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The facts about Violet Budgerigars

Violet is the most eye-catching of all the budgerigar colours and it is one of the more challenging to breed. Mainstream thinking on Violets is that it requires the presence of the Dark factor plus the Violet factor in a blue series bird to produce a Visual Violet. While this is generally true, and serves to give beginners an introduction to Violets, it is not the whole story. After breeding Violets for ten years, which included a number of experimental pairings, it has become evident to me that there is more to Violet budgerigars than is generally known.

Origins

Violet budgerigars surfaced in several countries at about the same time not long after the introduction of the Dark factor and as blue budgerigars became increasingly common. According to Australian records Violets were developed in the early 1930s. A Mr. Burton of Sydney bred Violets prior to 1934 and Violets were exhibited that year by a Mr. Harold Pier. References to purple or violet coloured budgerigars in Germany and Britain go back to the mid 1920s. Interestingly most books state that Violets first appeared in the 1930s. Cobalts appeared for the first time in 1920 having been bred from Dark Greens. Dark Greens were first established at Blanchard's Aviaries in France in 1915 but it is unclear whether they arose from a fresh mutation or were imported in consignments of wild budgerigars. English importers had claimed that Dark Greens were to be found among batches of wild Greens estimated at about one in 10,000 to 20,000.

A problem with this scenario is that Violet Light Greens look very much like Dark Greens and Violet Skyblues look very much like Cobalts and are easily confused. Judging from the broad distribution of the Violet factor early in its history it seems likely that Violet Light Greens had been bred alongside Dark Greens for some years in the 1920s, and perhaps earlier, but were not recognised as being genetically different to Dark Greens at the time. I suspect that the Violet factor like the Dark factor originally arose from wild caught birds and that some of the wild caught "Dark Greens" were in actual fact Violet Light Greens.

The Violet Skyblue

The addition of the Violet factor (V) to the Skyblue (vvdd) produces our most basic Violet factor bird in the blue series, the Violet Skyblue (Vvdd). The term "Violet Skyblue" really only refers to the genetic make up of the bird rather than its colour. If I had to put a name to the actual shade of blue "cyan" is about as close as I could come. Violet Skyblues vary in their depth of colour a fair bit. At the pale extreme their body colour is nearly as pale as the deepest shades of Skyblue. Very pale Violet Skyblues tend to be patchier than richly coloured Skyblues and have a cyan rather than turquoise tint to their feathers. At the dark extreme the body colour is very much like a medium shade of Cobalt. Most Violet Skyblues fall somewhere in between the two extremes and resemble pale Cobalts. A point that should not be lost here is that dark Violet Skyblues are darker in body colour than the paler shades of Cobalt.

The best guide to distinguishing Violet Skyblues from Cobalts are the tail and flight feathers. Cobalt tails are a solid navy blue. The darker the Cobalt body colour, the deeper the blue of the tail but even the palest Normal Cobalts have navy blue tails. In Violet Skyblues the tail

feathers are turquoise at the quill end darkening to blue toward the tip. The depth of turquoise in the tail varies with the depth of body colour. The difference we see in the tails can also be seen in the flight feathers. The colour in the flight feathers of Cobalts is dark blue. In Violet Skyblues there is a glossier turquoise iridescence like that seen in Skyblues but slightly darker that the Skyblue. In general Violet Skyblues have a brighter appearance than Cobalts.

When learning how to distinguish between Violet Skyblues and Cobalts, bright natural light is best. Direct sunlight is to be avoided. Artificial light can distort the colour of the bird making identification more difficult. Violet Skyblues appear darker under artificial light, particularly under fluorescent light. The turquoise iridescence can be more difficult to see under fluorescent light. The tail and flight feather method is most useful when dealing with Normals and Opalines but has its limitations when dealing with other varieties. One feature Cobalts usually have is ribbing. In Cobalts the breast and abdominal feathers have faint lateral striations resembling faint versions of the kind of markings found on the heads of Normals. The presence of ribbing can be useful in identifying Cobalts in certain varieties. In Dominant Pieds for example where the tail and flight feathers are white, ribbing on the breast feathers indicates the bird is a Cobalt and not a Violet Skyblue.

