

## INSECTS

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Insects have inhabited Earth for at least 500 million years. They are the most successful and the most numerous of all animals. There are some 2 million species of which only 850 thousand have been described and identified. Insects may be found every place on Earth.

When man entered the scene about 1 million years ago he provided still another source of food for the little pests. From then on man and insects, with few exceptions, have been mortal enemies in their struggle for existence. Since the year one, insects have been directly or indirectly responsible for over half the mortality of the human race. A direct cause would be disease transmitted by insects; an indirect cause would be crop destruction and the resulting starvation.

Although insects have a very short life span, their powers for reproduction are phenomenal. If not for their high mortality rates and man's constant war upon them, the insects could dominate Earth.

Early attempts at insect control were futile due to lack of knowledge and necessary tools. However, observations of insects and attempts at control were recorded. About 2,500 B.C. a Sumerian doctor inscribed a prescription on a clay tablet for the use of sulfur in the treatment of itch caused by body lice. This practice was only recently abandoned by modern dermatologists.

Man depends upon insects for invaluable favors; the most important is pollination. In the United States, agricultural crop pollination is a 1 billion dollar business not to mention the 6 billion dollars worth of other crops that are used to improve pollination.

Honey production alone is a 50 million dollar business. Without these pollen carriers, flowering plants and agricultural products would surely become extinct. At the same time, insects reap over 10 percent of every harvest. In early times, insects could devour a whole year's crop and leave entire communities to starve.

Insects have altered the course of history and the destiny of nations. They spread diseases which destroyed sometimes as much as 25 percent of a population. Plague visited the colony on Greenland and wiped it out 150 years before Columbus discovered America. These colonists knew the route to the North American Continent and had it not been for the insect-borne catastrophe which destroyed it, some of them would eventually have migrated to North America.

The Federal Government took up the fight against insect pests in 1854, setting up the Bureau of Entomology. In 1877 Congress created a special commission to combat the locust problem. In 1880, each State began the establishment of its own experimental station. In 1894, Sir Patrick Manson discovered that human malaria was transmitted by the bite of an infected mosquito. Another disease exclusively carried by mosquitoes is yellow fever. Yellow fever invaded the United States 95 times between 1693 and 1901. There were at least 500 thousand casualties, of which 100 thousand died. Financial losses ran into the millions of dollars. The death toll and the disruption of the economy caused a tremendous setback to the young and growing nation.

When the disease was finally conquered, America was able to link the Atlantic and Pacific Oceans. The French had the first option to build the Panama Canal. After expending 260 million dollars and losing well over 22,000 men to yellow fever, they were defeated.

America then leased the rights to build the Canal. Major Gargas was assigned the job of ridding the Panama Canal Zone of malaria and yellow fever. By quarantining the sick and treating the breeding grounds of the infectious mosquitoes the Americans were able to start work on the canal within twelve months - unhindered by the disease.

Progress was being made, slowly but surely, with various aspects of the insect war. Arsenicals, lime-sulfur, pyrethrum sprays, and other insecticides were beginning to be used more widely for protection of field, fruit and truck crops. The universities began offering courses in entomology. The medical profession took up special studies in entomology. Chemists began searching the field of organic chemistry for more effective insecticides. Through the years of our battle for mastery over insect enemies there evolved a group of scientists - entomologists, physicians, toxicologists, chemists, pharmacologists, botanists, and sanitary engineers — with a common purpose; to better understand the insects.

Today, insecticides have a two-fold affect upon our environment. On the one hand, insecticides contribute to the serious problems of environmental pollution. Scientists and laymen have labored over this problem for many years. New agencies, laws and regulations have been set up for the protection of the public. Committees have been formed to learn more about insecticides and their affect on the environment. Many insecticides have been banned from use altogether while others have been restricted for special use and by special permit only.

On the other hand, insecticides contribute to longer and healthier lives. In 1940, the average American farmer was able to feed himself and nine other persons. Ten years later, the farmer was feeding himself and 14.5 other persons, and by 1960 the figure rose to 25.8 persons. By 1970 farm production was up to 45.3 persons fed for the work of one person. One of the reasons for this dramatic increase was pesticides.

Supermarkets would cease to exist if there was a drastic crop reduction. It is estimated that if all treatment of agricultural lands with pesticides were stopped, our food supply would drop by 49 percent. Prices would rise sharply. United States citizens spend the smallest part of their income on food per capita - approximately 18 percent. Citizens of some countries spend as much as 75 percent of their incomes on food.

A study was made in regard to the price of beef today in relation to the amount of work required by the consumer to buy it. In 1951 an average hour's wage bought 1.4 pounds of steak; today, the same hour brings home 2.6 pounds of steak.

A contributing factor for this increase in productivity of rangeland is due to improved management practices. One of the most important tools in rangeland management is pesticides. Agronomists, entomologists, and ecologists have combined forces to eliminate insect and weed problems, making it possible to produce more cattle. Rangelands which were once too contaminated with weeds to produce grass have now been opened to grazing. Present pasture lands have also been improved.

Thousands of people are affected by or involved with insecticides and their related products. One product, the aerosol spray can containing insecticides, sold over 100 million cans in 1969. Insecticides have made it possible for landscapers, pest control operators, nurserymen and others to have a more profitable business, and have been an aid to registered sanitarians and golf course superintendents in their day to day work.

Chemical industries have a tremendous affect on the public today. Farmers, homeowners, garden centers and hardware stores depend on these industries for controlling a host of insects that feed on ornamental trees, grass, shrubs, garden and field crops. Other fields of business such as spray companies enter into the picture here. They are constantly working to make better and more efficient sprayers for the safe application of chemicals.

Correct and safe insect population management is essential to maintain our high standard of living.



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The November issue of the Bull Sheet carried a short article stating that chlordane and heptachlor use had been cancelled. Mr. Jack Perdue of the Velsicol Chemical Corp. informed the editor that the EPA stated "intended to cancel chlordane and heptachlor". Mr. Perdue says as of this date, 10/3/75, either of these two products can be purchased and used for turfgrass insect control.

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