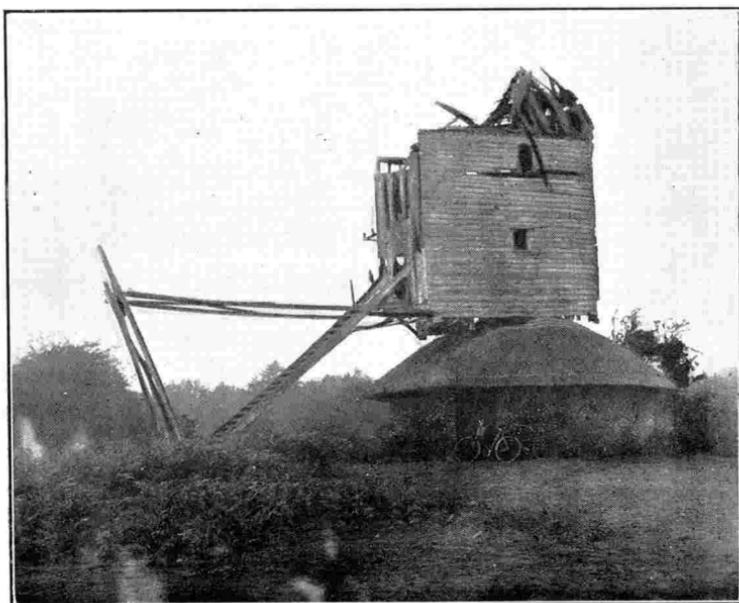
HORHAM MILL, Suffolk, 1925, shewing open post and struts.



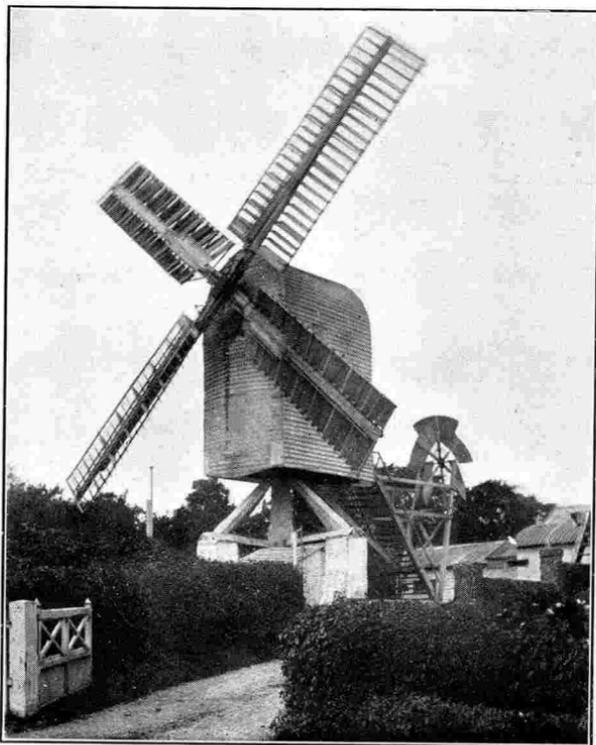
STRADBROKE, Suffolk, 1925. Skimmers Mill.



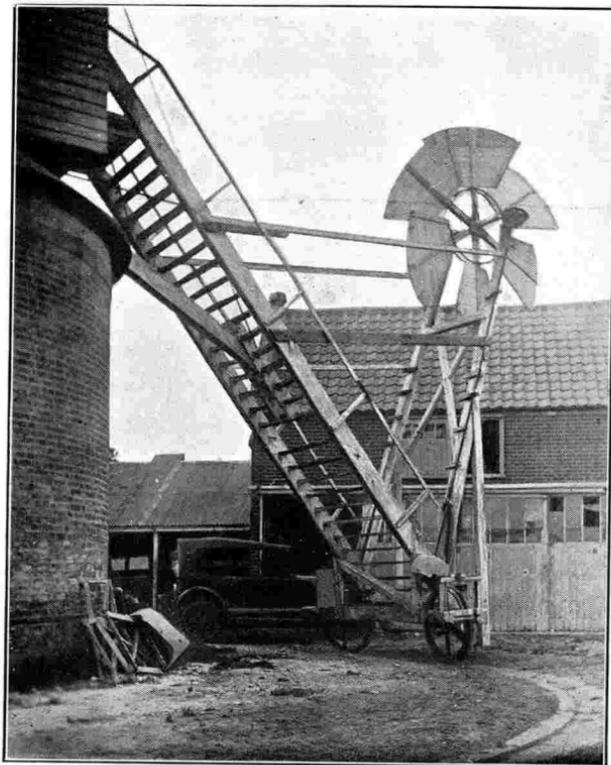
BRADFIELD COMBUST, Suffolk, 1929.



