

PROCEEDINGS
OF THE
Cambridge Antiquarian Society,

JANUARY 1938—JUNE 1939



VOLUME XXXIX

Cambridge:

Published for the Cambridge Antiquarian Society

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1940

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THE RURAL CRAFTSMAN AND HIS TOOLS

BY L. F. NEWMAN, M.A.

Read April 25, 1938.

FROM the earliest times to the middle of the last century agricultural conditions have probably altered less than those of any other trade or profession in the world. A brief but interesting essay by Professor Jenks, entitled "Agriculture and the Clan",¹ shows very neatly how the rotation of crops, which is the basis of all agriculture, became more and more complex as human reasoning powers improved. It is unnecessary to go over the arguments in detail, but Jenks points out that the earliest form of farming practice (still practised in some Eastern countries) was the cultivation of a small plot of land reclaimed from forest or jungle. It was dug over and the single cereal crop grown year after year. This soon exhausted the soil of the constituents which the particular crop required, and the resulting infertility would be ascribed to some extra-normal cause such as witchcraft or the anger of the Gods. A fresh piece of ground would then be broken up and the process repeated. Accident, says Jenks, would no doubt lead to the discovery that an abandoned plot had, in the course of years, recovered its original fertility. It could easily be brought back into cultivation, periods of alternation between the old and new fields would gradually diminish in length, and the first simple rotation of crop followed by fallow established. Later the inclusion of a second crop in the rotation would not alter the general principle, but the cultivated area would be divided between the two crops. This was probably the system established in England at the time of the Roman invasion, and continued unchanged until the introduction of a three-year rotation of two crops followed by a fallow, all three in equal area. A bare fallow was neces-

¹ *History of Politics* (The Temple Primers 1910).

sary for the eradication of weeds, to allow thorough tillage of the land and, in districts where the rainfall was low, to accumulate a reserve of water in the soil. Jenks points out that cultivation by plough or spade was the most troublesome of all agricultural operations, and propounds a very ingenious arithmetical problem which may be stated briefly:

On each 180 acres arable land

Crop A 45 acres	Crop B 45 acres
Fallow 90 acres	

Crop A	Crop B	Fallow
60 acres	60 acres	60 acres

2-year rotation

90 acres fallow ploughed twice	180
45 acres crop A ploughed once	45
45 acres crop B ploughed once	45
Total acres of ploughing	270
Total acres of crop	90

3-year rotation

60 acres fallow ploughed twice	120
60 acres crop A ploughed once	60
60 acres crop B ploughed once	60
Total acres of ploughing	240
Total acres of crop	120

When the advantages of the three-year rotation became apparent the system was universally adopted and, with some minor modifications, developed into the "three-field rotation" characteristic of the manorial system, which continued with little or no change until the introduction of what is now known as the four-course, or Norfolk rotation. The chief problem of the medieval cultivator was the difficulty of providing fodder for the cattle: except for rough grass, laboriously collected and dried into hay, there was no available source of winter forage. A large proportion of the livestock had to be killed in the autumn and the flesh salted or dried; it was possible to keep only the breeding stock, plough bullocks and milking cows over the winter, although in some districts cattle were turned into the woodlands to browse on the undergrowth and small shrubs. Carrots and other root crops were introduced into England quite early; they were not grown originally as animal food but for human consumption. Rye was cultivated on poor light soils; the grain was required for food and for seed as young rye was eaten green by sheep and the straw

was needed for several purposes. From early times rye and wheat were mixed to make bread for the labouring classes. Buckwheat was grown in the fenland and the grain was used for human as well as animal food. The young plants could be fed to animals in the field or ploughed in as a green crop. Flax was needed to provide linen fibres and the crop if allowed to ripen yielded linseed. Linen fibres and linseed cannot, as a rule, be obtained from the same crop; if flax is needed the plant must be cut or pulled up just before flowering. Grain crops were cut by hand with the sickle; beans with a "hook", a tool very much like a sickle but without a saw edge, while grass was cut with the scythe.

It was not until the seventeenth century that clovers and "roots" were introduced as an essential part of British husbandry. The introduction of these new crops had several advantages; it provided a store of food for horses and cattle so that the latter could be kept alive during the winter and killed as required. The animals fed in enclosed yards provided natural manure which, when spread on the land, increased the quantity of the grain crops. It made possible the four-crop rotation which is still the basis of British farming. Although universally known as the Norfolk rotation, it should more correctly be called the Hertfordshire, as it was first developed in that progressive county and subsequently spread over a considerable part of England.¹ In Norfolk, the landowners were quick to see its many advantages and to adopt the new system. The Norfolk four-course on light soils, with sheep as an important unit of the farm produce, consists essentially of the following sequence: (i) wheat, (ii) "root" crops (which may be either kale, mangolds, cabbage, turnips, swedes or beet), (iii) barley, (iv) clover or a mixture of clovers and rye-grass. The technical details of the principles involved are complex, but briefly, the long period (eight months) which elapses between harvesting the wheat crop and sowing the "roots" provides a good opportunity for cleaning and preparing the land. The barley crop, primarily grown for ale or beer, gets the advantage of the manurial

¹ A. D. Hall, *Pilgrimage of British Farming* (1913), p. 2. The writer has been unable to trace the authority for the statement.

treatment applied to the roots in the preceding year. Clover, a biennial, is sown with the barley, and makes its first year's growth under that crop. In the second season the clover plants flower and can be used either for hay, for grazing sheep or harvested for seed in September. The four-course rotation allows one-half of the arable land on a farm to produce cereal crops for human food, and the other half forage and "roots" for cattle and sheep, who in turn provide the manure required by the cereals. The rotation can be modified in many ways to suit various types of soil and different climatic conditions.



