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## Hallucinations or Illusions of Insect Attack Causing Annoyance to Man

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Each year staff members of the Oklahoma State University Entomology Department identify hundreds of arthropods and suggest control measures. Occasionally, however, we are unable to find any arthropods in the material sent in for identification and cannot identify the arthropods by the description supplied. In such cases the individual bothered by the "bugs" is requested to send in a sample in alcohol. When this is done and no arthropods can be found, careful examination of the premises may provide an answer.

If the "bugs" are biting or stinging humans and yet cannot be found, the individual is asked to swab the affected area with a bit of cotton soaked in alcohol as soon as the irritation is noted. The swabs are stored in a tight container and brought into the laboratory for examination under adequate illumination and magnification. The patient is shown each sample under high magnification whenever possible.

Several examples will illustrate the problems involved.

### CASE NO. I

A pest control operator after fumigating a large warehouse and office building with HCN to control rats was called back to control large numbers of mites which appeared soon after the fumigation and caused annoyance to personnel in the building by biting.

These mites were identified as tropical rat mites *Ornithonyssus bacoti* (Hirst), which normally feed on rats but began feeding on humans when their primary hosts were killed.

The building was fumigated again with three times the initial dosage of HCN. Live mites no longer appeared but two of the women working in an office continued to complain of severe biting. The author was asked to examine the building to find the cause of the continuing irritation. No live mites were found but both women showed lesions closely resembling those caused by tropical rat mites. A renewed search failed to disclose any live mites.

The women involved were asked to swab any area of skin with cotton soaked in alcohol as soon as irritation was noted and store the swabs in a tight container for examination. Forty-two percent of all swabs showed fragments recognizable as parts of tropical rat mites.

This suggested the two women had been sensitized to the tropical

rat mite and even small fragments caused irritation.

When small mite fragments were placed on the inner surface of the upper arms of both women, lesions indistinguishable from those claimed to be caused by mite bites appeared.

No further lesions were reported after the office had been thoroughly vacuumed and repainted.

#### CASE II.

A county agent sent in a large amount of debris collected from a large, relatively new, home and requested that we provide control measures for the "bugs" living in it. The "bugs" were said to be biting the housewife, a relatively young, well educated woman who was bitten extensively, particularly on the arms and chest.

Careful examination revealed a wide variety of arthropods, including several species of plant-feeding mites, four species of leaf hoppers, several families of Coleoptera, one heliid, and two mosquitoes. It seemed unlikely that any of the arthropods found were responsible for the irritation reported so a second sample was requested. This, too, was negative. The city sanitarian sent in samples which were followed by samples collected from the same rooms by a veterinarian and a physician. They, too, yielded no arthropods thought to be able to cause the symptoms reported by the housewife. When swabs collected as explained above were examined, no arthropods were found consistently. A second series of swabs was examined and again no arthropods were found consistently, but in sixty-eight percent of the swabs elongate greenish crystalline-like material was seen. These small sharp objects caused some irritation when pressed on the skin of the author.

It was found that the housewife washed dishes in front of an open window and used a cleanser which contained many small, greenish, crystalline-like, sharp-pointed objects.

The irritation stopped when she changed cleansers.

#### CASE III

Another housewife brought bits of debris to the office several times and asked for suggestions for controlling the "bugs" which had invaded her bed and bit at night. No arthropods were found on examination.

The author went to her home taking a good dissecting microscope to "examine the bugs while they were fresh and before they had dried so much they were invisible." No insects were found and the housewife soon became convinced that what she thought were "bugs" were actually bits of debris and the apparent motion thought to indicate life was due to wind currents moving bits of debris.

She had no further trouble with bugs biting and reported two weeks later that she was convinced the bites were the result of an illusion.

#### CASE IV

A couple from another town called and asked for a confidential appointment in the evening. They indicated they had been referred to the writer by a physician in hopes it would be possible to determine the insect which had caused severe annoyance to the wife for two months.

During the visit it was pointed out that the insects bit Mrs. X, usually on the arms or legs, but at times anywhere on the body. In addition,

they were numerous for two to three days and then seldom seen for about two weeks. The insects were said to be just barely visible without magnification.

Mrs. X had dropped all of her social activities when the "insects" infested her body, to avoid spreading them to others.

No arthropods were found in the material they brought for examination nor did the small intensely inflamed areas on the arms show evidence of having been bitten when greatly magnified.

She was asked to save cotton swabs as explained above and did so very carefully. Each day's collection was kept separate. When they returned with the collection three weeks later, pollen grains were noted in approximately thirty percent of the samples. Most of the pollen came from Bermuda grass, *Cynodon dactylon*, and identical lesions to those said to be caused by biting insects were produced by placing Bermuda grass pollen on a sensitive area of her skin.

