Pasture Notes.

In a recent number of the "New Zealand Journal," Mr R. Waters, of the Biological section, has an article on the wheat disease which was prevalent in various parts of Canterbury a few months ago. The fungus which produces the "take all" disease is named Ophiobolus graminis, and at various stages in the growth of the wheat it penetrates, discolours, and disorganises the tissues of the roots and of the culms at ground-level. At these parts, late in the season, it produces a blackish weft of mould-like growth, easily seen by the naked eye. (This "mould" remains on the stubble after the harvest, giving rise to the spores that may infect succeeding wheat crops.) The fungus appears to hinder the flow of the sap to the parts above, to arrest the growth, and to finally result in the death of the roots, culms, leaves, and ears, the last three bleaching a dull ashy white in the sun. Later the heads, and even the rest of such plants, may become bespattered as if with soot—the effect of another fungus common on dead wheat. In all cases the grains are diminutive, often entirely useless. Affected plants occur commonly in roughly circular or oval patches. The patches are up to several yards in diameter, and consist, at about the end of January, of a thin crop of stunted dull-white or sooty-looking plants easily pulled out of the ground. The surrounding healthy crop is taller and of a bright-yellow colour in the straw. Again, affected and healthy plants may be intermixed and of similar height, the colour of the former readily distinguishing them.

No reliable information is available as to how the disease was introduced into New Zealand, but it has certainly been here for a number of years. However profitable or unprofitable it may be, it is well-known that in the absence of this fungus healthly wheat has frequently been produced on the same land for many years in succession. With weather conditions unfavourable to the fungus comparatively healthy wheat might even be raised on land previously carrying an infected crop. The presence, however, of but a small proportion of infected plants means that the fungus will remain in the field on the stubble after harvest. Here it will eventually produce its spores, any subsequent cultivation or trampling by stock serving as a means of distributing the disease—at least, within the same paddock. Hence, with moisture and temperature suitable to the fungus, a succeeding wheat crop would be much more affected than the previous one—in fact, might be a failure. All badly diseased plots recently examined in Canterbury had been preceded by one or more wheat crops among which in most cases growers could recollect having observed the same but less pronounced symptons of the disease.

No instance could be found of the rapid spread of take-all from crop to crop through the air like "rust"—though to a comparatively very small extent this manner of spreading is not inconceivable; in fact, seed sown on uninfected land was seen to produce an unaffected crop even in places where such land adjoined an area carrying a badly infected crop. On the other hand, the planting of wheat on previously infected land resulted in the most serious damage that was met with, and, in my opinion, the perpetuation of the parasite is mainly due to this practice in dealing with infected areas. It is difficult to say exactly how the fungus is transferred to previously uninfected land. Stock or the wind possibly carry infected fragments from one paddock to another; but, whatever the means may be, there is no doubt that certain plants other than wheat are capable of "nursing" the fungus should it be carried to areas that have never been devoted to this particular crop.

Various methods of combating take-all have been suggested: (1) If by cutting the stubble longer, and, if necessary by rolling it, a fire could be run over the ground a considerable proportion of the fungus and its spores would be destroyed. Infected land so treated would be much safer, but not entirely safe, for a succeeding wheat crop. Where there is no alternative than to grow another wheat crop on infected land this course might be adopted, together with late sowing, so as to avoid were conditions, which favour the fungus. Deeper tillage would also assist in avoiding excessive soil-moisture. Wheat following a badly diseased crop is however, a very doubtful proposition. (2) For the treatment of a few isolated patches in a paddock good results are reported from the recommendations of N. A. Cobb, of New South Wales, briefly as follows: Before harvest, when the disease is showing, mark the patches with stakes. After the harvest and before the following ploughing apply lime to these patches, at the rate of at least one ton per acre. As the disease is associated with excessive water in the soil the levelling-off of depressions in the ground and anything that can be done to improve the soil-drainage, such as deeper tillage, will be beneficial.

