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ERADICATION OF LICE ON PIGEONS

H. P. WOOD

Entomological Assistant, Investigations of Insects
Affecting the Health of Animals

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L. O. HOWARD, Chief

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COMPLETE ERADICATION IN ONE TREATMENT POSSIBLE.

Although there are but few injurious insects in the case of which we may expect to obtain 100 per cent control, it is now a well established fact that the Mallophaga, or bird lice, fall in this class. The factors necessary for this accomplishment are right methods, thoroughness of application, and complete control of the host after treatment. In a previous publication¹ it was stated that sodium fluorid dusted on pigeons had been found effective in the control of lice. Since then a method has been perfected by the writer, under the supervision of Mr. F. C. Bishopp, whereby the lice on a flock of pigeons may be eradicated with one treatment. Pigeons, like chickens, are often kept under the complete control of man, and in such cases it seems foolish to fight perpetually a pest that can be completely eradicated.

No one doubts that all animals thrive better when free from parasites than when infested, although figures showing the actual damage are not obtainable in most cases. Pigeon lice, like chicken lice, may be in a flock and not be noticed by the owner until some birds are found in poor condition, and then, in a search for the cause, it often happens that a large number of lice may be found. Owners of pigeons claim that squabs do not take on weight satisfactorily when the adult pigeons have many lice. A lousy flock spends a good deal of time picking at the feathers. When there are no lice, only the natural preening of the feathers is noticed.

METHOD FOR COMPLETE ERADICATION.

Eradication of lice on pigeons by one treatment is possible, and this may be accomplished, first, by a thorough treatment with sodium fluorid by dipping, and, second, by the complete control of the pigeons after treatment.

When eradication of lice from a flock is to be attempted the following method is suggested. Choose a bright hot day in the middle of

¹U. S. Dept. Agr., Farmers' Bul. 801. Mites and Lice on Poultry, by F. C. Bishopp and H. P. Wood.

summer when the weather is settled so that there is little danger of the birds being rained on right after treatment. Begin treatment early enough so that the birds will be dry by sundown. Treat every pigeon and squab by dipping it in a solution of commercial sodium fluorid 1 ounce, laundry soap (hard) $\frac{3}{4}$ ounce to 1 ounce, and water 1 gallon. The sodium fluorid may be measured by using 4 level tablespoonfuls to the gallon of water. The body of each pigeon should be submerged in the solution until it is soaked to the skin. The head of the bird is then ducked under and it is set free. If it requires more than 10 to 15 seconds to wet the pigeon thoroughly more soap should be added. Even the smallest squabs may be treated without injury by this method, and all squabs should be so treated in order that every louse may be killed.

In order to prevent reinfestation no pigeon should be introduced into the flock without first being dipped as above described. Precaution against stray pigeons getting into the flock should be taken. The flock should never be allowed its freedom because of the danger of picking up stray pigeons.

THE DUSTING METHOD.

While the foregoing method is recommended for eradication, a high degree of control may be obtained either by dusting sodium fluorid with a dust can or by putting a pinch of sodium fluorid in several places on the bird. *Dusting by any method should not be attempted if complete eradication is desired.* It is probably due to the closeness of the feathers that lice are not completely eradicated by the dusting method. The dry treatment has the advantage of being applicable at any season of the year.

To dust the birds by the pinch method hold the wings back to back with one hand and with the other put a small pinch of sodium fluorid beneath the feathers next to the skin in about ten places distributed over the body as follows: One on the head, two on the back, one scattered on each wing and tail, one on each thigh, one below the vent, and one on the breast. A pinch of sodium fluorid is the amount that is retained between the tips of the thumb and finger. For squabs which have not feathered sprinkle a very light dusting over the skin with the fingers. As sodium fluorid is irritating to the respiratory tract, the pigeons should be dusted in the open air and be kept away from the young a short time till the free material is shaken out of the feathers. A moist cloth tied over the nose of the operator will largely prevent the irritation produced by breathing the powder. When the dust can is used in place of the pinch method the holes in the can should be rather small, so as not to waste material or use so much that the birds are injured by inhaling too much of it.

If directions are followed there need be no injury. When the dust can is used two persons can work to better advantage than one. One holds the pigeons and the other applies the treatment. As with the pinch method, the powder should be applied by lifting the feathers on several parts of the bird and dusting the powder next to the skin. It is a good plan to hold the birds over a paper or pan so as to recover the powder which drops. Care should also be taken not to allow the powder to get into the food or water.

