

This correlation of colors is of value to the breeder as it enables him to make an examination of organs which are exposed and still growing or in operation and thus to tell what the color of the kernel will be. If it be desired to produce a hybrid of a uniform color, say a light blue, the tassels or male organs might be removed from those plants bearing light green glumes, stamens and silks before the pollen is shed so that a race of a pure color might be developed much more quickly.

Norton cites an interesting case of coherital correlation in oats. In hulled oats the spikelet produces from 1 to 3 flowers while naked types produce from 3 to 7 flowers. Hybrids of these two have been effected with a view to increasing the number of flowers to a spikelet and still retain the hulled character, but it was found that where as many as four flowers were produced to a spikelet the kernel was invariably found to be naked. The difficulty of breaking this correlation has here worked to the disadvantage of the breeder so it will be seen that these correlations are not always advantageous. The existence of these coherital correlations seems to strengthen the theory of the existence of unit characters in plants which theory is being accepted by many of our leading biologists and breeders of the present day. East has recently extended Webber's classification and has discussed several groups not included in the above arrangement. His dissertation on "The interrelation of parts not homologous" is especially interesting.

*Morphological Correlations*:—Under this class belong those cases "where a variation in one character is the *primary cause* for the variation in another character." An example of this class is illustrated in work done by Dr. Hopkins, of Illinois, in improving certain characters in the corn kernel, notably the oil and protein content.

The germ of the corn kernel is richest in oil, therefore, the larger the germ in relation to the rest of the kernel the higher the oil content; the hard corneous substance of the kernel is richest in protein, hence the larger the proportion of this substance to the rest of the kernel the higher the protein content.

At the Nebraska Station, Lyon conducted some tests with a large number of samples of wheat with a view to determining the relationship between the per cent. protein and the weight of kernel. His results indicate that high protein kernels are smaller and lighter and that plants producing kernels of high protein content do not produce such high yields as do those producing kernels lower in protein. This suggests to the breeder the futility of breeding for high protein and high yields at the same time. Medium yielding heads are also found to come from highest yielding plants.