In considering a general line of treatment for larger areas the following points may be stated. Seeing that the fungus is retained on the land after harvest, and that its complete destruction by fire or by the application of a chemical compound may be impracticable, such methods as these should in general be employed, not as in themselves sufficient, but rather as subsidiary to other methods of control. Burning, where possible, in preparation for further treatment would therefore be a sound practice. As, moreover, the fungus cannot be immediately destroyed in the soil, then the subsequent unhindered growth of wheat, barley, rye, barley-grass, brome-grass, or giant twitch would, with suitable moisture and warmth probably serve to maintain, if not increase, the infection of the land. Susceptible plants must therefore be rigorously suppressed by cultivation or smothering, and any tendency to water-logging in the soil be anticipated by drainage or tillage.

In the choice of a rotation any crop not known to be attacked may be selected, but especial preference given, where practicable, to oats and rape, on account of their attributed immunity. On land difficult to rid of twitch or other susceptible plants, prior to the establishment of temporary pasture, oats, rape, or other crop not subsequently cultivated, the use of a smothering-crop, such as autumn-sown oats and tares, is suggested. Wheat would wisely be avoided in the rotation for at least two years. There is a possibility of transferring the disease by means of stock, but several most valuable examples of healthy and badly diseased paddocks actually adjoining clearly show that healthy wheat can be produced on uninfected land even when it is adjacent to a badly infected paddock. There is no positive evidence that the disease has been conveyed in the hairs of seed-wheat, nevertheless it would certainly be advisable to secure all seed from an undoubtedly healthy crop. Straw stacks from badly infected areas are better destroyed by fire, more especially if there is no definite use for them.

DIGGER YARNS

ABOUT GENERAL BIRDWOOD.

(From "The Sydney Mail.")

Generals Birdwood and Rawlinson were walking along the Strand. A Digger, passing, said, "Good day, Birdie!" The General returned the salutation with a "Good day, Digger!" General Rawlinson turned to Birdie in surprise and said: "Do you allow your men to greet you like that? Why do you not pull them up and make them salute you in a proper manner?" Birdie replied: "Do you think I want to start a brawl in the Strand?"

Generals Birdwood, Monash and Monro were once poring over a map in a dug-out on Gallipoli, when the blanket covering the entrance was rudely whisked aside and a "cookhouse man," dirty, untidy, and trembling with rage, burst in. "Which of you blanketty blankers pinched my blinketty blanketty dixie?" he raved. A stony silence while the cook took in the situation and recoiled with horror. Generals Monash and Monro glared annihilation.

"I didn't," said Birdie meekly.

On approaching an Australian camp in France General Birdwood noticed the sentry did not pay him the respect due to him. "Do you know who I am?" he said. Sentry: "No." Birdwood: "I am General Birdwood." Sentry: "Oh! I thought you was a banky Pioneer with them crossed picks on yer shoulder. Suppose I'll have to dook you a bit of a salute."

"Hello!" said Jack, "there goes the half-hour warning for parade." Just then the orderly sergeant entered, and, blowing his whistle, commenced: "Pay attention to orders! All men will parade 9.30; full muster parade, belt and side-arms, great coats Kindelcer fashion, all bayonets and brass buckles well polished. No sick parade till 11.30."

"I know the stunt," said Jack, "so I'll give you all the dinkum oil. Birdie's coming to inspect us. 'Twill be promenade pour la trenches at the tout suite."

"I'll be back in a jiff, Jack. I'm off to the officers' baths. Must have a shower; there will be none of the heads round there now."

So off I ran. One Digger had evidently beaten me round, and I could hear him vigorously scrubbing and scraping as I entered the bathroom.

"D—— cold this morning," I remarked. "How's the water"

"Tres bon; warm as toast," was the reply.