ROUGHAM, Suffolk, 1922.



HORHAM, Suffolk, 1925.



ALDEBURGH, Suffolk, 1924, shewing the gear for automatically turning the mill to face the wind.



WOODBRIDGE, Suffolk, 1922.



Five sailed Mill at YORK.



PALGRAVE, Suffolk, 1929.



Three sailed Mill at METHERINGHAM,  
Lincs., 1928.



COMBS, Suffolk, 1928.



GRUNDISBURGH, Suffolk, 1929.

WINDMILLS.  
WITH SPECIAL REFERENCE TO THOSE  
IN SUFFOLK.

By A. WOOLFORD, F.R.P.S., M.I.LOCO.E., M.Inst.T.

The old windmills, once probably among the most familiar works of man to be seen in this country, are rapidly disappearing and unless steps are taken to keep, more or less artificially, some of them in work, there will soon be none left and a phase in the industrial life of our forefathers lost to us for ever.

It would be more than a pity therefore if we missed our present opportunity to do something to maintain a few windmills in service. They have had a very great influence on the industries of the world and they gave a start to several handicrafts which have now in many cases developed far beyond them.

In the hope that it will stimulate interest I have gathered together what information I could about Suffolk windmills, which with some of my own recollections of these and other windmills I now place before our members. My gathering together these facts has been the work of years and was done mainly for sentimental reasons, because my grandfather was the owner of an old windmill and my early holidays were all spent there with him, and in consequence, windmills have filled a great place in my memory all my life and it has been a work of pleasure collecting records about them and taking photographs of them.

There is not a great history attaching to these old mills; they are scarcely mentioned even in guide books, and although they do come in romances some-

times, it is usually only incidentally and often round tales which are not always to the credit of the miller, who traditionally appears to have been rather a difficult person to deal with. Artists, however, have found them very attractive subjects and there are several pictures of them, some by celebrated artists, often they are strangely incorrect in details, especially about the sails, which many painters have, apparently, found difficult to portray.

To begin at the very beginning, long before the era of the Windmill, man appears to have lived partly on crushed grain, at first no doubt his teeth did all the crushing for him, then he used stones, hammering the grain between a flat stone on the ground, and a hammer stone held in his hand. The next development was probably the use of saddle stones, used somewhat as a woman uses a rolling pin and about or just before the beginning of the Christian Era, the circular stones or querns, the upper one revolving on or in a recess in the lower one, were introduced.

While people lived in small communities or in families only, the women of the household would do the grinding as part of their duty in preparing food and for larger groups of people, slaves would be used to turn the stones. Horses and cattle also had to do their share in the work.

Water was the first force of nature called in by man to aid him in his work and the first mill was made. It was what is known as the Greek mill, the stones being supported in a frame above a stream and the upper stone connected to a vertical shaft, at the lower end of which was a paddle wheel. This wheel being turned by the moving stream, also turned the stone above and so ground the corn. Such mills as this are still in use in backward parts of the world and some even still survive in the remote islands of the Hebrides and Shetland.

To the Romans belongs the credit of the next and most important advance. They realised the need of more control of the stones and they made cogged wheels, which allowed the paddle wheel in the water to work vertically instead of horizontally as in the Greek mill, the stones being as before. This is a very interesting development as it is the first use of geared mechanism by man. The lever, roller, wedge, and possibly wheel and axle, had no doubt been known for many ages before this time, but not the use of gearing.

In principle the water mill has remained to this day as it was first invented by the Romans, being of course better made and larger than its early progenitor, but that is all.

It was more than a thousand years after this that the windmill was invented and this will not cause us any surprise when the difficulties of using wind as a motive power are realised. Water in streams flows continually in one direction, and its varying intensity is the only difference that would have to be allowed for and guarded against, but wind is a much more varying force. It will come from any quarter and change both in its direction and force, without notice and if it is to be used, the mill must be made so that it can readily and quickly adapt itself to changes such as these.

