

acid on cotton; wool damaged by this acid gives a white spot inside a dark ring.

With coloured materials, while the coloured precipitate is not so noticeable to the naked eye, we have found it easily visible under the microscope even when the fabric and precipitate are the same colour.

Further investigations are in progress with the view of extending the scope of these tests.

C. WHITWORTH.
D. W. POXON.

Loughborough College,
Loughborough.

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¹J. Ind. Eng. Chem., Analyt. Ed., 14, 317 (1942), and 14, 519 (1942).

Soil Conditions Affecting Production of Perithecia in Banana Leaf Spot Disease

RECENT research¹ has brought to light the existence of the ascigerous stage (*Mycosphærella musicola*) of the fungus *Cercospora musæ*, during studies on the etiology of leaf spot or 'Sigatoka' disease of bananas. Perithecial formation is mainly seasonal, being greatest between August and January.

Experiments have shown that three-weekly spraying cycles, for example, with 4-4-40 Bordeaux mixture, are unable to control banana leaf spot satisfactorily unless the disease is brought under control before the start of the ascospore season. This applies to almost the whole of the banana-growing districts in Jamaica.

In a few isolated areas, however, it has been found that perithecia are produced in profusion throughout the year. A recent survey of these areas has shown that this 'out-of-season' production of perithecia is positively correlated with the growth of banana plants on highly acid soils (pH 4.0-4.75 approximately). Regular three-weekly spraying has likewise failed to give satisfactory control of the disease at any time throughout the year. Only by employing the weekly heart-leaf spraying method² has control been obtained. This method is impracticable once the plants have grown tall; unless liming or some other means can be found to ameliorate the effect of high soil acidity on the metabolism of the Gros Michel banana and its parasite (*M. musicola*), spraying will prove useless as an economic measure of controlling this leaf spot disease under these conditions.

No experimental data are at present available to explain this physiological problem. It is possible that the water relationship of the soil may also be found to play a part in this abnormal production of perithecia. A search through available literature has failed to disclose a similar example of soil conditions affecting the fructifications of a leaf spot fungus.

R. LEACH.

Banana Leaf Spot Control Division,
Department of Agriculture,
Jamaica.

¹ Leach, R., *Trop. Agric.*, 18, 91 (1941).

² Leach, R., "Banana Leaf Spot—When to Spray and Why". (Dept. of Agriculture, Jamaica, 1942.)

Rumford's Contributions to Nutrition

THE instructive note on Charles Darwin's health by Sir Buckston Browne in NATURE of January 2, p. 14, lends interest and certainly gives point to the

forthright opinions expressed by Count Rumford about "... that most pernicious wash, tea, with which ... the inhabitants of this island drench their stomachs, and ruin their constitutions".

"When tea is mixed with a sufficient quantity of sugar and good cream," he wrote; "when it is taken with a large quantity of bread and butter, or with toast and boiled eggs; and, above all, when it is not drunk too hot, it is certainly less unwholesome; but a simple infusion of this drug, drunk boiling hot, ... is certainly a poison which, though it is sometimes slow in its operation, never fails to produce very fatal effects, even in the strongest constitution, where the free use of it is continued for a considerable length of time."

When, some years ago¹, attention was invited to Rumford's contribution to the science of nutrition, the substitution of potatoes for bread had not the importance which it has now and which it had in Rumford's day. Rumford gives many interesting recipes and records that so strong was the aversion of the (Bavarian) public to potatoes that for a time he found it necessary to disguise them by boiling them down entirely to destroy their form and texture and so prevent them being detected. This is how he made *calecannon*, an Irish dish: potatoes 19 cwt., greens 295½ lb., butter 98 lb., onions 14 lb., salt 40 lb., black pepper 1 lb., ginger ½ lb. 273 gallons of pump water were brought to the boil; the greens were added, and fifteen minutes after they had come to the boil they were taken out and replaced by the potatoes, which were cooked in the same way. The potatoes being mashed (without peeling them), and the greens chopped fine with a sharp shovel, they were mixed together. The other ingredients were added, the whole was well mixed and it was served in wooden noggins to 927 persons. It would be scarcely possible, Rumford remarks, to invent a more nourishing or more palatable kind of food than *calecannon*; and with this kind of food there is no allowance of bread, nor is any necessary.

Rumford's advice on how to dress salt-fish to perfection has likewise an added interest at the present time: "the secret of cooking it is to keep it a great many hours in water that is just scalding hot, but which is never made actually to boil".

The King's Lodge,
Hunton Bridge, Hertfordshire.

A. F. DUFTON.

¹ Dufton, A. F., *The Lancet*, 231, (5913), 1535 (1936).

Sir Henry Miers

EXCEPT in popular estimation, no man's reputation really rests upon a single discovery, and whether Ramsay or Rayleigh discovered argon, or whether Ramsay, Hillebrand or Miers discovered helium, are really questions involving the definition of the word 'discovered', and, as Mr. Humberstone has found¹, of little or no interest to those most particularly concerned.

However, the circumstances surrounding those discoveries are of real interest, and may be made living stories through the correspondence which passed between those who participated in them. I have in safe keeping the letters which passed between Ramsay and Miers and a mass of papers and correspondence belonging to Ramsay, which were left by Lady Ramsay. I hope to publish them after the War.

MORRIS W. TRAVERS.

¹ NATURE, 151, 111 (1943).