

hardy birds :” so again, MM. Boitard and Corbié,⁴³ after forty-five years’ experience, recommend persons to cross their breeds for amusement; for, if they fail to make interesting birds, they will succeed under an economical point of view, “as it is found that mongrels are more fertile than pigeons of pure race.”

I will refer only to one other animal, namely, the Hive-bee, because a distinguished entomologist has advanced this as a case of inevitable close interbreeding. As the hive is tenanted by a single female, it might have been thought that her male and female offspring would always have bred together, more especially as bees of different hives are hostile to each other; a strange worker being almost always attacked when trying to enter another hive. But Mr. Tegetmeier has shown⁴⁴ that this instinct does not apply to drones, which are permitted to enter any hive; so that there is no *à priori* improbability of a queen receiving a foreign drone. The fact of the union invariably and necessarily taking place on the wing, during the queen’s nuptial flight, seems to be a special provision against continued interbreeding. However this may be, experience has shown, since the introduction of the yellow-banded Ligurian race into Germany and England, that bees freely cross: Mr. Woodbury, who introduced Ligurian bees into Devonshire, found during a single season that three stocks, at distances of from one to two miles from his hives, were crossed by his drones. In one case the Ligurian drones must have flown over the city of Exeter, and over several intermediate hives. On another occasion several common black queens were crossed by Ligurian drones at a distance of from one to three and a half miles.⁴⁵

Plants.

When a single plant of a new species is introduced into any country, if propagated by seed, many individuals will soon be raised, so that if the proper insects be present there will be crossing. With newly-introduced trees or other plants not propagated by seed we are not here concerned. With old-established plants it is an almost universal practice occasionally to make exchanges of seed, by which means individuals which have been exposed to different conditions of life,—and this, as we have seen with animals, diminishes the evil from close interbreeding,—will occasionally be introduced into each district.

With respect to individuals belonging to the same sub-variety, Gärtner, whose accuracy and experience exceeded that of all other observers, states⁴⁶ that he has many times observed good effects from this step, especially with exotic genera, of which the fertility is somewhat impaired, such as *Passiflora*, *Lobelia*, *Fuchsia*.

⁴³ ‘Les Pigeons,’ 1824, p. 35.

⁴⁴ ‘Proc. Entomolog. Soc.,’ Aug. 5th, 1860, p. 126.

⁴⁵ ‘Journal of Horticulture,’ 1861,

pp. 39, 77, 158; and 1864, p. 206.

⁴⁶ ‘Beiträge zur Kenntniss der Befruchtung,’ 1844, s. 366.