The earliest definite mention of a windmill belongs to Suffolk and it occurs in the Chronicle of Bury St. Edmunds written by Joscelyn of Brakelond during the latter end of the 12th century. He records, quite casually as it were, under date 1191, that Herbert the Dean erected a windmill at Haberdon, a piece of high ground close to Bury St. Edmunds and when Abbot Sampson heard of it he was greatly incensed and ordered its instant removal, as its use would rob his watermills of their dues.

After this date they are mentioned in several documents. The earliest known picture is on a large brass in St. Margaret's Church, King's Lynn. Again, it appears quite casually, as the man commemorated on the brass, Adam de Walsoken, does not appear to have been connected with the milling industry at all. The windmill is simply part of a pastoral scene used as decoration in the the border. The date of this brass is 1349.

There is a picture of a windmill, probably 14th century, in the East window of Corpus Christi Chapel in Fairford Church, Gloucestershire.

Windmills have had their experiences in warfare. King Henry III hid in one after the Battle of Lewes in 1264. Edward the III is said to have watched the Battle of Creçy from one in 1346. This mill was a turret post mill with walls seven feet thick. It was demolished in 1887. King Charles I watched his first battle and first repulse from a windmill at Edge Hill in 1642 and in 1645 he stood on another windmill at Naseby and witnessed his army's last irrevocable defeat.

All the above mentioned windmills were of the post mill type in which all the machinery is contained in a structure which is capable of revolving upon a vertical central post, so that the sails can be made to face the direction from which the wind is blowing.

In the 16th century the tower mill was introduced. The invention of this type is attributed to a Dutch man, although it is also claimed as a Flemish invention. The earliest tower windmill in England was probably that built in 1632 by Inigo Jones at Chesterton, near Leamington. This mill still stands but is not now working. In this type of mill the top stage or cap alone revolves to meet the changing direction of the wind. The tower mills were at first small, containing

only two pairs of stones, but later they developed into very large and imposing structures containing as many as four or five pairs of stones, but three pairs were probably the most frequent number used, one for wheat, one for barley and oats and the third for large corn or grain, such as beans and peas.

The tallest windmill ever built in England was that at Yarmouth, it stood 120-ft. high. The era for very large windmills was from 1780 to 1850 or thereabouts. The greater number, however, erected were of medium size but some were quite small. The last tower mill built in England was probably that at Patcham, near Brighton, which was put up in 1885.

All kinds of materials, depending upon their availability, were used in the structures, some were entirely of wood, some had the tower of brick at the lower stages, with wood above, stone was also used.

The carpentry of the woodwork is superb and even after more than a century of braving the elements, there are many quite sound still and apparently capable of sustaining another century's work, if they were needed.

It is worth while to carefully examine one of the old post mills and observe how skilfully the old craftsmen disposed his material. The great post on which the mill stands and about which it turns as the wind changes in its direction is not simply a post inserted in the ground as is thought by many people, but the post has cut in it four great notches into which tenons on four angle struts fit and the lower ends of these angle struts fit into sockets cut in four horizontal radiating arms which are firmly attached to the centre post at its bottom end.

It will thus be seen that the post is held upright and firm by the angle struts which in turn are securely held by the radiating arms and prevented from

spreading. The heavier the weight, short of weight sufficient to crush the whole, put upon the post, the more securely it will stand.

This frame-work with post is erected upon four low brick piers. Many mills have had the piers raised in height from time to time, as the sails are extremely dangerous when they revolve unless they are high enough to clear people or animals that may be near by.

The spaces between the four brick piers are in most cases built up with a circular wall and a conical roof making the familiar round house of the mill. There are, however, several at work or in ruins still standing with open legs and no round house.

It is probably because Inigo Jones was familiar with the open post structure mill that he built his tower mill upon open arches, rather than make his tower a building from the ground, as all other tower mills are.

The motive power of the mill is derived from the sails, which are attached to the end of a shaft which, inside the mill carries a great wheel, which gears into a crown wheel at the top end of a vertical shaft, which in turn revolves the stones.

The sails were usually four in number, but many had more than this and five, six and eight are still to be seen but every year they decrease in number owing to the wood perishing. Three sails, which are six sailed mills with three sails removed, and two sails, which are four sailed mills with two sails off, are also to be seen. One mill, at Haverhill, has a continuous sail like an immense wheel, instead of the usual separated sails. I believe this to be unique. It is, however, a kind of forerunner of the so-called "American" mill greatly used for pumping purposes everywhere.

