

By Mr. Knox:

Q. I would like to ask the witness as to the theory that Mr. Motherwell has just been propounding. I have heard it stated, something along the same line, that the rust outbreak starts down at the Gulf of Mexico and travels north, and that the spores of the rust can be found as high as two miles in the air. If that is so, would the eradication of the barberry effect anything in the northern portion of the continent?—A. That is an extremely difficult question to reply to. It has been believed for a number of years that the rust epidemics come to us from the south. In some years indications are in favour of such theory; in others there cannot be any doubt but that rust started in Canada. It is certainly a logical argument. It is a good working hypothesis, but so far I am not able to state that it is practically correct. If we were to abide by and accept such an hypothesis without careful enquiry, we might be doing very serious harm to the solution of the problem. At present we are endeavouring to finally settle this interesting point, co-operatively with the United States authorities. We have observed original outbreaks of stem rust in Manitoba as early as the 20th of June, and from that date the summer stage spreads rapidly from plant to plant and from locality to locality, according to prevailing favourable conditions. The appearance of rust in the Dakotas and Minnesota is not very much earlier than in Canada. As far as the Gulf States are concerned, spring wheat is not grown as far south as that. I do not think spring wheat is grown to any extent further south than latitude 43, i.e., Wyoming, Nebraska, Iowa, and winter wheat which is grown further south is not materially affected by stem rust, judging from our experiences in Ontario.

By Hon. Mr. Motherwell:

Q. Texas?—A. Anyway, apart from that we are following along definite lines with regard to increasing the resistance of our own wheats. The only solution, apart from the question of barberry eradication, is early maturity and rust resistance. The other phases are of interest epidemiologically. In regard to the question whether the eradication of the barberry in the south would affect our conditions, I would refer you to the experiences at Indiana just mentioned, i.e., where they had taken out the barberry no more trouble developed from stem rust. I am decidedly of the opinion that we would materially benefit from the work now done in the States on barberry eradication.

By Mr. Gould:

Q. Would you expect serious difficulty if this should become an international question, the destruction of the barberry bush?—A. No, not at all. The United States have made the destruction of the barberry subject to a law, and we have done the same in Western Canada, so the effort is truly co-operative. The United States spent last year \$250,000—one-quarter of a million—towards eradication of the barberry.

By Hon. Mr. Motherwell:

Q. France has taken some steps in that direction?—A. Two hundred and fifty thousand dollars were spent in the United States for the eradication of the barberry. We are spending \$25,000 on the entire grain disease investigations, including rust.

By the Chairman:

Q. Do they compensate the owners of barberry?—A. No. It is quite impracticable to compensate them. We tried compensation some years ago in regard to current and gooseberry bushes, which harbour the white pine blister rust. We spent \$6,000 in compensation in one year. It is quite out of the question to compensate, and beyond all reason. A few years ago the owner of 12 black