The Pigeon Genetics Newsletter, News, Views & Comments.

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(Founded by Dr. Willard .F. Hollander)
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September 2022

"Things important to You !"

We are talking about the Pigeon Hobby and color genetics in particular but for a moment I think that we need to remember the People of Ukraine in their struggle against the terrible invasion by the Russian Military Leader Putin, then the horrible flooding in Bangladesh, Pakistan , Areas of India and surrounding Countries. Then of course we have the continuing Covid pandemic and other problems devastating lives in many places around the world. Not only are these devastating in their loss of lives , the stress and hardship they are causing, but the world economy and basic living for everyone is being hit in ways no one could have ever imagined! We need to come together in a manner we have never done before and help one another in whatever small ways we can.

Our Pigeon Hobby is one way we can escape some of the worry , but at the same time it may cause stress as we realize that getting food supplies for them and ourselves has become much more difficult. I find myself relieved to know that I no longer have the worry about providing for my birds , and while I miss my parents every bit as much now as ever , I am glad that they are not here to have to face all of the uncertainty that abounds!

I sincerely hope that all of you will take care and plan as best as possible for the future so that you do not add to any future problems for yourself or others by being unprepared. Here in North America (U.S.A. and Canada) we are in mid-summer and much that we do in the northern hemisphere is aimed at getting prepared for Winter. It is a very difficult time at best , so with all that we are enduring now , we have no idea what we may be up against once the cold sets in. Get those extra jobs done that you may have been putting off. Stock up on all the essentials that will undoubtedly cost even more this Fall and Winter.

Now let's have a look at what you have been telling me you are interested in when it comes to your Pigeon Hobby experiences!

From **Robert Warry -** Thanks Bob, absolutely loved this {last} month's opal birds I am having good results with my dom. opals looking to extend. I will certainly read this issue many times.
Yours sincerely, R. Warry.

From **Jap Lofts -**

Hello All, I have 3 questions that I would like someone to answer for me please, as I am still confused about it :-

1) how can I distinguish between the dominant Opal and Recessive Opal ?

2) how can I distinguish between the Blue Andalusian and Platinum color , in the phenotype state ?

3) how can I produce the homo Andalusian (light grey with dark neck) ? I know that the common Andalusian (Dark grey) is produced from mating Indigo with Spread {blue/black}, but what shall I do after to make it lighter ? Some suggest I have to mate it back to poor Black ! Why poor Black (black that you can see through its bars) ? Also, Is Indigo gene lethal ?

Thanks a lot for anyone who would answer

Jap Lofts
Alberta, Canada

Reply from **Joe Power** -

Hello

I can answer some of your questions and give you some photos to view as well.

1). Dominant opal is just that, dominant. One parent has to be dominant in order to produce it. There are a lot of photos in the newsletter to check with info to help you.

Recessive opal has to get a gene from each parent {that is} why it's called recessive. It does not express white in the pattern in the same manner dominant opal does. I will attach two photos of young Dutch Croppers showing the sexual dimorphism seen in black recessive opal. They are in baby feather so it's not as neat looking as it would be in adult feather.

2). I do not have any Platinum photos to show you the difference. Hopefully someone else can help you there.

3). Homozygous Andalusian is produced by mating two Andalusians together. While using the punnet square says one in four young should be homozygous (pure for indigo) it doesn't always work that way with one pair.

Examples - I have an Andalusian cock, split for reduced mated to an Andalusian hen. Every young one has been black this year. Last year he was on a black hen and in his first nest was a reduced Andalusian. He's not produced another reduced in fourteen young. I have a black cock mated to an Andalusian hen - they've had eight babies this year with seven being Andalusian. So it's a numbers game to get what you desire. Also, keep in mind that the carried pattern will affect the expression you see on Andalusian. Attached are some young that I believe are all (spread) Andalusian. Yet their expressions are very

different based on the pattern carried. I prefer my Andalusians to be over bar though others say T-pattern.

The indigo gene is not lethal in the heterozygous or homozygous forms.

Hope this helps.

