

board, naturally assumes a variety of positions before it is finally placed. What was the upper side, with its covering of grass in the case of lea or of stubble, weeds, &c., in the case of corn crop land, is finally the lowest side, so that all the weeds &c., and grass are buried completely; while what was the under side, is finally the upper side, or that exposed—or partly exposed to the atmosphere. The form which the upper surface of the soil assumes when a number of such furrow slices are thus inverted is familiar to every one.

The angle at which the furrow slice is turned over, or rather at which it lies when finally deposited, is 45 degs., this angle bringing about a very beautiful result—namely, that the angular shoulders contain the greatest possible solid contents of earth, and expose the greatest possible extent of surface to the action of the atmosphere and its ameliorating effects in pulverising it and bringing it to what is called a fine state of "tilth."

From what we have thus given, we arrive at the definition of the operation of ploughing, which may be thus stated:—Ploughing is the cutting off a succession of slices from the soil, and laying these over at a determinate angle, generally 45 degs., thereby exposing the greatest possible extent of its surface to the atmosphere; at the same time, covering up the old or original surface, and exposing as new surfaces what were originally covered.

Although the form and adjustment relative to one another of the various parts of the plough, as the beam, handles, or stils, the coulter, the sock, or share, &c., demand the greatest exercise of skill and care on the part of agricultural mechanics, it is to the mould-board that the largest amount of attention has been given, as through the medium of this feature the ultimate form and position of the furrow slice is mainly determined; although we shall see as we proceed that by the mode of adjustment or "tempering," as it is technically called, of the coulter and the share, these parts of a plough also exercise a decided and a determinate influence on the ultimate form of a furrow slice. Indeed, it is questionable whether the coulter and the share are not the means by which alone the determinate form is given to the furrow slice, the mould-board merely acting as a more or less influencing medium upon it. Probably the more correct way to put the matter is to say, that all three parts—the coulter, share and mould-board not merely in the easy going, or otherwise, qualities of the plough, but in the way in which it acts upon the soil, either tending to break it up as it lays it over, or to maintain its form, that the mould-board, as above said, is the feature to which

agricultural mechanics have paid the greatest amount of attention. This part of a plough may be defined as "a twisted wedge," or as a "body combining in its conformation the principles of the wedge and the screw." But although the surface is twisted, and apparently to the eye uneven, nevertheless, if a rule is laid across it, it will lie flat on the surface. The presence of any protuberance, or, on the contrary, of a hollow on the surface of a mould-board, will bring about a loss of power in the action of the plough; hence the surface of the mould-board, no matter of what contour, must be absolutely uniform. The great point is to secure a perfect uniformity of pressure upon the slice both transversely and longitudinally, and to lessen the friction of the slice as it passes over the surface of the mould-board, or more correctly, as the mould-board passes from beneath the slice, by making, as above stated, the mould-board's surface absolutely uniform. In the passage of a plough through the soil, we find that the resistance given to the mould-board arises from—first, the mere weight of the soil pressing upon it; second, the friction of the soil upon the surface of the mould-board; and, third, the resistance which the soil offers to being twisted or torn from the fixed earth, or, in other words, its powers to resist torsion. Each of these resistances act in its special way, and is very much modified by peculiarities of soil. The mere length of the mould-board, with a determinate twist in its surface, influences very much its action, or rather its powers of resistance to the soil as it passes from under it; the more coincident with the line of draught of the plough the lines of the mould-board which dictate its contour are, and, by consequence, the longer the mould-board, the easier going will be the plough, and the more perfect and unbroken will be the furrow slice which it ultimately leaves. On the other hand, the less co-incident the "lines" of the mould-board are with the line of draught of the plough the greater will be the resistance to the plough's action, and the less perfect will be the form of the furrow slice left by it. Thus a short mould-board will tend to break up the furrow slice, a long one, other things being equal, will lay it over smooth and unbroken. Again the form of the contour of the mould-board's surface exercises an influence upon the form of the furrow slice laid over. If the mould-board's surface is "concave," the furrow slice will be rectangular—if "convex," it will be rhomboidal, or what is called "high-crested." As will be seen hereafter, this high-crested form is also influenced, and indeed can be made almost solely by the action of the coulter and the share adjusted in a peculiar way.—*The Farmer.*

TEA CULTIVATION IN INDIA.

Calicut, December, 1868.

In submitting the following remarks on the Cultivation and Manufacture of Tea in British India, we have been actuated by a hope of supplying, in a practical form, some information on this subject which may not be altogether uninteresting to the general reader; while such as are stimulated by the gratification of a natural curiosity to acquire some knowledge of the modes of manipulating the fragrant leaf which "smokes as an infusion on our tables," may possibly find something which may edify as well as amuse.

The cultivation of the tea tree is carried on at the following different localities in India, namely: Assam, Cachar,* Chittagong, Kumaon and the upper provinces of Bengal, and Darjeeling.† In the Neilgherries or Blue Mountains, the China plant was, for a time, cultivated with some success in the Coonoor district, but the gardens have since been abandoned.

Travancore at the extreme south of the peninsula, also produces a fair quantity of tea, resembling some of the descriptions from Darjeeling.

Having now mentioned the principal localities where tea culture is pursued, we will next consider in what respect these places differ from each other as regards climate and soil; for on these two points, mainly depends the success of the tea planter.

It is generally allowed that Eastern Bengal alone possesses all the necessary conditions to the successful cultivation of tea, in a pecuniary point of view; both with respect to the price of labour and the cost of production.

The elevation of the Darjeeling station (7000 feet) seems to be too great for profitable planting. The frost kills the seedlings, and there is not a sufficiently rapid succession of leaf in the warm season to make the manufacture pay. That tea will grow and flourish, at almost the highest elevations, as far as size is concerned, is well known, for at Nainee Tal, 6000 feet above sea level, there are plants of an enormous size. They do not however flush often or abundantly.

The Parliamentary papers on tea cultivation for 1839, in reference to the condition in which the tea plant was first found, contain the following remarks:—"Thus the plant, "struggles for existence,"

*The tea plant was discovered growing wild in Cachar in the year 1835, when its cultivation was taken up by several enterprising persons, among whom were Mr. Williamson and Dr. Barry.

† In Darjeeling the first trial of the tea plant was made in 1841, with a few seeds grown in Kumaon from China stock. It was quite successful, as to its growth, and quality was approved by an Assam planter, who visited the place in 1846. The original plants have now assumed a gigantic size, one of them being fifty feet in circumference, and twenty feet high.