Until the middle of the last century all farm work was carried out with hand tools and we may consider the harvest work required for a wheat crop. Cutting with the sickle was an extremely laborious process; a handful of ears was grasped with one hand and the stalks severed about half-way up the plant. The blade was saw-edged and the corn stalks were torn rather than cut. They were laid in heaps, which were known in the Eastern counties as "gavels". The sheaves were then tied with a band consisting of a few long stalks of the same crop. Harvesting in this way left a stubble nearly a foot high. It was allowed to remain with the weeds which grew up in it until after the grain harvest and then cut with the scythe. The mixture of straw and weeds provided a quantity of coarse material known as "haulm", which, after drying, had several uses, the most important being the building of temporary walls or screens to make enclosed shelters for cattle during the winter. These walls not only afforded protection, but some of the haulm was eaten by the animals, and some of

PLATE I



Sharpening the scythe.

The scythe is held firmly by pressing the pointed end of the snathe into the ground and holding the upper thole (or hand grip) between the knees.

it trampled down to form the basis of farmyard manure. Thus the cereal harvest meant that each wheat field was cut both with the sickle and with the scythe while the sheaves and the loose haulm were carted separately to the farm. Giraldus Cambrensis¹ says that "instead of small sickles in mowing they [the Welsh] make use of a moderate sized piece of iron formed like a knife with two pieces of wood fixed loosely and flexibly to the head which they think a more expeditious instrument". This suggests a tool rather like a small and primitive Scotch scythe.² The long stubble formed excellent cover for game and gave rise to the art of shooting over setters or pointers. About the middle of the last century it became usual to mow all cereal crops with the scythe and this allowed the crop to be harvested in one operation. The writer has in his possession a letter from an Essex landowner to one of his tenants, in which he commented bitterly on the fact that a field had been mown instead of reaped. The tenant, although he had not committed any breach of his agreement, "could not possibly have done more mischief as far as shooting goes". The landlord made thinly veiled threats to terminate the tenancy, but did not carry out his intention.

The number of plant species cultivated increased considerably before the middle of the nineteenth century, so that rotations were modified to include a variety of crops, adapted both to different types of soil and to local requirements.

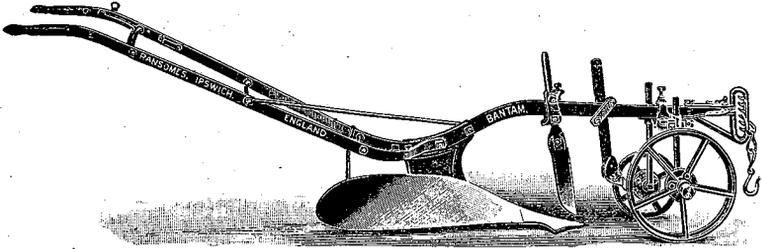
The plough developed from the cumbrous implement of the medieval manors to a lighter form drawn by two horses; and improved types of carts and waggons relieved the labourer of such work as carrying crops and manure from field to home-stead or *vice versa*, but the hand tools of the early Victorian period differed but little from those of the middle ages. The scythe of to-day³ is identical with those depicted in illustrations of mediaeval manuscripts. The handles or "snathes" have the same curve and the "cradles", "bales" or "racks", made from a stout twig bent, as the name implies, to carry the cut plants and leave them in an orderly row or swathe, are also very similar. There are variations of pattern in

Description of Wales, chap. xvii (Hoare's trans.).

² See p. 10.

³ See Plate I.

different parts of the country, e.g. the Scotch scythe has two short independent handles, but they do not differ very much in general construction.



Early agricultural writers often enumerate the tools required on the farm, and these lists afford valuable information of contemporary agriculture. Good representative examples are quoted by Curtler,¹ but most of the early text-books on agriculture are available in reproductions or in translations, and the original authors can be readily consulted.

Neckham² gives a list of tools required on a twelfth-century farm. Curtler also quotes a list: Axe, adze, bill, awl, plane, saw, spokeshave, tie hook, auger, mattock, crowbar, share, coulter, iron scythe, sickle, weedhook, spade, shovel, wood dibble, barrow, besom beetle, rake, fork, ladder, horse comb, shears, tongs, scales, dung shovel, etc. also spinning implements for the household, together with utensils for cheese making and for preparing food.

In 1150 the farm implements used on the manor of Waleton³ were four carts, three baskets, one corn basket, one pair of millstones, ten tubs, four barrels, two boilers of lead with stoves, two wooden bowls, three three-legged tables, twenty dishes, six metal bowls, two axes, a table with trestles and five rush beehives.

Cullum⁴ gives as a labourer's tools in 1421 an adze, two augers, an axe and a barrel.

¹ *A Short History of British Agriculture* (Oxford University Press).

² *De Natura Rerum* (Rolls series).

³ Domesday of St Paul's, p. xcvi.

⁴ *History of Hawstead* (ed. 1874).

Worldige¹ gives the following: harrows, forks, sickles, reaphooks, sledds, weedhooks, pitchforks, rakes, beetles, roller, scythe, seed basket, flails, winnowing fans, sieves, corn measures, skeps, goads, yokes, wanteyes, cutting spades, cart lines, hoddors, curry-combs, mare-combs and other hand tools.

The early harrow is described by Fitzherbert.² He says "an oxe harowe the whiche is made of sixe smal peces of timbre called harowe-bulles, made eyther of asshe or oke; they be two yardes longe and as moche as the small of a mannes legge and haue shotes of wode put through lyke lathes and in euery bull are syxe sharpe peces of yren called harowe-tyndes set some-what a-slope forwards, and the formes slote must be bygger than the other bycause the fote-teame shall be fastened to the same with a shakyll or a withe to drawe by". Similar harrows are still made in exactly the same way and are in everyday use on farms in the Eastern counties.

