Arthus phenomenon in view of the following important features: (1) Single sensitization is sufficient; (2) the reaction is obtained when rabbits are not ready as yet for the Arthus phenomenon; (3) the skin preparation with certain potent bacterial filtrates[3] is essential—inflammatory substances are incapable of eliciting the preparation; (4) the reaction is limited to the prepared skin site; (5) the antigen-antibody combination has to take place in the blood stream.

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SYRINGOPHILUS BI-PECTINATUS A QUILL MITE OF POULTRY[1]

DURING the summer of 1930, five chickens were presented for examination which showed a condition not previously observed at this laboratory. These fowls were presented with the following history and symptoms: A peculiar molt in the flock had been noticed for about one year. The loss of feathers involved over half of the body in most cases, and in many all the feathers were lost. About 75 per cent. of a flock of 1,500 birds were affected with this condition. Aside from the loss of feathers, the birds were apparently in good physical condition.

When the birds were examined, it was found that many stumps of quills remained and had the appearance of being broken. The interior of the quill contained a yellowish-gray or brownish powder, in place of the normal white transparent pith. This material was examined with the aid of a microscope and found to contain a large number of mites which were identified as the *Syringophilus bi-pectinatus*.

This mite was first reported by Heller,[2] who found them in the quills of chickens and pigeons. He stated that up to 90 per cent. of all the chickens of the province Schleswig-Holstein that were examined by him were found to be parasitized. Norner[3] presented a thesis on this mite in which he gave a detailed description of the parasite, together with methods of preservation and staining. The only report of the finding of this mite in the United States is by Hancock.[4] He found it on the feathers of the black flycatcher (*Phoenopepla nitus*) and described it as a new species, *Picobia villosa*. Trouessart[5] claimed that this supposedly new species was actually identical with *Syringophilus bi-pectinatus* Heller. In the same year (1895) Hancock accepted the view that his species was the *Syringophilus bi-pectinatus*.

Since September, 1930, this mite has been found in five widely separated flocks of chickens in Ohio. It has also been found in the turkey and the golden pheasant.

This mite has an oval body provided with numerous stripes and furrows, which run both horizontally and longitudinally. They are parallel to each other and consist of a thickening of the epidermis. The posterior end is rounded. The head is long, especially in females. On each side of the head, lying close to it, is a palpus. The mature mites have eight legs, the first two pairs lying close to the head, the other two behind the middle of the body. The legs are armed with numerous bristles; toward the end there are two short hooklets, bearing two pectinate (comb-shaped) chitinous structures. This double comb is characteristic for this mite and is the reason Heller chose the name *bi-pectinatus*. The body is divided into three segments, a head, thorax and abdomen.

The female mite may attain a length of 0.74 to 0.84 mm; a width of 0.16 to 0.2 mm. The length of the male is 0.56 to 0.6 m; the width is 0.17 to 0.19 mm. The nymphs reach a length of 0.3 to 0.5 mm. and a width of 0.13 to 0.15 mm. The larvae have a length of 0.23 to 0.31 mm. and a width of 0.09 to 0.13 mm. The average length of the ova is 0.26 mm. and their average width is 0.16 mm; the ova taper toward the poles.

Trouessart[6] states that this mite enters the quill at its upper umbilicus, which remains widely open during the whole period of development and is not closed until the quill is fused to the shaft. The mite makes its exit from the inferior umbilicus after death and desiccation of the feather.

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[3] G. Shwartzman, *J. Exp. Med.*, 51, 571, 1930.

[1] The College of Veterinary Medicine, The Ohio State University, in cooperation with the Ohio Agricultural Experiment Station, Reynoldsburg, Ohio.

[2] A. Heller, "Die Federspulmiben die Schmarotzer," pp. 186–188. 1880.

[3] C. Norner, "Syringophilus bi-pectinatus," Oesterr Vierteljahrssch. f. wiss. Veterinarkunde," 57: 91–148, 1882.

[4] Joseph L. Hancock, *The American Naturalist*, 29, 382–384 and 866–867, 1895.

[5] E. L. Trouessart, *The American Naturalist*, 29: 682–684, 1895.

[6] E. L. Trouessart, "Sur les Acariens qui vivent dans le tuyau des plumes des Oiseaux," Comptes Rendus de l'Acad. des Sciences, p. 1130, 1884.

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