America, and elsewhere, but not in New Zealand so far as the writer knows.

In 1921 the writer, then at Rothamsted, was greatly impressed with this process of rotting down straw. Knowing the condition of affairs in Canterbury, where straw is commonly burnt, stock not housed, and farmyard manure consequently not made, he could not help thinking that here was a proposition that sooner or later must commend itself to those of our farmers who want to maintain the life of their soil.

Having subsequently returned to New Zealand, obviously the first thing to be done was to find out if straw would rot in three months under local conditions, and with this in view an attempt was made at the College in January, 1924. We tried six stacks in all—two of wheat, two of oats, one of barley, and one of grass straw—containing a total of about 70 tons. A 2½-horse-power Blackstone engine and pump that delivered from 600 to 900 gallons of water per hour was used. The water was pumped through 2 in. pipes to the middle of the top of the stack, and then distributed in a series of jets through ⅛ in. holes evenly spaced along a pipe lying on the stack. This pipe was movable, and wet the stack to a distance of 4 ft. to 6 ft. on either side of it. It was moved every half hour or so in order to wet the stack as evenly as possible. As a source of nitrogen, ammonium sulphate was used, and, when in sufficient quantity, appeared to be quite satisfactory.

The amount of water to be used seems a fairly variable quantity locally, owing to the enormous evaporation which takes place in north-west weather. We pumped somewhere between 800 and 1,200 gallons per ton of dry straw. This was done at about fortnightly intervals, pumping always until the run-back—collected in a hole by a drain round the stack—was nearly equal to the capacity of the pump.

The greatest difficulty we had to encounter was getting the stack uniformly wet. Particularly was this so on the old stacks (two-year-old), which, built to keep the water out, invariably "felted" somewhere below the surface and were quite waterproof. There was no difficulty with newly built stacks, which wetted uniformly and rotted completely. To overcome the felting we punched holes in the stack with a long pipe. If such holes are put in on a slant they distribute the water quite well, but if vertical the water merely runs down them to the ground and wets a column of straw only about 6 in. to 12 in. in diameter.

When the rotting is satisfactory the stack loses its stack-like form and becomes just a manure-heap, and sinks till it is about one-third of the original height. We considered the straw sufficiently rotten when it was of a rich dark-brown colour and breakable by twisting a large handful. It is not difficult to see how the stack is wetting by an inspection of the top. Ridges appear where there is dry straw underneath. The temperature rises to between 65° and 75° C.—too hot to place one's hand in the material. It would be advantageous if it could be kept lower, as a great deal of soft tissue is destroyed at such temperatures and the fibrous parts of straw remain as a stringy mass.

Of the six stacks, three and a half rotted sufficiently to be carted out—the barley stack, one and a half of the wheat stacks, and half of each of the oat stacks. Everything rotted that had enough water, but the difficulty of wetting the material throughout was not easily overcome. The grass stack was not persevered with. Wheat or oat straw when crushed splits and allows the water to get inside, where it