

The Pigeon Genetics Newsletter, News, Views & Comments.

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DUDE , Lighten UP !

This Month we take a look at factors that change how we see the intensity of Colour Pigment.

Generally, most of the pigment expression is at the ends of each feather with the base of each feather appearing either white or a much lighter tone of the main colour.



Here you can see how the pigment concentration increases toward the end of this feather .

Many factors can change this normal expression so that the overall colour is diminished.

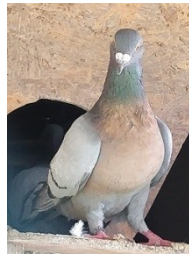
The above feather is "Intense phase" , or what we may think of as 'Wild type' in a blue series bird showing the expression of 'smooth spread' pigment at the end of the feather.

The delicate little pigment cells may be scattered out throughout the feather structure such that very little 'colour' reflects back and we see the effect as a lighter tone or even as white.

One of the first lightening mutations was named "dilution". The dilution mutation does more than simply scatter pigment so that we see more of the background colourless areas, it actually cuts the melanin intensity. This locus has four phases as far as we presently know. Each of the three mutations has a greater 'cut' in Intensity than the original. Early studies made a relationship between this locus and one found in the Ringnecked Dove. However, while there is a pale factor allele in pigeons at the 'pigeon dilution locus' , none has been found at the Dove dilution locus.

In the Dove there also was a very early discovery of the fourth mutation Extreme dilution white. Tests seem to indicate that it is the same as a more recent mutation (E cru) in pigeons. **Willard Hollander** predicted that this mutation in Pigeons would one day occur and gave it the same symbol and name as in the Ringneck Dove, symbol (d^W) dilute white or extreme dilution. When a very light cream (referred to as Lemon) coloured bird appeared in a flock of Racers in Africa, it eventually was imported to the U.S.A. and named by **Dr. Lester .P.Gibson** as E cru as it was the colour of muslin grain as opposed to white or lemon yellow..

You know the dilution alleles as: Intense - Pale - dilution - and - E cru.



Intense blue bar - Pale factor blue bar - dilution factor blue bar - Extreme dilute blue Bar
(1) Bob R. - (2) **Porumbei Colorati** - (3) Bob R. - (4) **Grzegorz Szpryngiel**

While the Blue Bar is (wild type) at this locus, the mutations are alleles (alternate choices) and while Pale factor has no other name than 'pale' , the dilute BB is called silver , and the Ext.dilute BB is called E cru.



Intense blue bar and extreme dilution/Ecru - **Joe Power**.

Next we have a mutation that causes all pigment to be made to appear as if a soft coating of 'milk' had been poured down over the bird , and it is aptly named 'milky' factor , symbol (my).



M Atig- milky T-Pattern. **Cliff Hastings**-milky Blue bar. **Brian Cullen** - milky blue bars .

Another somewhat similar mutation is "Ice" , however it tends to only lighten everything that is not actually Pattern on the wings , the 'C' areas , and the tail band. Photos **Mick Bassett**.



Another lightening mutation is 'reduced factor and its allele rubella. Reduced does exactly what the name implies , it REDUCES the colouration of the feather pigments such that the bird may start out in the nest as almost entirely white but usually with some very distinctive bands of coloured feathers particularly on the shields and face -



Breeders: (1) **Kleurpostduiven Kloosterhaar** and (2) **Stephen Scott**

These mutations at this locus also tend to **de-pigment** and particularly show their effect anywhere on the adult bird where there is normally a deep concentration of pigment cells. A rather distinctive silvery white neck sheen is particularly obvious on the blue series. The allele 'rubella' tends to lack this whitish neck sheen and is slightly darker all over. It is slightly dominant to reduced.

The dilution locus and the reduced locus can both effect a bird at the same time giving a 'double whammy ' so to speak. The range of colour de-pigmentation becomes more and more varied to the point where an exact identification cannot be made by phenotype alone.

We all know that the tail band of the dominant Red (ash - Red) , is actually a very light ash colour as opposed to the expected Brick RED such as we see in the coarse spread pattern areas. When we add normal spread factor we get that lightened effect over the entire bird: Below we see an Intense phase spread ash-red male photo **Mick Bassett** , and a spread factor dilute ash -red/cream **Stanley Stamer**.



