

The Pigeon Genetics Newsletter, News, Views & Comments.

(Founded by Dr. Willard .F. Hollander)

Editor R.J. Rodgers Nova Scotia Canada.

Co-Editor Jith Peter Kerala India.

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This Month I have decided to talk about one of the most unusual colour traits in Pigeons mainly due to the fact that it has such a wide range of phenotypes when applied to the various Patterns and other Modifiers. That genetic Mutation is Indigo.

The Indigo Colour is caused by a dominant autosomal gene that causes depigmentation of the base pigment. Now you may say , "That sounds familiar" ., because there are a number of genetic mutations both Autosomal and sex-linked that also depigment . To list a few : Stipple , Dominant Opal , recessive opal , reduced, rubella., and the grizzle family . Some of these genes leave behind a 'bronze' wherever they depigment the base colour. This is thought to be a common bronze trait called Kite bronze , and it is believed to always be present as an admixture of each pigment cell but for some reason is not affected by the depigmentation process.

Indigo tends to whiten the sub-terminal tail band and the inner vane of each flight feather . It depigments coarse spread of the (C) pattern areas and leaves behind a bronze cast. The tips of all feathers of the head and neck seem to be darkened in the process so as to give a 'plum - like colour particularly the head and cheeks. The effects of Indigo are most noticeable on the blue series birds . It is far less visible on Ash-Reds for obvious reasons , but some breeders have reported that the tail CUSHION feathers tend to be laced with the darker plumb outline .

Indigo combined with spread factor produces a very attractive phenotype Breeders call "Andalusian" . It is described in this manner: A mid-night blue with black lacing. There are those who claim that there is never any actual 'lacing' on Andalusians and that it is just an effect of the refraction of light on the tips of the shield feathers. However that remains to be seen as there are specimens that have no lacing through to those that have very strongly expressed lacing. This may well depend on the pattern masked by spread factor and even other modifiers .

Here are a few of **Robert Warry's** Tumblers that are Indigo on Blue/black T-Pattern.



Note the lightened colour of the tails and flights and the plum blackish faces .

When Spread blue /black and even the Saturated T-pattern Blacks of the ESFT , and Oriental Roller breeding programs are combined with Indigo factor, Andalusian look-alikes are the result. Some say the blue bar makes the best pattern to have masked by spread, and these Andalusians should be again mated to blue barred birds. Those birds that I have seen have no lacing at all and look like a washed out blue tone evenly over the entire shield. Others will say that T-Pattern is a must so as to create the laced effect. This makes the most sense to me , but I have not tested the differences.

Dirty factor and phaeomelanin such as the bronze factors and recessive red should be avoided as they have a tendency to counter the even mid-night blue colour tone but some people like the added effects.



It is also fairly common for Andalusians to express some patches or individual feathers of pure black. When two Andalusians, or another Indigo is mated to an Andalusian, there is a chance that some pure Indigos in another wing pattern, and/or some pure Andalusians will be produced that also could be pure for spread factor. If bronze or hetero recessive red are present, this is where it is sure to be seen as the base pigment is abolished particularly in the pattern series, or in pure Indigo spread factor.





Above are some pure Indigo /Andalusians . Other Indigo Spread blue combinations have been named Opalusians when with dominant Opal, and Anthralusians when combined with the Anthracit . The phenotypes are somewhat similar as all traits tend to wash out base pigments.

Below :

An attractive combination Bred by **Pourumba Colourati** . Dilute Spread blue black Ts1 Andalusian



Gary Young sent this via email for consideration:

About 20 years ago I mated an atlas Arabian Trumpeter to an unrelated recessive red and they produced all Ember (e//eE) offspring which left me to conclude that the atlas colour in Arabian Trumpeters is homozygous Ember. I wish someone would replicate this experiment to see if they get the same results.



believed to be a cross between an atlas Arabian Trumpeter and Thai Laughher, is an obvious ember below.



Photos and info provided by **Gary Young**.

Eds note : Of course we do not know anything about the genome of the White Thai Laughher .

Smoky factor is apparently involved in the Arabian Trumpeters , and an unique dark eye as opposed to the normal coloured eye of a non-pied. This is an interesting study , perhaps some of you have already done some work in this regard.

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**Gene Hochlan** writes :

Do we all still believe Charles Darwin's theory that all domestic pigeons are derived from a single, wild species, the Blue Bar Rock Pigeon,(*Colimba livia*)? Time to update our thinking. I have every reason to theorize that at least four other species are involved and they are also Rock Pigeons.

