are bivoltine, or two-generationed, and some are multi- voltine. Its natural food is the leaves of mulberry trees. The silk glands or vessels consist of two long thick-walled sacs running along the sides of the body,

which open by a common orifice—the spinneret or seripositor—on the under lip of the larva. Fig. 4 represents the head (*a*)and feet (*b*, *b*) of the common silkworm, while *c* is a dia­

grammatic view

of the silk glands.

As the larva ap­

proaches maturity

these vessels be­

come gorged with

a clear viscous fluid, which, upon being exposed to the air immediately hardens to a solid mass. Advantage is taken

of this peculiarity to prepare from fully-developed larvæ silkworm gut used for casting lines in rod-fishing, and for numerous other purposes where lightness, tenacity, flexibility, and strength are essential. The larvæ are killed and hardened by steeping some hours in strong acetic acid; the silk glands are then separated from the bodies, and the viscous fluid drawn out to the condition of a fine uniform line, which is stretched between pins at the extremity of a board. The board is then exposed to the sunlight till the lines dry and harden into the condition of gut. The preparation of gut is, however, merely an unimportant collateral manufacture. When the larva is fully mature, and ready to change into the pupa condition, it proceeds to spin its cocoon, in which operation it ejects from both glands simultaneously a line or thread about 4000 yards in length, moving its head round in regular order continuously for three days or thereby. The thread so ejected

forms the silk of com­

merce, which as wound

in the cocoon consists of

two filaments—one from

each gland—laid side by

side and agglutinated

into one fibre (Fr. *bave)*

by their own adhesive

constituents. Under the

microscope, therefore,

cocoon silk presents the

appearance (fig. 5) of a

somewhat flattened com­

bination of two filaments

placed side by side, being

on an average from ∙033 to ∙036 mm. broad by ∙020 to ∙025 mm. in thickness. The cocoons are white or yellow in colour, oviform in shape, with often a constriction in the middle (fig. 6). According to race, &c., they vary con­

siderably in size and weight, but on an average they measure from an inch to an inch and a half in length, and from half an inch to an inch in diameter. They form

hard, firm, and compact shells with some

straggling flossy filaments on the exterior,

and the interior layers are so closely and

densely agglutinated as to constitute a

parchment-like mass which resists all

attempts at unwinding. The whole cocoon

with its enclosed pupa weighs from 15

grains for the smaller races to about 50

grains for the breeds which spin large

cocoons. From two to three weeks after

the completion of the cocoon the enclosed

insect is ready to escape ; it moistens one

end of its self-made prison, thereby enabling

itself to push aside the fibres and make an opening by which the perfect moth comes forth. The sexes almost immediately couple; the female in from four to six days lays her eggs, numbering 500 and upwards ; and, with that the life cycle of the moth being complete, both sexes soon die. *Sericulture.*

The art of sericulture concerns itself with the rearing of silkworms under artificial or domesticated conditions, their feeding, the formation of cocoons, the securing of these before they are injured and pierced by the moths, and the maturing of a sufficient number of moths to supply eggs for the cultivation of the following year. The first essential is a stock of mulberry trees adequate to feed the worms in their larval stage. The leaves preferred in Europe are those of the white-fruited mulberry, *Morus alba*, but there are numerous other species which appear to be equally suitable. The soil in which the mulberry grows, and the age and condition of the trees, are important factors in the success of silkworm cultivation ; and it has been too often proved that the mulberry will grow in situations where, from the nature of the leaf the trees put forth and from other circumstances, silkworms cannot be profitably reared. An elevated position with dry friable well-drained soil produces the best quality of leaves. Throughout the East the species of mulberry cultivated are numerous, but, as these trees have been grown for special purposes at least for three thousand years, they show the complex variations peculiar to most cultivated plants.

The eggs of the silkworm, called *graine,* are hatched out by artificial heat at the period when the mulberry leaves are ready for the feeding of the larvæ. These eggs are very minute—about one hundred weighing a grain ; and a vast number of hatched worms may at first be kept in a small space ; but the rapid growth and voracious appetite of the caterpillars demand quickly increasing and ample space. Pieces of paper punctured with small holes are placed over the trays in which the hatching goes on ; and the worms, immediately they burst their shell, creep through these openings to the light, and thereby scrape off any fragments of shell which, adhering to their skin, would kill them by constriction. The rearing-house in which the worms are fed (Fr. *magnanerie)* must be a spacious, well- lighted, and well-ventilated apartment, in which scrupulous cleanliness and sweetness of air are essential, and in which the temperature may to a certain extent be under control. The worms are more hardy than is commonly supposed, and endure variations of temperature from 62° to 78° F. without any injury ; but higher temperature is very detrimental. The lower the temperature at which the worms are maintained the slower is their growth and development ; but their health and vigour are increased, and the cocoon they spin is proportionately bigger. The