Joe Powers
Red Lion, Pa., USA

Hen

Cock

Andalusians (Hetero Indigo and Spread blue/black).

Reduced black.

From **Gene Hochlan** - Hello Bob, It is easy to take your good work every month for granted. Your bulletins are superb and we are fortunate to have you as the editor. I have always had a more than average interest in recessive opal and would like to make some comments. We all agree that there are two distinct expressions of this autosomal, recessive mutation; blue phase and extreme red phase or cherry. These two autosomal modifiers are alleles and located at the same locus on a chromosome pair. Mate a homozygous blue phase to a homozygous extreme red phase (cherry) they produce all intermediate offspring which are named "red phase" because they display more red than blue. That does not however dictate that the cherry phase is dominant to blue phase. Mate these intermediates together and they will produce 25% homozygous blue phase, 50% intermediates and 25% cherry. When you have two alleles like this it is not possible for one to be dominant over the other. A parallel situation is recessive red and ember: they are co-recessives so ember cannot be dominant to recessive red or vice/versa. Gene

Editor's Note: Interesting , but : { Axell Sell wrote in 'Pigeon Genetics', " Further crosses of Cherry and recessive opal gave profound evidence for the dominance of opal over cherry . As symbol the authors (Steven & Rebecca Sousa) selected Cherry with symbol ch, at the opal locus thus (O^ch)". Likewise he writes: " three alleles are considered alternatives at the e-locus. Both e and e^Em behave recessive to wild type and e^Em is considered dominant to (e).}

From **Tony Brancato** - Thank you, { for the July Issue } fantastic, informative and enlightening. Tony Brancato

From **Tim Kvidera** - Bob, I enjoy receiving your genetics newsletter. Thanks Bob and Jith for keeping it going.

Has anyone done microscopic work to determine if, and how, the pigment, or its distribution, differs between smooth and coarse spread areas? If so, would you point me towards it? Thanks, Tim

My reply { Hello Tim, Thanks for the encouragement! To my knowledge , Dr. Richard Cryberg is the only one to have written about it , previous to his work , I think it was popular belief that Condensed smooth spread consisted of minute somewhat round granules of pigment eumelanin (Black & Chocolate), and elongated granules phaeomelanin (dominant Red), that each were fitted neatly together in the structure of the feathers to create a smooth conformity of one colour. Coarse spread was thought to be larger granules and packed together rather irregularly atop one another if you will, to create a darker finish. The light areas of the feathers being 'clumped smooth spread' whereby spaces between the clumps were colourless , and thus the overall look to us was one of a gray feather / blue. Cryberg (I believe) found that the smooth spread was larger granules than the Coarse spread. He objected to the term Clumped., and suggested another somewhat similar meaning term that escapes me at present. I am not certain where you may find that report , {perhaps on the Net} --- On another topic , I received an email from Gene Hochlan who sent a copy of a report that you had written on the red whiteside. I would like to print that in the next Newsletter if it is fine with you . I believe that you had planned a follow-up , so if you have anything more recent that you would be willing to share , I would like to be able to share that with the readers also. - Hope you find what you have been looking for from Dick Cryberg. } ~ Bob.

Below on page 5. you will find a photographed copy of **Tim's** PDF report.

Published March 1982 ARJ, pp 17-18

INTERIM REPORT ON RED WHITESIDE

Tim Kvidera - Anoka, Mn.

Abstract: Historically it has been assumed and promulgated that the red whiteside expression is caused by grizzle. In the case of the red whiteside LFCL Tumbler this is not the case. Rather, it appears to be the result of the homozygous expression of a dominant gene which is weakly linked to the recessive red locus.

