Jan. 2019 Newsletter.

The Pigeon Genetics Newsletter, News, Views & Comments.

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(Founded by Dr. Willard .F. Hollander)

Editor R.J. Rodgers Nova Scotia Canada.

Co-Editor: Jith Peter Palakkad India

"The latest updates from around the World brought to You Monthly"

Happy New Year !

2019

May the New Year bring you Prosperity , Good Health, Freedom, and a Loft full of Genetic Wonders!

We are embarking upon another Year of reporting such wonders to you on a Monthly bases and will be depending on YOU to contribute information so that the Issues will hold as much information as possible to satisfy all levels of interest in the subject of Pigeon Genetics.

Topic : Inheritance of a recessive trait - by **Paul Gibson - edited.**

{This is some information from a 2001 Issue that I am asked about almost daily so I thought it may help to print it again here. } Bob R.

When moving a trait that is known to be a recessive, always use the best example of the breed (recipient) that you want to move the trait to. Mate it to the recessive (donor) (P1) generation and then mate {their offspring} the (f1) together(P2). One out of 4 should be a recessive (F2). Choose the bird that has the recessive trait from the donor that has at least some traits of the 'recipient' breed: Mate this bird back to the recipient breed (B) , Select the recessive trait bird that has the best 'recipient' type. Continue this backcrossing and F1 breeding until you get the type bird you want to end up with.

When working with a partial dominant . Use the same methodology but you will get all F1 with the heterozygous trait. You can use one of these back to the recipient breed and 50% of the young will be the partial dominant trait. If you pair the F1's together , 1/4 will be homozygous for the trait, 50% will be heterozygous , and 1/4 will not have the new trait. Continue to backcross and select for the best type birds of the recipient breed. - end.

{ I have mentioned many times that "SELECTION " is the most important aspect as you need to avoid unwanted traits along the way ! }

TOPIC : Correct Terminology symbols - by **Paul Gibson**.

P= Parent generation ; thus P1 would be the first parent generation, F = filial (sons & daughters); so the P1 would produce F1. If F1XF1 serve as the parents of the second generation (P2) then their offspring would be F2

Usually this is the furthest extent of most experiments on animals (birds) to determine the recombinations that reveal the traits involved in a gene mutation.

If F2XF2 serve as parents (P3) , then these offspring are F3. This is used more in dihybrid determination in plants and can be used in animals to reveal effects of combinations of traits.

B = backcross generation and is made when an F1 is mated back to its parent; when an F2 is mated back to its parent etc. Back crosses can be made at any point whether it is F1, F2, F3, etc. Back cross can also be made to grandparents to attain desired homozygosity of traits . More on linkages on chromosomes , crossovers, and other mutations that must be considered next issue . ~~~~~~

Here is **Joe Power's** response to last Issue , slightly Edited to add comments and the photos.

Hi guys - Enjoyed the recent issue. A few things on the various subjects in the issue.

Red sprenkle - sprenkle by definition is SPREAD. So even if a bird looks sprenkle but has a patterned tail it is NOT a true sprenkle. Obviously with recessive red we only know the pattern by testing. Looking at the bird that is shown I surely won't say it is not pencilled or even almond.  , But it looks a lot like birds I've seen that were recessive red but were checker underneath. Not spread or T-pattern. Combined with typical grizzle they looked much like the pictured one.

The almond bald head roller  is probably missing recessive red to get this expression. **{Eds. note : yes this bird lacks recessive red and has only one gene for bronze}** Most red bald head rollers are T-pattern ash reds. **{above almond is blue series}**

I'm not sure that the crested baby called brander is really a brander. It's called a check and branders are T-pattern and it more than likely is a check.  It's tail is far too light for brander. It certainly is a bronze of some sort. But there are so many different bronzes..... **{Eds.: This is indeed a Brander bronze ,it can express on any pattern and any base pigment, just as Kite (K) is not endemic of Almond only, but they are not all bred for rich red colour. }**

Bill and I have had this discussion on brander - kite in the past. As I have with others. I crossed a blue check LFCL Tumbler to a great colored brander bronze show Tippler. The young were T-patterns showing some bronze. Not typical kite though.

