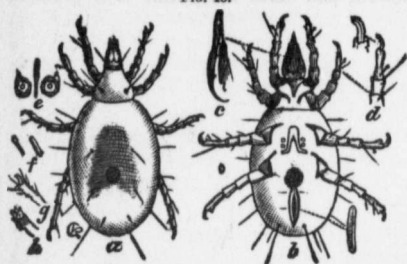


is the instinct which teaches this blind larva to penetrate the soil in search of its prey; for the egg must necessarily be laid at the surface. But though the underground enemies of its own class are few, I have discovered a mite which preys extensively upon this root-inhabiting type, and which renders efficient aid in keeping it in check in this country. This mite (*Tyroglyphus phylloxerae*, Planchon & Riley, Fig. 46,) belongs to the same genus as the cheese and meal mites, and the species which infests preserved insects, and is such a pest in cabinets. At is the rule with mites, it is born with but six legs, but acquires eight after the first or second

FIG. 46.



PHYLLOXERA MITE, a, dorsal, b, ventral view of female, c, mouth-parts, d, f, g, h, forms of tarsal appendages, e, ventral tubercles of male.

preys by preference on the lice themselves."

"DIRECT REMEDIES. The leaf-lice, which do not play such an important part in the disease as was at first supposed, may be controlled with sufficient ease by a little care in destroying the first galls which appear, and in pruning and destroying the terminal growth of infested vines later in the season. The root-lice are not so easily reached. As the effort will be according to the exigency, we may very naturally look to France for a direct remedy, if ever one be discovered. But of all the innumerable plans, patented or non-patented, that have been proposed, of all the many substances that have been experimented with under the stimulus of a large national reward, no remedy has yet been discovered which gives entire satisfaction, or is applicable to all conditions of soil. Nor is it likely that such a remedy ever will be discovered.

"While, therefore, not very satisfactory results have followed the use of pure insecticides, the application of fertilizers intended to invigorate the vine, and at the same time injure the lice, has been more productive of good. Especially has this been the case with fertilizers rich in potassic salts and nitrogenous compounds, such as urine. Sulphuret of potassium dissolved in liquid-manure; alkaline-sulphates, with copperas and rape seed; potassic salts, with guano; soot and cinders are, among other applications, most favourably mentioned.

Mr. Riley closes his very able Essay with the following remarks:—"We have in the history of the Grape Phylloxera, the singular spectacle of an indigenous American insect being studied, and its workings understood in a foreign land, before its presence in its most injurious form was even suspected in its native home. The Franco-Prussian war, with all its fearful consequences to France, has passed away; the five milliards of francs (one thousand million dollars) have been paid as indemnity to her victors, in so short a time that the civilized world looked on in wonder and astonishment. Yet this little Phylloxera, sent over doubtless in small numbers, by some American nurseryman, a few years since, continues its devastating work, and costs that unfortunate country millions of francs annually. The last German soldier has been removed—at terrible cost it is true—from French soil, but the Phylloxera army remains; and if another five milliard francs could extirpate the last individual of this liliputian insect host from her soil, "la belle France" would be cheaply rid of the enemy. Had the world, twenty years ago, possessed the knowledge we at present have of this insect and of its dangerous power, a few francs might have originally stayed its invasion of that great vine-growing and wine-making country. Needs there any more forcible illustration of the importance of economic entomology!"

In confirmation of this statement, we read in the monthly report of the Department of Agriculture (Washington, August and September, 1874), that "the Prefect of the Department of the Rhone, in France, has published a decree directing the mayor of each Commune within his jurisdiction, upon the indication of the presence of the Phylloxera, to proceed at