The overall expressions may be changed by the addition or removal of other modifiers such as Dirty (V).

Usually when we have any colour trait that has received its main characteristic from ONE parent only (heterozygous) or 'impure' for that trait , then the expression will be slightly darker or more pronounced than it would be in the pure or homozygous state whereby it had received its trait or traits from BOTH parents!

Now you may be thinking of all sorts of genetic Mutations that lighten or even render PURE white looking birds that you do not see mentioned here. Some of those in the homozygous state are indeed pure white at least to the naked eye or nearly so . Those are not what we are discussing in this issue but to give an example here are two Tumblers bred by **Rob Grogan**. The youngster is certainly nearly pure white but likely will 'revert' to express its base pigment which happens to be a reduced spread Chocolate/brown series stippler. It is lightened because it is also affected by the Stipple gene which at least temporarily de-pigments or stops pigment deposits altogether when they are at their weakest expression in the first feathering..

The second bird is reduced Chocolate/brown series , probably T-pattern.



Another example of a mutation that reduces colour overall in most cases and even more so in the wing patterns and Tail band is the Dominant Opal (Od). It sometimes is confused with reduced factor. Both lighten the coarse spread areas of pattern and the tail band.

We will show you a number of photos of birds expressing dominant Opal in combination with other colour traits. Again we must mention that any two birds that may be of EXACTLY the same genome, may not look exactly alike. The variable nature of some of these traits will cause slight differences that may never be fully explained.

While most would say these are Extreme dilutes , I believe they may actually be Dominant Opal dilute recessive red/yellow (Isabels). *Note : the very white wing bars .



Mothers Pigeon Loft.

Below is an Isabel photo by **Mick Bassett.** and reduced recessive reds by **Jijo Thomas.**



Beautiful Dominant Opal (Od) American Show Racers, checker bred by **Gary Yaunt.** T-Pattern bred by **Djiin Becor** . Note that all pigmentation is slightly diminished.



Recessive opal (o) - by **Andy Hess**.



Dominant Opal - **Manuel Alvernaz**, may also be reduced?



Indigo on Black (Andalusian) **Stanley Stamer**.



Dominant Opal on Andalusian (Opalusian) **Nicolae Florea**.



The stipper allele 'Faded' (St^F) combined with any other traits will cause considerable depigmentation, here **Octavian Sarafolian** demonstrates Faded on an Indigo Blue bar, and on an Indigo/Andalusian.

Hello Bob,

Got the June 2021 Newsletter and the comments in Hein Van Grouw's letter hark back to the following below. Perhaps this might be included in the thinking as to why hybrids do not often survive.

Bob Mangile
Pittsburg, Kansas USA

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On page 292 of the American Naturalist, Vol. LXXXIV, July-August 1950 "Hybrids of Pigeons by Ring Dove" by Leon J. Cole and Willard F. Hollander they had this to say. "It was early discovered that if a 'dilute' pigeon were used with either blond or white dove, the hybrids were all blond (= dilute), quite distinct from the slaty "type hybrids". Apparently therefore blond and dilute are essentially the same genetically."

Addressing the cause of the early embryonic death and high mortality of nestlings in crosses of domestic pigeons, *Columba livia*, and Ring-necked doves, *Streptopelia risoria*, Cole and Hollander, pages 286-287 had this to say. "A study of the immunogenetic features in this cross was reported by Irwin and Cole (1936). The erythrocyte antigens of the hybrids include those of both parental species, though some variation was noted in the pigeon antigens represented. Also there was a new antigenic property or "hybrid substance," which was interpreted as an effect of complementary action of genes governing antigenic properties, (Analogous effects have been noted in other species hybrids.)"

And in December 2004, Dr. Wilmer Miller wrote the following on his web site page "Pigeon/Dove Hybrids" [http://www.ringneckdove.com/Wilmer's WebPage/pigeon_dove_hybrids.htm](http://www.ringneckdove.com/Wilmer's%20WebPage/pigeon_dove_hybrids.htm)

