

A remarkable substance has recently been isolated by H. G. Thornton at Rothamsted. The invasion of the root hairs of leguminous plants by the nitrogen-fixing bacteria is preceded by an excretion from the roots, which causes the bacteria in the soil to multiply. In turn, the bacteria excrete something which causes the root hairs to multiply and to curl; on the inner bend of curl, the bacteria enter. This substance has been isolated and is being studied.

The late S. U. Pickering obtained evidence of plant excretions capable of injuring other plants: these results have never yet been satisfactorily explained. There is much empirical knowledge about the harmful effect of growing plants on soil: fruit stocks, for instance, cannot be raised in succession on the same land, but new land is needed for each crop. Whether this is the result of excretions or of exhaustion of some essential minor element is not known.

The growing plants also affect the soil in other ways. Wallace has shown that grass grown as a cover crop raises the potassium and the iron content of the soil water and may thus cure iron and potassium deficiencies on certain soils; it also lowers the N/K ratio. He thus explains the paradoxical result that clean culture of fruit is not always the best: weeds in the orchard have their uses.

The production of cellulose in the plant is now being studied at Rothamsted, by A. G. Normen, and is opening up considerable possibilities in view of its importance in industry.

The ripened seed has its own group of problems. Barley has been studied most completely and L. J. Bishop has found surprising regularities in the make-up of the grain under various conditions of growth. The nitrogen content may vary from 1.2 to 2.4 per cent. and the proteins and carbohydrates change correspondingly, but always in accordance with a definite pattern which remains constant for any given variety. The value of barley for brewing depends to a considerable extent on the quantity of nitrogen compounds present, large amounts being detrimental, especially for beers that have to be kept for some time before consumption. The value of wheat for baking, on the other hand, is usually enhanced by high protein content, but it is also much affected by the physical state of the protein.

Many of the chemical problems in agriculture are shifting over to the direction of physical chemistry and especially to the branch that deals with colloids.

—*Journal of the Chemical Society*, Jan. 1935.

## Correspondence.

To The Editor, Madras Agricultural Journal, Lawley Road P. O.

Sir,

With reference to a short note under the caption "A note on the occurrence of *Pemphres affinis* of *Hibiscus esculentus* in Malabar" published in the May issue of your Journal, I would like to point out that the phenomenon of the occurrence of *Pemphres*, sought to be conveyed as a new discovery, has already been known at least since December 1935. It is not my intention to enter into a controversy in regard to any claim for priority in the matter of this observation. My purpose is simply to draw the attention of your readers to the following facts which may serve to elucidate the question at issue.

In pursuance of the general programme of a preliminary survey of *Pemphres* and parasites a tour in certain parts of Malabar was undertaken in December 1935 and in the course of this investigation this problem has been studied and reported upon as may be evident from the following extracts from my monthly



report for December 1935. "The most striking item of new knowledge that has emerged from this preliminary survey is the discovery of heavy *Pempheres* infestation in Bendai (*Hibiscus esculentus*) plants in a variety of ecologically different tracts including great elevations like Manantoddy. Until this visit no such profuse breeding has been noted. In fact the question of *Pempheres* breeding on Bendai was considered uncertain. The absence of the weevil in cottons wild and cultivated and allied plants even when growing adjacent to infested Bendai plants and the occurrence of the same in scores breeding profusely on Bendai plants tend to throw some light on its original habitat which still remains largely a matter of conjecture. It has also enlarged its known range of distribution. This observation also lends strong support to the supposition that Bendai is probably one of the more natural hosts of the weevil."

It is also stated by the writer of the note that he observed the presence of *Pempheres* adults on Bendai plants on the farm as early as the year 1933. It may be significant in this connection to point out that, in a joint paper on *Pempheres* problem by the author of the note and others published in June 1934, Madras Agricultural Journal, Vol. XXII, No. 6, p. 208, no mention of this observation seems to have been made. On the other hand the following statement recorded in that paper argues against the proposition "The only feature that makes a measure of control such as this somewhat hopeful is, that the insect so far as our experiments go, is unable to breed, leaving a few *Corchorus* plants, on any plant other than cotton" (p. 208).

The following extract from a letter written by the Farm Manager, Taliparamba under date 2-12-1935 in reply to my enquiry about the occurrence of *Pempheres* on cotton, Bendai or other allied plants in the farm and its neighbourhood speaks for itself. After stating that cotton, Bendai or other alternate hosts are not available on the farm he writes as follows:—"I have even enquired of the Entomology assistant about the occurrence of this pest on any of the local plants and he says that he has not come across this pest or the parasites on them."

I have presented these extracts for the information of your readers and I refrain from making any comments.

A. C. & R. I.,

11-6-'36.

P. N. Krishna Ayyar,

Parasitologist.

## II

To The Editor, Madras Agricultural Journal, Lawley Road P. O.

Dear Sir,

In the May issue of your Journal under Research Notes I was glad to read Mr. Gopal Menon's note on the occurrence of *Pempheres affinis*, F in Malabar. I may, however, give for the information of Mr. Menon and others who are interested in this subject, that this is not the first record of this weevil in Malabar. For, I noted the same on *Hibiscus esculentus* in N. Malabar (over fifteen years ago and have recorded the fact on p. 321 of the Report of the Proceedings of the 3rd Entomological Meeting Pusa 1919. Mr. Menon has evidently overlooked this previous record.

T. V. Ramakrishna Ayyar.

Girja Farm

Mundur (S. Malabar.)