The Romanian naked-neck tumbler

By: Hein van Grouw.

The Romanian Naked-neck Tumbler is a moderately young breed of pigeon and, as indicated by the name, its foremost trait is the un-feathered neck resembling the Naked-neck Fowl which originates from the same region. Nevertheless this resemblance is only super-ficial and is the result of a completely different and unique mechanism, as recent discoveries have shown. All in all, the Naked-neck Tumbler is a remarkable breed only suited to patient fanciers, dedicated to the unusual.

Right: Romanian Naked-neck Tumbler, red. Photo: Dick Hamer.

History

The Romanian Naked-neck Tumbler is derived from the Ciung Tumbler, a breed originating from the neighbourhood of Bucharest. The mutation that causes the naked neck probably arose at the end of the 19th century and was first described in 1899, in the Hungarian language. Ciung Tumblers and Naked-necks are essentially the same breed. Romanians therefore call it the *"Ciung-chel",* meaning the "naked Ciung".

Left: Ciung Tumbler, red, at the 2009 Cluj-Napoca show in Romania. Photo: Dina Mergeani.

It took a rather long while before the breed was distributed across Europe. Bernhard Noack, the former president of the East German Naked-neck Fowl Breeders Society, imported the Naked-neck pigeons to East Germany in 1964. The breed became rapidly popular and in 1968 it was officially recognized there in red, yellow and red barred.

Despite the difficulty for West German fanciers to communicate with the former 'Eastern Bloc countries' some naked-necks were imported from Romania in 1965 and 1967. In 1969 another West German fancier, Peter

Risch, also acquired some pigeons, but these were from the former East Germany.

Right:
Romanian Naked-neck Tumbler, red. This bird clearly shows that the Chiung and the Naked-neck originally was the same breed.
Photo: Lisa Flory.

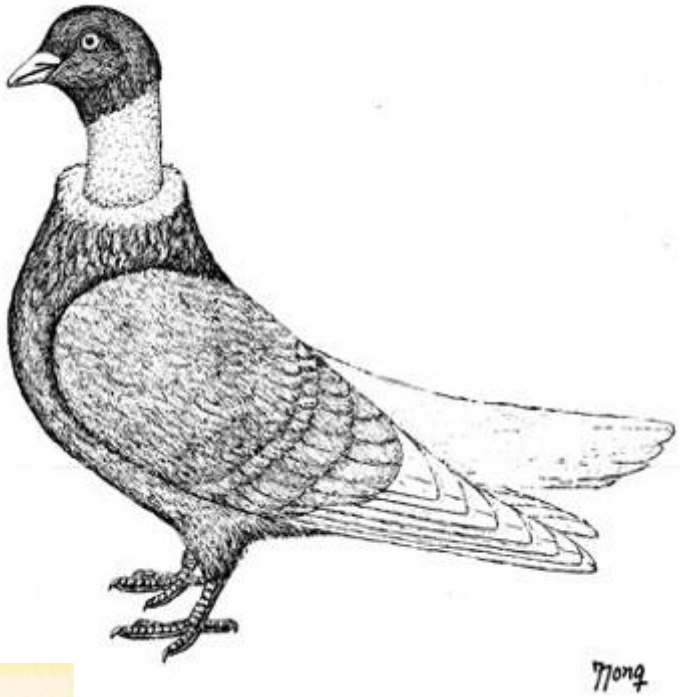
In 1972 the breed was recognized in West Germany, but only in the red plumage colour. It took until 1983 to also get yellow recognized as an official colour. Finally in 1990, as a result of the unification of Germany, the red barred became recognized and the standards of perfection were applied to the whole of Germany where the breed now has a small but stable core of enthusiastic fanciers.

Left: Ciung Tumbler, red.
Photo: Thomas Hellmann.