The sails are built up of the stock or back, which is sometimes a great beam, long enough to take the two opposite sails and attached to the end of the main shaft at the centre, but in many cases especially when six or eight sails, and always when five sails were used the stock only reached to the centre, where it was securely fastened to the shaft.

The sails themselves or "whips" are attached to these "backs." They at one time were made of a kind of lattice of wood, over which a sail of canvas was arranged so as to catch the wind. These canvas sails were fitted with rings to work on rods at each end so that they could be drawn back or furled, when it was necessary to reduce the power of the mill or to stop.

Several mills still work with these canvas sails but they are somewhat difficult and dangerous to deal with, especially in sudden winds, and they have in most cases been superseded by the "patent" or "spring" sails, which were invented by an Ipswich engineer, Sir William Cubitt, who in 1807 introduced the "vaned" sail.

In these sails, the canvas is replaced by a series of wooden boards, placed transversely across the sail, for the whole length of the whip, these vanes are hinged at their upper sides and held by levers so that they are closed against the wind. When the power of the wind increases the vanes are forced open and the sail relieved. The amount of resistance to the wind to prevent this opening is governed by weights or in some cases also by springs. Thin wooden boards were and are still used for these vanes but in larger sails they are usually of canvas stretched upon a wire frame.

The controlling mechanism will be seen at the lower part of the fly or fantail of mills and a rod passes right through the main shaft to work the system of bell

cranks at the centre of the sails and to move the vanes open or shut.

The mill in the case of the post mill or the cap only in the tower mill must be revolved so that the sails always face the wind. In early mills this had to be done by hand. The miller has to keep constant guard or his mill might be caught "tail winded" and with tower mills especially this often meant disaster, as the cap with all its gear is likely to be blown off, if the wind takes it behind.

In 1750 Andrew Meikle introduced the "fantail" for automatically turning the sails to the wind. This is an extremely interesting and ingenious piece of mechanism. The "fly" or "fantail" wheel is arranged to work in a plane at right angles to the plane of the main sails so that it will revolve freely in every wind except that which takes it edge on. The moment the wind takes a different direction it catches the fly and makes it revolve and this turns the gearing and moves the cap or mill until the sails again face the wind and the fly wheel stops.

While considering the sails it will be noticed that the angle that the face of the sail has, varies from the centre towards the end, giving the characteristic "feathering" or twist to the sail that artists seem to have a difficulty in representing.

Smeaton, the well known engineer, gave great thought to the best angles and found that the most suitable were  $18^{\circ}$  at the end nearest the axis and  $7^{\circ}$  at the tip of the sail. It will also be noticed that the sails are parallel or in some cases reduced in width towards the ends, but for some reason difficult to understand, pictures frequently shew sails much wider at the tips than at the centre.

Sails are of two classes, single in which the whip is on one side of the back only and double when there are two sets of vanes, one at each side of the back.

In the latter case the side that leads when the mill is working is always the side which has the shorter vanes, just as the main beam of the whip always leads with single sails.

On looking at a windmill it will be noticed that the plane of the sails is not vertical but they always, except in some very rare cases, lay at an angle, in other words the main shaft to which they are fixed is inclined and is higher at the sail end than the other. This is done so that the sails will better clear the structure of the mill and permits of a large main wheel being fixed upon it and also a larger crown wheel being put in without difficulty and the pressure on the sails due to wind will act downwards to some extent steadying the mill.

If we now enter the mill and go to the topmost floor, in a tower mill, that is into the cap itself, the driving mechanism can be clearly seen. The main shaft or neck, passes across at a slight slope, being carried in bearings at the ends and upon it is fixed a large wheel, which is usually built up of wood, but is often largely of cast iron. This wheel has large teeth sometimes of wood, inserted into the rim and these teeth gear into similar teeth on a crown wheel at the top of the vertical shaft, which latter is often of wood, constructed of several pieces of large timber braced together by iron bands.

On the outside, or periphery of the large wheel, the brake takes its bearing. The brake itself is formed of a number of segments of shaped blocks which fit upon the wheel above and below it and grip it when closed upon it, being held open and away from the wheel while the mill is at work, being hung at one end with levers at the other to enable the brake to close in when applied. This device was introduced in 1755. Before this time the only means of stopping the mill

apparently, was to furl back the canvas sails while they were at work, not at all an easy task to undertake, especially in high wind.