The ability to identify Violet Skyblues and separate them from the Cobalts is the key to the proper understanding of Violet breeding. The failure to correctly distinguish between the two colours has led to all sorts of myth, rumour, and general misinformation about the Violet factor.

The double factor Violet Skyblue and the question of Dominance

The Dark factor is said to be semi-dominant or incompletely dominant because double factor birds, Olives and Mauves, look different to single factor birds, Dark Greens and Cobalts. The Grey factor is said to be Dominant because Greys and Greygreens with two Grey factors do not look substantially different to Greys and Greygreens with only a single Grey factor. The Violet factor is said to be Dominant like the Grey factor. We know that if two Cobalts are paired together we can expect a percentage of Mauves. What colours do we get when two Violet Skyblues are paired together?

Violet Skyblue (Vvdd) X Violet Skyblue (Vvdd)

produce

25% Skyblue (vvdd)
50% Single factor Violet Skyblue (Vvdd)
25% Double factor Violet Skyblue (VVdd)

Skyblues are familiar to everyone. Single factor (SF) Violet Skyblues have already been described. If the Violet factor is dominant like the Grey factor then Double factor (DF) Violet Skyblues should not look very different to SF Violet Skyblues. However they ***are*** different. Very different.

We have now come to the crux of why Violet budgerigars are shrouded by so much mystery. In appearance DF Violet Skyblues (VVdd) are every bit as much Visual Violets as are Violet Cobalts (VvDd).

There are several pieces of information the Violet Skyblue X Violet Skyblue pairing gives us:

1. The Violet factor is not a simple dominant gene like the Grey factor. It is semi-

dominant like the Dark factor. DF Violet Skyblues are Visual Violets in appearance and therefore look quite different to SF Violet Skyblues.

2. It is possible to breed Visual Violets without using the Dark factor. Conventional wisdom tells us that Visual Violets are Cobalts plus an additional Violet factor. This has led to the false conclusion that all Visual Violets contain the Dark factor in their genetic make up. Visual Violets that are DF Violet Skyblues genetically give us the possibility of developing an aviary full of nothing but Visual Violets which in turn breed nothing but Visual Violets.

DF Violet Skyblue (VVdd) X DF Violet Skyblue (VVdd)

produce

100% DF Violet Skyblue (VVdd)

Since there is little hope of maintaining exhibition quality by using this pairing generation after generation it would be mainly of interest to colour breeders.

3. Double factor Violets do exist. Some fanciers say they have never come across a double factored Violet and have come to the conclusion that a double dose of the Violet factor is lethal. Lethality might occur in some Violet factor lines but I have bred with Violets from different sources and have never had trouble breeding double factor Violets. If a lethal trait can be demonstrated in certain Violet factor lines then the lethal trait is not due to the Violet factor itself but a separate recessive lethal gene closely linked to the Violet factor in those particular lines.

Quite frankly, I think the whole question of a lethal factor can be traced to the fact that fanciers have been labouring under the false premises discussed in points 1 and 2. Namely that the Violet factor is a simple dominant gene, and that all Visual Violets have the Dark factor in their genetic make up. The fact that most people have trouble sorting out Violet Skyblues from Cobalts only adds to the problem.

Heresy?

I realise that much of what I have written goes against accepted budgerigar dogma. No one has to rely on my words alone. The same information has been under the noses of budgerigar breeders for nearly 40 years. *Genetics for Budgerigar Breeders* was first published in 1961. In preparation for their book Taylor and Warner investigated the question of the existence of double factor Violets and set about deliberately breeding DF Violet Skyblues. When DF Violet Skyblues were produced they were described as:

> "... indistinguishable from Visual Violets apart from the fact that their long tail feathers were edged with pale blue at the quill end." (p. 77)

These birds were subsequently test mated. Although the number of young produced was relatively small, the results were consistent with what would have been expected from DF Violet Skyblues. For all the time and effort Taylor and Warner put into procuring birds, breeding with them, and test mating the youngsters, their words have gone unheeded.