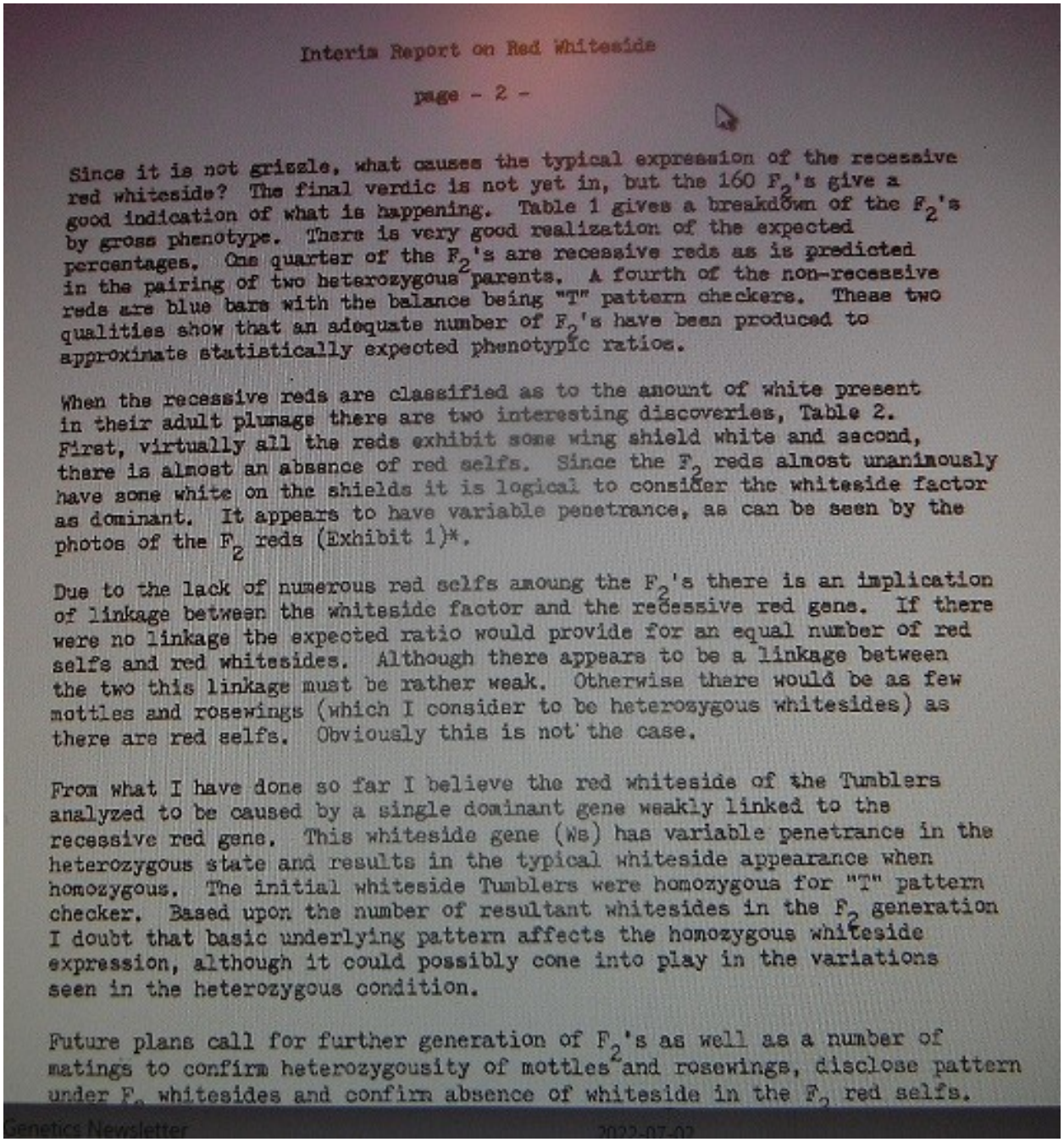
* * * * * * *

Back in the mid 1970's the red whiteside Frillback was developed. During its announcement I was a couple years into a project to transfer this expression onto my red Fantails so I was interested in any input as to the genetics involved in this trait. The main question I had concerning the Frillback creation was whether the grizzle of the Frillback interferred with the whiteside expression. The breeder's response was that grizzle, in fact, was responsible for the whiteside expression. Well, this did not set right with my way of thinking. I raise Flying Tipplers and my gene pool includes a high concentration of recessive red and grizzle, so in many instances they are manifested on the same bird. Never had it resulted in a whiteside Tippler in my loft. Depending on the pattern under the recessive red, bar or checker, I get a smooth red grizzle or a red mottle and always more than the wing shield was affected with grizzle or white.