While in the cap it can be seen that the base of the cap is carried on rollers or in some cases balls in suitable grooves or races on which the cap moves as it is turned to make the sails face the wind. The cap is kept central by brackets reaching down and having small wheels which bear upon the inner diameter of the wooden ring upon the tower top. The fit and concentricity of the wooden ring on top of the tower must be accurate, as if not, the large and crown wheels would not gear properly in all positions that the cap may take.

As nothing holds the cap on but its weight and the downward pressure due to the angle of the main shaft it will be seen how dangerous it is if the mill gets tailwinded, and as mentioned above, it is then liable to be blown off.

The disposal of the remainder of the machinery will depend to a great extent upon the design of the mill and number of floors in it.

As an example, take a large mill with five floors below the cap. The top floor will have sacks full of grain, which can be emptied into bins on the floor next below. The stones will be on the next floor and the meal bins on the floor below it and storage on the two lower floors for both ground and unground corn.

The stones are usually driven by means of a large cogged wheel at the bottom of the vertical shaft, with suitable small pinion wheels on short shafts, either down to the stones if the cogged wheel is above, or up if it is below the stone floor.

The stones merit more than a cursory glance. It will be seen that they are in pairs, the lower stone

fixed and the upper one capable of revolving upon it. It is absolutely necessary that the nether stone is exactly horizontal and that the upper stone is just as accurately balanced. If this were not done the stones would be almost certain to touch each other at some time or other and sparks which would soon ignite the dust and wood would be given off.

The faces of the two stones will be grooved on a very clever pattern. The whole face is divided into "quarters," as they are often called, although there are always more than four of them. Each quarter has grooves or furrows cut in it with faces or "lands" between them. The furrows in each quarter follow a plan in all cases; one long furrow radiates from the eye of the stone to the rim. Between this long furrow and the similar one in the next quarter will be three or four other furrows which are of decreasing length, parallel to the long furrow of the next quarter.

The furrows transversely are shaped like the teeth of a saw. The faces or lands between the furrows are "dressed" by having small nicks cut in them by bills or picks, so that they give a good cutting face.

It will be seen that when the upper stone revolves upon the lower one and corn is introduced into the eye, it will spread out by way of the long furrows and be ground between the faces, the shape of the furrows or grooves assisting in the distribution over the whole grinding area.

The action of the stones, owing to the shape of the furrows, does not simply pulverise or crush the corn but rather splits it open and spreads it out as it were and scrapes the inner part of the corn from the shell or bran.

The arrangement of furrows was discovered in very early days and Roman stones, although smaller than those in windmills, follow the same arrangement.

Like many other things in common use the best shape seems to have been, as it were, dropped upon almost by accident.

The stones are enclosed by circular wooden shields or "vats" as they are often called, to keep the meal which issues at the periphery from between the stones from being allowed to escape and make it pass to a hole through the bottom by way of a chute to a bin on the floor below, the hole being situated in the space between the outside of the stones and the inside of the vat.

The corn is fed to the stone from a shoe, which is a long shallow box, pivotted at one end, on top of the vat, and sloping slightly downwards, and when rattled by a "damsel," which is a pice of iron fitting on to the bridge carrying the upper stone so that it revolves with the latter, the vibration set up will make the corn travel along the shoe, and fall into the eye of one stone. The clatter of the damsel against the shoe makes the characteristic sound that is one of those inseparably connected with a windmill; other sounds are the thunderous roar made by the revolving stones, and the swish and creak of the sails as they pass, each sail making its own characteristic sound.

A hopper feeds the shoe with corn, the supply being regulated by a small lifting slide at the outlet from the hopper.

Any amount of ingenious gadgets will be seen in old mills, invented by the men who work in them. One may be mentioned, the tell-tale to warn the miller that the supply of corn to the stones is failing. A piece of leather has a hole in the centre of it through which a cord is passed with a knot below. This cord passes over a pulley fixed in the roof above the hopper and holds a bell up. When the leather is buried in the corn in the hopper the continual downward action

of the corn leaving the hopper and that being supplied from the bin in the floor above, will keep the leather buried and the bell up. When there is no more corn coming down the shute, the leather will escape and this allows the bell to fall and catch the spokes of the wheel above which it is suspended and the ringing warns the miller that he must attend to it or the stone will soon run dry and fire.