It is surprising that Taylor and Warners' findings have not been given more attention when one considers the status *Genetics for Budgerigar Breeders* has in the hobby. No doubt much of the blame has to be laid on the similarity in appearance between Violet Skyblues and Cobalts

and the chronic problem fanciers have in sorting the two out. The fluorescent lighting usually installed in birdrooms probably exacerbates the problem.

Another possible contributing factor to the confusion between Violet Skyblues and Cobalts comes from unexpected quarters. Over the last decade scientists have found differences in the ability of people to detect subtleties in shades of colour among individuals who are regarded as having clinically normal colour vision. These differences in ability are programmed into our DNA. The implication for some people is that the difficulty is sorting Violet Skyblues from Cobalts probably has more to do with their own genetic make up than it does with the genetic make up of the birds.

An unexpected result

The first time I bred a DF Violet Skyblue was by accident back in 1988. I bought a pair of birds which looked as though they were an especially good coloured Opaline Skyblue hen and a rather poorly coloured Normal Cobalt cock. They produced a total of ten young:

1 Normal Skyblue (poorly coloured)
1 Lacewing
7 Normal 'Cobalts' of varying depth of colour
1 Normal Visual Violet

The Lacewing was not a surprise since I had been told the cock was split. The Visual Violet was a surprise however. To produce a Visual Violet the Opaline hen could not have been an ordinary Skyblue but a Violet Skyblue.

At the same time I also had Normal Visual Violets paired to ordinary Normal Skyblues. They produced Skyblues, good coloured Cobalts, Visual Violets, and birds which resembled the poorly coloured 'Cobalt' cock in the pair above. I began to realise the poorly coloured 'Cobalts' with the turquoise sheen in their Skyblue-like tails were most probably Violet Skyblues. I also had a pair of Cobalts (navy-blue-tailed dark blues) breeding which produced Mauves. Mauves in the nest confirmed that navy-tails were indeed genuine Cobalts.

However I was still puzzled. If the Opaline hen in question was a Violet Skyblue then the cock bird should in theory be a Cobalt. Yet he looked like the Violet Skyblues which were being produced by the Skyblue X Visual Violet pairings. Back to the books! I re-read the chapter on Violets in *Genetics for Budgerigar Breeders* and there I found the explanation for the mystery Visual Violet youngster. It was almost certainly a DF Violet Skyblue. My mystery Visual Violet even had the paler blue (turquoise) colour in the tail feathers described by Taylor and Warner. I had in fact read the chapter on Violets some months earlier. At the time I found Taylor and Warner's comments interesting but I put the chore of sorting out Violet Skyblues from Cobalts in the 'too hard' basket and promptly forgot all they had written about DF Violet Skyblues.

The suspect DF Violet Skyblue was a Normal Visual Violet hen but not a particularly good coloured Violet. In side by side comparisons with very good coloured Cobalts the Violet colouring was quite obvious. She made even the darkest coloured Cobalts look bland. Yet in side by side comparisons with average coloured Violet Cobalts the DF Violet Skyblue lacked the same intensity of Violet. I would have to describe this bird as a bluey sort of a Violet. (For future reference I will nickname this bird 'Indigo' after the colour of light between blue and violet in the colour spectrum). The turquoise iridescent sheen was quite noticeable in the flight and tail feathers as Indigo flew from perch to perch. Many of Indigo's nest mates were at the paler end of the scale for their respective colours. I know now that Indigo herself was a rather

poorly coloured example of a DF Violet Skyblue.

Experimentation

Indigo was paired to a Normal Skyblue cock. She produced seven young in two rounds. All were Normal Violet Skyblues identifiable by the turquoise iridescence in their tails and flight feathers, and their paler brighter Cobalt-like body colour. On the whole the young looked very much like Indigo's Violet Skyblue siblings.

