

English Translation for National Pediculosis Association July 2005.

Swedish Medical Journal 52 (29) pages 822+26

July 1955

The springtail Sira, a pesky human parasite, confirmed for the first time in Sweden.
By entomologist Felix Bryk, Solna[Vay1]

Until now, collembolans or "springtails" have played a miniscule role as parasitic insects on the human body from an entomological/medical standpoint. Rarely, if ever, are they mentioned in the scientific literature. However, the appearance of a previously unknown collembolan as an occasional parasite that for years caused depression in a patient and continues to do so - so far a unique case - has now rightly gotten the attention of scientists. For the material to be examined, I wish to thank above all Senior City Medical Officer, Dr. Harald Tyrenius, who sent a small tube containing insects to Professor Viktor Butowitsch of Forestry Research at the Swedish University of Agricultural Sciences. The accompanying letter says, for instance, that "upon information, the animals are found in the 'lower body'."

In agreement with Dr. Tyrenius and his patient, I contacted the latter on the phone and received from her the following pathological picture, clearly accounting for the pathogenesis.

The female patient, a 60-year-old married housewife had been suffering for two years from a "nervous disorder." She had consulted various physicians, including dermatologists. However, none were able to determine the cause of the medical problem, which manifested itself as a weak, although, annoying itching, and considered being of a nervous type. In the end, the patient herself managed to detect the culprit, which resided in the genitals and anus, organs that are difficult to access. These small insects Dr. Tyrenius determined not to be pubic lice before contacting Professor Butowitsch.

Initially, the patient believed that the creatures causing her discomfort were lice. They caused irritation, especially at night. They crawled out of their hiding-places. She vaguely felt how she was being "stung" by these creatures, leaving small red pricks on the skin of her torso all the way up to the arms. In specimens that were killed in hot water, she discovered a glassy, sharp process on the abdominal hind parts, whose "sting" she rightfully attributed to her "nervous condition." As a

means of extermination, she received gray ointment[Vay2] and finally DDT, all of which, however, proved ineffectual. The poor woman was in complete despair not being able to get rid of these stubborn parasites. To my question whether she possessed any potted plants, since according to Walter (Axelsson) Linnapiemi (1907, page 216), these insects[Vay3] 'reside under potted plants in residential dwellings and greenhouses', she answered in the negative, instead the springtails were present in the bathroom, crawling on the walls, on the damp floor, in the drain, and the toilet. "Especially, the toilet brush was teeming with these parasites." That is why she called them sewer animals (a wordplay on the Swedish word for monotreme), adding the qualifier "horrific." As such, they had previously eluded entomologists. The 10 specimens contained in the tube that were forwarded for closer scrutiny, she had gathered gradually.

As for the entomology: Associate professor Karl-Herman Forsslund determined the animals as *Sira planiani* Nic. Furthermore, he had the animals examined by a specialist in Copenhagen, Dr. S. L. Tuxen, who confirmed Dr. Forsslund's diagnosis, and also discovered a single specimen of a closely-related *Sira buski* Lubbock among the examined animals.

Sira is of the springtail genus, about whose parasitism, nothing was previously known. Since, like all collembolans, it has weak mouth parts, it is incapable of biting, except for no more than nibbling at the epithelium, which of course may be perceived as a bite due to the great sensitivity of the mucous membrane in this biotope. It seems to me that it is the crawling with the rather well developed claws of the animal's three pair of feet is the most likely explanation for the alleged "bites." The patient observed some sort of sting at the extremity of the animal's abdomen to which she attributed the major part of her discomfort that the animal caused her. In reality, however, collembolans have no sting, instead they have a long projecting "jump fork" on their underbelly that is incapable of performing any bites, because it is soft. Due to the pressure created when attempting to jump – hence the name "springtails" – the tip of the fork could easily cause an unbearable irritation in body parts as sensitive as the vulva, and then being perceived by a patient as bites. By consulting noted reference books, I have tried to collect information, particularly about *Sira*, but generally and more broadly also about collembolans as ectoparasites in humans, but with a meager result.

There are no references to *Sira* at all, which is why its mere discovery as an unpleasant parasite in humans deserves special attention. The statements by

Martini (1952, page 120[Vay4] and 354 about collembolans are immaterial or plainly misleading. On page 354, he writes[Vay5]: "Very discomforting mosquito-like skin irritations attributable to collembolans of the genus *Engomobrya* attempting to bite". I already pointed out that collembolans do not have this ability to bite. Furthermore, Martini mentions *Lepidocyrius curvicollis* as an occasional parasite sometimes assumed to nestle in human hairs.