The stones are regulated as to distance apart by means of screw gears which lift the upper stone. Governors of the Watt type are also fitted so that when the mill is running fast the stones are automatically lifted so as to reduce the risk of firing, which is likely to happen in these cases, owing to the heat generated and sparks given off.

The mediæval miller simply ground the corn and left it to the baker to do the necessary bolting or sifting to separate the bran from the flour. About a century ago this duty appears to have been taken over by the miller and flour mills were introduced into the mills. These consist of a frame or "spider" which is made to revolve at a great speed and over the outer ends of the arms of the spider a cylindrical sleeve of bolting silk is drawn. The meal is allowed to fall into this sleeve at one side and as the axis of the spider is inclined the meal is sifted. The fine flour first passing through the silk mesh then the next grade and the bran goes out at the end.

The whole must of course be enclosed in a dust tight box and shutes at the bottom allow the flour and bran to fall into separate bins or sacks hung below.

It was a comparatively easy job to introduce a flour mill into a tower mill, as there was more room available, but in a post mill, owing to the very cramped space, there was often difficulty and projecting parts had to be built on the side or back of the mill. This

will account for the strange protuberances seen on many post mills.

Much of the above information about the arrangements of the interior mechanism in tower mills, also applies to post mills, except that in the latter there is much more crowding owing to the very restricted space at disposal.

The gearing too for the altering of the position of the sails is different in the post mill, as it is outside of the mill altogether and the actuating wheels rest on the ground and when turned they move the whole mill.

Many causes contribute to the disappearance of the windmill. They are small and therefore can only deal with comparatively small quantities of grain. The wind, too, is a very uncertain power, and in 1785 steam was introduced into flour mills and struck a blow at windmills. The stone ground flour too, is not so good in color as that produced by rollers, which were introduced from Hungary in about the year 1880, and so there was not the demand for stone ground flour. Perhaps also the altered conditions of labour have had an effect as the wind blows only when it will, and men do not care to work such uncertain hours unless owners of the mill, and this class of men are not so frequent as at one time. Owing to the above, and other causes, when once the sails are condemned as unsafe, or break in wind, it is so expensive a job to replace them that it is not worth the cost and the mill is derelict.

With the disappearing of the windmill, a group of workmen also goes, I refer to that splendid race of craftsmen known as millwrights. These men were masters of practically all trades, they had to work in wood, stone and iron and also in addition they practically designed the mills, at any rate so far as

the fitting in of the mechanism was concerned. They also had to have more than a small amount of experience of ropes and tackle for putting up a pair of sails was no easy task to take in hand, especially if there was much wind.

To do the work they did, nowadays men of several different trades would be required. The name millwright is still retained in factories as the men who look after the machinery are so designated, but their work is quite different from that of the old millwrights, as they are usually simply fitters engaged upon this work.

Sufficient has been set out above, I think, to convince some who have not hitherto given thought to the matter, that there is enough of interest in the old windmills to make them notice the next one that comes within their view and look at it with different eyes, and they will be well repaid the trouble of doing so. We look at our beautiful old churches and notice with pleasure the wonderful craftsmanship devoted to the purpose of worship and praise and spiritual needs of man let us also consider the craftsmanship of the windmill which is devoted to mundane and material matters of the body in which the spirit is enshrined.

The following windmills remained in Suffolk of my own personal knowledge; there are, of course, others I have not seen, and some of those given below may not now exist, as they fall into disrepair very rapidly when once decay sets in, and either fall or are pulled down.

The mills illustrated are shewn thus\*

*Aldringham.* Post mill, removed to Thorpeness in 1923 and all grinding machinery taken out and pumps installed in place. It now stands in a square "round house."

- \**Aldeburgh*. Post mill was built in 1724. It was pulled down in August, 1924.
- Aldeburgh*. Tower mill, stood derelict for some time and in 1902 was converted into a house by the late Rev. W. Black.
- Alderton*. Tower mill still at work.
- Buxhall*. Tower mill still at work, it has four double - sails with side additions to increase the area. The sails are now removed.
- Bramfield*. Tower mill has a tablet " Waterloo, 1815," built in the tower, in derelict state for some years. The sails are now removed as they were dangerous.
- Bricett, Gt.* Tower mill, no sails now on, but mill still working by steam.
- Barnham*. Tower mill in good order and still working, it has four double sails. This mill was built in 1827.
- \**Bradfield Combust*. Post mill derelict and sails in rather ruinous condition.
- Chattisham*. Tower mill had the sails removed about 1919, it worked by steam, until recently.
- Carlford*. Tower mill has had no sails on for some years.
- \**Combs*. Post mill, not now working, in rather a ruinous state.
- Chelmondiston*. Post mill, pulled down in 1914 as it was in a ruinous state. This mill probably gave the name to Pinmill as it was a landmark.
- Debenham*. Tower mill still at work, now I believe it has only two sails on.
- Darsham*. Post mill, four double sails, disused early in 1929.
- Drinkstone*. Post mill, two cloth and two vaned sails, still at work.