Best example I can show is almond Danish Tumblers. None express the same almond coloration as an almond English Short Face Tumbler. Why? For the same reason that Magnani (almond) Modenas don't look like almond ESF Tumblers. While the Danish Tumbler and Modena are both bred using breed specific bronze, neither bronze is the same as kite bronze which is specific to ESF Tumblers and any breeds that were crossed down from the ESF in the proper way to ensure kite came with the almond.

Many years ago an English Trumpeter breeder got some Komorner Tumblers from me to move almond into the English Trumpeter. I insisted they get a kite as well as almond to make a double cross in moving the almond to the Trumpeters. Apparently my instructions were not followed well which is why for so many years the English Trumpeter did not have good colored classic almonds or kites. I'm guessing there were no T-patterns in his loft? Or possibly English Trumpeters in general back then?

The best colored kites in classic almond breeding show lots of reddishness rather than purple. That's why I routinely breed recessive red to kites to keep the color very rich. This makes for good colored almonds in the next generation. Using the kites with purple coloration leads to very dark young almonds which only gives them a show life of two possibly three years?

Keep up the good work!. Joe (U.S.A.)

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Hey Bob the green stuff comment was right on. My thought when I wake is "an attitude of gratitude", all the best frank . (**Frank Hammond**) Great Britton).

