During Work

Safety Hitches: Whenever a safety device is provided in a plough hitch it should always be used. If there is a hole for a shear-peg in the drawbar, use in it a sound hardwood peg **and not a bolt.** When spring safety hitches are fitted they should not be adjusted so tightly that they cannot release when an obstruction is met. This is especially important on land containing roots, or in rocky land when it may be necessary to fit steel shares to avoid breakages.

Share Pegs: It is a common mistake to cut share pegs from green wood growing in a hedge. They should be made from seasoned, straight-grained wood. (Hay sweep tines are very suitable.) Cut blocks about 3in. long **across the end of the grain** and split out the pegs as they are needed. If a peg is not strong enough when made in this way, a 2in. wire nail can be driven down the centre to reinforce it, and the peg will still be easy to drive out.

Crawler Tractors: When ploughing with a crawler tractor the swinging drawbar **must not be fixed.** The range of swing may be limited by two stops to help in turning on the headland; but the drawbar must be free to swing clear between the stops when the plough is in work.

Speed: The best ploughing, particularly on grass land, is done at less than three miles an hour. It is always better to use one furrow more and one gear lower on the tractor than one furrow less and one gear higher. On light stubble or fallow land, where a quick seed-bed is needed, higher speeds may occasionally be more suitable.

Turns: Great care should be exercised in turning ploughs, and particularly the large ones, on headlands. Start with a wide enough headland so that an easy turn can be made, and so avoid the bending of axles and hitches that takes place when a plough is turned too short. The same care should be used when turning ploughs in the ground during the ploughing of the headland. All corners should be tackled slowly and acute turns rounded off.

Shares: Avoid backing a plough unless it is absolutely necessary, and before restarting make sure that all the shares are still on. Share bolts should be checked over during the day to see that they are not working loose. If they do, the plough body may become bent, and the pitch measurement on that body will have been altered.

Finally, the plough should be greased round every day and the disc coulters twice a day. At the same time a watch should be kept for loose

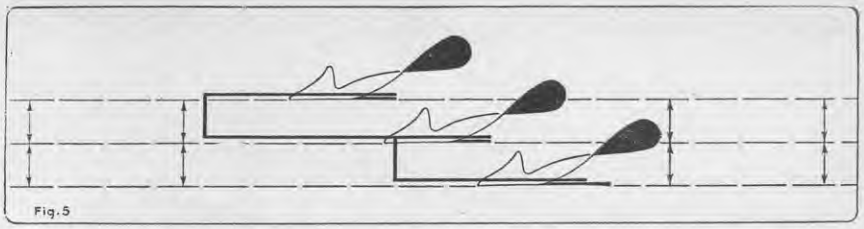
Fig.5

nuts so that they can be tightened at once.

After Work

Whenever a plough is left for a period of time, even overnight, all bright parts should be protected by a coating of used sump or transmission oil. If a plough is allowed to become rusty, the draught in heavy, wet going may be doubled until the mouldboards begin to shine and scour. It is no protection against rusting to leave a plough in the ground.

Transport

Whenever possible ploughs should be moved over long distance on a trailer. On no account should they be towed on the roads at high speeds behind a lorry or rubber-tyred tractor. Before a journey the wheel bearings should be greased thoroughly, and the plough then towed at a speed not greater than three or four miles an hour.

Before a plough is taken on the road any spuds should be removed from the land wheel, and the shares of the peg-on type should also be removed if the pegs are not absolutely safe.

Storage

If a plough is to stand idle for any length of time, used sump oil or transmission oil is not persistent enough to protect the bright parts from rust. They should be greased thoroughly all over with a stiff grease. For a longer period still grease may not be good enough, and there are a number of anti-rust preparations supplied by lubricating oil manufacturers which give more lasting protection.

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Measurement of Timber

Timber is usually sold on a superficial feet basis. The number of super. feet is determined as follows:—

$$\frac{\text{Width of board in inches} \times \text{thickness in inches}}{12} \times \text{length in feet.}$$

$$\text{For example a board } \frac{12\text{in.} \times 1\text{in.}}{12} \times 100\text{ft.}$$

= 100 super. feet.

It may also be sold per running foot, or per cubic foot. The cubic footage is obtained by multiplying together width, thickness, and length.

For example a board 12in. x 1in. x 100ft. $= \frac{12}{12} \times \frac{1}{12} \times \frac{100}{1} = 8\frac{1}{3}$ cubic feet.

In the case of logs of approximate circular form the cubic content may be measured as follows:—

$$\frac{\text{Diameter of butt in ft. plus Diameter of small end in ft.}}{2} = \text{mean diameter.}$$

Cubic contents = mean diameter squared x .7854 x length in ft.

Example: A log 3½ft. diameter at butt, 2½ft. at small end, and 20ft. long will contain the following cubic footage:

$$\frac{\text{Diameter butt end } 3\frac{1}{2}\text{ft. plus Diameter small end } 2\frac{1}{2}\text{ft.}}{2} = \frac{6}{2} \text{ or 3ft. mean diameter.}$$

$$\text{Cubic contents} = \frac{3}{1} \times \frac{3}{1} \times \frac{.7854}{1} \times \frac{20}{1}$$

= 141.4 cubic ft.

Firewood, 1 cord = 8ft. x 4ft. x 4ft. or 128 cubic feet.

Because of the interspace between logs 80 cubic feet of actual wood and bark is a fair average per cord of wood.