*Diss.* Tower mill, now has only two sails on and is in generally weather-worn condition. The fly has gone. The sails on the mill came from the post mill at Framlingham when the latter was pulled down in 1921, therefore this mill is included, but it stands just over the boundary and is in Norfolk.

\**Eye.* Post mill, has date 1779 with initials cut in the centre post. It has two pairs of barley stones four feet in diameter and one pair of wheat stones five feet in diameter and a flour mill, which with the wheat stones has not been used for several years. This mill was so severely damaged in a storm in September, 1929, that it is now quite out of use.

*Elmsett.* Post mill, sails off some years and mill not used. The round house only now remains, the mill being removed in July, 1929.

*South Elmham.* St. Michael. Post mill still at work.

*Falkenham.* Post mill dismantled about 1918, the round house still stands.

\**Fressingfield.* Post mill still working. It is said to have come from the "Saints," i.e., Elmham, and has an eight sided "round house" of wood.

*Friston.* Post mill has a very tall round house. This mill is in splendid order and still at work.

*Framlingham.* Post mill, dismantled August, 1921. The sails are now on Diss mill, the round house only being left.

*Framlingham.* Tower mill, the sails were removed about 1918 but the mill still works by steam.

*Framsden.* Post mill, still at work, said to be "about a century" old.

*Fornham.* Tower mill, which had not been in use for some time, was blown down about 1926.

*Gislingham.* Tower mill, four double sails, brick tower and two pairs of 4-ft. 6-in. French burr stones. All in good working order.

*Grundisburgh.* Post mill apparently getting into a ruinous state.

\**Grundisburgh.* Tower mill, a small structure, being a tower mill in miniature, in good working order.

\**Haughley.* Post mill in good order. The ends of the sails pass very close to the ground.

\**Haverhill.* Tower mill, has a continuous band of vanes, each 5-ft. long and 1-ft. wide on eight radiating arms, the whole being 50-ft. in diameter, instead of the usual separated sails. The tower is 77-ft. high and there are eight floors.

There is also another tower, now only an empty shell. The sails have been off more than fifteen years.

\**Huntingfield.* Post mill in good order a few years ago, now demolished.

\**Halesworth.* Post mill was in derelict condition, and taken down but owing to the public spirit of a neighbouring landowner, Mr. Scrimgeour of Wissett, it was replaced and is now in good order.

\**Horham.* Post mill, still stands on open "legs," having no round house, in good order, has two pairs of stones one behind the other, both directly under the main shaft which drives each direct by cogged wheels.

*Holton.* Post mill, 2 sails for cloth and 2 for vanes, but both cloth and vanes removed. This mill no longer works but is kept in repair by the owner.

*Ipswich.* Two towers, both shells only, now stand. One in Bramford Road, was known as Sallows or Salhouse mill and the other at Lattice Barn, had the sails removed in 1924. According to a letter

in the "E.A.D.T." there were in about 1859, thirteen mills in Ipswich. One which stood by Anglesea Road was burnt down about that year. Another post mill stood in Foxhall Road. It was removed bodily to Offton in the sixties of last century by Mr. Biddle, but no trace of it now remains. There were two post mills on Belstead Road, one at the junction with Philip Road and the other on the opposite side of Belstead Road. The latter was demolished in the later forties. The former mill was built in 1786. The weathercock with this date on it is now in Christchurch Mansion. I believe it was pulled down in the sixties. William Cobbett in his "Rural Rides" visited Ipswich in March, 1830, and writes "Immense quantities of flour are sent from this town. The windmills on the hills in the vicinage are so numerous that I counted whilst standing in one place, no less than seventeen. They are all painted or washed white, the sails are black, it was a fine morning, the wind was brisk and their twirling together added greatly to the beauty of the scene, which, having the broad and beautiful arm of the sea on one hand and the fields and meadows, studded with farmhouses, on the other, appeared to me the most beautiful sight of the kind I had ever beheld."

