Goldenface

The other mutation in this country is the **Australian Yellowface**, known in England as the goldenface. From now on, I will abbreviate this bird as GF. The show bird in this form of yellowface is the double factor GF in various shades of the blue series. The single factor GF also displays the various shades of the blue series, but only in its nest feather. After the first moult, the yellow spreads from the facial area and suffuses the body to change the sky to a sea green turquoise, the cobalt and violet to a dark metallic green and the mauve and grey to a color closely resembling grey green. Adult single factor GF are not suitable for presentation at shows due to the yellow suffusion resulting in a color contrary to that described for the yellowfaced blue in The Standard. To further complicate matters, the yellow suffusion increases with age (successive moults) in both the single factor and double factor GF, although the double factor GF always retain the unmistakable shades of the blue series, especially when expressed in combination with the grey factor or the dark factor. Budgerigars which phenotypically appear green but different from the usual greens are actually single factor GF which can be confirmed by checking the shades of blue under the wing (something a judge cannot do). Yellowfaced (GF) dilutes cause confusion as can the addition of opaline and cinnamon.

The current Standard calls for a "deep bright yellow mask and frontal". If all else is equal, then a GF should beat a YF on the show bench but this is rarely the case. The reason for this is that the YF is much easier to improve given its simpler genetics. The genetics of the GF is further complicated by the close linkage to the dark factor (discussed later). Theoretically, the GF should respond to selection by continual crossing to good English WF blues (or even greens split for WF blue) until it approaches the type of the YF. At that stage, single factor GF birds will need to be crossed to each other to restore the double factor phenotype(expected in one quarter of the progeny). Due care must be taken of the linkage phase of GF with the dark factor otherwise most of the double factor GF birds could end up being mauves by the mechanism explained in the December 1997 issue of the Budgie Bulletin. That article was in relation to Type I and Type II dark greens split for blue, but the same principle applies to GF. This complication is not an issue for the YF because in that case the desired bird is the single factor rather than the double factor.

The key to an understanding of yellowfaces is the realization that WF blue, YF blue, GF blue and green(abbreviated as G from now on), are an allelic series. They represent four variations of the same gene, just as grey wing, clearwing and black eye self's represent three variations of another gene. Some refer to the yellowface as a blue bird while others insist that it is a green bird because you cannot have yellow on a blue bird, but the argument is not really important. What is important is the realization that G is the "wild" type whereas WF, YF and GF are three important mutations of G. The three mutations are all recessive to G, or stated differently but with the same meaning, G is dominant to the three mutations WF, YF and GF. Only one of the mutations can be carried in the same split green bird at once since an autosomal gene can only exist in two copies in any chromosomally normal bird. Now the above statements related to linkage phase of the GF with the dark factor will make sense to the reader because the GF and WF are variations of the same gene located only 14 map units(as measured by the recombination frequency) from the dark factor gene situated on the same chromosome. The relevance to yellowfaces of the Type 1 and Type II dark green split blue story in the previous edition of the Budgie Bulletin is now apparent. The same Type I and Type II terminology could be applied to the single factor yellowface cobalts (GF and YF) in the same way that it has been applied to the dark greens split for blue.

Once theory attempts to explain the various phenotypes associated with this series of allelic mutations by stating that GF and YF and WF suppress to varying degrees the yellow pigmentation which gives the wild type bird its green color. Green arises from a combination of the Tyndall effect(which scatters incident white light to give the appearance of blue to the feather) together with yellow pigmentation. The WF mutation when homozygous totally blocks production of yellow pigment to leave a blue series bird. The YF in single dose, when in comparison with WF removes much but not all of the yellow pigmentation (by comparison with wild type G) leaving only pale yellow on the mask and frontal. YF is partially dominant in combination with WF, one dose of YF having a different phenotypic effect to that of two doses of YF. Two doses of YF leads to total removal of yellow pigmentation to give a budgerigar which is genetically different to the WF but phenotypically identical to it. The GF in single dose when in combination WF also removes yellow pigmentation (by comparison with wild type G) but not to the same extent as YF. The mask and frontal retains its bright yellow and some yellow is also retained by the body. The GF in double dose removes most of the yellow from the body as in the YF, but retains the bright yellow on the mask and frontal in contrast to the YF.

The theory that WF, YF and GF all suppress yellow pigmentation to varying degrees suggests that three separate mutational events from wild type G. These were G ----> WF, G---->YF and G---->GF. The YF and GF needed to be split WF before recognition of their associated phenotypes. This raises the interesting question of what a single factor YF in combination with a single factor GF would look like.

The yellow production hypothesis is an alternative to that of the yellow suppression theory. Under this model, YF and GF are independent mutations of WF each representing partial revenant to the green phenotype. The sequence of mutational events would be G----->WF----->YF and G---->WF----->GF, although it is even possible that YF---->GF or that GF ----->YF led to the second of the yellowface mutations. To further complicate matters, allelic complementation might be involved but we will not go into that at this time.

Regarding the production of exhibition quality yellowfaces the trap to avoid is the use of inferior WF blues as outcrosses. Quality WF blues are difficult to obtain without great expense so the yellowface breeder would need a strong stud of WF. Quality greens split for blue should not be discounted as a viable option as an outcross in the absence of good WF blues.

The linkage relationship between the gene locus for dark factor and the gene locus for G, WF, YF and GF has special implications for the breeder of GF (Australian Yellowfaces). Their improvement always involves production of single factor birds and crossing back to get the double factor GF. I have recently been intercrossing cobalt single factor GF birds with the expectation of a 1:2:1 ratio of WF single factor GF: to double factor GF. I had not given any thought at that stage as to whether or not WF, YF and GF might be allelic. I was surprised to see the majority of my double factor GF appearing as mauves rather than roughly equal numbers of sky, cobalt and mauve. In hindsight, it appears that the cobalts I used were all Type 1 with the GF allele and dark factor allele 14 map units apart but on the same chromosome homologue, as explained in the December article on Type 1 and Type 2 dark green split blues. To get mainly double factor GF cobalts I should have used two Type 2 birds, which I don not have at the moment. Consequently, I will need to breed crossovers(with expectation 14%) to get away from the double factor GF mauves or purchase a single factor turquoise GF from someone else who has also been crossing their Australian yellowfaces into English WF stock.

All that remains to be said about the yellowfaced blue is that the yellow does not only appear on the face. The Standard acknowledges the fact that secondary and tertiary tail feathers are yellow. In reality, there is often some detectable spread of yellow suffusion into the body and wing areas of even the single factor YF and double factor GF. This may well be addressed by selective breeding for modifier genes which diminish yellow suffusion. The most obvious modifiers reducing yellow body suffusion are the grey, dark and violet factors which intensify body color. The most obvious modifiers promoting yellow body suffusion are the opaline and cinnamon genes, which reduce body color.