

celebrated Improved Essex breed, divided his stock into three separate families, by which means he maintained the breed for more than twenty years, "by judicious selection from the *three distinct families.*"²¹ Lord Western was the first importer of a Neapolitan boar and sow. "From this pair he bred in-and-in, until the breed was in danger of becoming extinct, a sure result (as Mr. Sidney remarks) of in-and-in breeding." Lord Western then crossed his Neapolitan pigs with the old Essex, and made the first great step towards the Improved Essex breed. Here is a more interesting case. Mr. J. Wright, well known as a breeder, crossed²² the same boar with the daughter, granddaughter, and great-granddaughter, and so on for seven generations. The result was, that in many instances the offspring failed to breed; in others they produced few that lived; and of the latter many were idiotic, without sense, even to suck, and when attempting to move could not walk straight. Now it deserves especial notice, that the two last sows produced by this long course of interbreeding were sent to other boars, and they bore several litters of healthy pigs. The best sow in external appearance produced during the whole seven generations was one in the last stage of descent; but the litter consisted of this one sow. She would not breed to her sire, yet bred at the first trial to a stranger in blood. So that, in Mr. Wright's case, long-continued and extremely close interbreeding did not affect the external form or merit of the young; but with many of them the general constitution and mental powers, and especially the reproductive functions, were seriously affected.

Nathusius gives²³ an analogous and even more striking case: he imported from England a pregnant sow of the large Yorkshire breed, and bred the product closely in-and-in for three generations: the result was unfavourable, as the young were weak in constitution, with impaired fertility. One of the latest sows, which he esteemed a good animal, produced, when paired with her own uncle (who was known to be productive with sows of other breeds), a litter of six, and a second time a litter of only five weak young pigs. He then paired this sow with a boar of a small black breed, which he had likewise imported from England; this boar, when matched with sows of his own breed, produced from seven to nine young. Now, the sow of the large breed, which was so unproductive when paired with her own uncle, yielded to the small black boar, in the first litter twenty-one, and in the second litter eighteen young pigs; so that in one year she produced thirty-nine fine young animals!

As in the case of several other animals already mentioned, even

²¹ Sidney's edit. of 'Youatt on the Pig,' 1860, p. 30; p. 33, quotation from Mr. Druce; p. 29, on Lord Western's case.

²² 'Journal of Royal Agricult. Soc. of England,' 1846, vol. vii. p. 205.

²³ 'Ueber Rindvieh,' &c., s. 78.

Col. Le Couteur, who has done so much for the agriculture of Jersey, writes to me that from possessing a fine breed of pigs he bred them very closely, twice pairing brothers and sisters, but nearly all the young had fits and died suddenly.