

## Letters to the Editor

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NOTES ON POINTS IN SOME OF THIS WEEK'S LETTERS APPEAR ON P. 938.

## A New Potato Epidemic in Great Britain

EARLY blight (*Alternaria solani*) of the potato has been observed in Great Britain in the field only but very rarely, and its attacks have not been known hitherto to assume epidemic proportions in Great Britain. In the autumn of 1932 several sporadic cases were noted in the experimental plots at Cambridge, whilst somewhat earlier a few of our plants in the glasshouse had been thought to be suffering from the same disease. At that time examination of the lesions had failed to demonstrate the distinctive spores. In 1933, the disease was considerably more common at Cambridge, and in the autumn of that year, Dr. Dillon Weston very kindly examined specimens and recovered from them an *Alternaria* in pure culture. Sub-cultures were submitted to Prof. Westerdijk of Baarn and to Mr. Wiltshire of the Imperial Mycological Institute, both of whom identified the species as *A. solani*.



FIG. 1. Leaflet showing the rounded lesions and the concentric rings—the fusion of individual flecks is commencing. —Photo by infra-red light.

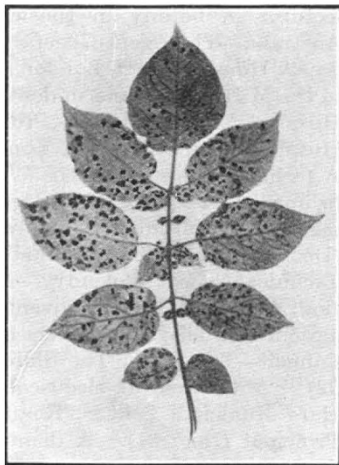


FIG. 2. An entire leaf of a Kerr's Pink plant representing the average condition of the disease in this variety in north-west Scotland towards the end of September 1934.

During 1934 we have succeeded in infecting a large number of seedlings, as well as several adult plants of established varieties both in the glasshouse and the field, and have had no difficulty in finding the spores on the lesions.

One of us had occasion to spend the month of September examining potato crops in the Outer Hebrides, the north-west coastlands, and in the great potato-growing areas of Ross, Cromarty and Aberdeen, and found that the disease—often in an advanced stage—was present throughout the whole area on every plant examined of the widely grown variety Kerr's Pink. Plants of the variety Edzell Blue were less heavily infected, whilst those of the variety Golden Wonder seemed to have escaped attack. A similarly widespread and intensive field infection was found in the late autumn

in Cambridge on the varieties Majestic and King Edward.

In the United States, tuber damage is a common feature of the disease, but we have no evidence so far that the tubers have been affected in the field in Great Britain. It may be that the epidemic spread is correlated with the occurrence of the last two abnormally dry seasons, but against this it must be remembered that we first observed the disease in the field in the summer of 1932.

Apart from loss due to direct damage to the tuber, it is almost certain that a disease which destroys about 25 per cent of the green leaf area of the plant must cause a sensible reduction in crop, if only as a result of the loss of photosynthetic tissue.

It is obvious that we are now confronted in Great Britain with early blight in an epidemic form. This disease has long been a serious source of loss in various parts of the Continent, including Holland, and is regarded as one of the major potato diseases in the United States, where it is responsible in some years for a loss due to tuber infection in the neighbourhood of 25 per cent of the crop. On the Continent, in the United States, India and South Africa, the ravages of this disease have been held in check fairly satisfactorily by use of the Bordeaux spray or copper-lime dust.

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## Longevity of Seeds

THE question of the longevity of buried seeds is always recurring, as witness the recent revival of the fable of 'mummy wheat'. There is abundant evidence that the embryo of the wheat grain perishes relatively soon, in ten years or less under ordinary conditions. Respiration goes on until the substance of the embryo is burnt away; extreme desiccation may prolong the process. Other seeds, however, do retain their vitality for much longer periods when dry, and when buried in earth germination may be indefinitely delayed. Possibly the tension of carbon dioxide in the soil gases slows down the respiration process; again, we have found that humus, particularly of deep-seated peat, contains substances inhibiting germination, even when the conditions of moisture, aeration and temperature are optimum.

This raises the fundamental question of whether the life of an organism can be suspended and pass into a static condition, to be resumed when the environment becomes favourable again. So far as our experimental knowledge goes, seeds are always respiring, considerably at first when they are drying off after ripening, but then more slowly, the machine just 'ticking over' as long as life remains.

If the essence of life resides in change, can there be a stop and a later resumption? On the basis of some continuing change, however minute, being necessary,