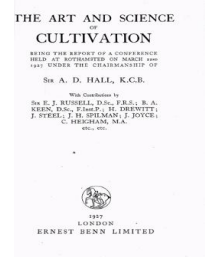




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and thoroughly move the top 3 in. of soil directly after harvest to start all the weed seeds growing. I want also a combined machine of light draft which will cultivate, roll and harrow in one operation; it would be a miniature edition of the combined implement moved by cable engines as used in Lincolnshire and Sussex. Finally, I want a tractor which will not take half the power it develops to move itself along and which will not consolidate the land—something like the dragons which move and have their being at Aldershot, I mean.

## ON THE LAND IN SOUTH-EAST ESSEX

By J. STEEL

*Burnawne, Rochford*

BEFORE going into the cultivations for the various crops I should like to draw your attention to the climate and the class of land I had to work. The south-east of Essex is without doubt the driest district in England, the rainfall hardly ever reaching 20 in. The district was subject to long periods of drought in the spring and summer, so spring cultivations had to be hurriedly carried out if successful crops were to be produced. With the dry east winds moisture evaporated quickly, making a good tilth difficult to get unless you had a good command of power just when wanted.

The farms were situated on the north bank of the Roach, a tidal river, with a gentle rise and facing south; land adjoining the river was light, lying on sand and gravel, always dry, and could be worked at any time of the year and producing early crops. The fields on the rise were a better class, lying on various subsoils, and on top of the rise it was gravelly and much given to burning in parts. A narrow band of clay ran across the farm, and to get early cultivation I had to do considerable draining, which was very successful, and let me get on with work that without the drains would have delayed getting in crops quite a fortnight owing to wet spots on every field. Had I known, I might have used the mole-plough, which I ultimately did in some fields with great success and at much less cost.

As a guide to system of working. The farms extended to 700 acres, about 400 arable, carrying a stock of 50 milk cows with followers, 150 breeding ewes, and latterly 50 sows. All the land before my tenure was farmed on the stitch; fields that were heavy I laid down to grass and kept arable only what could be worked on the flat. Cultivations were carried out with horses and tractors, and steam tackle was always available on hire when wanted. Having been an

engineer I was favourably placed for keeping down expense in tractor repairs, this work all being done on the farm by myself and the drivers. I found the men took a more intelligent interest when once they learned to do the overhaul, and some of them turned out good mechanics.

I will deal first with potatoes, as being the principal crop on the farms. The stubbles got 15 loads of dung skimmed in with a two- or three-furrow tractor plough, and in October or November steam-ploughed and subsoiled, ploughing 10 in. and subsoiling 8 in. deep. Some of this work had to be done in the spring, at the earliest possible date in March as the weather suited: the autumn ploughing and subsoiling I always preferred, as it made the spring cultivations easy. When steamed in the spring the land ploughed whole and was difficult to break down, unless the weather was very favourable, and very often took the double of the work and never made such a fine seed-bed for the potato crop. I used the subsoil only once in six years; when not subsoiling a balance-plough was used with three horses or the tractor. The spring cultivations, before planting under ordinary circumstances, were set folding harrows, or disc, then cultivated both ways, set of harrows, open the land with double furrow combined manure-drill, sowing 8 cwt. artificial manure, planting—with eight women—out of chitting boxes, or bags if late variety, then covering with single baulker and doing 4 acres per day. I had a special two-wheel trolley for carrying the potato boxes in front of planters, the wheel shod divided to straddle the drills or baulks so that the land was not kneaded down where the potatoes were planted. Before the potatoes came up the drills were harrowed down, then a cultivator run along the rows, doing three rows at a time, hand-hoed, cultivated again, sometimes twice, according to the state of the land, then half moulded by cultivator with breasts, three rows at a time, and the final moulding by single baulker before the tops were met in the rows. My opinion is, in growing potatoes you must do your deep cultivations before planting; once planted you have done the deed, and no cultivations will ever get your land in condition for a successful crop. I have tried deep broadsharing, skimming after planting, but to me, on the land I had to deal with, it did more harm than good.

Wheat followed potato crops and clover leys, ploughed 5 or 6 in. deep. I always insisted on the ploughmen setting up the furrows when ploughing; it was an eyesore to me to see furrows flopped on their back; it makes the land easier to harrow and is drier right through the winter. The depth of the furrow is the guide to the width. Land ploughed well does not cap in the spring. If you have something on top you want buried then use a skim. Clover ley I balance-plough 6 in. deep. A set of harrows in front, a light set

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behind, should be ample to prepare and cover the wheat when drilled. In the spring a ring roll, with a heavy set of harrows fixed behind, pulled by a light tractor both ways, should be all that is required. If you are pushed for time, from daylight to dark you should cover 30 acres; it would take many horses to do that in one day. When clover is drilled I horse-hoe the rows. Barley I mostly put in after wheat or oats, using a broadshear or cultivator to clean the stubble and spear the fallen grain, then plough as for wheat, drilling in October or November with a dressing of 5 cwt. Liebig's manure; this produced 6 to 8 qrs. of good malting barley. Spring sowing never produced the quarters nor the sample on my land. I used Plumage Archers. The barley was generally my best paying crop. It was many years before I learned the value of autumn-sown barley.

