two feet; beyond which it is neither needful nor convenient to go. The time may come, however,—some think it not far off,—when the resolute hand to wield the fork may fail me. I make little account of this year's deficiency of hands, when all the harvest ripened at once. Nor do I fear that, with fair wages at home, our home-loving husbandmen will be tempted, in any draining number, to cross the seas. But, I may err. And, if I do, I doubt not for an instant that the want will be met. A sharpening of the wits, an exercise of all the ingenuity with which Providence has gifted the mind of man, will be "a necessity of the times in which we live." And if the fork is to give way, it will be to something hitherto unified, and of equal, or perhaps superior efficacy. What will that something be? The space to be tilled in the intervals is barely thirty inches. It could not be wider; for the yield would then suffer in bulk. Were it narrower, then even the fork could not work. There is no hope in the plough; nor in anything plough-like. Nor will the subsoiler do; that only stirs, and does not displace, or bring up. Is there no tool to do as the mole does? Look at the operations of the cultivator mole. See his neat process as he burrows. Watch him as he works down into the earth, tearing it, and bringing it up, claw-full after claw-full; and how he throws it behind him, granulated, under soil uppermost, on the surface. The process is perfect, and just what we want. But, is it inimitable? Is it beyond the wit of man, with steam, and the whole power of dauntless mechanism at his command? I can readily conceive, within the bounds of the most sober and rational expectation, an implement such as this:—The land to be cultivated is thirty inches in width. The body of the machine is suspended over this land on four large wheels, each pair of wheels being four feet apart, and resting on the intervals. The working part of the implement is circular, and revolving, with strong claws, so formed as to enter the soil, to bring it up, and to drop it. The moving power is steam, which moves it with a motion quite independent of the wheels. I see it at work; as I saw the mole work. I watch it as the claws first enter the ground; I see them tearing their way, slowly, but most surely; and how, claw-full after claw-full, the soil is thrown backward and dropped, tilled at one process, with the crumbled subsoil left, partly mixed, on the surface. I see all this, not as a pleasing and empty vision, but as a substantial reality. And I should be doing little justice to my own feelings, and to the genius and originality of him* who first placed such a design before the public, in the pages of the *Agricultural Gazette*," if I did not give utterance to my conviction of its vast importance, and of its entire eventual success. The mole-cultivator—if I so may call it—is already in model. Every point has been well considered by its gifted inventor; and beyond a question it will be forthcoming when that threatened necessity of the times demands it.

The Implements in use already for economizing labour on my plan, are described in the following pages. Besides these, the width of the intervals between the wheat has suggested another simple means of extending the economy of labour.—Adapting to my scheme what appears to me to be the best known principle of Reaper, and adding to it one little improvement to make the process easier and truer, I am having a machine prepared, at very little expense, light, easily worked with a single horse, to cut one land of triple rows of wheat at a time. This space of land, together with its interval, is five feet wide. So that, in reality, I shall thus reap a superficial acre with almost equal speed with the widest Reaper in use.

* "The Chronicle of a Clay Farm," by Talpa. These papers, so infinitely amusing and instructive to the farmer, are now republished in a separate volume, with much new matter on Cultivation by Steam, and especially on the implement in question.

PREPARATION OF THE SOIL FOR WHEAT, GRAIN, AND OTHER CROPS.

Those who intend to put their fields down to grass and grain, should remember that the length of time in which they will remain profitable in grass, must depend materially upon proper mechanical preparation of the soil. They should recollect that deep plowing is now the order of the day, and not as a mere matter of fashion, but from the well-ascertained fact that deeply disintegrated soils will furnish a larger amount of pabulum for plants than those which are surface-worked. Where the roots of plants can travel readily, they must of necessity come in contact with a greater amount of surfaces of particles, and therefore, receive a larger amount of those materials which have been rendered suited to their use by the action of Nature's laws. They should remember also that in deeply disintegrated soils the grains and grasses never suffer from drought; for in such soils, the condensation of moisture from the atmosphere, circulating at a greater depth, must protect the plants from those ills consequent upon the absence of a proper amount of moisture, and the presence of this moisture, not only conveys such pabulum as the plant requires, placing it in a condition to be appropriated, but also supplies the conditions for the more rapid chemical changes, which should continue to take place upon both the organic and inorganic constituents of the soil during the growth of the plants. To secure these conditions, then, we should not only plow the surface deeply, but follow in the same furrow with the sub-soil plow, disintegrating it to a great depth, slightly elevating it, and thus supplying the means of getting rid of excess of water during floods, and securing a continued supply during drought. This sub-soiling is absolutely necessary for the more profitable culture of those crops which are called tillering crops; and among these will be found the grains and grasses.—Every farmer knows that a single grain of wheat will throw up many shoots, and that these arise from tiller roots thrown out from the crown of the plant; and he also knows that if any one root of