Seebohm³ quotes the Venedotian Code.⁴ When husband and wife separated there was a fair division of all their joint property, but certain things were especially named as for the husband and others for the wife. The list given illustrates Welsh household requirements and farm tools very well indeed.

(1) Swine to the husband and sheep to the wife; if there be only one kind they are to be shared.

(2) If there be sheep and goats then the sheep to the husband and the goats to the wife.

(3) Of children, two shares to the father and one to the mother. The oldest and youngest to the father, the middlemost to the mother.

¹ *Systema Agriculturae* (ed. 1669).

² *Book of Husbandry*, 1534, reprint. English Dialect Society. Edited by W. W. Skeat.

³ *The Tribal System in Wales* (ed. 1904).

⁴ *Venedotian Code*, II, i, 1-6.

(4) Of the household furniture:

- (a) All the milking vessels except one pail to the wife.
- (b) All the dishes except one to the wife.
- (c) The husband to have all the drinking vessels.
- (d) The husband the riddle, the wife the small sieve.
- (e) The husband the upper stone of the quern, the wife the lower.
- (f) The clothes that are over them to the wife, the clothes that are under them to the husband.
- (g) To the husband the kettle, the bed coverlet, the bolster of the dormitory, the coulter, the auger, the fuel axe, the settle and all the hooks but one.
- (h) To the wife the pan, the trivet, the broad axe, the hedge bill, the ploughshare, all the flax, the linseed, the wool, the house bag and its contents, except gold and silver (which are to be shared).
- (i) If there are webs they are to be shared.
- (j) The yarn balls to the children (if any). If none then shared.
- (k) The husband to have the barn and all the corn above ground and underground.
- (l) The husband the poultry and one of the cats, the rest to the wife.

(5) The provisions to be thus shared:

- (m) To the wife the meat in the brine and the cheese in the brine. After they are hung up, to the husband.
- (n) To the wife the vessels of butter in cut, the meat in cut and the cheese in cut.
- (o) To the wife as much of the meal as she can carry between her arms and her knees from the store-room into the house.

It may be noted that the riddle was oval, the bottom made with round twigs or withies, and the holes diamond shaped. The sieve was round, the bottom made with flat strips and it had square holes. Where swine, sheep and goats were part of the property, the wife took the milking animals. Most of the arrangement is obvious, but some items in the division are difficult to understand: for instance, why the wife should take the ploughshare and the broad axe. It might be expected that these would form a part of the husband's portion.

In the early part of the last century agricultural wages were scandalously low, especially for the married men with families. The weekly wage at one time was as low as six shillings, bread was very dear and bands of labourers would combine to rob several farm granaries each of a peck or two of wheat and grind it at a farm where there was a grist mill. The farmer was quite content to stay safely in bed and listen to his mill being used, for, as a rule, the mill was uninjured and no grain was stolen from that farm. Lambs were taken from sheepfolds in spite of the severe penalties for sheep stealing, and roots were gathered from the fields. Wilkins¹ provides some interesting details on this point.

Although the commercial industries of spinning and weaving disappeared quite early from Eastern England, some home-spun was produced in the area up to the end of the last century. The work involved the preparation of simple dye-stuffs, and Plowright² investigated more than sixty plants yielding dyes. This probably exceeds the number used in Scotland, where home-made dyes are still prepared for the carefully fostered tweed industry.

Farm labourers up to 100 years ago not only had their ordinary agricultural duties to carry out, but they also made hurdles and wattles, manufactured a good many of the simpler wooden tools, and were even able to provide some of the iron implements required. The village smith, carpenter, basket-maker and toolsmith carried out the

¹ *Autobiography of an English Gamekeeper* (publ. 1892).

² *Trans. Norfolk and Norwich Naturalists' Soc.* vol. vii, pp. 139 et seq. and 386 et seq.

more technical and complicated work, but the farm staff usually included men capable of undertaking simpler hand-crafts.

The special tools used often reflected the local conditions. For example, in Kent and Sussex, on the heavy soils of the Weald and the Gault clays, the autumn ploughing left clods which were not broken down by winter weathering. They had to be pulverised by beating them with "beetles" or wooden mallets, and these tools are still

found on clayland farms. The beetles were made of sections of a tree trunk, bound at the ends with iron bands to prevent the wood splitting, and fitted with a long handle. There is an illustration in the fourteenth-century Luttrell Psalter showing labourers with beetles exactly like those made in the last century. The hand



harrow, still in use in some parts of the country, consists of a diamond-shaped wooden framework, fitted with hand-forged iron tines bolted through the beams, and parties of labourers each drawing one of these harrows would go over the ploughland to break the surface down into a tilth or seed bed. Markham¹ mentions similar harrows as used in the seventeenth century, but drawn by horses instead of men. Rolls, for breaking down clods and for consolidating the surface of the ground were made by taking tree trunks of an appropriate size and length and fitting them with an iron axle running through a hole bored along the centre of the timber. Even when horse-drawn implements became usual on the larger farms, the "little farmers" and "smallholders" (there have always been such holdings situated in the districts naturally suitable for them and not placed according to modern political requirements) were, by reason of their poverty and small fields, compelled to carry out tillage work with very primitive tools. The same conditions embarrass the

¹ *Whole Art of Husbandry* (ed. 1635).

smallholder of to-day; economic conditions do not permit the purchase of large and expensive implements and a good deal of ingenuity is often shown in adapting available implements to various uses. Small hand tools are equally useful on both large and small holdings—it is merely a question of the numbers required—but to adapt large implements for use in small fields presents great difficulty and the problem is met by home-made or makeshift substitutes. The writer has actually seen a smallholder ploughing with a team made by his wife and a donkey, and the “breast plough” pushed along the topsoil of the field by a labourer has only become obsolete in the last few years.

