

M. J. Jones, Extension # 47

**COLORADO STATE COLLEGE**  
**EXTENSION SERVICE**  
Fort Collins, Colorado

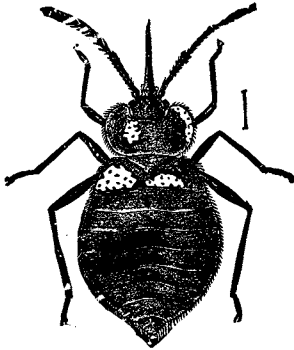
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**CONTROL OF BED BUGS**

By DR. C. R. JONES, Professor of Entomology  
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The bed bug is a cosmopolitan, household pest. It is a disgusting parasite living almost entirely in human habitations when occupants are indifferent or careless, hiding away during the daytime in cracks and crevices and coming out and feeding during the night.

The careful housekeeper generally considers it disgraceful if her premises are invaded by this pest. The presence of this insect is not necessarily an indication of carelessness or neglect, as it may often gain access in spite of the best of care. Nor is it a disgrace to have bed bugs, but it should be considered so to allow them to remain. People traveling are very apt accidentally to pick up this pest, either on their person or baggage, and thus introduce it into their homes. Premises may become infested by migrating insects from some nearby infested houses.



Adult bed bug.

The true bed bug is wingless and has a broad, flat body. This enables it to seclude itself in small cracks and crevices in the bed or wall where it remains during the daytime, coming out at night to obtain food. One of its striking characteristics is the peculiar, pungent odor so well known to all people who have come in contact with this pest.

The normal life of the bed bug is about 3 months. But without food, as in the case of vacant houses, it may live for a longer time.

On account of its habits of concealment, it is usually beyond the reach of the ordinary remedies, such as pyrethrum, insect powders, etc., but it may be effectively controlled by using gasoline, burning sulfur or fumigation.

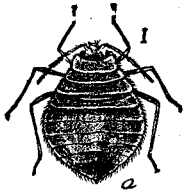
The best and most effective method is by fumigating with hydrocyanic-acid gas. However, there is danger of a reinfestation and should this occur the cyanide treatment would again have to be used.

**Hydrocyanic-acid gas is deadly to humans** if breathed in concentrated form, and should be used only by an intelligent, careful and well-informed person who understands the elements of danger as well as the excellent features of the gas. Hydrocyanic-acid gas should not be used in an apartment house, office building or city block of houses unless neighboring parties are notified and are ready to vacate if necessary during the period of fumigation.

All plants and foods that contain a great deal of moisture

should be removed as there may be danger of their absorbing the poison.

Hydrocyanic-acid gas is formed by the combination of sulphuric acid, water, and sodium cyanide in the following proportions: Sodium cyanide, 98 percent pure, 1 ounce; commercial sulphuric acid,  $1\frac{1}{2}$  fluid ounces; water, 2 ounces. These proportions should be closely adhered to as, by adding a greater or lesser amount of water the amount of available gas that can be liberated from any live quantity of cyanide is reduced in proportion.



Young bed bug.  
(Enlarged.)

Determine the cubic contents of the premises desired to be fumigated, and carefully weigh out the materials in the above proportions, using at the rate of one ounce of sodium cyanide for each 100 cubic feet of space. See that all windows are tightly closed and that cracks in the doors are covered with paper. Arrangements may be made by the use of strings to touch off the fumigation loads simultaneously. However, in the ordinary dwelling this is not necessary.

In preparing to fumigate, the materials to be used should first be distributed in their proper proportions, the water placed in the generation jars, (always use earthen jars as generators, as glass is too fragile and the acid will act upon iron or tin,) with the proper amount of acid in another jar nearby. The sodium cyanide should be properly weighed and placed in a paper bag near the generator. It is a good plan to purchase what are known as cyanoeeggs, as these eggs are approximately one ounce each and may be calculated as such. A four-gallon earthen jar will accommodate about 32 ounces of cyanide. When more than 32 ounces are required for a room, they should be proportioned among other generators.

The water and sulphuric acid should first be mixed by slowly **pouring the acid into the water**. Never reverse the operation as there is great danger of the operator getting burned. While the solution is still hot, add the sodium cyanide. If the house is two stories high, begin at the top and touch the loads as you go down.

The operator should take care not to breathe in a room after the cyanide has been added to the water and acid. The house should be closed and a danger sign placed on the door. The fumigation with this gas should continue at least 24 hours, and arrangements should be made that the windows and doors may be opened from the outside. After the house has been aired for at least one hour, a person may enter it without danger.

**The above instructions should be carried out with care, and the operator should not breathe any of the fumes, as they are a deadly poison and there is no antidote.**

Additional information concerning insect pests may be obtained by consulting your County Extension Agent or by writing the Entomology Department, C. S. C., Fort Collins, Colorado.

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F. A. ANDERSON, DIRECTOR

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