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I really enjoy the newsletter. Merry Christmas Bob.
John Kieft
National West of England Tumbler Club
Director, District 5 (U.S.A.)
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Hi Bob,
thank you for all that great work that you both did for so many...keep our hobby alive in the future!
Jerry with regards
Merry Christmas and Happy New Year! (**Jerry Sindelar**) Canada.
~~~~~

Hello Bob, could you put me on your newsletter mailing list again as I'm not receiving the newsletters. Thank you. **Robert Bennion.**

~ ~ ~ ~

Hi Bob - Read an article on Modena Club Facebook page written by you (The Modena Pigeon in all three world standards) and found it very interesting. Could I have your permission to reproduce said article in the Australian Modena Newsletter. Regards **David Warren**.
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TOPIC : "RED" pigment ~ Bob R.

Last Issue we talked about recessive red mutation at the Sox10 locus that without bronze and other modifiers were not truly epistatic , and allowed us to clearly see the Patterns and recognize the base pigments. Note the flights will usually look lighter cream or gray on these specimens not red .

There is another mutation at this locus and we thought it may be interesting to explore it again .

This is an allele of recessive red (e) , referred to as Ember (e^Em). It is slightly dominant over (e) as the symbol suggests by showing the Capitol "E" . This mutation is born solid red or near so depending upon the quality of the parent's colour . Then after the first moult , there is a dramatic "reversion" to the base pigment which allows the Pattern to readily be seen also. The coarse spread of the wing shield Pattern, as well as the smooth spread of the flights and Tail sub-terminal band will still express the deep red colouration . This effect gave rise to the name "ember" to denote the appearance of burning embers of a fiery red. The flights may be tones from Red to a sort of pink. This red in the patterns of shield and tail are hallmarks of an Ember. (Photos a bit washed out from reproduction , normally more red).

Stages of Ember: from an old Newsletter (P.G.)

Another mutation is an autosomal recessive called "Orojo" . It is a grizzle-like expression on a dull recessive red base that is a rather unstable expression that may have some whitish feathers frosted at the distal ends ., and some dark feathers scattered throughout especially on the wing shields. The modifying base was found to be T-Pattern and bronze. No spread factor or Indigo was found but Ts1 and Gimpel were found , as well as Dirty (V) , smoky (sy) , and Sooty (So). The name is Spanish . Tests carried out by Dr. Paul Gibson.

Wing of original Orojo cock bird

Gary Young's Orojo red. .

It is not understood at the molecular level why recessive red birds also have a "spread-like" phenotype but a reasonable guess has been that the Sox10 gene protein operates "upstream" of the Tyrp 1 colour gene and in the same molecular pathway as the Spread gene.

Old post by Michael Spadoni on Strictly Colour Genetics for Pigeons November 16 2015.

Is the red pigment (melanin) of a recessive red the same as the red pigment on an Ash red, and Bronze?

Jith Peter Yes, at least not proven otherwise.

Axel Sell at least the relation between red and black melanin is different for recessive and dominant red. If we would analyse the sometimes weak red of recessive red homers and compare it with recessive red Danish Tumblers we probably will have different results, too. For bronze, that also varies wide, I have no information, would like to learn more .

Jith Peter The chemical structure of melanin has not been resolved yet, so we can't say anything for sure.

Red Lahore by Mick Bassett and Possibly examples of a pale factor ash-red cock and a dilute ash red hen keeping in mind that Lahores have a type of bronze that enriches red pigment . Posted by Jith Peter Oct. 17th. 2015 birds owned by Sajesh Mathew. (May be colour enhanced by the lighting).

Here is a quote from **Joe Quinn's** Book that is relevant to past discussions we have had with members both on Facebook and here in the Newsletter .

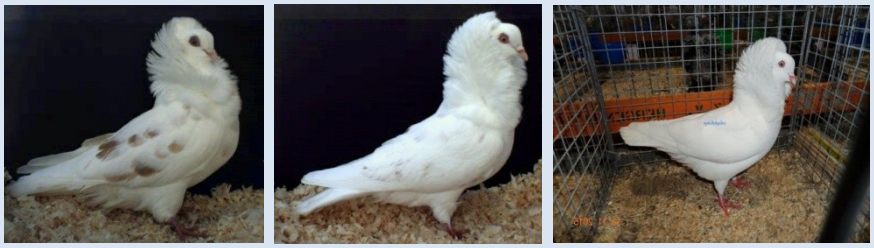
Epistasis (masking):

"Epistasis is a condition in which one gene suppresses the expression of another gene. This differs from dominance in that the genes involved are non-allelic, **one type of epistatic effect is when a gene responsible for pigment production is absent. The result being that there is an absence of color**. another common type of expression , **masking, occurs when an intense pigmentation covers over the true phenotype of the individual. Spread is a masking gene for pattern, as recessive red is a masking gene for both color and pattern".** (end quote).

From his words we can see that **(1) he states that the absence of colour is when there is an ABSENSE of the gene responsible for the production of color!** This is relevant to our discussions on "white" areas . However he does consider this to be a TYPE of epistasis . **(2) Then he goes on to state that " masking " is another common type of expression of epistasis , clearly separating the two.** The meaning here is a **covering up/ masking** of the suppressed phenotype. He states that the covering pigmentation is "intense" , but pale and dilution phases may also of course, be epistatic in the same manner.

Can **Epistasis** be both a **shutting OFF** and a **Covering up** condition? If so , the meaning becomes contrived as it in effect describes two completely different genetic functions.