1. Snow Pigeon ( *Columba leuconota*)
2. Eastern Rock Pigeon ( *Columba rupestris*)
3. Speckled Pigeon (*Columba guinea*)
4. White Collared Pigeon (*Columba albitorques*)

So when we study the heredity of mutations we must also add in the fact that some of the color and pattern traits are actually remnants of these other four species.

We already know for a fact that checker pattern comes from the Speckled Pigeon. Ever wonder why Ice does not conform to a normal , partial dominant mutation? In my humble opinion it is the ground color of the Snow Pigeon and as a result crosses show that intermediates are the result.

Blue spread has been discussed at length and photos show coarse spread showing through on some blacks.

Take a look at pictures of the White Collared Pigeon and see the sparse checkering.

Time to re-evaluate some of our ideas. - Gene.

Thanks Gene ! Yes I have especially suspected *C. rupestris* as a possible contributor, some studies have been done with the Snow Pigeon and *Gazzi* and discounted any notion that they were connected , but I have not heard anything regarding "Ice " factor. The white collared pigeon crosses rather freely in the wild as well as in many European Avaries, but I think fertility is a problem. -- I will add this to the Newsletter . Thanks , By the way was it you who said that you thought there was a specific recessive bronze found in Breeds such as the Lahore, Indian Fantail and Jacobin? ... that only expresses in Ash-Red birds and not blue /black series. ~ Bob.

Hi Bob., Yes, I have been saying that about a recessive bronze in the Breeds you mention. It may be the phantom *ts3* that we have been looking for. You can barely see it on Blue. Have also suspected it of being a contributor to recessive red whiteside due to a combination effect . - Gene.

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From your Editor Bob R. - You may recall that I had suggested in an earlier Issue that I believe Sooty factor to be an additional expression of Condensed smooth Spread base pigment instead of what Hollander had stated when he thought it was coarse spread . I presume it was thought to be coarse spread because it was seen on the wing shield where the (C) patterns are found in coarse spread pigment granules, albeit in a very different portion of each feather.

However I noted that certain traits do not affect Sooty as they do Coarse spread and vice versa , and likewise certain traits affect both condensed smooth Spread and Sooty , so a simple deduction can be made.

I have put together a few examples of what I am describing , which I think will help you to get a good idea of just what seems to be the obvious.



Photo of **Mustafa Kuzucuk** - I tried to contact him , but there are no less than 22 Mustafa Kuzucuks in chat. Here you can see that he has a Sooty factor Blue Bar. The bars are affected by the Toy Stencil genes . (Ts) usually affects only the shield Pattern as they are doing here in the Bar area . Note that Ts does not affect the Sub-terminal tail band , the flight ends both primary and secondary, the extreme ends of the Pattern feathers , or the Sooty marks . I believe all of these areas are indeed condensed smooth spread. One fellow spoke to me with attitude regarding my term condensed, so I feel I should explain that I use it to specify that it is not 'clumped' smooth spread which is what we see on the lightly coloured portions of the shield surface.

Now let's take a look at a Sooty factor Dominant Opal :



This gorgeous Saddle homer shows how Dominant Opal, which affects BOTH condensed smooth spread and Coarse spread , is indeed affecting the Sooty marks. This is a blue bar and not a checker pattern.

This photo was posted on Facebook by **Norbert Christl** , I contacted him by chat , but he did not reply , possibly due to a language barrier , so I hope that he does not mind that I have presented his pigeon here!

There is an ongoing discussion on one of the Groups on Facebook administered by **Walter Wojcieszki** about the belief that all Saturated T-Pattern birds must also have Sooty factor as part of their genome along with Dirty factor and possibly smoky factor. That being the case, all Stipper Almonds would almost certainly have to express Sooty if it is a dominant autosomal gene. Some Almonds do express whitened shield feather tips that do appear to be Sooty. Here are some as posted by **Rob Grogan**.



We have to rely on the breeding records of the various Fanciers, and quite often that is difficult to find. No one that we know about to date has ever broken down the Saturated (black) non-spread factor T-Pattern to find out exactly what genes are part of its make-up. The sooty would only be easily seen if the T-pattern were to be mated to a blue bar several generations to get blue bar young, that should show Sooty. We are talking about Sooty as a dominant trait in this instance. The whitened tips on these Classical Almond feathers may possibly be just the checker pattern hidden by T-Pattern expressing stipple break, but I think it is an indication of Sooty, and that Sooty is condensed smooth spread where the bronze is not able then to express, so we see the white break. Normally Sooty may be placed as a more precisely round spot toward the end of each shield feather, but the instability of the stipple gene and its variable expressions may explain why we are seeing more of a 'brush stroke' of white and bronze at the tip of each feather in this case.

