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CONTRIBUTED ARTICLES.

BED BUGS.

(From "*A Treatise on Hygiene and Public Health*," pp. 288-9.)

By B. N. GHOSE AND J. L. DAS.

AT least one way in which kala-azar is transmitted from man to man is by the bite of the ordinary bed bug and it is also generally accepted as the agent by which typhus fever is transmitted. The ubiquitous tormentor is found to have a greater importance as a carrier of disease than as a simple household nuisance. In India two species, *C. mex lectularius* and *C. rotundatus*, attack man. The flattened reddish-brown colour which characterises them is familiar to all. It appears that the bed bug was originally a parasite of birds and mammals, but although it is confined chiefly to man it has other hosts as well. It has a very wide distribution and can survive long periods—even a year—without food (Lefroy). The eggs are laid in any place to which the females can gain access—in cracks and fissures, in furniture, etc. Like a mosquito it injects an irritating fluid which causes a flow of blood to the spot on which it engorges itself.

Bugs are nocturnal in their habits, but seem to be active at all times. They are usually found in any numbers in dirty beddings, clothes, in cracks in the floor and walls, in chairs, railway carriages, tram-cars, etc.

Fumigation with hydrocyanic acid and formaldehyde is often resorted to in railway carriages and buildings. Superheated steam may with advantage be tried in India. Absolute cleanliness is essential, and scrubbing the floors and bedsteads with kerosine oil, turpentine or pyrethrum powder helps to destroy the pests. Cockroaches and small red ants are their natural enemies.

INSECTS.

(Taken from "*A Treatise on Hygiene and Public Health*," pp. 273-4.)

By B. N. GHOSE AND J. L. DAS.

General Character of Insects.—The bodies of insects are covered with a tough skin and divided into three distinct parts: the head provided with two antennæ or horns, and eyes and mouth of variable form; the trunk and thorax composed of three segments which has underneath it always six articulated limbs, and often above it two or four wings; and abdomen composed of nine segments some of which may be difficult to recognise. In addition to these characteristics they are not provided with interior skeletons and their nervous system is formed of a double cord, swelling at intervals and placed

under the head and along the underside of the body. Insects are not provided with lungs but breathe by particular organs termed tracheae extending parallel to each other along each side of the body, and communicating with the exterior air by lateral openings called spiracles. The sex of all insects are distinct and they are reproduced from eggs (Lukis and Blackham).

The following is a list of insects classified by Balfour and Archibald and the diseases they are known or supposed to transfer;—

1. *Ants*.—These insects may readily convey all the diseases due to contamination of food, such as cholera, dysentery and enteric. There is no definite proof that ants act as carriers, but considering their habits in tropical countries, it is far from unlikely.

2. *Bed Bugs*.—These loathsome insects are charged with the conveyance of anthrax, kala-azar, leprosy, some skin diseases, tuberculosis, typhus fever and yaws.

3. *Fleas*.—It has been definitely proved that plague is conveyed by fleas.

4. *Non-biting Flies*.—The list of diseases laid to the door of what Sir Rupert Boyce calls the Septic fly is a long one; it includes:—

(1) Anthrax. (2) Eye diseases. (3) Cholera. (4) Diarrhoea. (5) Dysentery. (6) Enteric Fever. (7) Maggots in wounds. (8) Leprosy. (9) Oriental sore and other skin diseases and (10) Consumption.

5. *Biting Flies* (apart from mosquitoes and sandflies).—The Tsetse fly conveys sleeping sickness. Sambon has recently shown that pellagra is conveyed by midges.

6. *Mosquitoes*.—These insects are the sole agents for the spread of malaria and yellow fever. "No mosquitoes, no malaria" is a universally accepted sanitary dogma of to-day.

7. *Sandflies*.—These insects have been shown to convey the three and five-day fevers which are common all over India.

8. *The Itch Insect*.—This is a member of the spider family which, in addition to causing the disease known as "itch," is charged with conveying leprosy and skin diseases.

9. *The Face Mite*.—The distressing complaint known as acne is attributed to this small animal parasite.

10. *Ticks*.—These pests are the agents for the conveyance of a large number of diseases of animals, and it has recently been shown that in Africa, they convey the germ of a fever which closely resembles the relapsing fever of India—a disease now known to be conveyed by the ordinary "pediculi" or "body lice."

11. *Lice*.—Body lice are said to convey tubercle, leprosy, typhus and relapsing fever.