

land by the farmer, will be equivalent to a fair rent. In order, therefore, that the farmer shall receive fair remuneration, the price of each particular produce which he raises must be sufficient, first, to pay this interest of capital sunk in the land, which may be considered as a rent, and, secondly, to pay the labour and expense of the farmer—or rather replace, with the ordinary profits, the stock which he employs about it. The words of Adam Smith on this subject, are so much to the purpose, that we must give them place, even though in an Agricultural Report:—

This rise in the price of each particular produce must evidently be *previous to the improvement and cultivation* of the land which is destined for raising it. Gain is the end of all improvement, and nothing could deserve that name of which loss was to be the necessary consequence. But *loss must be the necessary consequence of improving land for the sake of a produce of which the price could never bring back the expense.* If the complete improvement and cultivation of the country be, as it most certainly is, the greatest of all public advantages, this rise in the price of all those different sorts of rude produce, instead of being considered as a public calamity, ought to be regarded as the necessary forerunner and attendant of the greatest of all public advantages.

This selection from a high authority cannot be disputed, and we trust that the present prospect of the farmer will be a great encouragement to agricultural improvement in Canada.

The demand for labour seems fully equal to the supply, and in consequence of the public works in progress, we believe labourers will find constant employment during the winter. This is fortunate, as subsistence is likely to be high. When our public works are in a greater state of forwardness to completion, it will become more a public duty that measures should be adopted to promote the improvement of the country, and augment the quantity and value of her productions, so that they shall give full employment to our canals, railroads, &c., or it would be better they had never been constructed. It would be a waste of money indeed, to construct, at great expense, canals and railroads into a waste wilderness, or poor country that produced scarcely sufficient to support her inhabitants.

REMARKS ON PLOUGHING.

BY T. SULLIVAN, ESQ.

The manner of attaching the working cattle to the plough may seem to require no illustration, but it is certainly a point of no trivial importance to know when an animal is yoked either to the plough or cart in such a manner as to exert his power to the best advantage. One of the most essential properties of a well-made plough,—indeed, one of the

chief difficulties attending its construction—is to have its principal parts so formed and combined that the implement may be enabled to preserve a steady onward motion in the ground during the operation of ploughing. But the motion of the plough is known to be affected not only by the *form and connection* of its parts, but also by the manner in which the animals of draught are attached to it. We have, therefore, a double inducement to pay the utmost attention to the proper mode of yoking the working animals to the plough. This will of course depend, in some measure, upon the number of horses employed in the team. In Scotland, where the swing plough is almost invariably drawn by two horses yoked abreast, the following is the simple and efficient method of yoking generally adopted:—A set of *swing-trees, or swingle-trees*, is attached to the bridle of the plough by means of a draught-swivel hooked to the centre of the main or middle-tree; and the horses are yoked to their respective trees by draught chains or traces, which are linked on one end to the hooks of the hames, and hooked at the other into the eyes of the swing-trees. The traces are upheld by a broad belt of leather, called a *backband*, passing over the back of each horse, on which are hooks fastened to the traces on each side. The horses are kept together by a small rope attached to the inner ring of each bridle, and to the trace of the opposite horse, near where the backband joins it, which prevents either horse pulling his end of the double tree before the other. In many places the heads of the animals are connected together by a leather strap, buckled at each end to the bridle-ring, which prevents the horses separating beyond its length, but allows their heads to move about loosely. By these means the horses are kept together, made to pull equally, and can be turned quickly and simultaneously at the head-lands. The ploughman directs the horses, and, when necessary, urges them forward with the reins, which extend from each plough-handle, through rings in the back-bands, to the outer ring of each bridle.

The horses should be yoked as near to the plough as possible, without too much confining or preventing them stepping out freely; and the draught-chains should extend from the swing-trees to the hames, so as to form a right angle with the plane of the collar-bone. It is likewise evident that the traces should proceed in a direct line from the point of attachment on the collar to the swing-trees; for if the line be in any way bent, a portion of the power will be necessarily lost. Hence the importance of allowing the traces to hang freely, the back-bands merely keeping them in a proper position, and close to the horse's sides. But it is argued by some writers on this subject, that the back-band, besides supporting the traces, has also the effect of dividing the draught between the shoulders and back of the animal. When the back-band is short on each side, and the traces thereby bent out of the direct line, the muscles of the back, it is said, are brought into action, and the capability of the animal increased. The strain upon the shoulder is not so great, it is alleged, when the back-band is thus at work, as if the draught-chains were perfectly straight.

Much diversity of opinion and practice exists among English agriculturists in reference to the number of horses required to plough particular kinds of lands, as well as the manner of yoking them, whether abreast or in single file, so as to exert their power to the best advantage. A good deal