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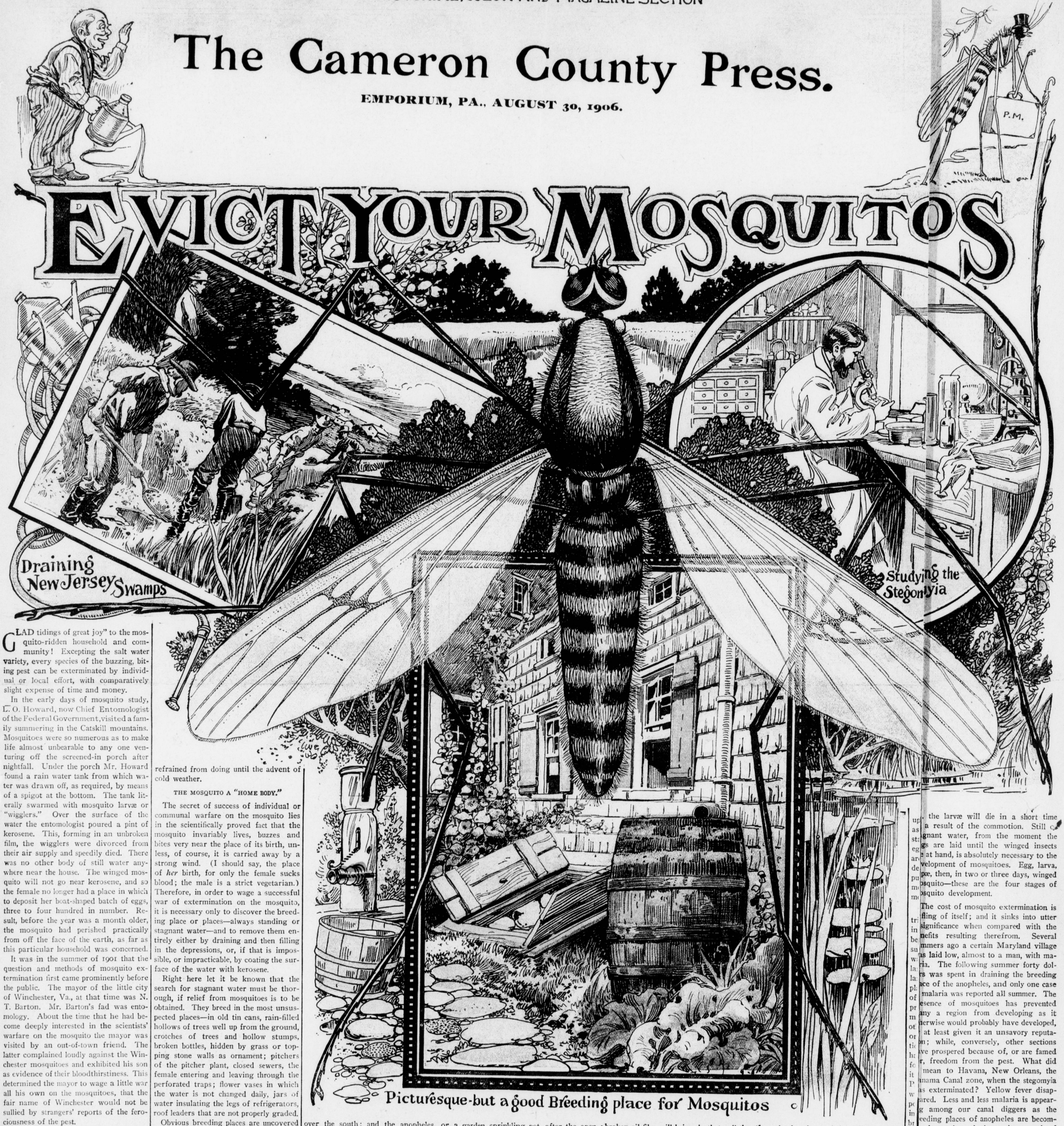
EVICT YOUR MOSQUITOS



GLAD tidings of great joy" to the mosquito-ridden household and community! Excepting the salt water variety, every species of the buzzing, biting pest can be exterminated by individual or local effort, with comparatively slight expense of time and money.

