for red; (*b*) that if one animal were introduced into a herd which, although itself black, carried the factor for red, it would be possible in time by selection for red to convert the whole herd into a red one.

The only way to make sure of keeping red out of a black herd is as follows: (*a*.) Before introducing a new bull into a herd try it out with some red or red-and-white cows. If it is a pure-black all the calves will come black. If it carries the factor for red about half the calves will come red. (*b*.) Watch the results obtained from bulls bred in the herd when used in crossbred herds. If any calves come red it is an indication that the bull carries the red factor. He must have got this either from his sire or dam. If the sire has been proved pure he must have inherited the red factor from the dam, and the dam should therefore be eliminated from the herd. (*c*.) If a red calf is born in a pure-black herd the sire and dam must both carry the red factor, and both should be eliminated from the herd.

I have dealt with the red and black factors in cattle at some length merely to give a practical illustration. This example will, I think, show the manner in which all Mendelian inheritance works. The same rules apply to other qualities or factors.

Pollies and horns in cattle are Mendelian factors, the polly quality being dominant and the horn quality recessive. The white face of the Hereford is a dominant factor also. An interesting cross in cattle is a pure Polled Angus with a pure Hereford. We have one parent with a black body and one with a red. Black is dominant, so the progeny will have a black body but carry the red factor in half its germ-cells. Polled quality of the Angus will dominate the horn quality of the Hereford, and the progeny will be polled but will carry the factor for horns in half its germ-cells. The white face of the Hereford will dominate the black face of the Angus, and the progeny will have a white face but will carry the factor for black in half its germ-cells. We can predict therefore with certainty that this cross, if the parents are pure, will produce animals with black bodies, white faces, and polled heads, but carrying in half their germ-cells the inheritance of a red body, in half the inheritance for horns, and in half the inheritance for black faces. These factors will, however, be mixed through each other, and the breeding together of these black-polled Herefords will produce most uneven results.

The foregoing deals with qualities that do not mix in the immediate offspring: the one quality dominates the other. A mixture of black and red cattle does not result in a composite colour: the first cross are all black, and the breeding of the progeny together produces either black or red. Mendel's crossing of long and dwarf peas did not produce any of intermediate length: the first crossing produced progeny all long, and these produced both long and short. There are other qualities, however, that do mix in the progeny, such as we see in the various kinds of crossbred animals that provide the great bulk of the farm-stock of this or any other country. Recent inquiries point in the direction of Mendelian rules governing this class of inheritance also when the crossbred animals are bred together.

An experiment was made of crossing a Gold-pencilled Hamburgh cock and a Silver Sebright bantam hen. These two differ greatly in size. The Hamburgh is, roughly, twice as heavy as the Silver Sebright.