

Baker has derived new elements for the orbit of θ Aquilæ, which he gives and discusses in No. 7, vol. i., of the Publications of the Allegheny Observatory. These elements show the eccentricity of the orbit to be 0.685 ± 0.011 , and the period of the binary to be 17.117 ± 0.0042 days. From observations made in 1901-2, M. Deslandres found a period of 16.7 days, and Mr. Baker ascribes the difference to an actual change of the period; the eccentricity is also probably variable.

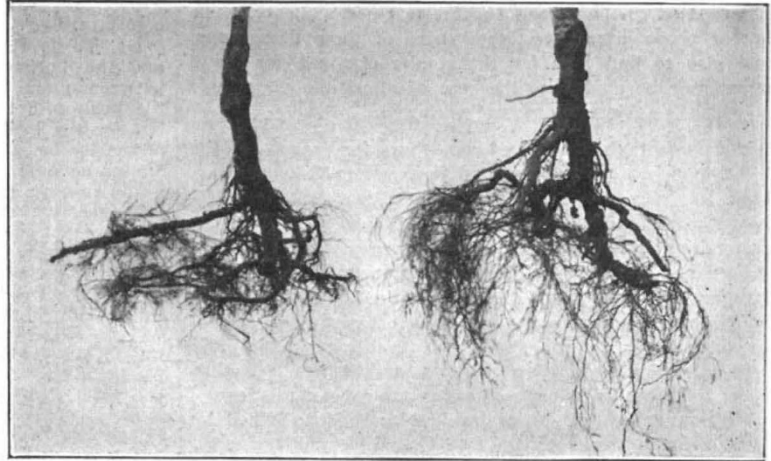
THE PLANTING OF FRUIT TREES.¹

MR. PICKERING is playing a new part when, in the recently issued report of the Woburn Fruit Farm, he appears as the demolisher of cherished convictions concerning so fundamental and practical a matter as tree planting. It is an article of faith among fruit-growers that fruit trees must be planted in a certain special way if success is to be obtained. The soil is properly prepared, a large hole is made, wide, but not deep, the roots are carefully spread out in all directions and arranged near the surface, with a slight upward bearing at the ends. The soil is filled in with many precautions. Small quantities of the finer soil are first worked in among the roots, hollow places caused by archings in the stouter roots are filled up, and then the rest of the soil is put in, trodden carefully down, and the whole left to the compacting influence of the rain. The tree is supported by stakes until it is sufficiently firmly established.

All this, according to the report before us, is precisely wrong; it is all exactly the opposite of what it should be. The proper way to plant a tree is to make a small hole, to double the roots up anyhow and stick the tree in, throw in the soil, and ram it down as hard as if one were fixing a gate-post. The experiments seem convincing enough.

makes no difference by what criterion the trees are judged; planting in this new way gives better results than planting in the orthodox fashion.

When a new fact is established by scientific experiment that no longer fits in with the old practical formula which has hitherto sufficed to cover all cases, there is invariably a cry raised about the antagonism of theory (or science)



Not rammed.

FIG. 2.—Marie Louise.

Rammed.

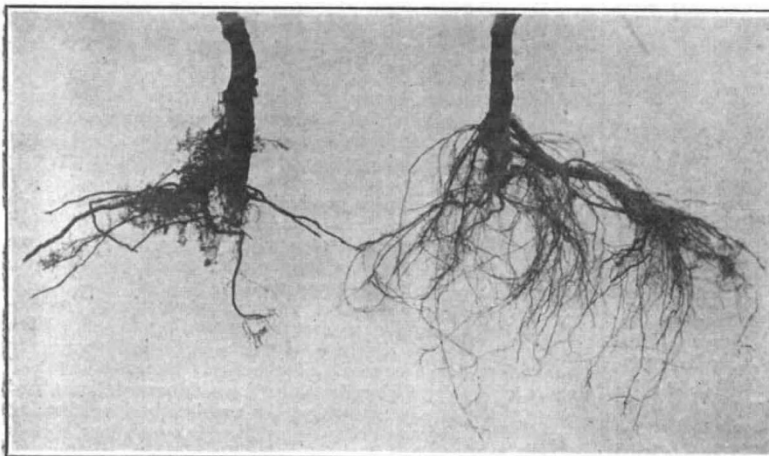
and practice. This has duly happened in the present case. But no practical man has been able to give any reason for the faith that is in him beyond the fact that it is sanctioned by established custom; these appear to be the first serious experiments on the subject, and they do not seem to be vitiated by any constant error. Examination of the trees shows that ramming has led to a copious development of fibrous roots; the photographs here reproduced give an idea, though not an adequate one, of this effect. Direct experiments showed that the fibrous and small roots produced in the nursery before lifting play no great part as roots during the subsequent life of the tree; the important point is to induce fresh root formation, and ramming does this more rapidly than the orthodox method of planting. No harm was done, and sometimes even good resulted, when the old roots were deliberately damaged before planting.

It is to be hoped that these experiments may be continued on fruit soils of various types. Both the Harpenden and Ridgmont soils are heavier than the typical fruit soils of Kent; it would be interesting to see how ramming works on the brick earths, Thanet and Lower Greensand formations, where so much of our fruit is grown.

The reports issued from the Woburn Fruit Farm are always interesting, because they deal with fundamental problems of universal importance, and not merely with local matters. No fruit-grower could

afford to make experiments himself on anything like the scale on which they are carried out at Woburn; and fruit-growers everywhere are under an obligation to the Duke of Bedford and Mr. Pickering for investigating their problems for them and publishing the results in so accessible a form.

E. J. RUSSELL.



Not ammed.

FIG. 1.—Gascogne

Rammed.

They have been made at Woburn, Harpenden, Bedford, various places in Cambridgeshire, and in Devonshire; 59 per cent. of the sets showed in favour of ramming, 27 per cent. showed no difference (i.e. all the elaborate detail of the ordinary way of planting was simply a waste of time), and only 14 per cent. were against ramming. It

¹ Ninth report of the Woburn Experimental Fruit Farm, by the Duke of Bedford, K.G., F.R.S., and Spencer U. Pickering, F.R.S.