"I'll have to stick a pin in myself," I continued. "Old Birdie's coming round to inspect us this morning. Just as well there's none of the knuts around. Wouldn't old Birdie roar if he nabbed a man in the officers' baths! Look, Dig," I went on, "Some of these flamin' heads get right on my onion. Wonder if Birdie had his bath this morning? Guess he wouldn't like this; the flamin' thing's running cold. Think I'll hop it and do a break for the hut."

Hurriedly I wiped, and, pulling on my breeks and overcoat, I made for the door.

"Hold hard, Dig!" replied the other.

Good heavens! I saw comets and meteors, to say nothing of stars, as, stepping from the bathroom. I beheld no other than the General himself.

"Hurry up, Dig," he said with a smile, "or you will be late for parade."

I did hurry—make no error.

Birdwood, like Cortez and Napoleon knew how to get the most out of men by a personal appeal. The Diggers, even when responding enthusiastically, were acute enough to see the pill through the sugar coating, and summed up the position in the following parody on a well-known hymn:—

Birdie loves us, this we know,
For he often tells us so;
He can kid to you and me—
He could kid us up a tree.
Yes, Birdie loves us,
Yes, Birdie loves us,
Yes, Birdie loves us—
And we love Birdie, too!

The real bushman knows only two types of men—the one he calls by his Christian name, and the other he addresses as "mister." General Birdwood met such a man in a billeting area, and, after some conversation, inquired after the man's relatives. The Digger replied: "Dad's been pretty crook, Mr Birdwood, but mother's keeping up wonderfully. An' how's all your lot, Mr Birdwood?"

General Birdwood was one day passed by an Australian Digger, who did not salute him. Stopping, the General remarked: "I know you Diggers do not like saluting, and, of course, it does not matter to me; I'm only a General. But it is worth while your getting into the habit for the sake of these young second lieutenants. They don't like to be ignored.

After a big strafe Hun prisoners, pending removal to a compound, were frequently used in the line for fatigue work, including stretcher-bearing. On one of these occasions General Birdwood happened to be near the regimental aid post which adjoined battalion headquarters. Noticing two Boche prisoners bringing in a wounded Digger the General hastened over to pass a few kindly words to the man on the stretcher. But the Digger, with a grim smile on his face, looked up and exclaimed: "There's nothing doing, sir; I've been through 'em both."

Told me by General Birdwood himself. He was moving around the batteries up forward, greeting all and sundry. Near one battery, which was somewhat busy at the moment, he noticed a Digger loafing around, apparently doing less than nothing.

"Good morning. How are you?"

"Good morning sir, sir. Very well, sir."

"What—— Oh, I see!" (noticing the bird's colour patches), "you don't belong to this battery?"

"No, sir, I'm visiting here."

"Oh, just up to see a cobber, I suppose!"

Pause. "Well, ye-e-e-s; only; another meditative pause—"of course, I wouldn't have used the term myself."

THE CHEMIST'S SURPRISE.

A man wearing a long countenance walked into a chemist's shop the other day for advice.

"I seem," he said, "to have something queer inside me."

"What are your symptoms?" said the chemist.

"About every quarter of an hour something seems to rise up inside and then settle back again."

The chemist scratched his head and meditated awhile.

"Look here," he said at last, "you haven't gone and swallowed a lift, have you, by any chance?"

THE TOILER'S SERENADE.

(By M. Farrah.)

("Man goeth forth unto his work . . until the evening."—Ps. 104).

Day has been long since the morning hour
Waked you from slumber deep;
Night comes at last, with a dream for dower,
Sleep, weary mortal, sleep!
Heart, you are wounded with aching scars,
Hands, you have toiled your best;
Night draws her curtain, broidered with stars
Rest, striving mortal, rest!
Over Life's highway your feet of late
Followed the fairy gleam;
Healing and hope in the darkness wait,
Dream, foolish mortal, dream!
Safe from earth's sorrow, and pain, and pride,
Sleep till the dawn shall break.
Then—with a smile for whate'er betide,
Wake, happy mortal, wake!