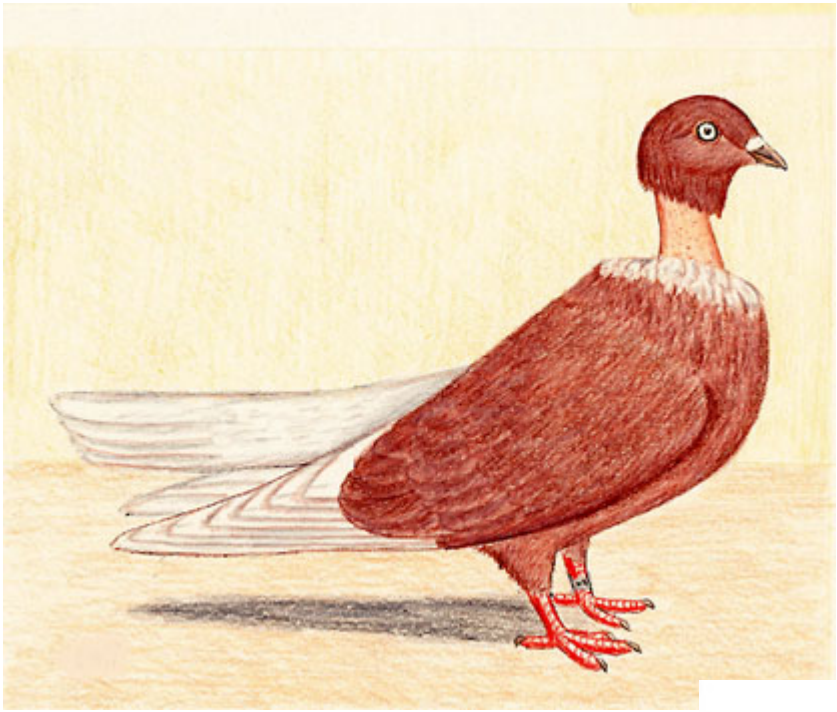
The former East German Naked-neck Fowl Breeders Society, the "Sonder-verein der Züchter der Nackthals-hühner, Zwerg-Nackthalshühner und Rumänischen Nackthalstümmler" has maintained responsibility for the Naked-neck Tumblers since the early 1970's, thereby being the only society that covers the needs/interest of both poultry and pigeon.
Despite their inclusion in the new German standard, by the early 1990s the red barred colour was almost extinct. However, thanks to the labours of Horst Weber, this colour was reinstated and, as might be expected, was a precursor to the "yellow barred" which has been recognized in Germany since 2008.

The date of recognition of the Romanian Naked-neck Tumbler in The Netherlands is somewhat uncertain but can be estimated to be around 1986. The year before that, in 1985, a single red cock was sent to the Keistadshow. This bird was owned and bred by J. Meyer from Franeker. The show was reported by Meindert Hauber and published in Avicultura 2/1986. He stated the following: "*Voor zo'n zeldzaamheid, gepaard aan het excentrieke maken we graag een plaatsje vrij. Beoordeelt u zelf maar wat u er van vindt. Denk erom dat die hals beslist niet geplukt wordt, doch van nature zo is, evenals de opvallende condorkraag*".
"*For this rarety, flirting with excentricity, we like to make room. Be your own judge. Mind that the neck is not plucked, being like that by nature, as is the condorlike collar*".
This pigeon was well received, although in all probability the breed was not yet recognized. A few years before, in October 1982, an article about naked-neck pigeons by J.Wolters was

published in Avicultura. He mentioned that two distinct types of naked-necks exist; one with a fair-skinned and one with dark-skinned neck. The dark skin, according to Wolters, would be the consequence of crossing with blue or black pigeons. However this is not very likely, as will later be revealed in this text. More probable would be that the lighter birds were diluted (yellow) while the darker ones were undiluted (red).



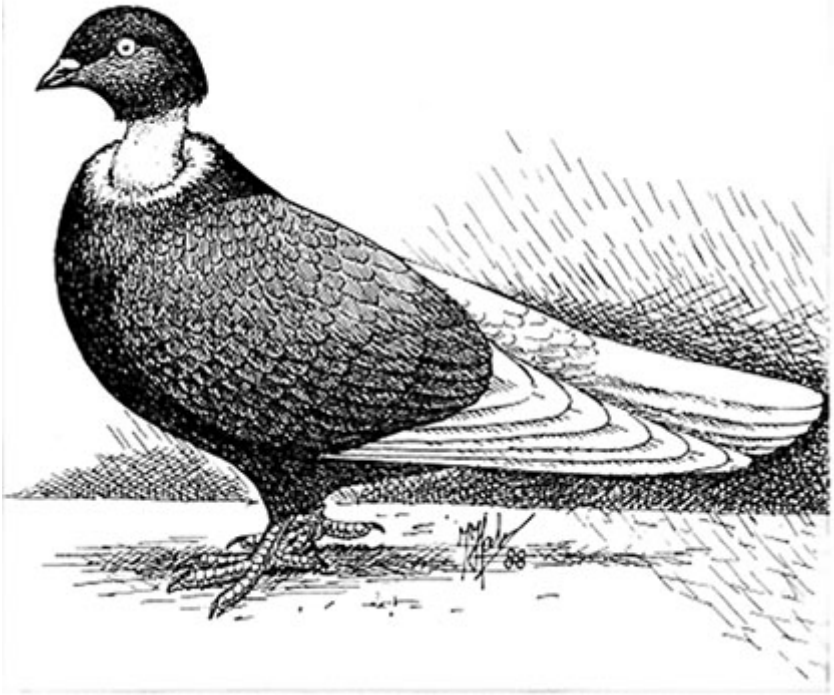
Right: First concept drawing from 1986 for the Dutch Breeds Standard. In this drawing the neck is still too thick. Drawing by Jan de Jong.