The reader of a recent paper before the Cambridge Antiquarian Society commented on the large number of existing forms of the simpler agricultural tools. He probably overlooked an important point, which is the enormous range of operations carried out with almost any form of hand tool. An implement which has survived unaltered for centuries is the long-handled bill. It was lighter than the axe, longer-hafted and could be used for almost every wood-cutting operation. It served as a dinner knife when required, and was the very effective war weapon of the peasant levies through the Middle Ages.

The production of dependable iron weapons in early times was difficult and uncertain. The quality of the raw material supplied by the smelters varied considerably, and many of the swords forged by local smiths would bend after use, and had to be stamped or hammered straight. A theory the writer has always held, although it is opposed to modern archaeological views, is that the magic weapons of romance were produced when the smelter was lucky enough to obtain a high-grade steel. Such weapons would be capable of shearing through helmets, chain armour, or shields as, for example, the sword Mimung of Weland¹ or the magic Greysteel of Gisli.² Greysteel could not have been of very high quality, as it was later reformed to make a spear, and wore so

¹ See Hewitt's *Ancient Armour and Weapons in Europe* (ed. 1855), quoting *Völundar Quiða* (Edda).

² *Gisli, The Outlaw*, trans. by Sir George Dasent.

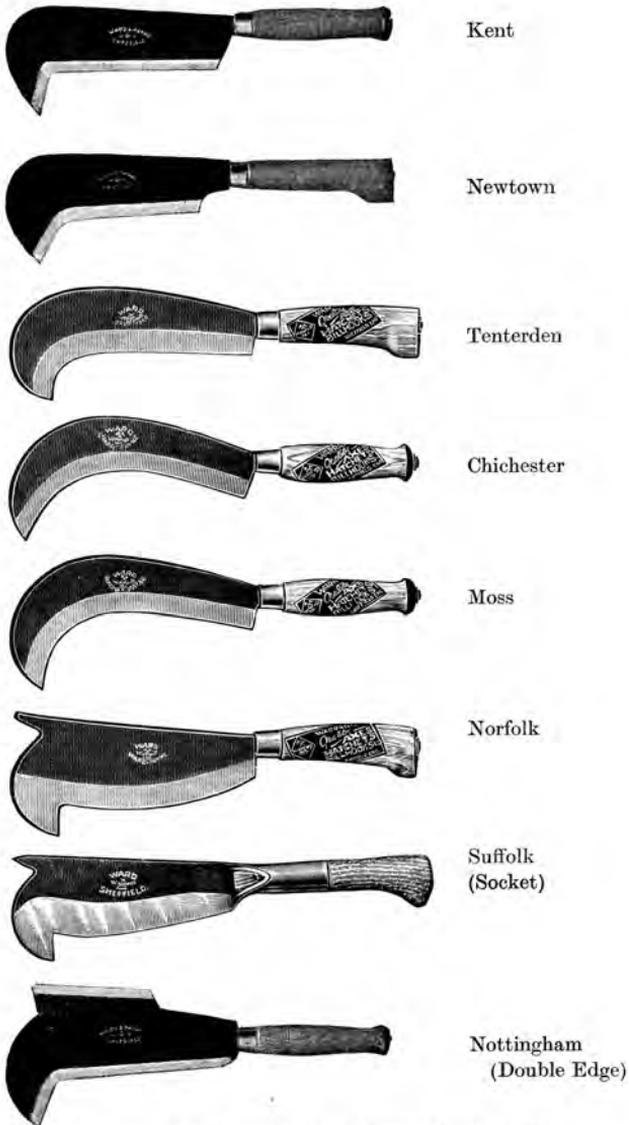
thin that it had to be straightened after use.¹ Possession of a helmet, spear, sword, mail shirt and shield showed considerable wealth in early times. The cost and rarity of early weapons is shown by a reference in the Anglo-Saxon laws that "even if a man thrive so well that he had a sword, mail shirt and helm but not 5 hides of land he was not a thegn".² The peasant infantryman had to depend for weapons on his everyday working tools.

The billhook or short-handled bill has, in most districts, either taken the place, or is an auxiliary of the long-handled type. It is made in many different shapes, but each is well adapted to the particular needs of the workman using it.³ The ordinary straight-edged bill, used in every cottage to chop firewood, is probably a generalised pattern. There must be more than two hundred different shapes made at the present day, many only differing in some small detail, but each district insists on its own particular fancy. The forms fall into fairly well-defined groups. The hurdle-maker who has to split wooden poles into bars needs a specially shaped tool, while the woodman requires a heavy curved blade to make a drawing cut and he uses a hooked double-edged bill. All the shapes are extremely effective, and a skilled woodman will cut through a branch as thick as a man's leg with two drawing cuts. The shepherd, who has to prepare the fold stakes to support the hurdles of a sheepfold, requires yet another form. He likes a narrow blade curving sharply at the end. This allows him to lift poles off the ground with the point. The fruit grower's knife with a heavy curved blade is really a miniature of this pattern, and his full-sized bill is of a similar shape. It is designed for cutting out dead wood and superfluous branches from fruit trees. The miner who has to fit pit props to support shafts and adits favours a short thick-bladed tool. The various makes of bills are usually sold under the names of counties or of large towns, and it seems probable that the mediaeval smith evolved the shape best

¹ M. Hewlett, *The Outlaw*.

² Northleoda Lagu, § 10, publ. in R. Schmid, *Gesetze d. Angelsachsen* (1858), pp. 396-9.

³ See R. U. Sayce, *Man* (April 1936).