Here are a few of the typical whitening effects that prevent the expression of some pigment but not all.



(1,2,3,4 ,6&7) Bob R. ... (5) **Muhammad Al Kafi**,...(8) The **Australian Fancy Pigeon Group** Facebook.

The modern extended meaning of Epistasis describes a phenomenon whereby the effect of one gene is dependent on the presence of one or more modifier genes (the genetic background) rather than to simply be the phenotypic effect of one gene masking the effect of another gene.

The most commonly recognized epistatic genes are Spread factor and recessive red .

American Show Racers bred by **Gary Keith** of BC Canada , here you can see how incomplete spread factor is not totally epistatic in the first photo allowing us to see the Barred Pattern , however in the second photo the spread factor is enhanced such that it becomes a challenge to tell what pattern lies beneath . The difference may be as simple as heterozygosity vs homozygosity for the spread gene or other darkening modifiers in the second bird. Homo Dirty factor seems likely in bird (2). Homo smoky on a blue bar and hetero Dirty could be on bird (1) , but the tail implies that it is a spread factor bird.

The recessive red gene plus dilution produces the "yellow" and it likewise may be incomplete in its epistasis allowing us to see the pattern with the naked eye , but it usually masks spread factor well. In the first photo , a lovely Indian Fantail of **Akhil Sajeeve** shows a tail band due to the light shining through the feathers that normally would be masked by dilute (e). The second photo is a by **Mick Basett** that is in darker lighting. (e) masks both pattern and spread , so if spread is present there may be better coverage of pattern.

Topic : **BREAK ~** by Bob R.

Recently you may have seen a few NEW ideas about what "BREAK" is when using that term in the Pigeon Hobby. Here are some of the ideas and an analysis of just what is being stated.

Meaning : Lets first examine what the word break actually means .

Used as a verb : **separate or cause to separate into pieces**

interruption of continuity , sequence , or course

fail to observe

crush the continual strength , spirit , **resistance** .

Used as a Noun: **interruption of continuity or uniformity.**

A pause

a gap or opening

an instance of breaking something or the "point" where something is broken.

I have highlighted in bold red the most appropriate meanings for our subject; Break, as it applies to colour in pigeons and in particular to Stipper factor , since we do not traditionally apply it to any other genetic traits in Pigeons.

The Stipper gene causes at least temporary separation or interruptions in continuity of base pigment that may be expressed from one or both Chromosomes on any given specimen.

These areas of the feathers that have been separated , interrupted or broken express visibly as **whitened gaps** . They have interrupted the continuity of the base pigment(s) that the bird would have otherwise expressed without the influence of the Stipper gene. You have probably heard many people supporting very old ideas that the **PIECES left** are the Break , rather than the actual **gaps** between those pieces.

One person argued that " Ink spots" , (the scattered flecks of pigment from the second chromosome, that express in the case of Males heterozygous for that second pigment) , should also be called "break". Those spots, however do not separate the original base pigment into Pieces , nor do they open or cause a gap in the continuity of the dominant base pigment. They are simply an addition of the second carried base pigment. They may express along with **Stipper Break** on birds that carry a second base pigment.

Another comment was that Andalusians are an example of break , the Indigo gene has a tendency to suppress the **overall expression of pigment granules** but does not cause separation or gaps.

So, what about the grizzle traits . Surely we can refer to all those various whitened areas as interruptions or gaps in base pigment . Well technically the term may apply , but we have no need for it

there, as we have already assigned various terms such as "Salt & Pepper" (G) , Mottle and Tiger (G^T) etc.

Then we have the argument that "BREAK" is not needed anyway when describing Stipper / Almond birds as it is well handled by the term **"Tri-color"** ! However , the people who argue that BREAK is the overall mixed up colour phenotype for any form of the stipper gene, want to be able to look at any given bird and exclaim : "That bird has excellent Break, or it is well broken !" They do not want to acknowledge the term **tri-color** at all as most of their stippers do **not** express the tail colours and white break required by established standards .

The fact that most Breeds and most Countries do not have established standards for Sprenkles and/or Almonds also causes a great deal of confusion. Germany seems to have set two standards . One based upon the ESFTumbler **Classical Almond**, and the other based upon the **Multi-color** Oriental Roller . The Classical Almonds are basically a bi-coloured bird at their best , expressing Tones of deep rich mahogany bronze covering most of the bird with scattered feathers of the base pigment throughout , that have resisted the stipper breaking action and revert more and more with age. The flights and tail feathers still maintain some of the Stipper white breaks along with the bronze and black (required by standard), thus their term **tri-color**. White is actually a lack of any visible colour , so again does not fit well with the term **tri**-color. Since the break is still required in the flights and tails of the Classical Almond and not over any other parts of the bird , then it makes sense to me to use "CLASSICAL ALMOND" as the overall term to describe each bird in that classification., thus "Great Classical Almond", or "classic expression !" This immediately establishes that if the bird was not expressing the desired phenotype , it would not be eligible for competition! The same would apply to the Sprenkles , the term given is "Sprinkle" suggesting a good even mix of base pigment and white stipper break throughout including flights and tail feathers. he/she would either be a great expression of Sprinkle Trait , or not suitable for show .