Martini's statement about the occurrence of springtails in human hair likely refers to the unusual case reported by Freche and Beille in the minutes of a meeting of the Academy of Sciences in Paris (1896, page 70). A well-groomed man in his seventies returning in August of 1891 from a journey to the island of d'Oloron sensed numerous parasites in his hair, after two weeks or so, which he assumed to be fleas. Treatment with a mercurial preparation proved to be beneficial. As winter came around, he had gotten rid of the parasites and believed this to be the end of it, but in the spring of 1892, they re-emerged and remained until November. The situation repeated itself in 1893, followed by another disappearance in the winter. This continued for several years, i.e., 1894, 1895 and 1896, regardless of the disinfection of the patient's body and all of his household goods[Vay6]. "The parasites seem to become increasingly abundant." At first, the animals appeared only in the hair, which he carries very long, but since 1894, they were crawling on his neck, torso and[Vay7] "absolutely smooth and hairless limbs," i.e., on his entirely hairless extremities. These parasites leave no injuries of the skin, which exhibits no[Vay8] "pathological change." The animal is only vexing and unpleasant due to its movements. The authors assume that the insect is a new species of the *Sira* genus. Martini later determined it as *Lepidocytus curvicollis*.

On April 5, 1955, Lord Justice Dr. Max Cretschmar in Celle in Germany mentioned to me that[Vay9] "I had received a sample of the collembolan *Orchesella cincta*, several specimens of which were found on a child, which were provided on the assumption that they were ectoparasites."¹

Two questions emerge. First, does *Sira* prefer female individuals of the species *Homo sapiens* as "host animal," and second, was *Sira*'s occasional biotope originally the rectum or vulva? Ignoring Carl v. Linné's extraordinary statement "particularly in the female species" concerning fleas, (Bryk, page 30), I found only one reference in the relevant literature indicating that an insect, although harmless, has a

¹ It would be of interest to veterinarians that according to M. Megnin another collembolan, *Podurhippus pytyriasius*, was found in vast numbers in the wounds of a poorly-kept jaded horse.

preference for the weaker sex. As for the long-horned *Clytanthus pilosus* Forster, Planet says (1924, page 173) "it often settles on the clothes or the back of the neck of perspiring persons, especially female individuals." If, in fact, women perspire more than men, then my question as to why the special odor of women rather than men attracts the insects more would have found an answer, and this would explain the sporadic occurrence of ectoparasites in the vulva. The occurrence, for example, of caterpillars of butterflies in the vagina, reported by professor M. Hering (1937, pages 139-140), should not in any way be seen in connection with the *Sira* case, since in this rare case, the caterpillars, which feed exclusively on plants, and therefore harmless in this regard, entered their new habitat due to the contamination of an irrigator, where otherwise they would have pupated.

That *Sira*'s preference for toilet brushes seems to indicate that the smell of feces is what originally attracts them there. Their migration to the vulva would then be stage two of taking up residence in new areas.

Since controlling the collembolan plague ultimately must lead to its extermination within its original habitat, I would like to bring my article to a conclusion by citing the only passage in which the British researchers Patton and Evans (1931) mention collembolans[Vay10].

"Important: Springtails may become a nuisance in damp cellars in houses where they may get into the ground floors, around sinks, and into the conservatories. Should they prove a nuisance, a mixture of slaked lime and sulphur is recommended by Herrick. It should be spread over the floor, shelves and the walls; a dry atmosphere is inimical to these insects".

In analogy with the scientific names of diseases caused by insects such as Myiasis or Phthiriasis, I suggest the name *S i r a c i a* for the ill caused by *Sira*, as discussed in detail above.

Literature:

F. Bryk: 1925. Vandringar i naturens o. kulturens riken (Excursions in the realms of nature and culture), Stockholm

Freche & Beille: 1896 Sur un parasite accidentel de l'homme, appartenant à l'ordre des [illegible] présentée par Edmond Perrier. G. R. des Séances de l'Acad. d. Sci., CXXIII, No. 1, 70, Paris. (An accidental parasite in humans, belonging to the genus [illegible] presented by Edmond Perrier, etc.)

M. Hering: 1937 Schmetterlingsraupen in der menschlichen Vagina. Zeitschr. F. ärztliche Forschung[Vay11], XXXIV, pages 139-148. (Caterpillars of butterflies in the human vagina. Journal for Medical Research, etc.)

W. Linnapiemi (Axelson): 1970 Die Apterygotenfauna (The apterygial fauna) Finlanda II, Helsinki

M. Martini: 1952 Lehrbuch der medizinische Entomologie mit Beiträgen von Dr. F. Peus und Dr. W. Reichmut. (Vierte, überarbeitete Auflage) (Fourth revised edition) Jena. (1952 Medical Entomology Textbook, including articles by Dr. F. Peus and Dr. W. Reichmut).

Patton & Evans: 1929-1931 *Insects, Ticks, Mites and Venomous Animals, Vol. 2, London*

I.M. Planet: 1924 Les longicornes de France, Paris. (Long-horned beetles of France)

This English translation of the Bryk article was obtained by the National Pediculosis Association and certified by **MultiLingual Solutions, Inc.** The article is published on www.headlice.org with the permission of the Swedish Medical Journal where the original article was published in 1955. It is possible that some of the terminology it contains has changed since the report was originally printed.

[Click here to view the original document \(in Swedish\)](#)