Over the next couple of years I made several Violet Skyblue to Violet Skyblue pairings using birds from various sources. Violet Skyblues were not difficult to get. Thirty to forty percent of birds offered to me as 'Cobalts' turned out to be Violet Skyblues upon closer examination. When asked for Violet Skyblues nobody seemed to have any! Most people just don't know what they have. That includes a couple of fanciers experienced with Violets.

Among the pairs to breed were three pairs of SF Violet Skyblues with a medium depth of colour and two darker pairs of SF Violet Skyblues with very good colour. The two darker pairs were deeper in body colour than many Cobalts. I did not consider breeding with poorly coloured pairs to be a worthwhile exercise. The cock and hen in each pair were matched for colour as closely as possible. One of the medium coloured pairs was Opaline, the rest were Normals. I wanted to see Skyblues, SF Violet Skyblues, and DF Violet Skyblues bred from each pair so I let them raise a third round where necessary to achieve this. Other pairs produced only clear eggs.

All told the five pairs produced 53 young, 11 Skyblues, 28 SF Violet Skyblues, and 14 Visual Violets (DF Violet Skyblues genetically). No Cobalts (navy-blue-tailed dark blues) or Mauves were produced. In general the darker coloured pairs bred the better-coloured young.

This question of good colour and poor colour is one that initially caused problems and one that I shall return to later.

DF Violet Skyblues vs. Violet Cobalts

The same principle used to separate Violet Skyblues from Cobalts can be used to separate DF Violet Skyblues from Violet Cobalts. Violet Cobalt tails range from a deep bluey-violet to violet shade depending on the intensity of the body colour. DF Violet Skyblue tails are dark blue with residual pale blue or turquoise at the quill end. In the flight feathers turquoise iridescence can be seen in the DF Violet Skyblue but it is replaced with a darker bluey-violet colour in the Violet Cobalt.

DF Violet Cobalts (VVDd) on average are a deeper richer violet colour than SF Violet Cobalts (VvDd) but are otherwise similar. This may seem to support the traditional view that the Violet factor is a simple dominant gene. However we have to assess the action of the Violet factor in the correct context.

In single and double factor Violet Skyblues we see the effect of the Violet factor free of the influence of other colour factors. In the Violet Cobalt we see the effect of the Violet factor interacting with the Dark factor. Each colour factor should really be assessed by the way it performs by itself in basic blue and green birds, Skyblues and Light Greens, not in combination with other colour factors. We wouldn't assess the action of the Dark factor by using light, medium, and dark Greys as the standard for comparison. By the same token the Violet factor should not be assessed by using single and double factor Violet Cobalts as the

standard for comparison.

DF Violet Skyblue body colour can vary from a bluey-violet as in the bird nicknamed Indigo to an intense Violet on par with DF Violet Cobalts. DF Violet Skyblues tend to have a more satiny appearance than Violet Cobalts because they have the same feather structure as the Skyblue. The dark factor has a slight dulling effect.

The Violet factor exerts its darkening effect by increasing the amount of melanin in the body colour feathers whereas the Dark factor modifies the structure of the feather barbs. For more information see Chapter 1 in *Genetics for Budgerigar Breeders* where the work of Dr. L. Auber has been reproduced.

Dr. Auber noted an interesting anomaly in the feather barb of the Visual Violet fig. 7 page 12. The cloudy zone has the same depth as in a bird of light shade (Skyblue) not medium (Cobalt) as would normally be expected for a Violet Cobalt. He could offer no explanation for the anomaly at the time. The most likely explanation is that Dr. Auber's Visual Violet feather came from a DF Violet Skyblue not a Violet Cobalt. It effectively corroborates the idea that DF Violet Skyblues are Visual Violets.

