

Ann. Mr. E. Brunetti¹ (1912) remarks in this connexion as follows: *P. major* var. *pernicius* Newstead, "A form described by Newstead as a distinct species from Malta is, according to Dr. Annandale, only a variety of *P. major*, an opinion in which I am inclined to concur, there being no difference in either the venation or the male genitalia". Sinton² (1928) supports the same view.

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Calcutta, Nov. 5.

¹ Brunetti, E., "The Fauna of British India" (Diptera, Nematocera"), p. 211; 1912.

² Sinton, J. A., *Ind. Jour. Med. Res.*, 16, 2, pp. 303-305; 1928.

THE Editor of NATURE has kindly permitted me to see Dr. Mukerji's letter, and I am glad to have the opportunity of replying to it.

Several investigators have recognised that *Phlebotomus major* and *P. perniciosus* are closely related. França and Parrot (1921) named the latter sandfly *P. major* var. *pernicius*. It is, however, certain in the light of recent investigations that *P. major* and *P. perniciosus* are distinct species. The males can easily be distinguished. They have a similar pattern of external genitalia common to all the males of the *major* group, but they show constant differences in important details.¹ The females can also be distinguished, though not so readily as the males. This problem is discussed in several papers which will be published shortly.

It cannot be emphasised too strongly that it is important to distinguish between closely related species of *Phlebotomus*, for these often show striking differences in their bionomics and distribution, and they may also differ in their capacity for transmitting disease.

S. ADLER.

Nov. 29.

¹ Adler, S., and Theodor, O., The Distribution of Sandflies and Leishmaniasis in Palestine, Syria, and Mesopotamia. *Ann. Trop. Med. and Parasitol.*, vol. 23, No. 2, pp. 269-306; 1929.

Leaf-Curl in Cotton.

IN an interesting letter (NATURE, May 3, 1930, p. 672) Mr. Kirkpatrick states that in the Gezira area (Sudan) an undetermined species of Aleurodidae causes leaf-crinkle. In the Punjab (N.W. India) *Bemisia gossypiperda*, Misra and Lamba (Aleurodidae), has been under observation during the last two years. This insect is present in enormous numbers but is not known to cause any deformation of the attacked leaves. Even in cages under conditions of a pure infestation of *B. gossypiperda* leaves literally covered on the under side with all the stages of the pest—eggs, nymphs, pupæ, and adults—remain quite flat and normal, and do not show curling, wrinkling, or crinkling. On the other hand, *Empoasca devastans* (Jassidae) definitely causes leaf-crinkle.

From the sentence quoted by Mr. Kirkpatrick from "Cotton in Africa" (NATURE, Feb. 22, 1930, pp. 291-92), and from his own statement that "leaf-curl of cotton . . . is transmitted mainly, if not entirely, by . . . Aleurodidae . . .", one is led to think that the disease is due to a causal agent which is carried either by a jassid or a white-fly. Has this been fully established?

In the Punjab we have had under observation several species of white-flies on several different hosts—

for example, citrus, castor, sugar-cane, cotton, etc.—but none of these white-flies causes any malformation of the attacked leaves.

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Living Ostracods in the Rectum of a Frog.

QUITE recently I received a communication from Mr. J. Omer-Cooper in the course of which he said: "When examining the contents of a frog's rectum yesterday in the course of our lab. work I noticed several living Ostracods. The frog had been kept for some time in a small aquarium which contains a good many ostracods. I have pickled up some of the contents of the rectum and also some of the ostracods from the aquarium. . . . The frog was chloroformed, well washed under the tap and dissected in normal salt solution. There is no chance that accidental contamination of the preparation can have taken place."

I examined both lots of ostracods and find that the two agree. Actually there was only one species present and that was *Pionocypris vidua* O. F. Müller, a very common ostracod. The observation is of interest as it gives a means of distribution of this ostracod, and the distribution of freshwater Entomostraca generally is a problem that requires a considerable amount of investigation.

There is, however, another aspect to the problem. The species in question is easily cultivated and reproduces parthenogenetically. Pure cultures can be obtained. If these are capable of passing through the intestines of various animals they may furnish a method of investigating certain changes that are going on there, both pathological and otherwise.

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Prof. H. B. Dixon.

THE news of the sudden and unexpected passing of Prof. Harold B. Dixon has just reached me, bringing with it the shock of personal loss. As one of the oldest of his Manchester students, space may perhaps be granted me for a few words of personal tribute.

I saw Prof. Dixon last when I was in Manchester in 1925. I called at his house rather late in the evening and found him busily engaged with a tableful of papers, working out calculations in connexion with his latest researches on gaseous combustion. We talked about his work and exchanged news of his old students until I missed the last tram into Manchester.

It was not until quite recently that I wrote to tell him of my doings since that meeting, and by return mail I received a charming letter from him, enclosing a page from his diary, closely packed with a week's engagements, while gently chaffing me on my partial 'retirement' in Bangalore. It was the last example of his method of the *oratio obliqua* so well known to his students. Like all of these, I owe him unmeasured gratitude for shrewd and wise advice, and effective help, at critical junctures. His careful watchfulness over our welfare was not always realised until revealed by later happenings.

Prof. Dixon was a splendid example of the scientific research spirit at its best, combined with an active and broad interest in human affairs. It was a privilege to know him well and to come under the stimulus of his inspiration.

GILBERT J. FOWLER.

Central Hotel, Bangalore, South India,
Oct. 27.