So my next move was to contact one of the well known amateur geneticists among the LFCL Tumbler fanciers. Here again, I was told that whiteside was caused by grizzle. When asked how he knew that and/or who had proven such I was told that grizzle was the causitive agent, no he had not checked it out genetically, but that was it and if I did not believe him I was welcome to check it out myself.

I shared my thoughts with Dr. Hollander who responded with the same doubts that grizzle was responsible for the red whiteside as found in the LFCL Tumbler. With that type of moral support I was more than willing to pick up the gauntlet and tackle the project of analyzing genetically the red whiteside phenemenon.

It took a year or two to get set up for the task. I started with two red whiteside LFCL Tumblers from two separate lofts with care taken to assure they were of dissimilar strains. These were crossed onto blue bar Racing Homers which resulted totally in "T" pattern blue check F_1 offspring. If grizzle was responsible for the whiteside I should have obtained it in the first generation, due to its dominance. It was no where to be seen, but then grizzle can be at least partially masked by "T" pattern checker, on occasions. So five pair of these F_1's were mated resulting in 160 F_2's to date (three breeding seasons) and still no grizzle. Grizzle is not responsible for production of the red whiteside Tumblers as represented by the two strains analyzed.



Interim Report on Red Whiteside

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Since it is not grizzle, what causes the typical expression of the recessive red whiteside? The final verdic is not yet in, but the 160 F_2's give a good indication of what is happening. Table 1 gives a breakdown of the F_2's by gross phenotype. There is very good realization of the expected percentages. One quarter of the F_2's are recessive reds as is predicted in the pairing of two heterozygous parents. A fourth of the non-recessive reds are blue bars with the balance being "T" pattern checkers. These two qualities show that an adequate number of F_2's have been produced to approximate statistically expected phenotypic ratios.

When the recessive reds are classified as to the amount of white present in their adult plumage there are two interesting discoveries, Table 2. First, virtually all the reds exhibit some wing shield white and second, there is almost an absence of red selfs. Since the F_2 reds almost unanimously have some white on the shields it is logical to consider the whiteside factor as dominant. It appears to have variable penetrance, as can be seen by the photos of the F_2 reds (Exhibit 1)*.

Due to the lack of numerous red selfs amoung the F_2's there is an implication of linkage between the whiteside factor and the recessive red gene. If there were no linkage the expected ratio would provide for an equal number of red selfs and red whitesides. Although there appears to be a linkage between the two this linkage must be rather weak. Otherwise there would be as few mottles and rosewings (which I consider to be heterozygous whitesides) as there are red selfs. Obviously this is not the case.

From what I have done so far I believe the red whiteside of the Tumblers analyzed to be caused by a single dominant gene weakly linked to the recessive red gene. This whiteside gene (Ws) has variable penetrance in the heterozygous state and results in the typical whiteside appearance when homozygous. The initial whiteside Tumblers were homozygous for "T" pattern checker. Based upon the number of resultant whitesides in the F_2 generation I doubt that basic underlying pattern affects the homozygous whiteside expression, although it could possibly come into play in the variations seen in the heterozygous condition.

Future plans call for further generation of F_2's as well as a number of matings to confirm heterozygousity of mottles and rosewings, disclose pattern under F_2 whitesides and confirm absence of whiteside in the F_2 red selfs.

Obviously this was not the case . (this belongs at the end of the above last paragraph.)

Editor's Note: I have a space here so I have added a recent statement by **Tom AH Demunnik** from his Black whiteside breeding project findings. .

"All three breeds of black white sides that I am working with all carry recessive red, without it you cannot get black white sides. You might say that the blacks are actually recessive reds in disguise. Without recessive red in the blacks the best you're going to get is black shield mottles" Tom.

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Future plans call for further generation of F_2's as well as a number of matings to confirm heterozygousity of mottles and rosewings, disclose pattern under F_2 whitesides and confirm absence of whiteside in the F_2 red selfs. As my space and individual breeding facilities are somewhat limited the timing of these results is at this moment unknown. Rest assured, once the jury comes in with the verdict, it will be shared.