Normally shield feathers are clumped pigment giving a light gray tone, and the Sooty marks look like a bit of soot dabbed in the center of each feather that becomes darker and larger as the bird ages.



feathers - Bob R.

Here is a photo of **Gary Young's** "Orojo" phenotype. This mutation at the Sox 10 (recessive red) locus is very unusual. It seems to have both grizzle and Stipple properties , but has neither.

He wrote : I believe that I am the only one at Present { who has this mutation}. I mated an Orojo cock to an unrelated recessive red hen stemming from John Rossner's Catalonian imports last summer to maintain genetic viability and produced some unimproved recessive red offspring. I think it would be a great addition to the fantail fancy but no one seems to be interested. (See the attached Orojo photo clearly showing no stipper). ...{ by the way } (Last Issue) An excellent almond review !! ~ Gene.



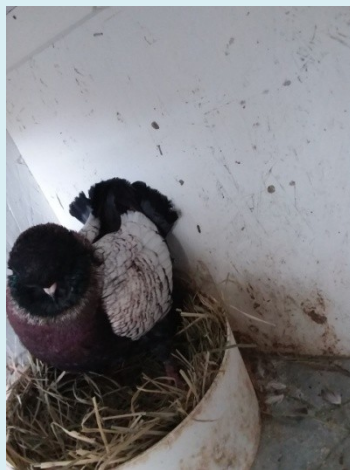
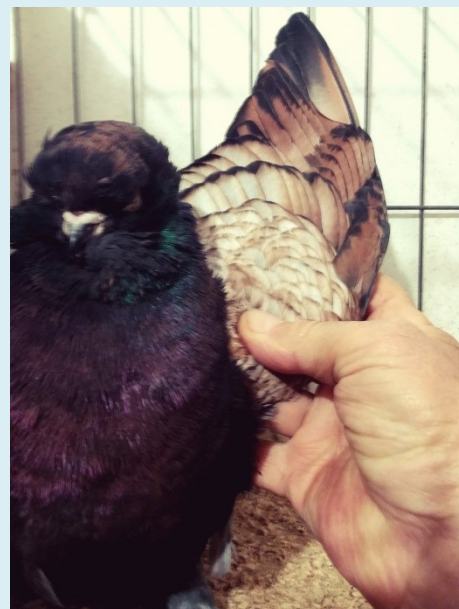
Editor's note :

Mutations are indeed much more rare than some would have us think and it is always exciting to see something new and as unique as this . If you have something that seems completely unusual then please send it along to us so that we can show it to all of our subscribers around the World and give you credit for a new mutation !

Bob , thanks for your response. I've tried 3 times to introduce frill stencil into Argents using Oriental , Old Classic, and Dal Stone's frill Homers. Unsuccessful each time. No birds are carrying frill from any previous matings now. Currently have porcelain Ice (so small) . am getting some young.

Some red Argents show tail markings, (pseudo frill) which disappears after the moult. Finch markings in red Argents are usually expanded larger than the spots on a blue Ts bird. Actually it's a fault in the red Argent. These frosty looking red Argents are pretty, but it harms the goal of getting dark red body colour.. { Picture not available as they were sent as a PDF}.

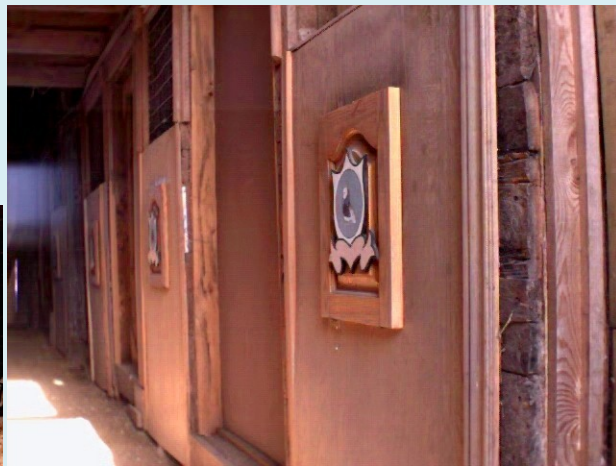
Below are photos of the Blue/Black birds. #'s 1&2 Old hen., 3&4 Old cock., 5&6 young. Brother not shown looks like the old cock. With the wings open, they look similar, but closed the young cock stands out with white extending to the primary tips.





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That just about does it for the Second Month of February 2021 ! We hope you found something of particular interest. Any time you have anything that you would like to add to our topics or a new topic you would like to bring forward , simply email me @ [Bob\\_rodgers556@hotmail.com](mailto:Bob_rodgers556@hotmail.com) or contact me in Chat on Facebook.



From my Loft to yours , have a safe and successful 2021 !

Bob Rodgers.