*Laxfield.* Post mill still worked occasionally until 1929.

*Laxfield.* Tower mill now without sails but is still worked by steam.

*Lavenham.* Tower mill, pulled down about 1918, only a short section of the bottom of the tower remains.

*Melton.* There is no windmill at Melton, but in the old prison there three windmills and some ships are scratched upon the wall. These were probably made by Dutch prisoners of war, who were captured at the Battle of Sole Bay in 1672. The

date 1681 is also scratched on the wall by the windmills.

*Mendlesham Green.* Post mill was pulled down about 1927, it had two double and two single sails. There is also the round house of another one near the Railway Station.

*Marlesford.* Post mill was derelict a few years ago. I believe it has now entirely gone.

*Newmarket.* Tower mill, entirely of wood, with four sails.

\**Palgrave.* Tower mill is entirely of wood, it was built in 1803 and is in good working order. It has only two double sails on now, and I was told by the miller that it worked better now than with four sails as it was very much "oversailed." The present two sails have been on 60 years. There are three pairs of stones in this fine mill.

*Parham.* Post mill still at work in good order.

*Pettaugh.* Post mill is also still working.

*Rushmere.* Tower mill is entirely of timber. The sails were removed in January, 1928.

*Redisham.* Tower mill, the sails were removed 1929.

\**Rougham.* Post mill, in a very ruinous condition. I have heard that the tenure of the land depends in some way on this mill standing, but do not know whether this is true or not.

*Shotley.* Tower Mill, now an empty shell only. I have heard that the owner of Grundisburgh mill bought this one some 50 years ago and fitted new sails to it. These had been put up but not properly secured and the men went to Shotley "Boot" for a drink. A sudden wind caught the sails and broke them off. It ruined the miller and the mill was never again used.

*Saxmundham*. Post mill, now only the tall round house remains.

*Snape*. Post mill still working.

*Saxstead*. Post mill has a very tall round house. I am informed that it has been raised in height at least twice in its lifetime. This mill still makes flour and is in perfect working order. The miller has himself fitted it with electric light and many other modern improvements. Altogether it is a mill to gladden the hearts of those interested, as it is so carefully looked after.

*Sweffling*. has had three post mills, one still at work has four double sails, two having side additions at the ends to increase their wind area. The round house of one of the others is now made into a dwellinghouse and that of the other into a shed.

*Swilland*. Post mill in good condition and working order.

\*\**Stradbroke*. Has two post mills, both in good working order.

*Sudbury*. Tower mill has had the sails off for some time, it was partially burnt out in 1928.

*Thorndon*. Post mill, struck by lightning a few years ago, and now an oil engine supplies the motive power.

\**Thornham Magna*. Post mill in good order. It has two cloth or canvas sails and two patent vanes.

*Trimley*. Tower mill dismantled about 1918.

*Theberton*. Tower mill had the sails removed about 1920, it is now only a shell.

*Thurston*. Post mill, still at work. This mill is the only one that I have noticed that has in recent years followed the custom, at one time fairly frequent, of using different colours, the sails and fly being red, the mill white and the round house black.

*Thorpeness.* Post mill removed from Aldringham and now pumps water only. It gives a very nice touch of picturesqueness to the place.

*Thelnetham.* Tower mill with only two sails on.

*Wetheringsett.* Post mill working about two years ago.

*Wingfield.* Post mill, working some little time ago.

*Worlingworth.* Two post mills, one still working, the other has only the round house left.

*Wenhaston.* Post mill, still works.

*Westleton.* Post mill in good order, still at work.  
Tower mill now without sails.

*Wangford.* Tower mill was burnt down in August, 1928.

*Woolpit.* Post mill has a very low round house, it still works.

*Wortham.* Tower mill still at work.

\**Woodbridge* has two tower mills. One is a very graceful round brick mill with four sails, still in use. The other is also a round brick tower and two sails are still on, but the mill is used only as a store, nearby this mill was the round house of a post mill.

The two Woodbridge tower mills illustrate the two different shaped caps. The mill in use has the round or Dutch cap, while the other has what has been called the English type rather like the old Scotch cap.

There are other windmills in Suffolk which I have not seen, and if persons who know of them, or of corrections to the list given, will communicate with the Hon. Secretary, it will be possible for him to make up a complete record of our windmills for our Institute and for the information of our descendents.