*Note - photos in Exhibit 1 are of unplucked birds in adult plumage.

TABLE 1

F_2 Generation Whiteside Tumbler X Blue Bar Homer

Phenotype / Pair#	1	2	3	4	5	Totals
Strain	TxF	TxT	TxF	FxF	TxF	
Recessive Red	9	5	8	4	14	40
Blue Bar	7	9	1	5	10	32
Blue Check	17	19	23	19	10	88
Total	33	33	32	28	34	160

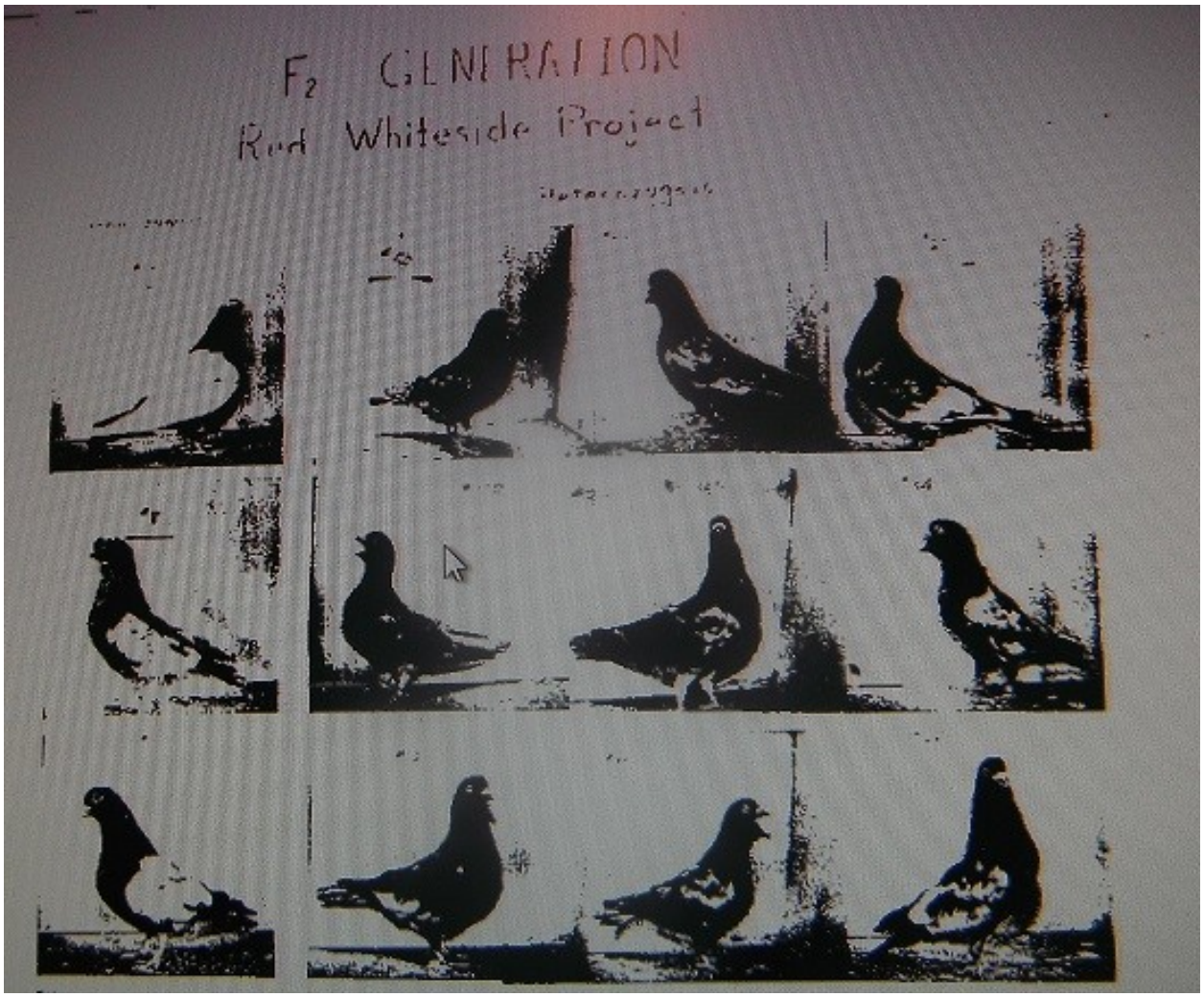
TABLE 2

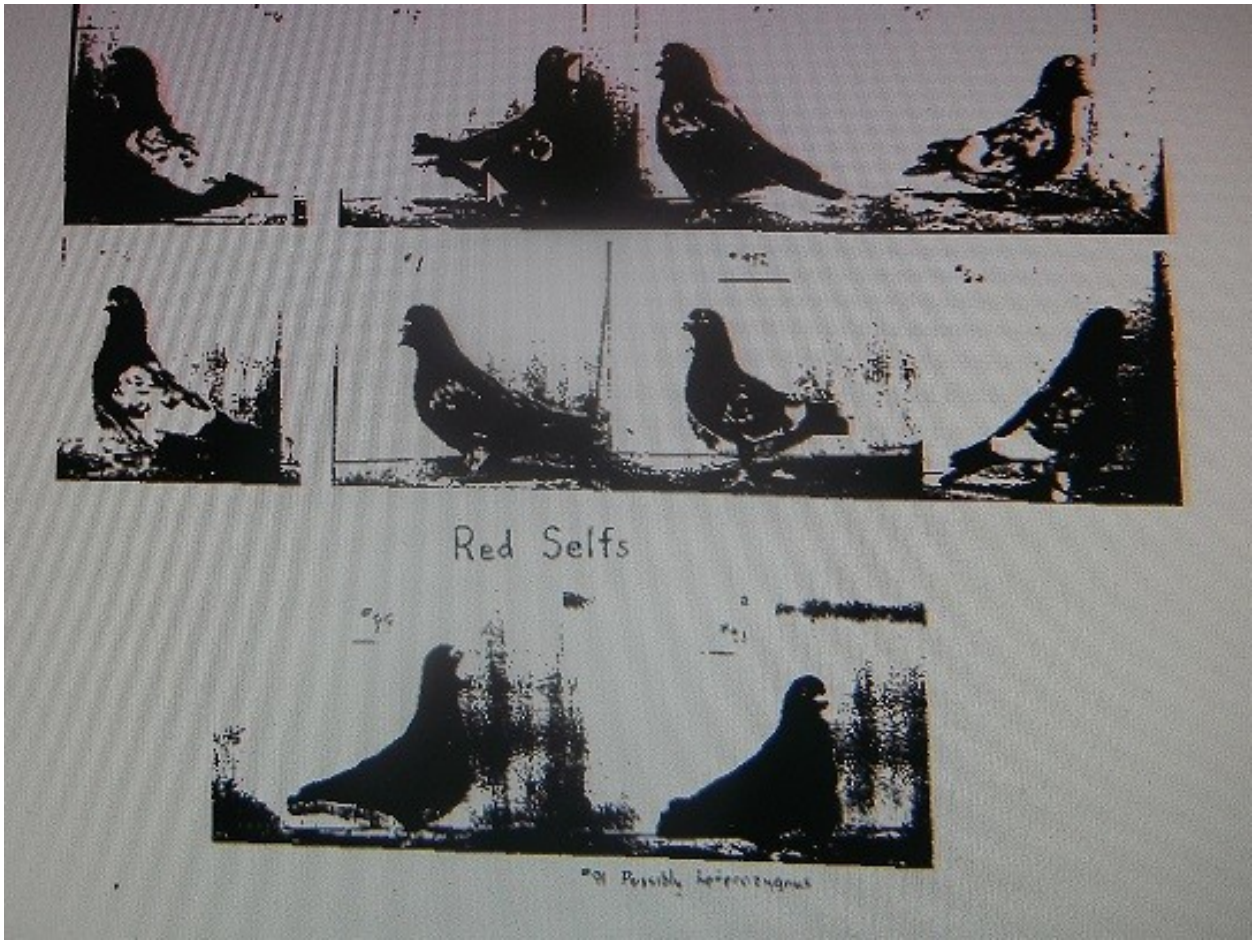
Phenotype of Adult Plumage F_2 Recessive Reds*

Rosewings/Mottles	Whitesides	Red Selfs
13	6	2**

* Tabulation as of October, 1981, many 1981 youngsters not moulted enough to classify and not included.