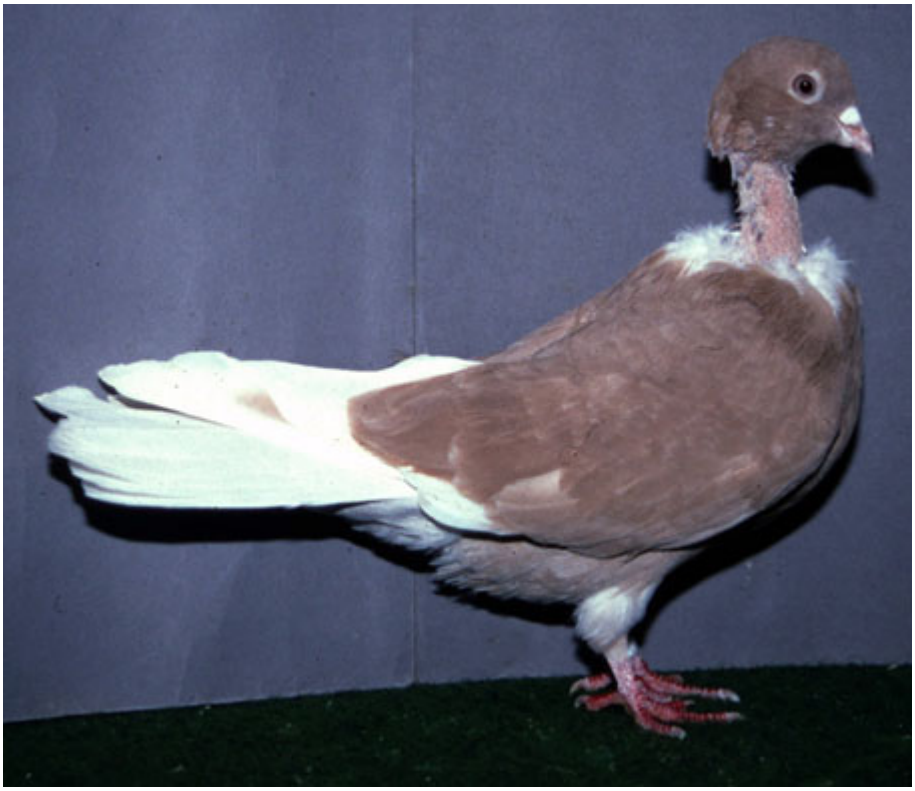
Left:
Second concept drawing from 1986. This drawing was used for a few years in the Dutch Breed Standard and shows perfectly well what the breed should look like, although the tail could be carried a bit lower. Drawing by Jan de Jong.

Another possible explanation would be that the lighter birds also carried the “smoky” gene (symbol sy). This factor renders a pale beak and matching fair skin.

Wolters also incorrectly stated that the inheritance of the naked neck is recessive. The correct mode of inheritance will be revealed below.



Right:
Current Standard drawing, replacing the former drawing of 1988. In spite of a better tail carriage in this drawing, the overall appearance of the breed is inadequately shown. Drawing by Jan Hatzman.



Left: Romanian Naked-neck Tumbler, yellow, old cock, entered by S. Buikeman at the Keistadshow 1998.
Photo: Dick Hamer.

The breed was originally recognised in The Netherlands in three colours: red, red barred and yellow; with the yellow barred finally recognized in 2009, following Germany.
The Naked-neck Tumbler was never a popular bird in The Netherlands; the dedicated effort of a handful of breeders was short-lived and at present it appears that no-one continues to breed them actively.
In England too, the Naked-neck is little known. It is not mentioned in the Breeds Standard of the National Pigeon Association and although it *is* mentioned in the ring index, the wrong size of ring is recommended. Beside the author's own stock, the breed does not appear to be present in the UK.
In its country of origin also, the Naked-neck was never popular. Its official recognition was remarkably late: not until 1965, and then only in two colours; red and yellow. Until this day Romania's national pigeon breed is maintained in its country of origin by just a handful of dedicated fanciers.

Roemeense Naakthalstuimelaar rood, doffer, oud, pred. 1e ZG. Inz.: J. Meyer te Franeker. – Voor zo'n zeldzaamheid, gepaard aan het excentrieke maken we graag een plaatsje vrij. Beoordeelt u zelf maar wat u ervan vindt. Denk erom dat die hals beslist niet geplukt wordt, doch van nature zo is, evenals de opvallende condorkraag.

Right:
The first Romanian Naked-neck entered at a Dutch show. An old, red cock from breeder J. Meyer, entered at the de Keistadshow 1985. Original photo by W. Hoekstra.

The naked-neck mutation is present in other breeds of pigeon, but those are even less popular and therefore very rare.

Left:
P. Brouwer showed this red Romanian Naked-neck Tumbler, old hen, at the Avicultura 2004.
Photo: Dick Hamer.

Right: Head study of the same bird at the Avicultura Show 2004. Photo: Hans Ringnalda.

There is, for example, the Spanish Naked-neck Tumbler (Spanish: *Palomas de Berberia* = Barbary pigeon or *Cuello Pelado* = naked neck. Catalonian: *Coll Pelat* = naked neck). To great extent, this pigeon resembles the Romanian, but the Spanish birds carry their wings on the tail and the tail always has the usual number of 12 feathers instead of 14 or more in the Romanian Naked-neck. The Spanish Naked-neck could be derived from a mutation in the Catalonian Tumbler.
According to the Spanish pigeon grandmaster R.B. Brage, this mutation could have been present in Spain for over 1000 years. There is no evidence to support this, however.