The 'anti-Violet Factor'

The 'Anti-Violet Factor' is a nickname I have given to what may be more accurately thought of as the Body Colour Intensity Reducing Factor BCIRF which I encountered during my breeding experiments. Actually I cannot be sure whether it is a single gene or several minor modifiers which have a combined effect. All I can say is it appeared to be inherited in a dominant manner as though it were a single gene. When a BCIRF bird is bred with you can expect half the young to be BCIRF birds. I have seen it affect Skyblues, SF Violet Skyblues, DF Violet Skyblues, Cobalts, and Violet Cobalts, but it is in the Violet factor birds that it has its most damaging effect.

Normal Skyblues and Cobalts with the BCIRF simply look like very pale Normal Skyblues and Cobalts. In the Skyblue the body colour falls into the range of what one might expect to see in a Skyblue Cinnamon. Except for the navy-blue tail and flight feathers BCIRF Cobalts look very much like medium SF Violet Skyblues in body colour. BCIRF SF Violet Skyblues have a body colour no deeper than good coloured ordinary Skyblues but are somewhat patchy and have a cyan tint. The tails are slightly washed out as well. Indigo was a BCIRF DF Violet Skyblue and had a bluey-violet body colour. The double dose of the Violet factor held the intensity of the body colour up better than a single dose of the Dark factor in the BCIRF Cobalt.

In the SF Violet Cobalt is where the BCIRF really earns the nickname "Anti-Violet Factor" because SF Violet Cobalts with the BCIRF modifier look like good coloured ordinary Cobalts. It seems as though the BCIRF cancels out the effect of the Violet factor. There are traces of violet on various parts of the bird but no more so than is typically found in very good coloured ordinary Cobalts.

The traces of Violet common in ordinary Cobalts are thought by some to indicate the presence of the Violet factor. However when paired to Skyblues these Cobalts only produce Skyblues and Cobalts. It is quite normal and natural for Cobalts to have traces of Violet in their feathers. All it tells us is that the distribution of melanin is slightly uneven in the bird.

I first learned that a genetic Violet Cobalt (VvDd) could look like a good coloured ordinary Cobalt when I paired what appeared on the surface to be a Normal Cobalt cock to a Normal Skyblue hen. Typical Visual Violets and Violet Skyblues appeared in the nest along with the

expected Skyblues and Cobalts, all birds were Normals. There was nothing unusual about the Skyblue hen, she wasn't even particularly good coloured. The "Cobalt" cock however had been bred from a good coloured Normal Cobalt cock of known background to a very poorly coloured Normal Violet Skyblue hen (Indigo's sister). The same pairing had also produced a Visual Violet in the nest confirming Indigo's sister really was a Violet Skyblue.

Evidently one of the essential ingredients necessary to produce a Visual Violet is reasonably good overall colour. A Violet Cobalt (VvDd) bred from poorly coloured stock might not necessarily be good enough to qualify as a Visual Violet even though it is carrying the Violet factor in its genetic make up.

This was further corroborated in the next generation. One of the young produced by the pairing was a bird which looked like a good coloured Normal Cobalt hen, a near perfect colour match to her father. She was paired to a Normal Skyblue cock and likewise produced typical Violet Skyblues and Visual Violets among her young.

The views held by those fanciers who maintain that double factor Violets do not exist are understandable. Pairings which should in theory produce 100% Visual Violets do not always do so. Fanciers have been labouring under yet another false premise, namely that all Violet Cobalts are automatically Visual Violets. That idea should be amended to:

Violet Cobalts are **usually** Visual Violets

with the emphasis on usually.

A DF Violet Mauve (VVDD) paired to a Skyblue (vvdd) for example will produce 100% Violet Cobalts (VvDd). However if the parents happen to be carrying genes for poor colour then not all of the young will necessarily be Visual Violets. Some of the young could come out looking like nothing more than good coloured ordinary Cobalts. If these non-Visual Violet Violet Cobalts are bred on with and paired to reasonably good coloured Skyblues we can expect Visual Violets to reappear in the next generation thereby revealing their true genetic identity.

