ward by rollers and yielded to the comb, but they are held firmly in their place by one end, while the combs travel over their surface, dragging away all impurities and all fibres which are shorter than the average length of the mass. Fig. 22 is a side view of the machine : *a a is a* fixed framing, at each end of the frame is a roller *b b';* over these rollers the endless web *c c* moves. Motion is communicated to the roller *b'* by the spur wheel *d*, on its axle being driven by a pinion on the axle of the pulley *e*, to which motion is given by a belt from a pulley of the mainpower shaft. The distance between the rollers *b b'* can be increased or diminished by a screw Connected with Z», so as to tighten or relax the end­less web which travels round them. The endless web car­ries the combs *f f* which, in this machine, are composed of a great number of short inclined teeth. Immediately be­low the top bar of the machine is seen the side of an iron frame *g g,* in which the silk to be operated on is fastened. Along the frame is seen the ends of a series of boards, whose lower edges are hinged together ; between these boards, when opened like a book, the ends of the silk filaments from the filling engine are inserted, and the boards closed and put into their place in the iron frame, and between every pair of these boards is put a piece of solid wood. The pinch­ing screws *h h,* at tire ends of the iron frames, are now turn­ed, and the silk is thus held tightly between the boards. The iron frame, it will be seen, rests upon two supports *jj,* which, by means of a rack and pinion worked by the wheel *k*, can be moved up or down, and thus the frame can be raised or lowered ; when lowered to its utmost extent it rests on the wheeled carriage *l*, which runs on the floor on a railroad placed at right angles to the machine. The operation of the machine is as follows : The frame which contains the silk is lowered until it rests on the carriage, which is then drawn out at the side of the machine. The boards containing the silk are then put into their places and firmly compressed by the pinching screws ; the car­riage is now returned to its place under the combs, and by means of the wheel, the frame is adjusted so that the combs may act on the silk. The machine is then put in motion, and the combs, by repeatedly passing over the silk, disentangle and lay parallel the filaments and re­move impurities. When the combing of one side of the filaments has been effected, the frame is again lowered, and the carriage withdrawn. The workman with a skewer turns over the silk so as to expose the uncombed side, wheels round the frame on its centre pivot *m,* and again runs the carriage into its placé; again he raises the frame until within the scope of the combs, which constantly move in the same direction ; and thus both sides of the material come to be thoroughly operated upon. The gleanings of the silk ga­thered by the combs, when accumulated, are screwed be­tween the boards, and again subjected to the action of the machine ; what is carried aWay by the combs in this opera­tion is unfit for spinning, and is used, like the refuse of flax, for stuffing cushions and similar purposes.

When the filaments are by the dressing machine cleaned and laid parallel to each other, they are cut into lengths of about an inch and a quarter by the *cutting engine,* which operates upon the principle of chopping, and resembles the agricultural chaff machine. It is then operated upon by

the scutcher, which is a modification of a similar machine used in the cotton manufacture. When it leaves the scut­cher it resembles fine down, and is put into bags of a con­venient size, and boiled for an hour and a half or so in soap and water, to deprive it of its gum ; it is afterwards washed in pure soft water and again boiled, but not now for so long a period, this boiling being merely for the purpose of get­ting rid of impurities. It is then subjected to the action of a Bramah press, and when taken from the press, dried by means of a stove, after which it is cooled, and a second time passed through the scutching machine to fit it for card­ing. The carding is followed, as in the cotton manufacture, by the drawing and fly frames to produce a rove, and these, by the spinning mill and the throstle, after which reehng and bundling complete the operations and fit the thread for the market.

Messrs. William Casey and Company, of Castle Mills, Edinburgh, have it in contemplation to introduce such al­terations in the spinning of silk waste as will supersede the cutting, carding, and scutching processes. This improve­ment they mean to effect by adopting the principles of flax spinning, in place of treating the waste in the manner of cotton, the uncut filaments being in this case drawn into a sliver by a modification of the flax gill.

The art of silk waste spinning, we may observe, is still in its infancy, but is advancing rapidly to greater maturity. In 1814, the quantity of waste imported by Great Britain amounted to 28,996 lbs., and in 1836 it had reached to the amount of 1,509,334 lbs.

In closing this brief sketch of what is now an important branch of our manufacture, we beg to express our grate­ful acknowledgments to Messrs. Harvey, Brand, and Com­pany, of Glasgow, whose beautiful silk-throwing factory of Blackhall, Paisley, was with the utmost liberality opened to our inspection ; and it is our duty also to record our ac­knowledgments to Messrs. William Casey and Company, of Edinburgh, of whose contemplated improvements in silk waste spinning, we have before spoken ; it is only through such liberality as these gentlemen have displayed, that knowledge of the arts can be disseminated, and the ener­gies of many minds be brought to bear upon them to their improvement. (b s.)

Silk-Worm. Although the article now known to our­selves under the name of silk, is “ familiar as household words,” yet its nature and origin were but obscurely, if at all ascertained in ancient times. Pliny, whose judgment and discrimination as a compiler are not greatly to be re­lied upon, reports that the *bombyx* (or silk worm) is a native of Kos, an island of the Mediterranean archipelago. It is known that silk was manufactured there at a very early pe­riod, but Aristotle had previously explained that *bombykia,* or the stuff produced from the bombyx, was respun and re- wovcn by the women of that island. The inventress of this process was Pamphilia. “ She unwove the precious mate­rial to recompose it in her loom into fabrics of a more ex­tended texture; thus converting the substantial silks of the Seres into thin transparent gauze, obtaining in measure what was lost in substance. Attempts have been made to rob the inventress of all the merit belonging to this process, by identifying the bombykia with the raw material, which it is said Pamphilia and her nymphs procured from Seres, and spun or wove into sericum or silk. But the fact of the re­weaving rests upon too good authority to be doubted.”@@1

Had Pliny been right in supposing that silk was a natural product of the island in question, it is by no means proba­ble that so laborious a process as that of converting foreign wrought articles into threads for reweaving, would have been resorted to. Indeed, the Byzantine historians inform us, that prior to silk worms being imported into Constantin­ople in the sixth century, no one in that capital knew that silk was the produce of a caterpillar. Although Aristotle gives

@@@ Cabinet Cyclopædia, xxii. 5