

become fully expanded, scattered sparsely on some of the leaves near the ground, and about the size of an ordinary pea. Within this gall the parent louse may be found busily laying little yellow eggs of an elongated oval form, and nearly the one-hundredth part of an inch in length. The appearance of these eggs is shewn in fig. 12, at *c*, highly magnified. The mother-louse herself is about four-hundredths of an inch in length, usually spherical in form, and of a dull orange color. The forms marked by the letters *f*, *g*, and *h*, in fig. 12, shew the mother-louse; *f* being a side view, *g* shewing the back, and *h* the under side. The skin of this insect is shagreened or minutely granulated, and furnished with rows of minute hairs. Within this cup or sack she continues to deposit her eggs until they are all laid, from two to five hundred in number, and then dies and dries up.

In from six to eight days the eggs burst, and the young lice come forth. These are little six legged creatures, with two antennae, and supplied with an instrument for puncturing and sucking up the juices of the leaves. They are represented at letters *a* and *b*, fig. 12, the under side being shown at *a*, the sheath of the pumping apparatus, extending nearly the entire length of the insect, and the upper side or back being seen at *b*. These young lice are quite active, and creeping out at the mouth of the sack in which they were born spread themselves over the vine, seeking the young and tender leaves near the ends of the shoots. Having found a suitable place for their future operations they settle down for life, and using their proboscis, (which consists of three elastic, wiry hairs, so fine that when they are united they form a thread so small that it can scarce be seen with a very powerful microscope, and yet so sharp that they easily puncture the outer surface or parenchyma of the leaf,) they thrust it into the leaf and commence to pump up and feed upon its juices. This puncture, and the irritation kept up by the insect, causes the under side of the leaf to thicken, and gradually to form the sack or cup shewn at *d*, fig. 12, into which the louse settles as the sack forms; increasing also in size until it presents the appearance shewn at *g* and *h*, fig. 12. Having become fully grown, she is also full of eggs, which without any impregnation from the male louse are fertile. These eggs she lays in quick succession until the gall is filled with them. This production of living issue without assistance from the male is called parthenogenesis, and is not confined to this insect only, but belongs also to other forms of