(By courtesy of Messrs Ward and Payne Ltd. Sheffield)

Bill-hooks

sued to local needs. It is difficult to understand why the Suffolk and the Norfolk bills should have an apparently useless point at the end, and why that feature is persistently reproduced by modern makers. The blades are similar in shape but the Suffolk form has a socket for the wooden handle. It may be a survival of a halberd shape when the East Anglian peasant was equally ready to use his bill as a tool or as a weapon. A significant fact is that the heavy cutting types are named after the counties where forestry was the main industry, and the lighter patterns after areas where sheep farming and fruit growing were the chief interests, and where bush and coppice rather than large trees were the agriculturists' raw material. It is probable that a demand was started locally for a special shape of blade to suit the needs of any particular area, and, when the commercial manufacture of bill hooks cheapened them, each district still insisted on buying the form to which it was accustomed. The types named after towns may be the surviving patterns of once famous local forges now forgotten, but whose productions were made in response to local needs and are even to-day best adapted to their purpose. The heaviest and probably one of the most primitive forms of the long-handled bill had a new-moon shaped blade, the concave side being the cutting edge. An existing example of the particular shape described is a home-made article, probably forged and finished in Cambridgeshire. It is heavy and strong and could be used as a substitute for the woodman's axe.

The work of the thatcher was of great importance, until the introduction of corrugated iron roofing, as houses, out-buildings and sheds as well as stacks were all straw covered. Even to-day the art of thatching stacks is a highly skilled one, as they have to be covered in quickly with the smallest amount of straw possible, and, at the same time, the thatch must be weatherproof. Straw is thrown into a heap, saturated with water to make it tough, and then drawn by hand into long wisps, known as "yelms".¹ The work of securing the layers of straw to the sides and over the top of the stack roof demands considerable skill, or rain water, instead of running down the straw, will penetrate through and soak into the

¹ See Plate II.

PLATE II



Drawing yelms.

Straw is wetted to make it tough and long wisps are drawn out by hand. The photograph shows the thatcher combing the drawn straw with his hands to remove short or broken stalks and a bundle ready for use is lying at the foot of the ladder.

PLATE III



Making straw bands for securing the thatch. The twister is secured to a belt so that the operator can maintain a steady strain while moving backwards.



Any tool which will twist the band can be employed. The photograph shows a hay rake in use.

stack underneath. Yet the only tools the ordinary thatcher requires—implements which have survived practically unaltered for centuries—are a straw-rope twister of one of the many types described by Mr Sayce in a recent paper,^{1, 2} a comb made of a coppice shoot slightly flattened and set with nails along half its length, for smoothing down the thatch (the back is employed to pat down inequalities) and a small bill to shape the pointed stakes which hold the straw bands in position. A pair of shears is used to trim the edges of the thatch. A special type of billhook is used with a narrow blade curved to a point at the end, so that the thatcher can, without moving from his seat, lift up his poles and split them into pegs on a rough wooden block. Stack pegs are made from small coppice shoots; they are pointed at one end and notched at the other to secure the straw bands. In Hertfordshire and Essex they are known as stack pegs, in Suffolk and Norfolk as broches, or brochets, and in Cambridgeshire as spits. In some districts, and for the more permanent types of thatching used for farm buildings, the thatch is secured by long strips of split wood fastened by thin pegs twisted into a ring at one end. These pegs are known as sprindles. A skilful thatcher will prepare two or three hundred pegs or brochets in a day's work. Nutwood (hazel) is best suited for the purpose, as it splits easily and can be twisted to shape without the use of hot water to soften it. The use of reed (*Phragmites vulgaris*) is practically restricted to the Norfolk Broads and the Fens, where stems 10 feet long can be obtained. It is used for houses, and the work is much more elaborate than ordinary agricultural thatching; it is put on more thickly and is often finished in elaborate designs. The work is carried out by highly skilled specialists. Straw thatch for houses has many advantages: it is easily renewed, it lasts a long time, and is warm in winter and cool in summer but it is liable to be disarranged and damaged by wind and is easily ignited. Thatch also encourages undesirable insects, and the thatched houses and outbuildings once common in the Eastern Counties were always infested with birds and rats who lived and bred in the

¹ Read at the International Folklore Congress, Edinburgh 1937.

² See Plates III and V.

roofs. In ordinary agricultural work the unit is 100 square feet, and a skilled man can complete five or six "squares" in a day. About 2 cwt. of straw is needed for each square.

The flail, another tool which has come down to us almost unaltered, is still used for threshing out the special crops grown in small quantities for seed. Flails vary in size, but the swingel or striking piece—the part which beats out the seed—is usually about 2 feet long, and the staff $3\frac{1}{2}$ –4 feet. These are



joined together by an ingenious fitting, cut out of two pieces of wood and forming a universal joint. In mediaeval manuscripts the flail is often shown as being used like a whip, but this is impossible in practice; the striking piece would constitute a serious danger to the workman and the staff is given a rotary movement, so that it swings in a small circle, and the striking piece never comes near the head of the user. It takes a great deal of practice to acquire the necessary quick regular action with the flail, and to make it fall flat on the ears of corn without injuring the user.

Up to the end of the last century gleaning in the harvest fields was universal. The custom lingered on in some districts, but ceased after the Great War. Women and children went into the fields after the crops had been gathered and picked up the ears of corn which had dropped off during the harvesting process and were left on the ground by the rakers. If a farmer did not wish the gleaners to enter his field he left one sheaf standing in the middle of it; this was an indication that the field was not "free". A woman with two or three children gleaning steadily during harvest would collect two

or three sacks of grain, which, when ground in the local mill, provided flour for part at least of the year. When gleaning was practised most labourers owned a flail, and the farmers allowed them to use one of the barns as a threshing floor.

