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CHIVES RUST AT OTTAWA, ONTARIO[1]

D.B.O. Savile

Rust, caused by Puccinia mixta Fckl., has long been known on chives (Allium schoenoprasum L.) from the vicinity of Victoria and Vancouver, B. C., most of the available records having been listed by Savile *(2)*. This rust, which has often been confused with Puccinia porri (Sow.) Wint. and other species (2), is practically confined to chives; but onion (Allium cepa L.) is occasionally attacked when grown close to infected chives. It was recorded by Arthur (1) from Washington, on the Pacific coast, and from Connecticut and New York, on the Atlantic coast. There is also a specimen in DAOM from Woods Hole, Massachusetts. The rust has apparently not previously been recorded in eastern Canada or far inland.

On 14 June 1969 a heavily rusted clump of chives (Savile 5032) was found in a garden at Qualicum on the outskirts of Ottawa. Uredinia were abundant and telia already common. The intensity of infection indicated that the clump must have been infected in 1968. However, there was no infection in a clump in the adjoining garden, from which the rusted clump was derived in 1967. On 10 July 1969 Dr. R.V. Clark discovered a lightly infected clump, with uredinia predominant, in a garden at Meadowlands, about 3 miles from Qualicum.

All North American specimens examined fall within the range of variation seen in European specimens: but different outbreaks seem to stem from separate introductions. In the British Columbia specimens 2-celled teliospores range to 43 µ long, and 1-celled spores are common. In the Ottawa specimens 2-celled teliospores range to 53 µ long, and 1-celled spores are few. In the Massachusetts specimen (W. R. Taylor, July 1947, DAOM ex herb. Wehmeyer) 2-celled spores range to 50 µ long and 1-celled spores are abundant. Thus we have at least three biotypes of this rust in North America, apparently separately introduced with seeds or bulbs, The plant is ordinarily sold as seed, to which detached teliospores may possibly adhere; but. it is probable that bulbs, with sori on the scales, are occasionally brought in clandestinely in settlers' effects.

Because chives is grown predominantly in home gardens the extent of the outbreak is not easily assessed. This preliminary note is presented to encourage readers to check all plantings that they see.

Control of the rust may prove difficult, since the summer use of fungicides would defeat the purpose of growing the plant. However it may be practicable to use a fungicide very early, in the period of teliospore germination. It is probably advisable, where chives is grown in a flower bed that is sprinkled regularly, to cover the plants with plastic during sprinkling, and apply water gently to tho soil, It is proposed to dig the infected plants of Qualicum in the fall, clean them off thoroughly, and replant them in shady sites where they will require less watering. A few plants will be left untouched until spring and watched for development of aecia, which are not often reported.

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[1] Contribution No. 738, Plant Research Institute, Canada Department of Agriculture, Ottawa, Ontario.

POTATO LATE BLIGHT IN CANADA IN 1844–45

P.M. Austin **Bourke**[1]

The following paragraph is quoted from a study (1) of the historic epidemic of potato blight (Phytophthora infestans (Mont.) de Bary) which broke out in Europe in 1845:

> "Although the attack took Europe completely by surprise, blight had already been ravaging the potato crops of North America in the previous two seasons. Stevens (2) has charted the annual progress of the disease from its beginnings in 1843 in the five States closest to the great ports of the east coast of the United States, to an expanded area in 1845 which closely approximates to the limits within which blight is a serious

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problem to-day. Fig. 1 is based primarily on Stevens's work, with the addition of a limited amount of extra information on the impact of the disease in Canada. The diagram bears quite a resemblance to charts of ten-yearly progress of the Japanese beetle from its introduction near Philadelphia in 1916."

The purpose of the present note is to give particulars of the 'limited amount of extra information on the impact of the disease in Canada' which was found in European libraries.

The Dublin heart specialist, Dr. Bellingham (3), received a letter from a Canadian resident who reported the appearance of the disease in 1844 on potatoes grown on a mountain slope about three miles from Montreal; 'the leaves were marked with black spots as if ink had been sprinkled over them'. The disease extended 'over several hundred miles of country including Lower and Upper Canada, and the Northern States'. It recurred in 1845.

The German Dr. Focke (4) quoted from the Quebec Gazette of 1 October 1845 to the effect that indeed it had made an appearance in the province in the previous year.

The eastward extension of the disease in 1844 seems to have stopped short of Nova Scotia which already had a reputation, mentioned by Bosson (5), as a 'famous potatoe growing country'. In the following year the potato crop in New Brunswick and Nova Scotia was unmistakably attacked, according to a letter sent to Professor James Johnston (6) in Scotland by a Mr. Thomas Gilchrist of St. John on 27 September 1845. Although everything had seemed fine two months earlier, now the crop was universally damaged; 'from Halifax to St. John I did not see a single field of potatoes but what was completely destroyed'. It was a strange and novel disease; 'it first attacks the shaw, and so rapid is it that in the course of one or two nights a whole field will be destroyed, and the stench which arises from them is almost unbearable'.

