

in the hides of the cattle reared on the bleak Falkland Islands and on the temperate Pampas. Low has remarked <sup>70</sup> that the cattle which inhabit the more humid parts of Britain have longer hair and thicker skins than other British cattle. When we compare highly improved stall-fed cattle with the wilder breeds, or compare mountain and lowland breeds, we cannot doubt that an active life, leading to the free use of the limbs and lungs, affects the shape and proportions of the whole body. It is probable that some breeds, such as the semi-monstrous niata cattle, and some peculiarities, such as being hornless, &c., have appeared suddenly owing to what we may call in our ignorance spontaneous variation; but even in this case a rude kind of selection is necessary, and the animals thus characterized must be at least partially separated from others. This degree of care, however, has sometimes been taken even in little-civilized districts, where we should least have expected it, as in the case of the niata, chivo, and hornless cattle in S. America.

That methodical selection has done wonders within a recent period in modifying our cattle, no one doubts. During the process of methodical selection it has occasionally happened that deviations of structure, more strongly pronounced than mere individual differences, yet by no means deserving to be called monstrosities, have been taken advantage of: thus the famous Long-horn Bull, Shakespeare, though of the pure Canley stock, "scarcely inherited a single point of the long-horned breed, his horns excepted;" <sup>71</sup> yet in the hands of Mr. Fowler, this bull greatly improved his race. We have also reason to believe that selection, carried on so far unconsciously that there was at no one time any distinct intention to improve or change the breed, has in the course of time modified most of our cattle; for by this process, aided by more abundant food, all the lowland British breeds have increased greatly in size and in early maturity since the reign of Henry VII.<sup>72</sup> It should never be forgotten that many animals have to be annually

<sup>70</sup> Idem, pp. 304, 368, &c.

<sup>71</sup> Youatt on Cattle, p. 193. A full account of this bull is taken from Marshall.

<sup>72</sup> Youatt on Cattle, p. 116. Lord Spencer has written on this same subject