** One of the "selfs" questionable as has white on the lead edge of wing butts, since photo in Exhibit 1 he has gone through second moult and now would fit into Rosewing/Mottle classification.





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Kuben Moodliar of Sky Lofts in South Africa, has been breeding some very beautiful phenotypes in Racers from bloodlines that he has developed using Toy Stencil , frill stencil, Dirty factor , spread factor , T-Pattern., and Sooty factor. I will not go into all of our Chat conversations regarding these traits , but I will tell you that I recently corresponded via email with **Lester P. Gibson** regarding the stencils .

The questions Sky Lofts presented pertained to the affects that Sooty factor in particular had on the stencil phenotypes. He also wanted to understand better the way the Toy Stencil Complex worked and just what ts3 was doing in the mix of things.

Paul told me that firstly ts3 still is not well understood. It is somewhat like the illusive 'enabler ' gene in the whiteside and Agate phenotypes. We know something is at work , but we cannot pinpoint it as a separate entity phenotypically speaking on its own.

While several people have done research on the Toy Stencil phenotypes , I do not know of anyone who has done as detailed study or sharing of his findings as has **Paul Gibson**. Most of his information was shared in past Issues of this Newsletter when he was Editor. He also covered the subject in his Books.
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I found that the information in the 2nd printing 1995 was contradictory, with the last two paragraphs saying something different than the first four, so I have given the last two here as they seem to fall more in line with my own experiences dealing with the stencils when I was still just a young boy, and again later in my years. I have edited the material to make it read more clearly for the novice.

Below - homo Ts1 Blue Gazzi Jith Peter, hetero Ts1 Black Lahore X Monk cross. Bob R.

Paul explains that research data showed one of the genes in this complex to be a dominant bronze. This gene (Ts1) produces a bronze or 'ochre' colour in the "C" areas of (bars, checks, and T-Pattern) in both the heterozygous and homozygous state. A second gene (Ts2) {a partial dominant, when impure (heterozygous) expresses as a tan bronze colour } and when pure -(Homozygous), produces a peculiar light grayish or 'oystershell' colour in the "C" areas. A combination of Ts1 and Ts2 produces a 'rootbeer ' colour pattern.

A non-allelic gene (ts3) 'permits' or produces the white expression in the "C" and (So)* areas in the presence of the above bronze and/or gray genes. A phenotypic effect has not been found for this {ts3}gene when not in the presence of the bronze or gray genes. **Gary Young** states that he believes that this {ts3} gene may be seen as a green iridescence (in good light) in the pattern areas especially in spread birds. In the presence of this non-allelic 'whitening' gene , Ts1 , Ts1, {ts3} produces pinkish bronze "C" areas on juveniles which moult to white in the first or second molt; whereas with Ts2,Ts2, {ts3} produces white in both the juvenile and adult ; and with Ts1,Ts2, {ts3} produces a rootbeer colour that moults white in the adult.

* Editor Bob { I have found that bronze of any type does not print in Sooty (So) areas therefore Sooty marks remain black, ash-Red , or chocolate in Toy Stencil birds. Toy stencil does not express on the condensed smooth spread areas of the sub-terminal tail band or the flight ends. However **frill stencil** does indeed affect or express on condensed smooth spread and Sooty marks causing them to whiten.}

Paul also states that : The trait which we call "Toy Stencil" is not a simple one but is the effect produced by the combination of 2 or 3 genes. Several fanciers have been researching this complex.

