

comes the vegetative bankruptcy of which "Hortus" complains. Nor need the tree be "very old" to get "very scraggy" at the top. Obviously to subject a tree to such conditions is not fair, and, moreover, it is not sense. There is another source of mischief to which attention should be directed, and as it reaches its maximum in pit-planted trees, their case will illustrate it best. Twice or thrice a week a flood of irrigation water is turned on into the pits, and stands, for hours perhaps, in a basin-shaped hollow round the root-collar. The pit is water-logged for the time, and the air in the porous soil driven out. Add to this the undeniable fact that over-watering washes out the extremely valuable though small percentage of nitrogenous plant-food in the compost, and carries it away into the surrounding infertile bed. I believe this to be one cause of the roots getting away into what is known as "hard pan," followed by slow starvation. This same washing out of soluble nitrates is illustrated in popular window-gardening. The amateur buys a rose or a fuchsia in robust health, waters it conscientiously and plentifully every day, whether the soil asks for water or not, and hopes to keep the plant thriving for years. After a season or two it languishes, the leaves drop off, and the gardener is called in. He says "the soil has become sour," and prescribes pruning back and re-potting in fresh earth. The plant recovers in consequence of the soil containing the proper quantity of soluble nitrogenous food, and things go on smoothly till perpetual indiscriminate watering brings back the old sterile conditions. Does "Hortus" go with me thus far? Then we may lay it down as a likely basis for experiment, and possible improvement, that root mischief and dying of orange trees atop is probably due to an unreasonable mode of planting with such lack of preparation of the earth-bed and manurial renovations as would never be permitted in the culture of vines.

In our Botanic Garden here, we have unfortunately no orange trees, but we have seen a good deal of them elsewhere. I should like to know all the conditions of the alleged experiments in which death followed the cutting away of large branches, viz., how and when, in the seasonal growth, the pruning was done. Twenty-five years ago I used to see a noted orange-grower at Graham's Town, Mr. Walter Smith, cut back orange trees very severely for transplanting or sale, leaving only the central axis and a bunch of branch leaders about as thick as one's wrist and some four feet long. I was appalled at this surgery, but the trees did well, and failure was an exception. New rootlets were rapidly struck after replanting, and fresh shoots broke away from the shortened branches.

From this and other experience, I then concluded that the cutting back of orange trees need not be fatal, and will not be fatal if discreetly done at the proper season, *i.e.*, when the growth is nearly dormant, and if the root system is healthy and well cared for. I bargain for all these three conditions working together, for in gardening failures it is invariably the attention to one or two essentials and contemporaneous neglect of one or two more that puzzle and dishearten the amateur. If specific directions absolutely must be given (though one runs the risk of empiricism and of a blind application of them) I think it will be reasonable to trench deeply on at least two sides of old-established trees at a distance proportionate to their height, and be liberal with well-rotted stable manure in the turn-over. In poor "hard-panned" orchards, the bottom "spit" might well be put aside, and good surface stuff got to supply the deficiency. So much for the roots. Then when the local climate gives the most complete rest to the trees, a period varying greatly between east and west, I would cut the tree back, taking out all dead wood and all ill-placed branches that have crept up through lack of attention and want of yearly pruning. A moderate supply of water directed to the region of the root-feeders, not to the root-collar, which takes in nothing, com-

pletes a rational treatment, and I should expect to see an improvement the first season.

I am afraid all this sounds much like platitudes, but when I daily see men really cultivate their vineyards, weed the soil most carefully, run manure in between every alternate row, and prune out everything superfluous, I am amazed to find the very same people treating fruit trees as if they had no more vital necessities than telegraph poles, and think that, once planted in a pit-hole, the tree must feed itself, prune itself, keep itself generally, and grow a bumper crop of fruit every year, without the owner's care and attention. I wish I could get rid of the conclusion, forced in by nearly all I have seen on orange-growing, that in our present troubles we are reaping as we have sown.

If the tree be comparatively young, say of five or six years' growth, it might be worth while to transplant to a new and reasonably prepared soil, getting thus a new start under more favourable conditions.