Left: Pair of Naked-neck Tumblers of a Romanian stud. Red cock and yellow hen. Photo: Alex Marean.

The breed was not described until 1910, by Carlos Ormaecha in his book **Palomas, Gallinas, Conejos** and in preceding works of literature dealing with domestic pigeons, including **Columbarium** (Moore 1735), **A treatise on domestic pigeons** (Moore 1765), **Das Ganze der Taubenzucht** (Neumeister 1837 en 1869), **A treatise on the art of breeding and managing tame, domesticated pigeons** (Eaton 1858), **Pigeons** (Tegetmeier 1868), **The variation of animals and plants under domestication** (Darwin 1868), **The book of pigeons** (Fulton 1876 en 1893), **l'Monographie des pigeons domestiques** (La Perre de Roo 1883) and **Fancy Pigeons** (Lyell 1887) naked-neck pigeons are not mentioned, while other Spanish breeds were well known by that time. Other feather abnormalities, like 'silky' and 'curly', *were* mentioned though, so why not the un-feathered neck, if it was known? So it is improbable that the Spanish Naked-necks are significantly older than the Romanian ones.

By the middle of the 20th Century the Spanish naked-neck By the middle of the 20th Century the Spanish naked-neckwas almost extinct. However, in 1956 Brage discovered a few yellow naked-neck pigeons in an animal shop in Madrid. By means of white-tailed Catalonian tumblers he recreated the breed, though in the single plumage colour of yellow white-tail.

Right: Pair of yellow Naked-neck Tumblers of a Romanian stud. Photo: Alex Marean

There was also a Russian Naked-neck Tumbler, (*Golosenja*), originating from the Ukraine and the Black Sea area. Possibly extinct, they only ever existed in red and red barred and, beside their bald neck, did not possess any other peculiar characteristics.

Like any mutation, naked -neck can arise spontaneously at any time and, in all probability, occurrences in other breeds are often culled for presumed ill health.

One good example worth mentioning is that of a feral pigeon in The Hague. This bird, a healthy adult cock, incidentally of the ash-red base colour, was spotted frequently during the summer of 2008 in uptown The Hague. That this colour is not a co-incidence will be clarified later.

Left: Flock of Naked-necks in a Romanian loft. Photo: Dina Mergeani.

The Breed

As the Romanian Naked-neck Tumbler is actually a variety of the Ciung Tumbler, they share many traits in common. Contrary to its name the Ciung is more of a highflyer than a true tumbler and on release it remains several hours in the sky. Similarly, does the Naked-neck, although they are mostly kept in aviaries now. The flight is remarkable, due to the long feathers and can be best described as butterfly-like.

Although the long feathers make it appear larger, the Romanian Naked-Neck Tumbler is nevertheless a small pigeon. The Dutch standard may therefore note it as medium sized. The stance is low and somewhat sloped and the tail wide and flat, comprising at least 14 feathers. Although the tail should be carried horizontally, many pigeons raise it slightly. This is accentuated when the wings are carried beside the tail or underneath it instead of the preferred wing carriage of loosely resting along the tail. Both the tail and wing feathers are comparatively long.

Left and below:
Kerstin Fliedner with her pigeons. Romanian Naked-neck Tumblers may become very intimate with their keeper, even when they are allowed to fly free.
Photo: Dieter Fliedner.

The most apparent trait, of course, is the naked neck, so a neck of medium length is preferred, as free as possible of feather stubs.

This description applies to the Dutch standard. The German standard does not differ greatly. Despite the wish for a medium length neck, in Germany a lot of birds are seen with proportionally short and thick necks.

One possible cause of this trait could be the practice there of out-crossing with Oriental Roller pigeons in order to create new colours. This crossbreeding also results in a higher frequency of feather stubs in the neck.

Left:
Romanian Naked-neck Tumbler, Red (B^A, C^T) at the 2009 Cluj-NapocaShow in Romania.
Photo: Dina Mergeani.

At the present time the best representatives of the breed are found in Hungary. Pigeons there have long, thin necks that are free of stubs for much of the year.
The Romanian Naked-neck is an easy pigeon to keep and does not require high-end housing or food. Of course the animals should be kept clean and dry, free from drafts, and the food must be of good quality, but the breed still shows the hardiness of many ancient eastern European varieties. They are also still very suitable for free flight.

During display and other excitement, the Naked-neck Tumbler opens its wings and lifts them whilst cooing. This trait, which is also seen in other breeds, is exhibited by both sexes.

Right:
Romanian Naked-neck Tumbler, Strawberry (B^A, S) at the 2009 Bistritza Show in Romania.
Photo: Dina Mergeani.

