

Q. Is there anywhere a description of the barberry bush?—A. Yes, the Department has published a coloured illustration of the barberry—a spiny shrub with yellow flowers and red berries—showing the rust spots, together with the black stem rust on wheat, giving the life history of the rust as well as the relation of the barberry to the rust in popular form. The barberry is not very widely distributed in the prairie provinces. We hope, as far as Saskatchewan is concerned, that we will complete our eradication this year, and I believe the same for Manitoba; only in the city of Winnipeg we have great difficulty in getting rid of the barberries.

*By Mr. Sales:*

Q. There is a thorn bush in the Qu'Appelle Valley, pretty prevalent, which bears a red berry, but it does not bear that yellow flower you speak of.—A. I think you mean the buffalo berry, which has no relation to grain rust at all.

Q. Do you consider the barberry bushes growing in the city of Winnipeg a menace to the wheat?—A. I certainly think so. It has been said that the rust may spread from a barberry for a distance of ten miles. It is possible that fungus spores may spread for 150 miles. At any rate, in our investigations of the spreading of white pine blister rust in British Columbia, we found that the rust spores from pines reached cultivated black currants, some 150 miles away from the nearest pine. There is no telling how far the barberries in the city of Winnipeg may aid in the dissemination of the grain rust. When the winter spores of stem rust germinate in spring, they produce exceedingly minute secondary spores, which are distributed by air currents.

Q. What colour are they?—A. These secondary spores? Colourless, like water. Many of these spores could be placed side by side on the head of a pin; they are very small.

*By Mr. Gould:*

Q. Have you any information concerning the statement that was in the press some time ago of a definite area in South Dakota where barberry was entirely eliminated, and of another area where barberry was allowed to grow, and the yields from the two were given?—A. Work of this type has been carried on in the United States. I quoted an experiment from Indiana. The results are rather promising. Where they failed there were undoubtedly some barberries located later, responsible for the failure.

*By Dr. Grisdale:*

Q. Is it not true that the spores of the red stage would spread very far afield?—A. The red stage of rust spread from plant to plant, field to field, locality to locality. The origin of the red stage may be traced frequently to a neighbouring barberry bush. Some twelve days after the sowing of spores from the barberry the red stage matures on wheat, and these spores are then carried by the wind far afield, infecting new areas within a surprisingly short time. Had there been no barberries present it is doubtful whether rust would have appeared.

Q. Do I understand the red stage is mature?—A. The red stage is the so-called summer stage, and occurs exclusively on wheat and grasses. It is the most dangerous for wholesale spreading from wheat to wheat without the intervention of the barberry. Let me recapitulate briefly: The first signs of our annual grain rust outbreaks occur on the barberry. On the leaves of this spiny bush there develop in May and June bright orange pustules—the so-called cluster cups. In these pustules are produced a large number of minute spores which are dispersed by air currents. They eventually fall upon the surface of the leaves of wild and cultivated grasses and grain. There they germinate and push their rootlike organs into the substance of the leaf and eventually produce the well-known numerous red rust spots—the summer or red stage of