The BCIRF doesn't actually cancel out the effect of the Violet factor specifically. If it were possible to remove the Violet factor from a BCIRF Violet Cobalt (VvDd) we would be left with a poorly coloured Cobalt (vvDd). Alternately if we removed the Dark factor from a BCIRF Violet Cobalt (VvDd) we would be left with a poorly coloured Violet Skyblue (Vvdd). If we remove both colour factors we would be left with a poorly coloured Skyblue (vvdd). The common denominator is poor colour.

In the BCIRF Violet Cobalt the Violet factor was able to raise the melanin levels in the feathers enough to convert a poorly coloured BCIRF Cobalt into a bird which looked like a very good coloured Cobalt. A single Violet factor was not enough to convert a poorly coloured BCIRF Cobalt into a Visual Violet. Evidently Violet factor Cobalts that are not Visual Violets crop up often enough to lead astray a substantial proportion of Violet breeders and cause them to conclude that double factor Violets do not exist.

The linkage theory

For several decades Violet breeders have noticed that not all Visual Violets produce the same percentage of Visual Violet youngsters when bred with. (Why shouldn't we be surprised by that?) In order to account for that fact some breeders have proposed that the Violet factor and the Dark factor are located on the same chromosome. It means that we could expect to find two kinds of SF Violet Cobalts, Type I and Type II. In Type I the two colour factors would

both be located on the very same chromosome (VD/vd). In Type II the two colour factors would be located on opposing chromosomes of the same chromosome pair (Vd/vD).

I haven't taken a poll on this question but I would lay odds that the linkage theory is more popular with those breeders who maintain that double factor Violets do not exist. They more than anyone else need a way to account for the fact that not all Visual Violets breed as though they are SF Violet Cobalts (VvDd). Before anyone embarks on a breeding program to determine whether or not linkage exists between the Dark and the Violet factors my advice would be to first learn how to sort out Violet Skyblues from Cobalts. Then perhaps they would have a chance at learning how to sort out DF Violet Skyblues from Violet Cobalts. Only then would they be qualified to investigate the question of linkage.

In the following few paragraphs I shall assume that linkage is present and use the appropriate notation, e.g. VD/vd rather than the normal VvDd.

In order to investigate the linkage question properly it is necessary to discriminate between Type I and Type II Violet Cobalts. The surest way to know whether a bird is Type I or Type II is to know how it was bred. When the Dark factor and the Violet factor are inherited from the same parent the bird is Type I. Commonly used pairings in which the Violet Cobalts produced would be Type I (VD/vd) include:

Pairing 1 Violet Cobalt (VvDd) X Skyblue (vd/vd)

Pairing 2 Violet Mauve (VD/vD) X Skyblue (vd/vd)

It doesn't matter whether the Violet Cobalt parent in Pairing 1 is itself Type I (VD/vd) or Type II (Vd/vD) since only the youngters are of interest.

When the Dark factor is inherited from one parent and the Violet factor from the other parent the bird is Type II. Commonly used pairings in which the Violet Cobalts would be Type II (Vd/vD) include:

Pairing 3 Violet Skyblue (Vd/vd) X Cobalt (vD/vd)

Pairing 4 Violet Skyblue (Vd/vd) X Mauve (vD/vD)

Violet mauves are not easy to distinguish from ordinary Mauves so breeders really have to know their birds when using Mauves. Once the putative Type I and Type II Violet Cobalts have been identified they should be paired to Skyblues.

Pairing 5 Type I Violet Cobalt (VD/vd) X Skyblue (vd/vd) should produce

greater than 25% Skyblues (vd/vd)
less than 25% Violet Skyblues (Vd/vd)
less than 25% Cobalts (vD/vd)
greater than 25% Violet Cobalts (VD/vd)

Pairing 6 Type II Violet Cobalt (Vd/vD) X Skyblue (vd/vd) should produce:

less than 25% Skyblues (vd/vd)
greater than 25% Violet Skyblues (Vd/vd)
greater than 25% Cobalts (vD/vd)
less than 25% Violet Cobalts (VD/vd)

If there is linkage between the Violet and the Dark factors Pairings 5 and 6 illustrate the kind of results that are to be expected over a large number of matings. I usually pair Violet Cobalts to Skyblues and sometimes Violet Skyblues to Cobalts. In my experience Violet Cobalt youngsters which are supposedly Type II don't breed any differently to those which are supposedly Type I. In each case the Dark and Violet factors segregate out randomly in the next generation giving roughly equal numbers of each of the four colours. If linkage between the Violet and Dark factors can ever be demonstrated then the genes will be found to be so widely spaced that it has little if any practical impact on the percentage of Violet Cobalt youngsters bred in a given nest.