ADVANTAGES OF SODIUM FLUORID.

The danger of reinfestation from lice on molted feathers, etc., appears to be negligible, due, no doubt, to the fact that the lice confine themselves closely to the birds. Lice that get separated from the host either die in a short time (the writer has observed *Goniocotes compar* N. to live for 48 days away from its host and *Colpocephalum longicaudum* N. and *Lipeurus baculus* N. between 30 and 41 days) or get back on the host. Owing to the character of the feathers it seems likely that some of the sodium fluorid remains in them for a long period, this explaining the high efficiency of one treatment. To be on the safe side it is a good plan to make a general clean-up at the time of treatment.

If the owner of a flock desires merely to treat individual cases of heavy louse infestations, sodium fluorid is undoubtedly the best material to use, because one treatment when thoroughly made kills all the lice and gives protection for a considerable length of time, even though the birds are exposed to reinfestation.

INEFFECTIVENESS AND RISK IN PLACING THE INSECTICIDE IN THE BATH WATER.

It has been suggested that lice may be controlled by putting a licide in the bath water. This would undoubtedly be a labor-saving method if effective. The author has tried this method but found it ineffective. Among the things tried in the bath were salt, soap, sulphur, sodium fluorid, and creolin. Though all of these materials will kill lice, yet none were found effective when placed in the bath. The reason for the noneffectiveness of a treated bath lies, it seems, in the superficial bathing habit of the birds, by which comparatively little water gets beneath the feathers. There is also danger in putting poisonous insecticides in the bath water, for the birds drink from the pans. As sodium fluorid has a taste similar to salt, pigeons would not be averse to drinking from a bath containing this chemical. One bird in the experiment was killed, apparently from drinking some of the sodium fluorid bath, even though fresh water was also provided.

SODIUM FLUORID PROBABLY EFFECTIVE AGAINST ALL KINDS OF PIGEON LICE.

On the pigeons treated, the two most common species of pigeon lice, *Lipeurus baculus* N. and *Goniocotes compar* N., were abundant.

Judging from examination of a number of flocks, the other six species said to occur on the domestic pigeon are not common. Records are at hand, however, of the occurrence on pigeons of *Colpocephalum latum* N., at Orlando, Fla., and Ancon, Canal Zone. In addition to Dallas, Tex., *Goniocotes compar* has been taken at Aberdeen, S. Dak., Orlando, Fla., and *Lipeurus baculus* at Aberdeen, S. Dak., Orlando, Fla., Mound, La., and Uvalde Tex. Kellogg reports *Menopon longicephalum* Kellogg taken on pigeons at Lawrence, Kans. Herrick has taken *G. compar* and *L. baculus* at Ithaca, N. Y., and has taken the latter at Agricultural College, Miss. *Goniodes damicornis* N. is reported by Kellogg in the United States. The following species are also said to occur on pigeons but not reported in the United States: *Menopon biserialatum* Piaget, *M. latum* Piaget, and *Goniodes minor* Piaget.

Although the treatment was applied to but two of the eight species occurring on pigeons, there seems to be no doubt that it would prove as effective against any of the other species. The treatment of the domestic hen with sodium fluorid was found effective on seven species of lice occurring on that host.

SPARROWS PROBABLY UNIMPORTANT AS SPREADERS OF PIGEON LICE.

Sparrows are often blamed for spreading lice and mites and so are to be considered in the control of pigeon lice. We have no clear evidence against them. The lice taken on pigeons have not been taken on sparrows. Neither is the mite commonly found on the sparrow the same as the common chicken mite. Nevertheless it seems likely that they may occasionally act as mechanical carriers of both lice and mites, especially in cases of heavy infestation. In the same way pigeons may act as mechanical carriers of lice and mites of poultry. To the writer, however, it would seem a very rare thing for an infestation of lice to be started in this manner.

CONCLUSION.

Though all the different chemicals suggested for the control of lice on pigeons were not tried, sodium fluorid can be used with great success at moderate cost and without injury to the birds. To the man with a commercial flock who desires to eliminate the louse problem it is suggested that he first try on a small number of birds the dipping method herein described and after he has become familiar with the procedure and convinced of its efficiency he can treat his entire flock with confidence of success.