

THE DEADLY FLY.

BY EDWARD HALFORD ROSS.

BY the term house-flies is meant the many flying insects, large and small, which are found so commonly during the summer in kitchens, larders, on fruit, in jam, in sugar, or on the window pane, in and around stables and hovering or crawling over collections of filth and garbage. It includes, as well as the common domestic flies, blue bottles, blow-flies, stable flies, and others. These insects breed in filth, and although they do not bite or suck blood, they *may* and do convey diseases from one human being to another ; and they spread death in our midst.

In the first warm days of Spring, when the birds have begun nesting and the wild drake has donned his plumage, the sleeping fly-queen wakes from her long winter lethargy. She has mated on one of the last sunny days of summer, or in a conservatory, perhaps, or in a cosy recess in the kitchen ; now she has many eggs to lay. But the sun has come again, and she leaves her winter palace, which is some warm dirty nook in some warm dirty corner, and away she flies to lay these eggs. Nature having endowed her with a strong maternal instinct, she naturally chooses that sort of place where she herself was born, and where she knows her young, when hatched, will not want for food and warmth and will thrive. She herself was born in a manure heap, and here she will lay her eggs if she can. But any collection of refuse, garbage, offal, or abomination will suit her purpose well. Each female fly lays about 120 eggs at a sitting—there are frequent sittings when the weather is warm—and the eggs are laid in batches, little clumps of small white oval objects in and around any putrid, fermenting, or rotting thing.

In a few hours, if the surroundings are warm, each fly-egg cracks and gives birth to a white, tiny, crawling maggot or grub like a silkworm caterpillar. Each maggot eats the filth it lives in, and as it eats it grows and moults, leaving pale transparent empty bags of skin to tell its tale of life behind it. These empty bags of skin help us to recognize fly-breeding places and enable us to find and deal with them. At the end of five summer days from the time of the hatching of the egg the maggot becomes a chrysalis—a small, rolled-up, bean-like body less than a quarter of an inch in length, white at first, then brown, lying motionless amongst the straws of a horse's bedding, or appearing in small but numerous clusters at the corners of a manure-heap, or at the edge of a dust bin, or around a refuse tub. Within this bean-shaped body the fly we know so well is made.

The fly is born to kill; the fly's work ends in death, though she knows not what she does. The house-fly conveys the germs of disease from one sick person to the food of another or from one ailing infant to the mouth of another or to the milk-jug, or to the sugar-basin, or the strawberries, or wherever she chooses to crawl; and we do little to stop her. Every fly is Nature's child, but flies know no discretion. The fly may carry the germs of typhoid fever, or of infantile enteritis; perhaps also of tuberculosis, of anthrax, or of ophthalmia.

During the hot July of 1911, in London, the infant mortality rose suddenly from 173 per 1,000 to 304, and then to 636 per 1,000. But the flies were at work in the provinces too; and in the Potteries the distress became very great, hospitals being crowded with dying children. The people blamed the infants' food, saying that it had gone bad in the hot weather. Yet it was not the food but the flies' mark upon it; the insects were infecting the food. During the year 1909, at Cairo, the summer began with a plague of flies, and after the plague of flies came the death of the newly-born infants. In that city, which is grossly insanitary, the flies bred in myriads, and 3,000 children died in two months—the flies were at their old work again. But the important thing is this. If this summer proves to be warm we shall have another repetition—our children will die. Can nothing be done to prevent this? Cannot we take it in time now?

Flies can be reduced in numbers, and it can be done easily. They must be prevented from coming to maturity by the destruction of the maggots. It has been estimated that one female fly can produce 506,250,000 offspring in one month. If we clean out the manure-heaps where these offspring are we shall have so many flies the less. Whereas, if we wait and then attempt to catch or trap the flying insects we shall be very lucky if we destroy more than a thousand or so at most—the flying insects scatter at once. This is the reasoning on which fly reduction rests. We must remember that only one fly in every million perhaps becomes infected with disease germs. We cannot expect to catch and kill that one. We must try to prevent that one being born, and the best way to do this is to reduce the total numbers born.

Fortunately, flies remain in the maggot stages for a week; therefore we need only deal with the breeding places once a week, but this must be done regularly and perseveringly throughout the whole of the fly breeding season. All manure-heaps, stables, slaughter-houses, garbage and refuse depots, collections of waste food, dust-bins, ash-boxes, swill-cans, middens, and all filthy and dirty places which are near dwelling houses must be made clean once a week. Surely this is not too much to ask?

It is true that this is the work of the sanitary authority. But sanitary authorities will work better, will initiate new public health mea-

suers with zeal and enthusiasm, if there is the sympathy and co-operation of the public with them. But *we* must agitate too. We must ask the authorities about flies again and again ; we must implore, if necessary. Soon the thing will be done ; flies will be reduced and then we shall have little summer sickness, and the infants will live instead of dying. Every one can help. If every one will look upon a house-fly as a loathsome, dangerous pest, and will talk about it as such to his neighbours, the authorities concerned will soon bestir themselves.

Let the dictum go out that the presence of house-flies in a house is a sign of insanitation and their numbers a measure of that insanitation. In the towns of the Suez and Panama Canals, mosquito-breeding places are all dealt with regularly once a week by organized gangs of sanitary inspectors known as "mosquito brigades." House-fly breeding-places are as easy to deal with as the fever-carrying mosquitoes. Why cannot we have "fly brigades" here at home ? Flies carry disease ; therefore, let us prevent flies.

TYPHOID FEVER VACCINE.

Some statistics taken from a recent letter of Mr. Stephen Paget, Honorary Secretary of the Research Defence Society, to the *Nation*.

THE first use of the protective treatment was in July-August 1896, at Netley Hospital. Eighteen medical officers and candidates for medical officership offered themselves to be treated. In October, 1897, the treatment was given in the Kent County Lunatic Asylum during an outbreak of typhoid, to eighty-four persons—all the medical staff and a number of attendants—with very good results. Next come the eight sub-alterns on the Khartoum Expedition, of whom six were protected and two were not. The six escaped typhoid ; the two got it, and one died. During November, 1898, to March, 1899, the treatment was given to many of our soldiers in India (Bangalore, Rawal Pindi, Lucknow). The inoculations were optional, they were made at private cost, and they were made without official sanction, though the original proposal for them in 1897 had come from the Government of India. Pending official sanction, they were stopped. Then, on May 25th, 1899, the Government of India made application to the Secretary of State for India that they should be sanctioned, and should be made at the public cost. On August 1st, 1899, the Secretary of State for India announced in Parliament that the protective treatment, at the public expense, had been sanctioned.