Before mechanical threshing came into use barley was usually stored in the barn, because of the special necessity of keeping it dry. The crop is cut when quite ripe, and must not be allowed to "heat" in the mow, or the germinating power will be reduced. The preparation of malt begins immediately after harvest and the grain is required as soon as possible. The thresher first cut a hole in the barley mow large enough for him to work in, and then began on the stored crop. He beat out the grain with the flail and separated it from the rachis and awns. As soon as the thresher had accumulated a waggon load, which is 30 sacks (a sack in East Anglia is known as a coomb), the farmer would send it in to the corn merchant or direct to the maltster, and so leave more working space on the barn floor. The barn man was paid on "piece work", that is, a fixed sum for each sack of grain threshed, and the chaff man followed on to cut up the straw. The latter was usually an independent journeyman who carried a primitive chaff cutter on his back from farm to farm. He cut the straw into chaff, which was measured with a special "skep" or basket, and stored in the chaff bin. By ancient custom the farmer was allowed to press the chaff down three times with his hand while the basket was being filled.

The old complex system of farm measures has been dealt with very fully by Dr G. G. Coulton and others, but it must be remembered that mediaeval units of mass and volume were governed by custom rather than by mathematical standards. At one period the standard mead cask was to be of such a size that the king and one of his counsellors could bathe in it at the same time. One of the ancient fines for killing the king's cat was measured by hanging it up by its tail with its nose just touching the ground, and pouring wheat over it until the animal was hidden. The wheat constituted the fine.¹ Dr Coulton records a manorial custom at Long-

¹ M. C. Seebohm, *Evolution of the English Farm*. (The original reference is not given.)

bridge near Glastonbury, where each serf was allowed one sheaf from every load he had reaped and carried to the abbot's yard. If the serf complained that the sheaf was too small, the hayward had to stand it in a muddy place, hold his own hair with his hand and the sheaf was pulled between arm and body; if it could pass without soiling the clothing it was too small, but if any mud was left the sheaf was of standard size.¹ Until recently a fathom of reed used for thatching consisted of bundles, each as large as could be spanned with the two hands and the writer has often seen a reed cutter's work measured by this customary standard. The period when reed could be cut varied in different districts. Michaelmas to Candlemas, or Martinmas to Lady Day were usual seasons. Only recently has butter ceased to be sold in Cambridge by the yard (it was so made at least as late as 1926), and many of the older members of the University will remember the three-inch daily commons' allowance.

Although the Government insists that official returns of crops shall be given in hundredweights, the old standards of weights and measures are still in common use. The Cheshire hundredweight of cheese is 120 lb. Grain is still sold by the statutory unit of volume—an eight-bushel quarter—and the "Mark Lane quarter", so called, is arbitrarily fixed at 504 lb. for wheat and 448 lb. for barley. It is based on the average weight of two four-bushel sacks or coombs. McConnell² has several pages of local and customary weights and measures, many of which still survive in agricultural districts.

A number of writers have given lists of the names and uses of obsolete farm tools, and for the Eastern Counties there is John Ray's³ list of *Words used in the South and East Counties*. It contains many agricultural terms. An interesting tool was the frower, a short iron bar sharpened on the lower side and mounted at right angles on a wooden staff. It may appear to be an oddly shaped implement, but it was well adapted for

¹ *The Medieval Village* (ed. 1925), p. 47.

² *The Agricultural Notebook*.

³ "A collection of English words not generally used", etc. Reprinted by the English Dialect Society with other valuable lists of rural, agricultural, and provincial words.

splitting small tree trunks and branches into pegs or hurdle bars. The workman held the timber between his knees, placed the frower on it and hit the back of the iron blade with a wooden bar rather like a policeman's truncheon. It was, in effect, a portable form of the mallet and wedges which are still used to split timber for firewood, and it had the additional advantage that it could be made on the farm from any waste piece of iron.

The manufacture of wooden hand rakes was one of the farm labourer's winter duties. The pegs forming the teeth of the rake were shaped with a clasp knife, the holes into which they were hammered were bored by an auger or by the more primitive method of a red-hot iron bar, and the handle was made by splitting one end of an ash-wood pole for about 2 feet. The split portions were pulled apart, and the ends driven into holes bored in the tooth bar of the rake. Labourers can be seen to-day in the hayfield replacing broken pegs with the aid of a clasp knife and a stone. If suitably shaped the latter makes a most efficient hammer, and is used much in the same way as when Paleolithic man formed his various tools and weapons with a flint. The Breton fishermen use a very primitive home-made rake for collecting seaweed.¹

The shepherd's crook is made from a length of iron bar heated in the fire and hammered to shape. The double curve of the hook is beautifully adapted for holding a sheep just above the hock, and the bend of the crook secures the animal with a minimum of discomfort. Anyone who has seen a shepherd pull a struggling sheep out of a flock will appreciate the nicety with which the various curves are adjusted for the purpose.

Agriculture more than any trade or profession is dependent upon weather and light. Very few field operations can be carried out by artificial light, and in the days of tallow dips the farm labourer had a considerable amount of leisure in the winter evenings. Nowadays he mounts his bicycle and rides into town for a visit to the cinema, but in the past he was content to sit in front of his own or the farm kitchen fire.

¹ See photograph in Seton Gordon's *Afoot in Wild Places*.

These leisure periods were devoted to the manufacture of the smaller tools and to rural fine arts. A farm worker with artistic tastes and with a clasp knife as his only tool would produce really good work, and walking sticks as well as wooden shafts for implements were often elaborately carved. The preparation of the universal joints for flails, hay twisters or other tools was carried out with a knife, and the wood bent to the required shape after immersion in hot water. Not only were wooden tools made and decorated, but small articles were carved from the long bones of animals. An implement required in the kitchen was a bone "scraper" used for peeling potatoes or for removing the cores of apples. It served other needs; when the countryman's teeth failed, he could only eat hard fruits by scraping them to a pulp with his bone tool.