Combined with T-pattern and Homozygous Sooty, a bird can be produced with the Toy Stencil effect over much of the body, ventrally also. Usually the coarse spread areas of the shield are bronzed in the juvenile and moult to an off-white or white either in the first or second molt. (P.G)

Here are a few of **Kuben Moodliar's** birds that he shared with me in Chat. He contacted me about 5 years ago regarding this and other genetic combinations about which we have been discussing since.

Attractive "blue Spangled" hen. frill stencil and full Toy Stencil complex.

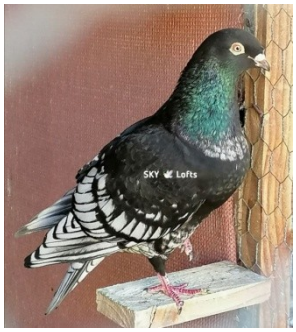
These are my top 4 Toy Stencil heterozygous frill stencil Racer hybrid cocks.

Editor's note { when photos are labeled (ts3), that indicates that the genome includes ts3 to whiten}

Above full complex Ts recessive red Intense and dilute .

(Ts1) Check and T-Pattern

Rootbeer (Ts1,Ts2) Oystershell(Ts2) ts3



(Frill Stencil spread Blue) - Thank You, you have been the only person from abroad who took the time to help me with my Stencil Racing Pigeon project. It has been a tough four years but I would like to share my successes with you. - Kuben .

Editor : In regards to the identification between the phenotype of an Andalusian and that of a Platinum, I offer this information.

Andalusians, as Joe mentioned above are a combination of the Indigo mutation with spread blue /black. Normally they are described as a lighter blue/gray with dark 'mid-night' blue/black lacing on all feathers. This often appears as a more solid black head and neck area because those feathers are so small and narrow in structure that only the overlapping laced tips show. The amount of lacing and depth of colour tones will depend upon the pattern masked by spread (as Joe also stated) , as well as other darkening or lightening modifiers. A KEY trait of Indigos is that the inner vanes of the flights are usually very light so that even the closed wing will show half of the feather Light and half dark.

Bronze almost never expresses on Andalusians like it does on the Pattern series Indigos since we are dealing with spread factor that masks bronze. Recessive red carried on the opposite chromosome will express mainly in the neck region and is often mistaken as a bronze. The overall expression of course is that Indigo lightens the vanes of all feathers just like it does the sub-terminal tail band in the Pattern series. There are varying opinions regarding the "LACED" effects especially on the shields. It has been stated that the lacing is an illusion created by shadow from the structure of the tip edges of each feather. However this brings us back to the "pattern" that is hidden under the spread factor. Barred birds usually offer little or no lacing effect while T-Pattern birds offer a great deal.

Stanley Stammer - (het. In),

Jijo Thomas - (Homo In),

Robert Corrales - (het. In)

This Indigo blue checker by **Bertus Kok** demonstrates the rather unique half light / half dark flights that is more often than not seen on Indigos of any pattern or in spread. The inner vanes of the flights take on a silvery tone compared to the dark outer vanes. There is a clear Half & half look to the closed flights. The second photo is a young T-Pattern Andalusian with new feathers showing the strong lacing. Photo **Jithu Netto Pigeons** .

*

Reduced **Tommy Cook** Rubella - **German breeder** unknown to me,

Spread blue reduced -**Albert Hogan**. Hallsring - **Pigeons Loft**. **Levi** Mottled.**Sell**dark veined.

aka homo classical Grizzle T-Pattern.

Reduced Andalusian **Barry McPhee** NB Canada, and a nestling Andalusian **Vicki Culpits** NB Canada.

The Platinum gene was discovered by Axel Sell and usually the males are much lighter than the hens (dimorphism). The hens do not change much but the spread factor males get lighter with a darker tarnished expression on the heads, tails and flights. It is an autosomal recessive gene. Photos Mother /Son by **Grzegorz Szpryngiel .**

Repeat of the photo provided by **Jithu Netto**, to show better how the midnight blue/black lacing enhances on a T-Pattern bird after the first moult. The new feathers are strongly laced compared to the juvenile feathers.

Photo **Kazi Pigeons Park**.

That is it until Next Month (October) - Thanks to all who took part this Month! Much appreciated!