Oats I put in, about half Grey Winter, drilled in September, and Abundance in the spring, drilling end of January or beginning of February; if later than the middle of March they were generally a failure—the weather got too dry and they bottled. After early potatoes I drilled rye in first week of August for feeding my ewes and lambs in February, when it was generally a foot high and had to be finished by the 1st of April or it ran to seed; this land was balance-ploughed, and put in with kohlrabi and mangel in April without manure, as the sheep were heavily fed for fat lambs to go to market at Easter. My light land near the river mostly produced three crops in two years. Mangel I gave up growing three years ago, unless a few for the sheep when feeding the rye. They became too expensive to grow to feed the dairy cows. I put the water before the cows; that cost me nothing, and the average yield of milk went up from 700 to 1000 gallons. Still I have no doubt they had a little extra meal.

If I had a field that wanted cleaning I put in tares and oats in the early autumn and either fed off with sheep or made it into hay, steamed it up with the cultivator, and followed with kohlrabi seed or turnips and fed off with sheep. I found this just as good as a fallow, and the crops paid for the work.

When I first started farming in Essex my expenses for plough-shares was a serious item to one who had not a penny to spare. I consulted an expert plough agent from the North, stating the stony nature of my land and the cost of shares—from 2s. to 5s. per acre for ploughing. He sent me on trial a chill digging plough with reversible points and shares, that reduced my costs of ploughing irons from shillings down to one or twopence per acre. The plough did better work, was easier to draw, and I never used any other ploughs till the tractor-plough came on the market.

In the last few years the tractors did practically all the ploughing,

cultivating, rolling, harrowing, and cut most of the harvest. They pulled all the potatoes from the fields to the road for loading on the motor-lorry. I had a contract for delivery by motor-lorry to market or station at a price no horse-labour could touch. My horse-power was reduced by half and I always had the work well in hand. If you have heavy and deep cultivations to do, always get the steam tackle; you will only strain your tractors and make half a job. Never ask a tractor to take more than a comfortable load, and then you will find its capacity for work will more than satisfy any farmer. I have seen land in Lincolnshire, and even in south-east Essex, where you could put in a crop with little effort, shut the gate, and return in the autumn and get a rich reward. Lucky farmers who have it. But the great bulk of the land will not produce of its best without somebody sweating. I have tried to cheat the land of its cultivations when I was pressed for time, with the result I was poorer and sadder, but I hope a little wiser.

It takes a lifetime to learn the little one knows.

I have given you a rough outline of the cultivations in the district. No farmer can tell his neighbour exactly what cultivations will be needed to put a field in condition for a crop. The land varies from field to field, from farm to farm, and year to year. No book can give the information, yet something tells you after long experience and close attention to the weather conditions what implements to use, and when and how, to get the desired result.

Now I will tell you a story that has nothing to do with cultivations. In the dry summer of 1921 I had a 15-acre field named Stoneylayes, with white clover for sheep-feed. As the name suggests, it was the worst arable field I had on the farm and the crops that came off it were often in debt. The shepherd had the folds set, and the day before they were to be put on I chanced to go into the field, and finding it very forward and coming into flower it struck me it would be of little use for the flock as feed and might be of more value for seed. When I told the shepherd (feed was scarce) my intentions, I have seldom seen a more angry man. I cut the seed, but it was so short it had to be thrashed in the field. I had even to hand-rake it to gather the heads. I showed a sample to a merchant, who asked me to send it on at once to fill an order for New Zealand. When dressed by his machine the sample was very fine, and yielded over 9 bushels per acre. The sheep-feed value could not have improved my flock £50. When the cheque came from the merchant, that wretched poor field gave me a profit within a few pounds of £500! A bee-keeper, just before the clover came into flower, put a strong hive of bees in the corner of the field, and in the short time it was in bloom gathered 1 cwt. of honey. I wonder if the scientific staff of

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Rothamsted could tell me how much I was indebted to these busy little creatures for such a bumper crop of seed.

Never despair. You never know where golden treasure may be hiding, but keep your eyes open lest you miss it.

## CULTIVATION OPERATIONS ON THE YORKSHIRE WOLDS

By J. H. SPILMAN

*Gardham Farm, Beverley*

It is only with the very greatest of misgivings that I venture to address you this afternoon. I am very far from considering myself either an authority on cultivation or yet a public speaker, and I must ask you to deal leniently with me as "a first offender."

It has been said that the best speakers are always the worst farmers, so I shall not trouble you with any further apologies, except to say that my only excuse for addressing you at all is a sense of gratitude for the help and assistance I have for many years received from Sir John Russell. Much as I appreciate the honour of addressing you, I should have hesitated to take advantage of the opportunity so kindly extended to me had it not been for a feeling of indebtedness and a desire to try to show my appreciation, if only in a very small and inadequate way.

I need perhaps only add, in justification of my presence here, that any information I may be able to give you is the outcome of a lifelong experience in the district of which I speak, farming on both light wold land and on heavy warp alongside the Humber Estuary.

The remarks which I am about to make apply to the East Yorkshire Wolds, which, for the most part, consist of only some 4 in. of soil overlying the chalk. There is considerable variation in the texture of this soil and there are at least three different types. The first contains a large proportion of small loose flints, and whilst spoken of as light land is nevertheless very heavy on implements in wear and tear. The best types of barley land are, however, those on which what we call chalk grits are freely mingled with the soil; while the third type, free of both flint and grits, is, contrary to what might be expected, generally the poorest of the three—so much so in fact that it is often referred to as "deaf" land. Such land as I am speaking of is generally farmed on the four-course system, the most favoured rotation being Roots, Barley, Seeds, Wheat or Oats. On some of the heavier lands at the foot of the Wolds a five-course system is often adopted, a second white crop