When we look back in old literature such as that by Fulton , we see that he depicts a Classical Almond as a deep mahogany red bird with only the black Sooty marks in the center of each feather . Then he paints the flights and tail feathers such that they suggest only white break at the smooth spread areas very precisely marked not unlike finch marks . None of that of course is correct ; however, while it is very difficult to paint a true representation , some colour plates were very deceiving .

The Multi-colour Classification is somewhat similar to the Classical Almond but a wider range of colour variation is accepted making Tri-colour inappropriate. They still are expected to show two colours , black & bronze in the tail along with white breaks in equal measure , however the rest of the bird tends to express lighter tones of the base pigment and the so called foundation bronze.

There is a tendency for fanciers in any Breed to congregate at shows and in the hype of things start to pick up on "catch" phrases and terms of the day , without much thought to how they may inadvertently have adverse effects down the road. Misuse of the term Break is one such case that has ultimately prevented breeding programs from functioning properly , by perpetuating the production of very inferior specimens generally accepted as quality stipper/ Almonds , leading to much confusion.

Some attractive full complex toy stencils. A Blue white bar German Modena posted by **Jerry Sindelar** , and a Black white bar Saxon white tail bred by **Brad Stuckey**. Note that while Coarse Spread is affected by this complex , Smooth Spread is not. These are actually also as a result of "red" pigment in the form of two types of bronze. It is rendered colourless by the third gene in the complex named ts3. , a recessive that seems to have no phenotype on its own other than perhaps a green sheen. While some have refuted the idea of Ts1, Ts2 , and ts3 as tested and reported by Paul Gibson , no one has ever been able to provide any sort of proof that such a complex is not responsible for these birds.

Below a Ts complex Ash - Red Intense modified white-head Monk , and a Ts recessive yellow -- by **Mick Bassett .**

Below a Dominant Opal (Isabel) , dilute, recessive yellow for comparison - **Mick Bassett**.

We begin a New Year with many new subscribers to the Newsletter. We want to know what you the members want to read about and see. Jith is extremely busy with his new position in Oman , so while he proof reads the Newsletters , he does not have time to devote to articles etc ., as in the past. I have had material promised by quite a number of our more seasoned Breeders , but nothing forthcoming as of yet. I realize how difficult it is to find time to sit down and do these things. Please do not hesitate to send me anything , even if you think it is not of any interest, it could be exactly what I am looking for to add to another item.

PHOTOS : If **every member** would send even just ONE photo that we have permission to use , that would go a long way toward having a nice collection from which to draw .

Here is a brief explanation of sex-linkage as there are people asking what exactly does that mean.

Sex-linked genes are only located on the sex-chromosomes. When the parent hen's (female's) trait is dominant over the corresponding trait of the cock (male) , we can tell the gender of the young by that trait., thus that trait is a sex-linked trait.

An easy example is an ASH-RED hen mated to a Blue /Black cock. Ash is dominant over blue so all of her sons will be her ash colour , and all of the daughters will follow the blue /black colour of the cock. If we think of the order of dominance as being stacked one above the other , Ash-red on top , then Blue /Black below it , and brown/ Chocolate at the bottom, then we can see that the one on top of any two chosen in the set order, will be the most dominant one in each possible combination, so the same happens with a Blue/Black hen mated to a brown /chocolate cock. In this case all of her sons will be Blue/Black , and all daughters brown / chocolate. (again this is only with sex-linked traits).

When the trait of the cock (in this case colour), is higher than that of the hen , then some or all of the young (**both sexes**) will be the colour of the cock . { this depends on whether he is heterozygous (Only one of his parents gave him his colour) ,or homozygous (both of his parents gave him his colour), for that trait} . In these cases , the mating is not a sex-linked mating as he will produce both sexes in his colour , even though the same colours are at play as in example one..

That is it from the pigeon Loft for this first Month of 2019. WAIT!! Don't just turn off your computer and go watch a Movie , Drop us a line , send us an article any topic, or send a **photo** , Help us continue this Newsletter and further the love of Colour Genetics World wide !

Bob R. of Canada , and Jith Peter of India .

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