Left:
Romanian Naked-neck Tumbler, Yellow (B^A, d, C^T) at the 2009 Bistritza Show in Romania.
Photo: Dina Mergeani.

The plumage colours

In all pigeons three base colours are recognized; ash-red, black and brown. One of these colours is always present in any pigeon and are the base of almost all other colours; hence the name. The gene for the base colour is located at the sex chromosome and therefore these colours are sex-linked. Knowledge of these base colours is important, as they are likely to be the controlling factor in the featherless neck of the Naked-neck Tumbler.

Black is the wild type and eumelanin is the pigment responsible for this base colour. The genetic symbol for base colour black is B^+.

Ash-red is a dominant mutation in which almost all the eumelanin is replaced by phaeomelanin. Phaeomelanin differs from eumelanin in shape but more importantly, as we shall see later, the chemical synthesis of phaeomelanin is different from that of eumelanin. The symbol for ash-red is B^A.

Finally, brown is a recessive mutation and this colour is also produced by eumelanin. However in brown the usual oxidation process by which the eumelanin is synthesised is incomplete, causing the eumelanin granules to remain brown instead of becoming black.
The symbol for brown is b.

Right: Red Naked-neck Tumbler youngsters, about 4 weeks old, from Romania.
Photo: Alex Marean.

Left: Usually the baldness is limited to the neck, but sometimes larger areas are affected, such as part of the head and crop in this squab. Photo: Dieter Fliedner.

Above:
First generation hybrid. This red, silky cock has already an almost completely bare neck with only some feathers remaining on the front. Photo: Hein van Grouw.

Left:
First generation hybrid. This yellow, silky hen has only two small bald spots on opposite sides of the neck, partly covered by the adjacent feathers.
Photo: Hein van Grouw.

Right:
Silky Naked-neck Tumbler, yellow, hen. The silky variety in the Naked-necks was created by crossing with a silky fantail.
Photo: Hein van Grouw.

The prime colours in the Naked-neck Tumbler are red, red barred, yellow and later yellow barred, and these colours are all based on the base colour ash-red. Yellow and yellow barred are the diluted colours of red and red barred.
Red is actually ash-red T-pattern (and yellow is diluted ash-red T-pattern). Besides the wingshield gaining pigment, T-pattern also increases pigmentation to the rest of the body, giving a warm red (yellow) colour.
T-pattern (or velvet) is a dominant mutation and has the symbol C^T. Barring in the wing shield is the original pattern (wildtype), and is symbolised as c^+.
As previously mentioned; yellow is the dilution of red. Dilution is recessive and sex-linked and is symbolised as d. The intense colour is represented by the symbol D^+.

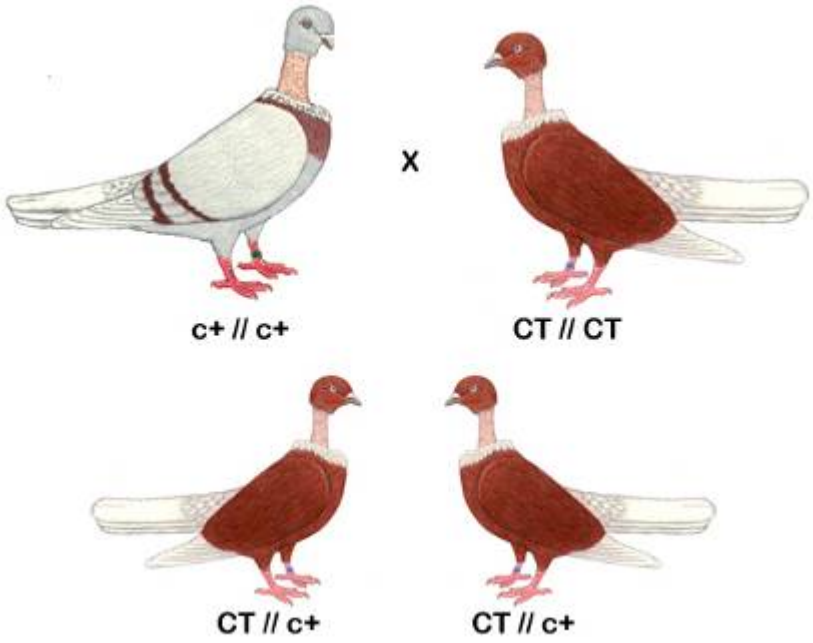
With this knowledge it is possible to formulate the genetic colour code for each of the 4 colours in the Naked-neck Tumbler. Due to the sex-linked factors involved, the codes between cocks and hens differ (cocks have two sex chromosomes whilst hens have only one.).

