

#### Dispersal of Gall Mites by Gall Midges.

WHILE investigating the rôles of the mite *Eriophyes cheriani* Mass.<sup>1</sup> and the new species of gall midge *Microdiplosis pongamiae* Mani<sup>2</sup> in the peculiar polyp-like galls on the leaflets of *Pongamia glabra* Vent., it was discovered that the midges played a very important part in the dispersal of the mites. Ordinarily these mites are carried by wind and are wafted over long distances from plant to plant in strong gusts. But more often they are also carried by the adult gall midges in their flights.

The midges and the mites develop in the same gall, for which both of them appear to be responsible. The midges pass their larval and pupal periods in the galls. On emerging from the pupæ, the adult midges remain for a short time in the gall itself. At this time the gall cavity is over-crowded by mature mites. Some of the mites escape from the gall cavity but several of them also crawl over the legs, wings and abdomen of the midges and being of minute size, firmly cling to the midges, which do not appear to be greatly inconvenienced on this account. When these midges ultimately escape from the galls and fly away, the mites are also carried along with them and finally when the midges alight on some plant of *Pongamia* to oviposit, some of the mites drop down to the leaf. They then start life on these new plants. I have caught in and around Calcutta several midges on flight, which on examination were found to have these mites on the wings and abdomen and observations have shown that the midges have come from a distance. Galls have thus appeared on some plants in the Indian Museum compound, the mites and the midges having come from some infected plants on the maidan opposite.

This close association of the midges and the mites appears to be of mutual help to both of them. The mites have a sure chance of being safely transferred to new plants of *Pongamia glabra* Vent. (which is their food plant) by the midges. This is clearly an advantage over being blown by the wind and arriving at the food plant by chance. First the mites attack the plant and produce an invagination of the

leaf surface at the place where the eggs of the midges were deposited and thus provide shelter to the developing larvae of the midges, which also later contribute to the further development of the gall. It is thus remarkable that due to close association, same food and similar habits, the mites and the midges, have become mutually helpful, the latter helping in the dispersal of the former and in turn being provided with a shelter when young.

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#### Agricultural Education in India.

I HAVE been reading several articles about the necessity for establishing Agricultural Middle Schools for training young farmers. These schools were started but had to be closed for want of boys. In a country where education is meant to procure a job, it is not worth attempting to have special courses without sufficient number of appointments for the candidates that pass out. The schools would have got enough students if those that passed out could find ways and means of getting employed. Thus the same old story of the University man referred to in the said article comes about here also. Therefore the reform should, I fear, commence in the very system of education which should never allow to unmake agriculturists. Give the system of elementary education the required rural bias which many people speak of and never give employment to such as pass out of the elementary schools, so that they may freely go to the village and settle themselves down. The system of education in vogue in the Higher Elementary Schools is meant to be complete in itself and fit the boy passing out of it for rural life. Therefore, on principle it may be wrong to employ him even as a teacher. Therefore all teachers must at least be school finals even in all Elementary Schools of which the Headmasters can be graduates in Agriculture. They can easily give the agricultural colour to the elementary education better than any one else. A garden system of education can be started. If the Champion scheme of concentration is adopted, the Headmaster of one Higher

<sup>1</sup> Massee, A. M., *Ann. Mag. Nat. Hist.*, 1933, 11, 201.

<sup>2</sup> I have described this new species in my "Studies on Indian Itonididae," shortly to appear in Vol. 36 of the *Records of the Indian Museum*.

Elementary School can serve several schools in the group. Vernacular tuition in agriculture will not bring them in close contact with the scientific aspect of the subject. They have got, as it is, many items of elementary science subjects to study. All these can be so shaped that they have a rural utility and agricultural bias. An Agricultural graduate will be the fittest person to work it successfully. This reform will mean much superior kind of education to the rural

folk than what they are now getting from the elementary teachers. It must practically reach all the villages in a short time and transform the system of farming in a tangible way within a reasonable period. An Agricultural School started for each district or even taluk cannot but take many years to train a number of people large enough to make the villages in a taluk feel their presence.

“ONE PRACTICAL FELLOW.”

### Stray Animals.

NEITHER the Provincial Governments nor the Municipalities in India have thought it worth while to take the census of animals kept as pets and others which are not owned. A few years ago the enumeration of such animals in Europe revealed that Germany possessed the least number, and the report did not refer to Scotland. When an enterprising district officer devised an ingenious method of finding out recently the tiger population within his jurisdiction, hopes may be entertained that this shining example will not be lost on the authorities who have to deal with comparatively harmless animals.

The presence of an increasing population of animals prowling about human habitations and becoming intimately mixed up with the daily life of the people, raises a problem of great importance for the municipal authorities to solve. The Municipal Corporation in Bombay which had been carrying on the dog-catching operations recently, is confronted with the problem of keeping the stray dogs well under control. A trained staff, backed by financial resources, finds it difficult to destroy all the dogs, which somehow dodge their aggressors and try to perpetuate themselves as an integral part of the social economy of this prosperous town. The chief complaint against these animals is that during hot weather they become a source of danger, but the possibilities of pet dogs developing rabies are equally great.

Should the municipalities periodically destroy dogs which run about the streets of our towns? In a way their number and the condition of their health give us an idea of the quantity of food thrown out as waste. Do the dogs render any service to the people? They aid the municipalities in their conservancy department. They maintain a strict watch at night. The appearance of people at night, whose faces they are not acquainted with, rouse them frequently and they give a timely warning to the sleeping inhabitants. In times of scarcity, they continue to eke out a living by catching mice and bigger rodents and this is really a great service to man whose stores are raided by these small creatures, besides spreading pestilential diseases. Suppose the dogs in any locality are destroyed and precautions are taken against immigration from the adjoining districts, is there any reasonable assurance that the public health of the particular town would improve? We may diminish the number of dog bites; but in disturbing the balance of the secondary population of our towns, we may perhaps introduce unforeseen troubles. The municipalities have to conduct enquiries into the deeper issues of the complex economies of the towns under their control, before undertaking to eradicate an evil which perhaps may prove after all a blessing in disguise.