In the early days of mosquito study, L. O. Howard, now Chief Entomologist of the Federal Government, visited a family summering in the Catskill mountains. Mosquitoes were so numerous as to make life almost unbearable to any one venturing off the screened-in porch after nightfall. Under the porch Mr. Howard found a rain water tank from which water was drawn off, as required, by means of a spigot at the bottom. The tank literally swarmed with mosquito larvæ or "wigglers." Over the surface of the water the entomologist poured a pint of kerosene. This, forming in an unbroken film, the wigglers were divorced from their air supply and speedily died. There was no other body of still water anywhere near the house. The winged mosquito will not go near kerosene, and so the female no longer had a place in which to deposit her boat-shaped batch of eggs, three to four hundred in number. Result, before the year was a month older, the mosquito had perished practically from off the face of the earth, as far as this particular household was concerned.

It was in the summer of 1901 that the question and methods of mosquito extermination first came prominently before the public. The mayor of the little city of Winchester, Va., at that time was N. T. Barton. Mr. Barton's fad was entomology. About the time that he had become deeply interested in the scientists' warfare on the mosquito the mayor was visited by an out-of-town friend. The latter complained loudly against the Winchester mosquitoes and exhibited his son as evidence of their bloodthirstiness. This determined the mayor to wage a little war all his own on the mosquitoes, that the fair name of Winchester would not be sullied by strangers' reports of the ferociousness of the pest.

In the face of harsh newspaper criticism and sarcasm, he got the Council to pass an ordinance authorizing the application of kerosene in the city limits, wherever stagnant water would be found. Then he saw to it that the city was thoroughly oiled. The result was so unsatisfactory—to the mosquitoes—that the Council did not hesitate to amend the original ordinance by providing a penalty, to be imposed on any citizen who failed to apply kerosene in the necessary places on his property. An inspector was also authorized for the enforcement of the ordinance. Long before the summer was over Winchester had been practically freed from mosquitoes, and the citizens had taken down their nets and screens, a thing they had previously studiously refrained from doing until the advent of cold weather.

THE MOSQUITO A "HOME BODY."

The secret of success of individual or communal warfare on the mosquito lies in the scientifically proved fact that the mosquito invariably lives, buzzes and bites very near the place of its birth, unless, of course, it is carried away by a strong wind. (I should say, the place of *her* birth, for only the female sucks blood; the male is a strict vegetarian.) Therefore, in order to wage a successful war of extermination on the mosquito, it is necessary only to discover the breeding place or places—always standing or stagnant water—and to remove them entirely either by draining and then filling in the depressions, or, if that is impossible, or impracticable, by coating the surface of the water with kerosene.

Right here let it be known that the search for stagnant water must be thorough, if relief from mosquitoes is to be obtained. They breed in the most unsuspected places—in old tin cans, rain-filled hollows of trees well up from the ground, crotches of trees and hollow stumps, broken bottles, hidden by grass or topping stone walls as ornament; pitchers of the pitcher plant, closed sewers, the female entering and leaving through the perforated traps; flower vases in which the water is not changed daily, jars of water insulating the legs of refrigerators, roof leaders that are not properly graded.

Obvious breeding places are uncovered rain-water barrels, open cisterns and wells, the pits of outdoor water closets, ground depressions, unused household water receptacles, still water along the edges of streams, pools formed by underbrush, pools fed by springs, water along the edges of swamps and in the swamps, watering troughs infrequently used, and the pools formed underneath by drippings.

In brief, the varieties of mosquito that give the greatest trouble—barring the salt water genus—will breed anywhere in anything holding standing or stagnant water. These varieties are the culex pungens, or inland mosquito, the most common of all the two hundred odd species; the stegomyia, or yellow fever bearing mosquito, which is found pretty generally over the south; and the anopheles, or malaria bearing mosquito, whose habitat is the greater part of America.