Careful avoidance of Bermuda grass cured the "insect infestation" according to the last report.

#### CASE V

Mr. Y came into the entomology office requesting help in getting rid of a very annoying "bug" which had caused him tremendous annoyance for approximately two months. He had requested help from several individuals, but had finally been sent to our department because "you know all about bugs."

Each night after he retired a "bug" would attack him, always biting on his cheeks and forehead. He had tried many kinds of insecticides in his bedroom, had the bed legs in containers of kerosene, had fly paper scattered about the room, pyrethrum dust was scattered on his sheets and he had used an aerosol insecticide applicator every night before retiring—but all to no avail. The "bug" always evaded all of his efforts to kill it and bit him on the forehead and cheeks.

Examination of these areas showed evidence of extensive scratching and rubbing but no suggestions of biting. The man was highly nervous and indicated he had slept very little for an extended period because of the "bug's" activities.

There seemed to be little evidence of arthropod activity but a simple control procedure was suggested. He was asked to discontinue use of the fly paper, kerosene, pyrethrins and other insecticides; to replace the pyrethrum dusted sheets and purchase new night wear. This was to be followed by a long hot bath until he was completely relaxed, before retiring. He was asked to put a blob of vaseline on the areas where "the bug" bit just before getting into bed. It was explained to him that "the bug" would become entangled in the vaseline when it came to feed and even though he could not see "the bug" in the morning he could wipe off the vaseline and "the bug" would have been eliminated.

Two weeks later Mr. Y returned looking like a new man. He explained, that even though the suggestions seemed inane, he had followed them to the letter and "the bug" had been eliminated.

#### CASE VI

Mr. Z. was asked to visit the entomology department by his physician to obtain suggestions for eliminating the arthropods constantly annoying him. He explained that he had picked up a bad case of "bugs" and

needed help in getting rid of them. He was 64 years of age and had been ill much of the time during the past 10 years. However, he was working and wanted to get rid of the "bugs" to avoid contaminating other people, particularly his family with whom he had been living but left to protect them.

As he spoke he would suddenly say "There they are, there they are, right in front of me. You can see them, can't you? My eyes aren't so good but I can see them." Nothing was visible to the writer.

He took extensive precautions to keep "the bugs" from biting. Even though it was summer, his shirt collar was carefully buttoned and he wore a scarf to keep "the bugs" from going down his neck. Two shirts and two pairs of trousers were worn to prevent biting. Each night after work he tried to drown the "bugs" by getting into the shower, clothes and all—but all to no avail. As soon as he touched the shower valve they quickly left him and waited until he left the water, only to bite harder because of his attempt to harm them.

The writer visited his home and found it glistening with crystals of lindane as a result of spraying with 25% emulsifiable concentrate lindane. He indicated he had used chlordane, DDT, dieldrin and malathion but none of the materials helped. In addition, he had serious blisters on much of his body because someone suggested Lysol might help but forgot to tell him to dilute it. No live arthropods were found in his home nor could any suggestion of previous infestation be found. He carefully saved small bits of alcohol-soaked cotton which had been rubbed on irritated areas but the writer was unable to find anything of significance following careful examination.

Mr. Z returned at approximately weekly intervals for six months, seeking help but no definite suggestions were made. He was convinced the "bugs" disliked water so swimming was suggested. Alcohol rubs provided relief but the problem always returned.

Unfortunately Mr. Z continued to use new insecticides that were suggested and dangerous residues were present in his home. He passed away a little over six months after he first came for help without getting rid of the hallucinations of insects.

Relatively few articles have been written concerning hallucinations or illusions of insect attack but many biologists can give examples from their experience.

Smith (1934) suggests that such cases must be treated with sympathetic concern. The individual has a problem of great importance to him and is seldom able to recognize it as an illusion or hallucination. He further stresses the need for considering the possibility of narcotic addiction which may produce hallucinations of insect infestation.

Herms (1950) stresses the need for maintaining the confidence of the patient who has usually come to someone because of his specialized knowledge in the field.

Many pest control operators make a decision to treat a home for insects which have not been found or to flatly tell the individual no insects can be found and treatment is not warranted even though they are convinced the homeowner may derive relief from their imagined attacks by the application of insecticides. Several lawsuits have resulted from refusal to treat a home under such circumstances followed by mentioning the reasons for the refusal to other pest control operators.

LITERATURE CITED

Herms, W. B. 1950. Medical entomology. MacMillan Company, New York. 643 pp.

Smith, Roger C. 1934. Hallucinations of insect infestations causing annoyance to man. Bull. Brooklyn Ent. Soc. 29: 208-12.

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