

Roads, and Road-making.

If it be a truism to say that in every country good roads are of the greatest advantage, it may appear, at first sight, an extraordinary thing that bad roads are so frequently met with. But, lamentable as this fact is, there are many reasons for it: ignorance of the best plans of making roads; want of unity of purpose among the inhabitants of the district; and the absence of proper implements.

Road-making, in Britain, one hundred years ago, was in its infancy. The great MacAdam had only just begun to teach the world, for the first time since the departure of the Romans from the island, how roads ought to be made. Before his reign, the pace of all carriages was tiresomely slow. Pack

each, $7\frac{1}{2}$ feet wide, with a gradual slope from the edge of the road bed to the outside of the ditch, and should be about one foot deep at the farther lip. The level of the ditch must be looked to, so as to deepen through the higher spots (fig. 1).

From the engravings of the different parts of the road, it will be seen that the expenditure in labour, where the soil is free from large roots, &c., cannot be very great. The only implements necessary are the plough and the scraper. A new and improved style of the latter implement is at present greatly in vogue in the Western states. From its simplicity and handiness, it is greatly superior to the one in common use. If the directions given below are strictly followed out, it will be found easy to manage, and much less severe on the muscles of the driver than might be expected. Acting as a preader, it obviates those unsightly lumps of earth so often met with by the side of ditches cut by hand and spade.

Two engravings are given, showing the form and mode of action of the scraper. The price is \$10—free on the cars at Chicago.

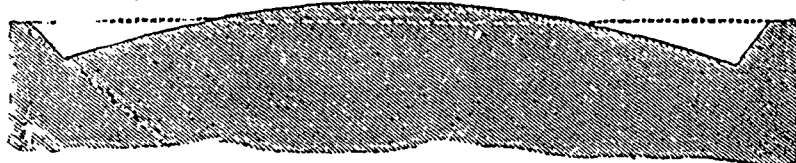


Fig. 1.

horses were still in use, as, even now, pack-mules are in the mining districts of Wales. Abraham Adams easily outran the stage-coach on Salisbury Plain; as well he might, for it only covered $4\frac{1}{2}$ miles an hour; and the journey from London to York took two days to accomplish. Heavy goods were conveyed by broad-wheeled waggons with 6 or 8 horses, the driver riding on a rough but hardy pony, at the rate of 3 miles an hour. Within 80 years of that time, that is, in 1830, the Devonport Mail was timed by contract at 11 miles and hour, including stoppages, and galloped the 4 miles from Ilminster to Ilchester in 16 minutes!



Fig. 2.

Railroads have of course altered all this, but they have by no means altered the fact that good country roads are a necessary constituent of a prosperous country; on the contrary, they have made them a greater necessity than ever. They are, in reality, the affluents of the main stream.

We may lay down, as a general rule, that a good road should possess four qualities: dryness, smoothness, hardness, and sufficient width. To these might be added, elasticity, a great preservative of horses' feet and legs.

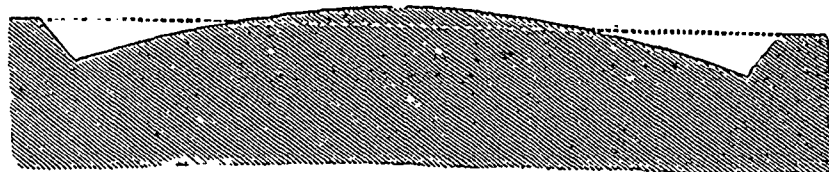


Fig. 3.

Drainage is the first requisite; and this must be secured by the ditches on each side of the road. Smoothness and hardness are obtained by choice of materials, and carefulness of treatment, elasticity depends upon a proper selection of the route, so that the bottom, or subsoil, may be firm and at the same time springy; and a proper width will prevent traffic from always following in a single rut, or rather pair of ruts, as it inevitably will in a narrow road.

Width of road. — The road should be 40 feet wide from outside to outside of the ditches. The road-bed should occupy 25 feet in width, and the ditches should therefore be,

HOW TO MAKE A ROAD FORTY FEET WIDE.

First.—Stake off the road bed twenty-five feet wide, setting stakes so a man can plow a straight furrow.

Second.—Then plow the sod on each side the width of the ditches, seven and one-half feet.

Third.—Scrape all the turf or sod upon the centre of the road bed, striking the furrows endwise with the scraper, and having the team pass around in a circle.

Fourth.—When the sod, the whole width of the ditches, is removed to the road bed, plow again, with the furrows growing deeper, to the outside of the ditches, and scrape this mellow earth upon the road bed, rounding up the centre and filling all inequalities caused by the sod.

Fifth.—When the second plowing has been scraped in, then plow again three or four furrows wide upon the outside of the ditches, scrape in the dirt and round up the road, leaving it highest in the centre, and curving gradually to the outside of the ditches, like the cut below. Such a road as this can be made at less than twenty-five cents per rod.

COST AND CUBIC YARDS.

The ditches are seven and one-half feet wide, one foot deep on the outside, and sloping up to the edge of the road bed, hence it has cost the labor of removing less than five and one-half cubic yards of earth to make a rod of road.

HEIGHT OF ROAD AND DRAINAGE.

The ditches have been lowered one foot on each side, the road bed in the centre has been raised six inches by the dirt hauled on from the ditches, hence the drainage is eighteen inches in twenty feet from the centre of road to the outside of ditches, which is ample.

TRAVEL ON THE ROAD.

Now with such a road the original road bed is solid and firm, as the earth has not been plowed or disturbed, the sods and mellow soil scraped atop of them soon pack and become hard, and the ditches themselves are hard from having all the loose earth scraped off, hence you have a road forty feet wide that can be used, and the travel will never follow in a single rut, as it must in a narrow road.