Colour	Cocks	Hens
Red	$B^A,D^+//B^A,D^+$, $C^T//C^T$	$B^A,D^+/-$, $C^T//C^T$
Red barred	$B^A,D^+//B^A,D^+$, $c^+//c^+$	$B^A,D^+/-$, $c^+//c^+$
Yellow	$B^A,d//B^A,d$, $C^T//C^T$	$B^A,d/-$, $C^T//C^T$
Yellow barred	$B^A,d//B^A,d$, $c^+//c^+$	$B^A,d/-$, $c^+//c^+$

Because the base colour is the same in all these colours, their symbol can be omitted in the notation. That means that in crossings between these colours in the Naked-Neck Tumbler the following notations can be used:

Colour	Cocks	Hens
Red	$D^+//D^+$, $C^T//C^T$	$D^+/-$, $C^T//C^T$
Red barred	$D^+//D^+$, $c^+//c^+$	$D^+/-$, $c^+//c^+$
Yellow	$d//d$, $C^T//C^T$	$d/-$, $C^T//C^T$
Yellow barred	$d//d$, $c^+//c^+$	$d/-$, $c^+//c^+$

Firstly we shall see what we can expect from a barred bird crossed with a T-pattern. Because the wing pattern series is not sex-linked it doesn't matter which is the sire or the dam. Let's take a barred cock ($c^+//c^+$) and a T-pattern hen ($C^T//C^T$). It turns out that, since T-pattern is dominant, all offspring from this pairing are T-pattern too. (See scheme 1).

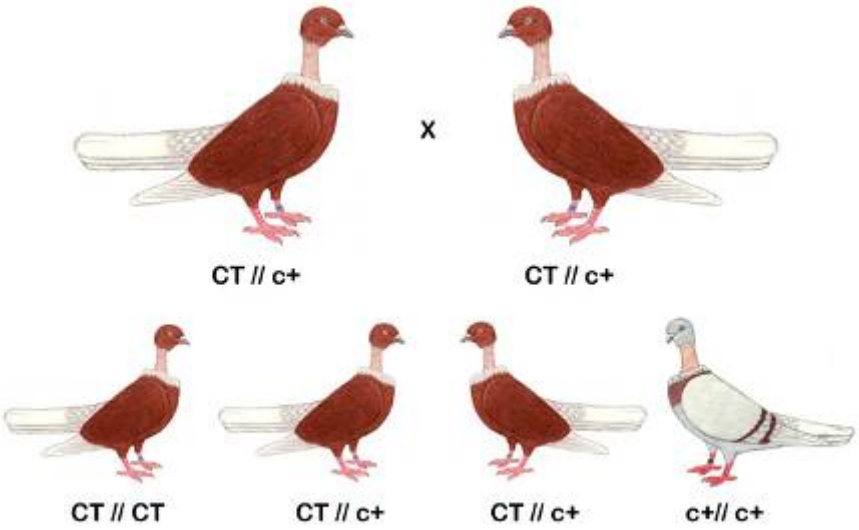


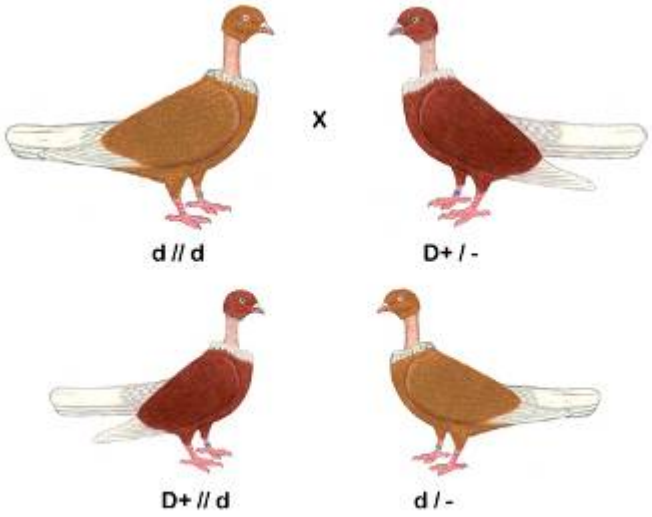
Left:
Scheme 1: T-pattern X barred

These T-patterned young are heterozygous for wing pattern ($C^T//c^+$), and if interbred, a proportion of their young will be barred. To be precise; one in four young, 25%, will be barred, both males and females. The other three will be T-patterned, two of them being heterozygous for barring again. (See scheme 2).

Right: Scheme 2: T-pattern (heterozygous) X T-pattern (heterozygous)

The crossings above between red T-pattern and red barred also apply to the equivalent patterns in yellow, and also, for example, for a crossing between a yellow T-pattern and a red bar. The T-pattern will dominate at first. But whether the young become yellow or red depends on the dilution factor (d). By the sex-linked inheritance of dilution, the gender in some combinations is predictable from its colour. This is the case when we cross a yellow cock (d//d) to a red hen (D^+/-) (see scheme 3). The young males are red but heterozygous for yellow (D^+//d), whilst all females are yellow (d/-).