Square panes for the old horn lanterns were prepared with the knife, while drinking cups and portable salt cellars were shaped from the horns of sheep or oxen. Some of the salt cellars made from a sheep's horn and closed with a wooden plug possessed a high artistic merit. They were carried in the dinner baskets made of plaited rushes. A common decoration in country cottages was a long chain made by cutting the links from a wooden pole and finished off at each end with a carved head or other object. They often formed a betrothal gift, and were known as "spoon chains".¹

The modern seed drill, which distributes the seed grain in evenly spaced rows and so allows the hoe to be used for weeding, only came into general use in recent years. Two generations ago nearly all corn was either sown broadcast, that is, scattered evenly by hand, or "dibbled" in. The dibbler carried two wooden or iron rods pointed at the ends, one in each hand, and made a series of shallow holes into which the grain was dropped by children. An early form of seed drill was in use by the beginning of the eighteenth century.² It was first described by Worlidge³ long before that period, but its use did not become general until the

¹ Miss L. Rider Haggard, in *E.D.P.* Sept. 1938.

² *Tull Horsehoeing Husbandry* (1733).

³ *Systema Agriculturae* (1669).

middle of the Victorian period. Large seeds such as beans were distributed by an ingenious machine which was fixed to the plough. It consisted of a conical wooden box with a solid and deeply notched wheel at the bottom. This acted as an axle and was turned by the larger "land wheel" outside. As wheel and axle rotated, a single seed was picked up in each notch, carried round and dropped into the ground. These drills were often made on the farm; a labourer, using only a knife, would shape the solid notched wooden wheel and fit it into the bottom of the conical box. Very small seeds, such as those of the clovers, were (and still are) sown by a somewhat similar instrument carried in the hand, and from which the seeds were distributed by a very ingenious mechanism. This was put into action by the application of a fiddle bow used in much the same way as that by which fire is obtained by primitive people. The string of the short bow was twisted round the spindle of the rotating block and when the bow was drawn backwards and forwards the seeds dropped on to a plate attached to the spindle, and were evenly distributed. It is known as a "fiddle drill".

The cost of sporting guns placed them beyond the reach of the smallholder or farmer, and the cross-bow was in general use by countrymen and boys down to the middle of the nineteenth century. There are men still living who began their sporting careers with a home-made cross-bow. A stock with a short barrel piece was cut by hand from a block of hard wood; it was similar in shape to the stock and fore-end of a modern shotgun, and a short heavy bow was fixed, transversely, at the end of the barrel piece. A groove for the bolt was made along the barrel, and the firing mechanism was a small circular wheel with two notches and a wooden spring. The cord was caught in one notch, and the cross-bow discharged by a simple trigger which engaged the other. Years ago it was usual to see cross-bows hanging in farmhouses, but few have survived and they are difficult to obtain. As the cross-bow was comparatively noiseless, it was popular with poachers, who walked the woods on clear nights and shot roosting pheasants outlined against the sky, but the very efficient catapult has now taken the place of the cross-bow as

a silent night weapon. The purse net, fixed so that rabbits, bolted by a ferret, would dash into it, is still an ordinary method of rabbit capture, and most gamekeepers and farm labourers are skilled in preparing these purse nets. They are netted with home-made wooden shuttles known as "tats". Keepers are also adept at making wicker-work cages or traps to catch hen pheasants in the breeding season so that the eggs can be obtained and the chicks secured in breeding pens.

A variety of simple sporting weapons such as the eel spear (now illegal), the wickerwork eel trap (still used, and manufactured in Cambridgeshire), and the sneckle or wire snare for rabbits or hares, are examples of what can be done with simple materials and a little manual skill. They are probably identical with, and made in much the same way as, the sporting equipment in use before the Roman invasion of Britain.

Some mention must be made of the most important implement of all time, the plough, the very type and symbol of agriculture. From the primitive forms held in the ground by main force, through the cumbrous and heavy mediaeval implement of the manor which required several men and a team of oxen to draw it, we may follow the development of the plough to the light and elegant forms in use to-day. There are many varieties of ploughs, some of them restricted to particular areas in the country, or used only on special types of soil.¹

Cumbersome wooden ploughs with a separate "steerage", that is, a wooden framework with two wheels and to which the plough proper was attached by chains, were used universally in Norfolk and in Kent. The "wooden swing plough" which rests on the "slade", "ground" or "foot" without any wheels to balance it, is still common in Cambridgeshire, Essex, Hertfordshire, Huntingdonshire and Bedfordshire, as it is well adapted to stand the strain of being pulled through the heavy soils in these counties. On very tenacious clays the wooden-breasted swing plough was evolved, partly because all the parts could be made by the local woodworker and partly to allow the furrow slice to fall away from the plough-share. The wooden breast was shaped by the village crafts-

¹ See Plates IV and V.



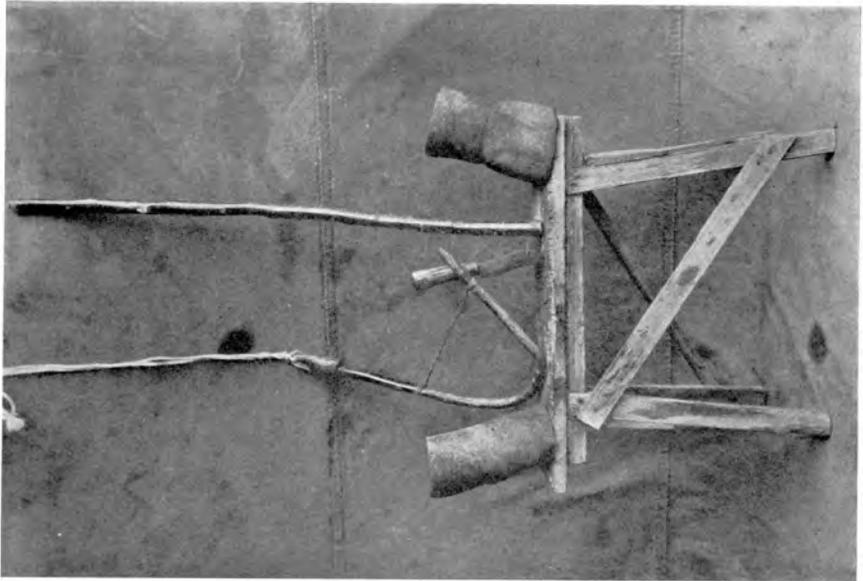
Norfolk plough.