At the risk of tediousness, let a supplementary paragraph find place—the corollary of what has gone before. There is a natural equipoise between food supply and fruit production. The roots collect the crude material, the leaves elaborate it, the blossom, fruit, and seed spend very much of it. Yet how few skilled hands annually go over their orchard to prune out greedy, useless wood, and limit the number of fruit-bearing spurs to the age and capability of the tree. Such provision is scarcely thought of, yet in such economy of vital power, preventing the trees from over-bearing themselves, lies some part of the cause for exhausted and prematurely dying orange, pear, apple, and especially apricot and peach trees.

Should "Hortus" choose to cut his trees back, every section must be cut clean and sharp, leaving the bark adhering organically to the very edge of the cut. No blunt tools, no spurs left sticking out, no horizontal sections, and no tearing down of bark. If the pruning saw with reverted teeth be used, the ragged surface must be carefully pared afterwards with a drawing-knife, till the uninjured adhering bark is clearly made out all round. If a main branch is shortened, do it slantingly or in a perpendicular line to the ground, and leave a secondary leader above, not a blind end. A coat of coal tar is always a good follower after the paring knife in all sections of an inch diameter and over.

We are all experimentalists, and, given certain laws of growth applicable generally, special cases are met by deductive practice in every line of trial that theory and observation together recommend. I therefore urge every one who loves trees and fruit culture to keep written memoranda of his experiments, their course and results, so as to enable the Department to boil down the experience of us all into some definite code.

P. MACOWAN, F.L.S.

#### MALARIAL FEVER IN SHEEP.

This fever which goes also by the names of espizootic catarrh, bekziekte and blauwtong, has been very prevalent this season all over the Eastern Province.

Asst. Veterinary Surgeon Soga, who has recently given some attention to the disease, sends the following recommendations respecting its treatment C.V.S.

My treatment consisted in giving the following dose:—

Corrosive sublimate. . . . .	1/2 grain
Calomel . . . . .	1 grain
Epsom salts . . . . .	1 ounce

For convenience, I made an aqueous solution of calomel, consisting of one drachm in an eight-ounce bottle of water, and another solution of corrosive sublimate, consisting of half a drachm in an eight-ounce bottle of water. Of these solutions I gave a teaspoonful each, together with the Epsom salts, in a cup of cold water.

This dose I administered until the fever was allayed, which as about the 3rd day. After that I desisted using the salts, but still gave the calomel with corrosive sublimate. The idea in giving corrosive sublimate is to destroy any germs in the system, while the calomel allays irritation of the skin, raiding loss of hair. The salts act as a mild aperient and febrifuge. On the mouth and lips a dressing of Archangel tar was used.

To prevent shedding of hoofs, the toes were bled very freely. The patients were placed under cover. No food was given until the animal seemed inclined to eat, after which its diet was gradually increased until recovery.

J. R. SOGA, M.R.C.V.S.

CORRESPONDENCE,

Superfoetation in a Heifer,

SIR,—In No. 36 of this *Journal* the query appears whether the Colonial Veterinary Surgeon would kindly explain how it is that a cow could calve twice within a period of 10 weeks. The C.V.S., being very willing to be of service to the public, said in his reply, that "without reliable information on such points, very erroneous opinions may be entertained as to the real cause of such an occurrence," and wishes therefore to have the following queries answered :—

- (a) Was the first calf, which died a few days after birth, a well nourished and fully developed calf when born, and what was the exact number of days it lived ?
- (b) What was the appearance of the second calf ? Was it born alive, and did it continue to live for any time ?

I think that these two questions are not sufficient. Although they may be carefully answered, I think a reply has also to be given to the following question :—(c) Were there eye-witnesses when the heifer calved the first time ? If so, there is no difficulty; but if not, the following question arises:— Were there any visible signs after the supposed first birth, save that the cow gave milk, from which it could be concluded that she cast a calf? One can sometimes form very erroneous ideas, if one has not a full conception of the case, as the following narrative will show :—