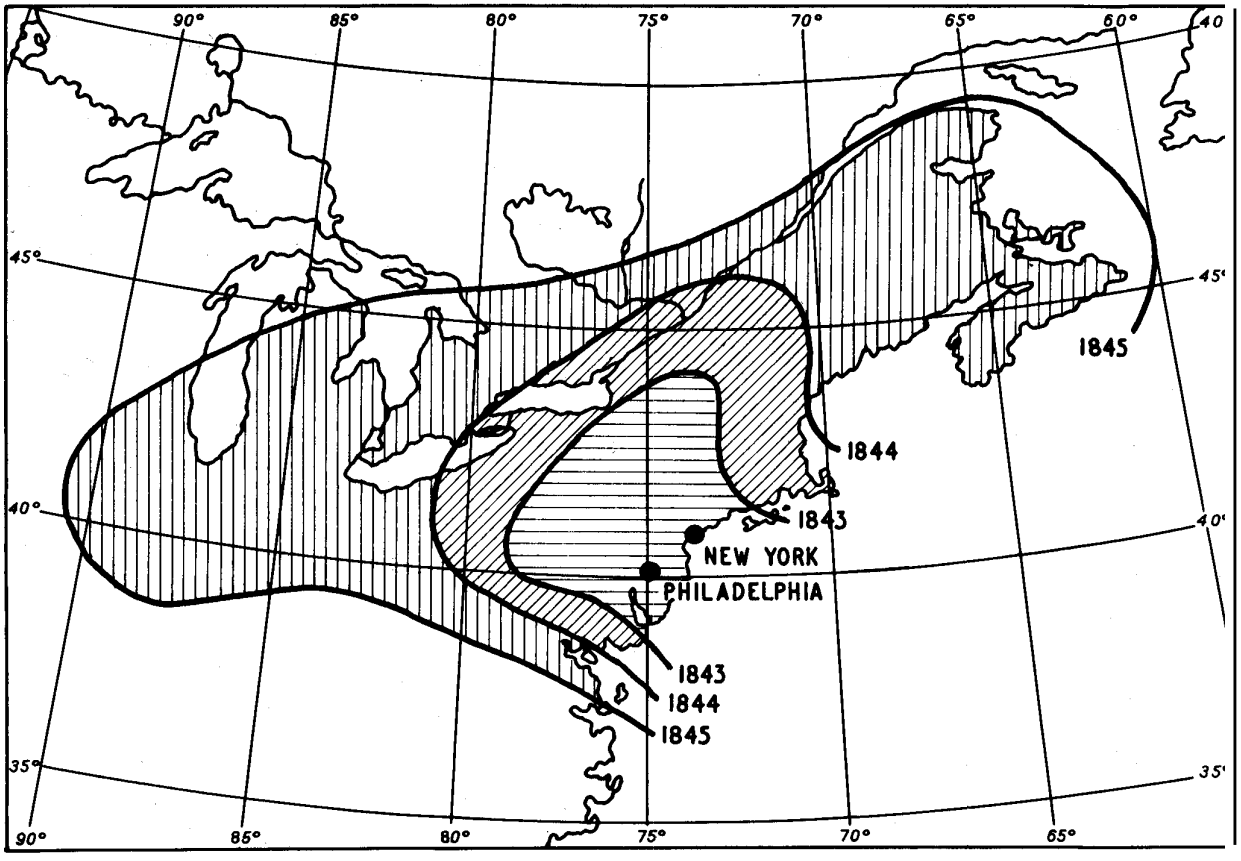

Figure 1. Approximate extent of potato blight attacks in the U.S.A. and Canada in the years 1843–45 (After Stevens).

Some paragraphs in the Gardiners' chronicle (7) confirms the broad Canadian picture without adding further geographical detail. They do mention, in line with some reports from Ireland, that in the valley of the Richelieu river the variety Irish Cup had'stood up rather better to the disease than other kinds.

This handful of reports is barely sufficient to outline the approximate extent of the penetration into Canada of the disease in 1844 and 1845. There must exist in North American libraries a mass of relevant information in contemporary local newspapers, periodicals and pamphlets. Perhaps some Canadian student of historical phytopathology may be tempted to make use of these untapped resources, firstly to confirm that the year 1844 saw the first appearance of late blight in the Canadian potato crop, and secondly to define more accurately the geographical limits of the disease in Canada in 1844 and 1845.

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