"The red cell antigens have been studied by several investigators. Primarily, Professor M. R. Irwin [my major professor] utilized the hybrids produced by Dr. L. J. Cole to show a mysterious "hybrid substance" related to that found in pearlneck/ringneck, senegal/ringneck, and other species hybrids also investigated by Irwin. This was a great puzzle to geneticists of that time (1930's-40's), since the hybrid substance was inherited as a dominant but not present in either parental species. I was able to show that it is much like a (serological) interaction product well known for other more ordinary characters. Further, I showed that it resulted from the CC' red cell species-specific antigenic complex of the cross of the triangular spotted pigeon with the domestic pigeon. For more complex details see my CV references. "

{We thank **Robert Mangile** for this information to help shed light on the interesting subject of hybridization among doves and Pigeons and some of the problems to be encountered when starting the squeakers off with foster parents etc. }

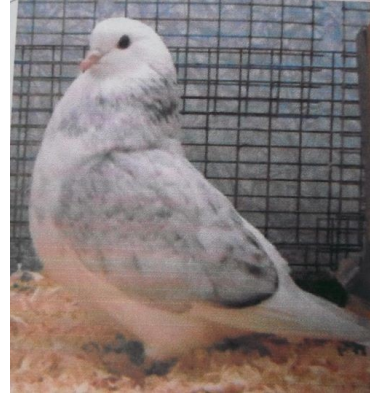
The point I would like to make is that as we strive to "LIGHTEN UP" the phenotypes of our birds to get some of these beautiful soft muted colours , we will find ourselves introducing many 'recessive' traits that will inevitably have a direct impact on the overall quality of our 'intense' phases of colours. Many carried recessive genes have a direct effect when present on the opposite chromosome so that we get to see that influence when we may not want to see it.

Identifying exactly what the genomes of some of these birds are, based upon phenotype alone, becomes quite a challenge!



One may well suspect a spread factor blue/black Ecu at first glance of the above bird. The dark eye rules out Ecu as they are pink eyed at this age. Breeder **Porumbei Colorati** states that it is a Stipper rubella.

We have not included other mutations that all of us commonly see and likely have owned and bred. Examples would be the grizzle family , Toy stencil family , the frill stencil family etc. These traits have very different de-pigmentation effects that while they affect the entire bird 'genetically' speaking , their effects are only seen in specific areas of the feather cover. They may be combined with any of the traits that we talked about above and eventually one may end up with basically white pigeons as a result. Below are some examples of this: Photo one a blue bar Pied(Baldhead) Dominant Opal Classical Grizzle., photo two is the same only with a checker pattern. Both bred by Bob R.



When we incorporate the Toy Stencil Complex and the frill stencil mutation along with Spread blue/Black and the Indigo gene as **Shoibal Sabbir** has done here, a very soft laced bird is the result. The darker looking head is simply caused by the fact that those laced feathers are so small and close together.



Just adding a double dose of Indigo or a single dose of Opal and one would have a nearly all white bird.



AZ Unique Loft bred this beauty and labelled it as a smoky recessive opal spread blue/Black. I am not certain that is exactly what it is and would like to know the parents by good photos. I suspect reduced or Dom.Opal.



Phaeo Egaal

(INO) at this locus in Doves this pink eyed form of albinism is believed to be the same as the Pigeon dilution locus. There is however; as mentioned earlier , no 'pale' phase at this locus. There does appear to be many other phases at this locus in Doves that do not exist in Pigeons at all. More to learn here for sure !

That is about it for this the July 2021 Issue , and there is no doubt it could be many more pages with all sorts of photos of unique combinations. We have omitted a number that we had due to the overall lighting of the photos being such that it was not at all clear just what the genetic traits were. We also cannot always go by the labels given by breeders.

Next issue we thought it would be interesting to explore the effects that 'COLOUR' has in regard to PREDATION . Hawks and other predators use various signs to tell them what to single out and kill based on a perceived ability to capture with the least amount of energy spent. Prey stand out as injured and weak if they display unusual behavior , and colour and markings play a role in this process.

We would love to have your thoughts , ideas , and experiences with predation especially by Hawks but also by any other birds of Prey. Send me an email Bob_rodgers556@hotmail.com with your photos and ideas. It would be great to know if anyone has also discovered ways to 'mark' their birds to discourage attack. We know a few things have been tried.

We leave you with another shot of the beautiful Indian Flying Breed Lal Band Ghagra by Jith Peter. The beautiful muted tones of this genome is still easily one of the most Unique in the Pigeon Hobby!



That is it for now from the Pigeon Loft , Take care , be well , and let's hear from 'All of You' !