

HETERODERA RADICICOLA ATTACKING THE CANADA THISTLE

IN addition to the large number of plants known to be attacked by *Heterodera radicicola*, the writer has recently had occasion to find it infesting a new host—the roots of the Canada thistle, *Cirsium arvense*.

On December 10, 1913, the writer noticed the first indications of the root knot, occurring on tomato plants. This crop was being grown in one of the greenhouses belonging to the Department of Horticulture. On April 28, 1914, the plants were removed on account of their unproductiveness. Many of the plants, at the time of removal, showed their entire root system infested and destroyed by this eel-worm.

On April 4, 1914, Mr. J. B. Poole, of the department of botany, called the writer's attention to nodules occurring on the roots of *Cirsium arvense*. These plants were growing in a separate greenhouse from the one in which the tomato plants had been growing. The knots were very numerous, varying in diameter from two to ten mm. Their presence on the thistle roots, however, did not seem to interfere with the growth of this weed to any appreciable extent. A microscopic examination showed that the roots were badly infested with a nematode, and it seemed apparently to be the same species which occurred on the tomato. Cross sections of nodules showed the egg-filled bodies of female nematodes scattered throughout the cortex of the root. Specimens were sent to the Bureau of Plant Industry, and the determination verified.

The soil used in the various greenhouses was obtained from a nearby woodlot, and was probably badly infested with *Heterodera radicicola* at the time it was placed in the benches.

The fact that this organism is capable of living in the roots of *Cirsium arvense* should warrant the necessity of placing additional precautionary stress upon the eradication and destruction of this weed. Care should be exercised in treating soils before using, if the above weed should occur in any of the central or southern states, for the winters are prob-

ably not severe enough to kill the eel-worm by freezing.

L. E. MELCHERS

DEPARTMENT OF BOTANY,
KANSAS STATE AGRICULTURAL COLLEGE,
MANHATTAN, KANSAS

AN AVALANCHE OF ROCKS

THE Cadillac Trail on Mount Desert is one of the most picturesque features of the island. It is near Otter Creek and one enters the trail from the shore road. The trail leads by a gentle ascent to an irregular line of massive rock fragments which have fallen from some preexisting precipice farther up the mountain side. The path runs through and under and over these titanic blocks, some of which must weigh hundreds if not thousands of tons. The blocks and fragments stand at all angles. I have had no opportunity to consult any book on the geology of the island, but a hasty examination of the region leads me to believe that this avalanche of rocks must have fallen from some precipice which had been undercut by the waves when the land was below sea level, as we know the whole New England coast has been elevated since the ice sheet retreated. The glacial clays with Arctic species of Mollusks, still living in Hudson Bay, are found from Danvers, Massachusetts, east to Lubec, Maine, and beyond, and indicate a former subsidence of the coast many feet below the level of the sea. Now if this event occurred at the time of this depression the material buried beneath these rocks would be of very great interest. If some large fragment rested on the parent ledge it could be tilted sufficiently by hydraulic jacks to enable one to gather the stuff beneath, and it might reveal the shells, diatoms, foraminifera, etc., living at the time of this catastrophe, and possibly the compressed vegetation might reveal important features also. The exploration could be made at a moderate expense and the conditions could be easily restored.

EDWARD S. MORSE

SCIENTIFIC BOOKS

Problems of Genetics. By WILLIAM BATESON. Yale University Press. 1913. Pp. ix + 255, illustrated.