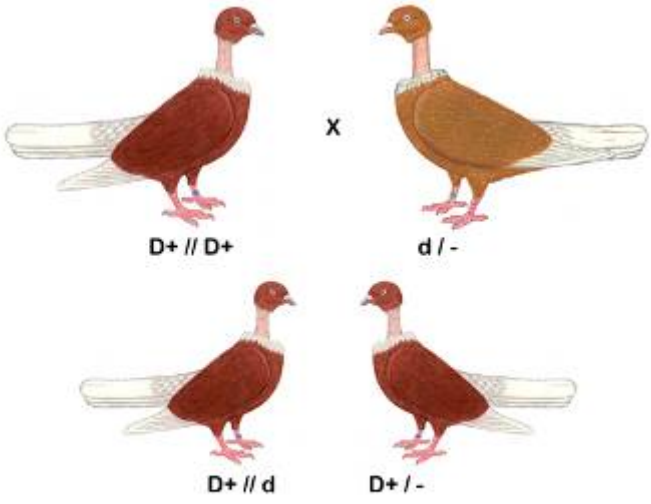


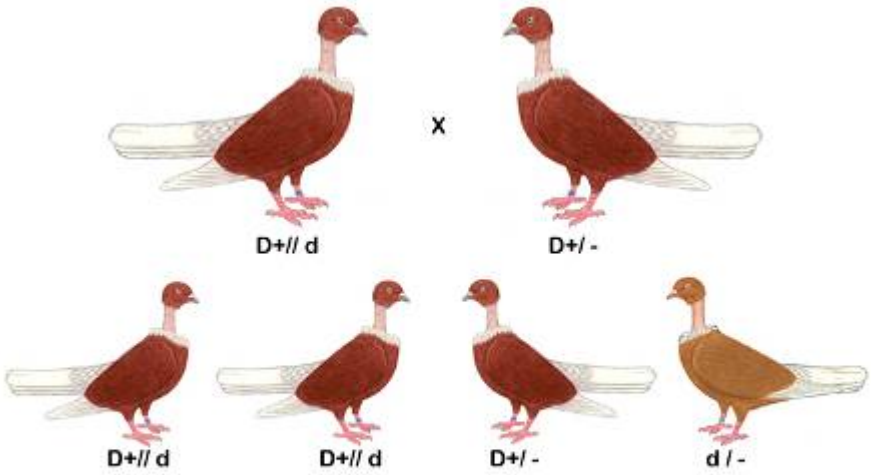
Left:
Scheme 3: yellow cock X red hen

In the reverse pairing however, a red cock over a yellow hen, all offspring will be red. The young males are heterozygous for yellow again (D^+//d). See scheme 4 for this pairing.

Right: Scheme 4: red cock X yellow hen

When a yellow young is reared from two red parents, this young is always a female and she proves her father to be heterozygous for dilution (D^+//d, see scheme 5).
A hen can never be heterozygous for a sex-linked trait, in this case dilution, as she only has one sex chromosome. Red hens only pass on red and never dilution (yellow).