Essex swing plough.

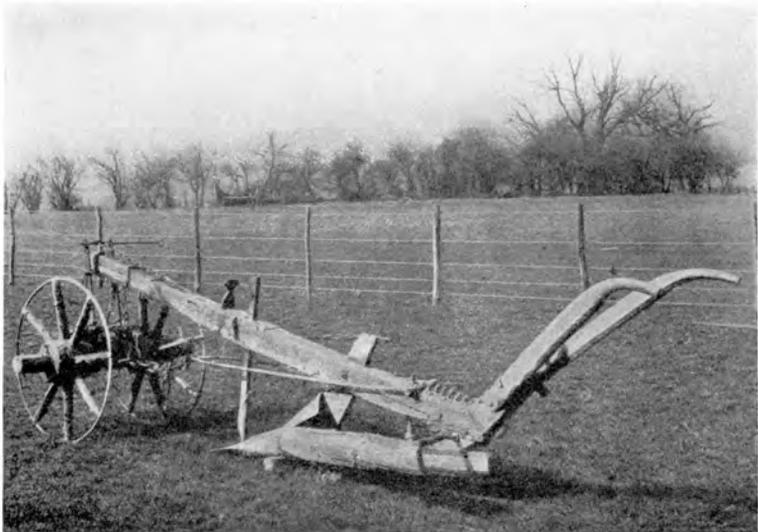
There are no wheels to control the depth of the furrow slice and considerable skill and strength are required to maintain even ploughing.

PLATE V



Thatchers' tools.

Straw twister, billhook, comb and leather knee guards. The bill shown was made from an old rasp. The thatcher also requires a pair of shears to trim the stack.



Kent plough.

By courtesy of the Ministry of Agriculture and Fisheries.

man using that archaic tool, the adze. This has a heavy flat blade with the cutting edge set like a hoe on the handle, and not in the same plane as is the case with the axe or bill. It looks, and actually is, an extremely dangerous implement in the hands of an unskilled man. But a country carpenter, walking backwards along a tree trunk and trimming it into a plank, or shaping the curved surface of a wooden plough-breast, affords an excellent demonstration of the coordination between hand and eye which can be attained by use. The adze was used by shipwrights in the days of wooden ships, and it was almost universally employed in mediaeval times for squaring timber, or shaping posts, beams and planks. In spite of the innovation of newer and improved implements, it is still the best hand tool for many purposes, although the supply of machine-cut planks and posts has diminished its sphere of usefulness.

On sandy soils the old wooden ploughs have been superseded by the light iron types fitted with two wheels to control the depth of the furrow, and which make little demand on the skill or management of the ploughman. The ox has disappeared as a plough animal in Britain except on one or two farms where the ox team has been retained as a conscious and interesting survival. The ox plough was cumbersome, and the team could only be attached by the neck yoke. The ox required no care or attention; he could subsist on rough grazing land, and so cost little to maintain. After he was past work he could be fattened and eaten, and he did not require shoeing, although light shoe plates were occasionally used for hard ground. The ox teams required a wide headland to turn on, and their pace was very slow.¹ The horse is expensive to feed, is delicate, and needs constant attention, but his working life is long, he is adapted for many purposes, and his speed and general convenience as a draught animal is so superior to that of the ox that there could be no question of the survival of the latter when the horse became cheap enough for the farmer to buy and feed.

The Kent plough, which is also used in Sussex, is large and

¹ See Johnson. *Byways in British Archaeology* (Cambridge Univ. Press), chap. xi.

heavy and needs three or four horses. It is well adapted for the special types of heavy soils in the district, and Marshall¹ has described it very accurately: "Its component parts and the names assigned to them are nearly equal in number to those of a ship. . . . It has a pair of wheels fully as large as the fore wheels of a moorland waggon, and behind them is dragged a long thick log of wood which slides upon the ground as the hob or shoe of a sledge with a beam rising high above it which a small farmer of the north [of England] would be glad of as a gatepost comprising in its various parts as much timber and other materials as would build a Highland cart. This magnificent implement is called the Kentish Turn-wrest plough." The Norfolk plough is still in everyday use but the Kentish is rapidly becoming obsolete. Its use is limited to a few clay districts.

From the earliest times the agricultural labourer has learnt to carry out the manifold duties of the farm with the fewest and simplest tools. He has to be master of several different (and difficult) crafts, and like most craftsmen depends on manual skill rather than on an elaborate outfit of specialised tools.

The writer would like to express his thanks to Mr J. Saltmarsh, M.A., of King's College, Cambridge, to Mr R. W. Newman of Thorley, Herts, and to Mr H. V. Sheringham of Ingworth, Norfolk, for much kind assistance and helpful criticism. Also to Mrs Chadwick for kindly supplying reference 2 page 16. He is also indebted to many farming friends, both masters and men, who, by precept and by example, taught him the elements of rural craftsmanship.

¹ *Rural Economy of the Southern Counties* (1798).

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