One pairing where people would notice an odd result is when they unwittingly pair a DF Violet Skyblue (VVdd) to a Skyblue (vvdd). They naturally assume the Visual Violet to be a Violet Cobalt. Ordinarily a Violet Cobalt to Skyblue pairing should yield 25% Visual Violets if the bird is single factor, and 50% Visual Violets if the bird is double factor for Violet. Instead, all the young will be SF Violet Skyblues (Vvdd). To the untrained eye the palest ones might be mistaken for Skyblues and the darkest ones mistaken for Cobalts. Some might even be correctly identified as Violet Skyblues. The fancier will be left scratching his or her head wondering where all the Visual Violets have gone.

Linkage would be an elegant way to account for the lack of Visual Violet young. DF Violet Skyblues appear to mimic the hypothetical Type II SF Violet Cobalts in this pairing adding fuel to the linkage theory. Suspect Visual Violets can always be paired to Mauves (vvDD). Violet Cobalts paired to Mauves will produce a percentage of Mauves in the nest. DF Violet Skyblues never produce Mauves.

Linkage between the Dark factor and the Green/Blue gene has been widely accepted. If there is any linkage between the Dark and the Violet factors then it should be possible to demonstrate linkage between the Violet and the Green/Blue genes as well. This back door approach would avoid the hassle of sorting the Violet Skyblues from the Cobalts provided proper Violet Skyblues and Violet Light Greens were used at the start of the project.

My own view is that linkage proponents are proposing yet another false premise in order to compensate for all the other false premises Violet breeders have been labouring under.

Violet factor Albinos

Violet factor Albinos are usually described as having a rosy pink suffusion. To describe the suffusion as "rosy" is an overstatement. Several years ago a breeder I know paired an Albino cockbird to a Violet Skyblue hen. Among the young Albino hens bred were two with rumps which could be called pinkish. To my eyes the pink wasn't "rosy". It was a brownish shade, not unlike a paler version of the light brown colour seen on the rumps of Lacewings. True pink is diluted red. The rumps of the two Albino hens looked like a diluted reddish brown.

Albinos are not totally melanin free as often stated. Their feathers contain small amounts of abnormal melanin. The Violet factor increases the amount of melanin produced in the body feathers. It appears that in Violet factor Albinos the Violet factor increases whatever trace amounts of abnormal melanin the Albino is capable of producing giving Albinos a slight pinkish

or brownish-pink suffusion.

Green series Violets

Violet factor birds in the Green series have generally been regarded as an annoying by-product of Violet breeding rather than as potentially valuable stock birds for future pairings. It has only been in the last few years that I have taken an interest in Green series Violet factor birds myself.

The Violet Light Green is the Green series counterpart to the Violet Skyblue. If picking out Violet Skyblues is tricky then picking out the Violet Light Greens is even trickier. The variation in yellow ground colour from bird to bird is an additional variable that needs to be considered as one learns to recognise Violet Light Greens.

The darker better coloured Violet Light Greens generally look like Dark Greens but, as with Violet Skyblues, lack ribbing in the body feathers. They have tail feathers which resemble those of Light Greens. Dark Greens have navy-blue coloured tails like Cobalts. Violet Light Greens lack the dark blue colour in their flight feathers evident in flight feathers of Dark Greens.

Violet Light Greens also have a more satiny finish to their feathers than Dark Greens. One of the early names for the Dark Green was Satin Green. Could Satin Greens have been early Violet Light Greens? We will probably never know. If you are not sure whether a bird is a very good coloured Light Green or a poorly coloured Dark Green it is probably a Violet Light Green.