It is the inland mosquito that generally breeds in or near a house, and owing to this trait, it is often called the house mosquito. The more offensive the water the more prolific this species. This is also true of the stegomyia. The anopheles prefers to breed in small pools of uncontaminated water, but which are frequently covered with green scum. The edges of swamps, ground depressions and spring-fed pools are favored breeding places. So, also, are unused receptacles about a house; but, unlike the culex pungens, the anopheles rarely enters a house.

HOW TO APPLY KEROSENE.

The best way to apply kerosene is with a garden sprinkling pot, after the openings in the nozzle have been enlarged somewhat. One pint of oil to a water surface twenty feet in diameter is the accepted proportion. An application will suffice for about two weeks, when it should be repeated.

The method by which the oil destroys the larvæ (wigglers) is not toxic, but mechanical. A larva must come to the surface every minute or two for air. The inland larvæ approaches the surface at right angles and gets its air by sticking its tail, equipped with an air tube, above water. The anopheles larva lies parallel to the water surface and secures air by putting its head above water. In whatever way a larva obtains air the oil obstructs its delicate respiratory apparatus and rapid suffocation results. An unbroken oil film will bring death to all the larvæ in a given body of water in a few hours.

Care should be taken to keep the oil film continuous. Kerosene tends to collect around water grass, logs and other foreign bodies in a pond, for example. Thus spaces of water surface more or less extensive are left without an oil covering, and the breeding of mosquitoes goes on apace; the time from egg to winged mosquito varies from twelve to twenty-five days, according to the species. By removing grasses and all other obstructions from a body of water an unbroken oil film can be obtained. The edges of streams, springs and ponds should also be kept clean, as the presence of logs and grass tends to standing water, in the shape of little pools, and in these the female anopheles delights to deposit her eggs.

Among the very few bodies of water about a house that can not conveniently be treated with kerosene are cisterns. These, however, as well as open wells, can be screened, and in this way kept from the mosquito. If you are averse to putting oil on the water in rain water barrels, fit them with tight covers, with screened holes in the center for air, and draw out the water from the bottom by means of a spigot.

There is no need to put oil in a watering trough in daily use. The animals' noses, if nothing else, keep the water well stirred up, and it is an entomologically proved fact that if standing water, in which there are mosquito larvæ, is stirred up, the larvæ will die in a short time as a result of the commotion. Still o[r] stagnant water, from the moment the eggs are laid until the winged insects are at hand, is absolutely necessary to the development of mosquitoes. Egg, larva, pupæ, then, in two or three days, winged mosquito—these are the four stages of mosquito development.

The cost of mosquito extermination is trifling of itself; and it sinks into utter insignificance when compared with the benefits resulting therefrom. Several summers ago a certain Maryland village was laid low, almost to a man, with malaria. The following summer forty dollars was spent in draining the breeding place of the anopheles, and only one case of malaria was reported all summer. The presence of mosquitoes has prevented many a region from developing as it otherwise would probably have developed, or at least given it an unsavory reputation; while, conversely, other sections have prospered because of, or are famed for, freedom from the pest. What did I mean to Havana, New Orleans, the Panama Canal zone, when the stegomyia was exterminated? Yellow fever disappeared. Less and less malaria is appearing among our canal diggers as the breeding places of anopheles are becoming fewer through the sanitary work of Major Gorgas. And in one year a goodly portion of Staten Island, long notorious for its mosquitoes, has secured the reputation of being practically free of the pest. Who can prophecy what effect this new state of things will have on the tens of thousands of home buyers in Greater New York?

Whatever the variety of mosquito, science has pointed out a sure way to exterminate it. And science says, and has proved it, too, that the best way to be rid of one hundred and ninety-nine varieties is for each individual and community to wage war on the mosquitoes by gathering him and it by draining, filling in and oiling.

The mosquito-less age is dawning.