A farmer in the Free State was one day informed that a heifer of his had calved in the veld. He sent for her at once, and as her milk was quite clean, he concluded that the calf must already be a few days old. The heifer was very fond of the calf, and continually allowed it to suck. At that moment, when he was still examining the cow and calf, another man whose cattle grazed on the same veld turned up and said that the calf belonged to him, because one of his cows had calved a few days before and left her calf in the veld (as sometimes happens in case of drought), and that this heifer had evidently made use of the opportunity and adopted the lost calf. But as the heifer gave sufficient milk to the calf and was very fond of it, her owner was convinced that the assertion of his neighbour was only a misapprehension. At last the neighbour sent for his cow, but she would have nothing to do with the calf. The owner of the heifer was, in consequence, the more convinced that he is in the right, and absolutely refused to deliver the calf to his neighbour. The latter, however, could prove his assertion, and they would certainly have gone to law if an expert had not convinced the owner of the heifer that she had not calved as yet. A compromise was then made, and the neighbour got his calf back. A few weeks later the heifer in question calved, and the farmer was fully convinced of his erroneous opinion.

Now, if the neighbour with his cow did not appear on the scene, it would have been a similar wonderful occurrence in the case of this heifer as in that cited in Query No. 48.

C. v. Z., Potchefstroom, S.A.R.

Weevil in Mealies.

The following method of treating mealies has proved effective in keeping off weevil:—

The mealie crop must ripen thoroughly, the cobs being allowed to remain on the stalks until the latter have become quite dry. When removing the cobs, leave on them about an inch of stem. After the harvest, store the cobs in a round wooden framework, called by the Kaffirs "I'hlahla," which is made by sinking poles into the ground about 2 feet deep, all round which laths are nailed, a space of about a quarter of an inch being left open between the various laths; the bottom of the "I'hlahla" must be raised about 1½ feet from the ground, planked, but open spaces are to be left for the free circulation of the air. In the "I'hlahla" the cobs remain for several months, under all conditions of the weather, until the grains are quite dry. After the cobs are shelled the grains can, as usual, be stored in bags, but here comes in the prominent part of the treatment. It has been noticed that the weevil has a great dislike for the "Dagga" (wild homp), and in storing mealies advantage is taken of this. Whilst filling the bags the mealies are alternated with layers of the twigs and leaves of the "Dagga." When full with these alternate layers, the bags are stored away and sprinkled all over with branches and leaves of the "Dagga." I have by this means kept mealies free from weevil for a twelvemonth, when stored in an ordinary Kaffir hut. Try it.

A. D., Kaffraria.

AGRICULTURAL PROSPECTS,

Barkly East, 7th March.—Crops generally throughout this district have been fairly good, particularly in the Highlands. The wheat crop suffered a little from the drought, and, although farmers may have enough for their own consumption and to spare in many instances, it is feared that meal will be very expensive, owing to the great demand at the Gold-fields and elsewhere. The price at present is about 30s. a bag. Oathay and barley are plentiful, but there is no good accessible market for these products, and those farmers who can afford to do so will doubtless hold over until the winter. Vegetables have been plentiful, but the fruit-crop has been an utter failure, owing to the late frosts and the severity of the hailstorms. Stock generally is in excellent condition, and with the exception of a few cases of the so-called "Black Gallsickness," diseases amongst cattle are unknown.

Bredasdorp, 18th March.—The farmers are just finished threshing. From all accounts, the crops in most wards have been a total failure, and consequently grain of all descriptions is ruling at very high prices. Stock in general is in very fair condition. This no doubt, is due to the unusual showery weather experienced during the past summer months, causing the pasturage to continue green and fresh. Diseases usually prevalent amongst stock at this time of the year have been conspicuous by their absence. The fruit crops, especially pears, have been very good.

Engcobo, Tembuland, 10th March.—Owing to the severe drought which continued from the end of April until the middle of October last year, no wheat, and but a small quantity of oats, were grown ; but, to compensate for this, Kaffir corn and maize have been planted in greater quantities than usual. Both crops are in a most promising condition, and the yield is expected to exceed that of all former harvests. These are the staple crops raised in the district. Stock is thriving well, and redwater has not been so severe as in past years, confining its ravages to stock recently imported into the district from parts not yet infected, cattle bred in the district being much less susceptible to the disease.

Fort Beaufort, 3rd March.—Cattle are in excellent condition, and, with the exception of those grazing on the Fort