Violet Dark Greens are the Green series counterpart to the Violet Cobalt. They stand out from Dark Greens and are nearly halfway between Dark Greens and Olives in colour. I have not got around to breeding a DF Violet Light Green yet but based on the appearance of blue series birds they should look very much like Violet Dark Greens. I expect their feathers to have a more satiny finish.

Opaline Violet Light Greens are a bit paler than the Normals. Nest feather Opaline Violet Light Greens are sometimes hard to pick from Light Greens. Sometimes it is best to just wait until they go through their moult and darken up a bit before deciding what you have got. The darker Opaline Violet Light Greens have a sparkle in their feathers which make Opaline Dark Greens look quite dull by comparison. I would describe their colour as a bright emerald green. The higher melanin levels of the Violet factor birds makes the reflective qualities of the feathers more obvious to the eye. This effect should be even more conspicuous on Opaline DF Violet Light Greens.

Breeding a family of SF and DF Violet Light Greens and SF and DF Violet Skyblues in the same way some people breed Dark Greens, Olives, Cobalts, and Mauves has possibilities. I have never heard of anyone breeding Violet factor birds in quite this way. It is territory largely unexplored. The beauty of it is that the birds would still belong in the realm of Normals in Opalines and not unusual composities of several varieties.

The hobby has been caught up in the Light Green, Dark Green, Olive, Skyblue, Cobalt, Mauve, six colour mindset since the early days. The Violet factor produces a parallel series of six colours, Light Green, SF Violet Light Green, DF Violet Light Green, Skyblue, SF Violet Skyblue, DF Violet Skyblue. All we lack is convenient terminology to use when talking about these birds.

Summary

SF Violet Skyblues and Cobalts can both be loosely regarded as Dark Blues, the exception is badly coloured SF Violet Skyblues which might be mistaken for good coloured Skyblues. Cobalts have navy blue tails and navy blue in their flight feathers. Violet Skyblues have turquoise iridescence in their flight feathers and varying amounts of turquoise in their tails.

These observations are confirmed by the way the birds breed:

Cobalt X Cobalt

25% Skyblues
50% Cobalts (navy-tailed dark blues)
25% Mauves

(no turquoise-tailed dark blues appear)

Cobalt X SF Violet Skyblue

25% Skyblues
25% SF Violet Skyblues (turquoise-tailed dark blues)
25% Cobalts (navy-tailed dark blues)
25% Visual Violets (violet-tailed visual violets)

SF Violet Skyblue X SF Violet Skyblue

25% Skyblues
50% SF Violet Skyblues (turquoise-tailed dark blues)
25% DF Violet Skyblues (Visual Violets. Dark blue tail with pale blue or turquoise detectable at quill end)

(no navy-tailed dark blues appear)

Violet breeders have been labouring under several false premises:

1. The Violet factor is a simple dominant gene.
2. ***Only*** Violet Cobalts are Visual Violets.
3. Violet Cobalts are ***all*** Visual Violets.
4. Some Violet breeders believe double factor Violets do not exist.
5. Some believe there is linkage between the Dark and the Violet factors.

The corrected information on Violets is as follows:

1. The Violet factor is a semi-dominant gene, not dominant.
2. DF Violet Skyblues are Visual Violets in addition to SF and DF Violet Cobalts.
3. Violet Cobalts are ***not*** always Visual Violets. Badly coloured Violet Cobalts can look like

nothing more than good coloured Cobalts.

4. DF Violets do exist. It is all in knowing what to look for.

5. When points 1 and 2 are taken into account evidence for linkage tends to evaporate.

There are several aspects of Violet breeding I have not addressed. I have never bothered breeding more than a few Violet Mauves so I cannot discuss them in detail. I have also never bothered pairing Violets to Greys so I cannot supply detailed first hand information on Violet factor Greys. These are projects for the future.