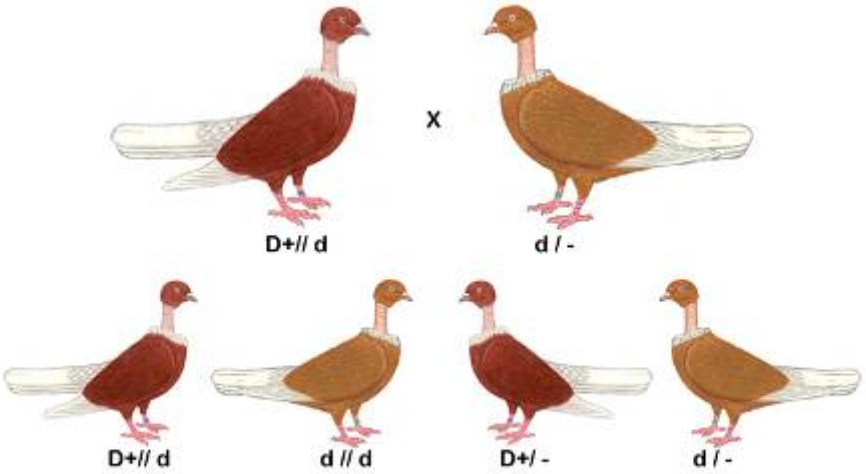


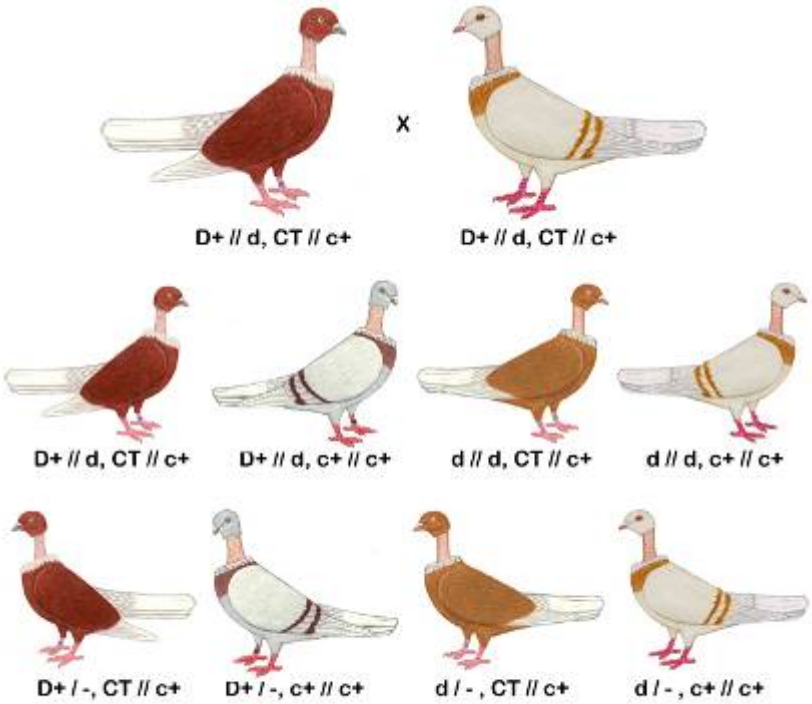
Left:
Scheme 5: red cock (heterozygous) X red hen

As previously stated, only cocks can be heterozygous for yellow and when such a cock (D^+//d) is paired to a yellow hen (d/-), then both red and yellow young are born. These colours would be equally divided between both genders (see scheme 6).

Right: Scheme 6: red cock (heterozygous) X yellow hen

The wing patterns, T-chequer or bar, are inherited independently of colour. To show the independent inheritance we pair a red T-pattern cock, heterozygous for both yellow and bar (D^+//d, C^T//c^+), to a yellow bar hen (d/-, c^+//c^+). It appears that besides red T-pattern and yellow bar, red bar and yellow T-pattern also occurs in the offspring (see scheme 7).





Left:
Scheme 7: red T-pattern cock (heterozygous) X yellow barred hen

For a long time the Romanian Naked-Neck Tumbler only appeared in these four colours. In literature suspicions were rumoured that black and blue existed in the past, but never with any certainty. This is, however, unlikely, as will be shown below.

In recent years, German and Romanian fanciers created a number of new colours, based on the ash-red base colour, combined with the dominant Spread factor (S). Spread combined with the black base colour (B^+) gives an equal self-coloured black pigeon, but combined with the ash-red base colour (B^A) there are three different colour possibilities: Mahogany, Strawberry and Lavender. Both extremes, the darkest Mahogany and the lightest Lavender, each appear at about 5%.

Left:
Romanian Naked-neck Tumbler, intermediary colour between Strawberry en Lavender (B^A, S), at the Nitra, Slovakia European show 2009.
Photo: Dina Mergeani.

Right:
Romanian Naked-neck Tumbler, Lavender (B^A, S), at the Bistritza, Romania Show 2009.
Photo: Dina Mergeani.

The intergrade 90%, called Strawberry, is very variable but always more or less red-laced on the wing shield. Mahogany (B^A, S) strongly resembles red (= red T-pattern; B^A, C^T) and go unnoticed at times. It is remarkable that some ash-red spread pigeons, e.g. in the lightest form (Lavender) may turn into Strawberry or Mahogany after moult. Most birds however remain the same type throughout their entire life.

The bare neck

The naked-neck mutation is incomplete dominant and its symbol is Bn (bare neck, van Grouw 2009). Whenever a naked-neck pigeon is paired with a normal pigeon, all the young will be partially naked necked. The degree differs; some are almost completely naked whilst others have only two bald spots on opposite sides of the neck. Sometimes these spots are small enough to be covered by the adjacent feathers.
But even the most featherless-necked young have some feathers remaining, especially on the front side. However, these un-feathered neck areas of the first generation offspring remain featherless, and are not constantly re-grown with feather stubs as is sometimes rumoured.

Young Naked-necks are indistinguishable from other pigeons, with the neck feathers developing normally at the outset. However when the feathers reach about 1 centimetre (0.4 inch) in length, the growth ceases and the bloodquills wither. These undeveloped feathers will be shed after a few days, when the squab is 3-4 weeks old.

After this, for a few months up to a year, new feathers will continually begin to grow, failing at midterm again.

However, after the first year, feather development stops and the neck skin will remain bare until the onset of the annual moult when, remarkably, growth begins again. Once again the feathers will dry up and be shed prematurely, with the neck remaining bare until the following moult.

Development of the bare neck in a young, yellow Naked-neck Tumbler. It is clearly visible the growth of the feathers ceases, the blood quills wither and the undeveloped feathers shed. Photos: Hein van Grouw.

A: age 18 days.
B: age 20 days.
C: age 22 days.
D: age 24 days.

Naked-neck pigeons resulting from crossings tend to bear more feather stubs on their neck then birds from purebred lines. On average, it takes 3 to 4 generations of backcrossings to breed pigeons that only produce feather stubs during the short period of moult.
Usually the baldness is limited to the neck, but sometimes larger areas are affected, such as part of the head and/or crop**.**

Silky Naked-neck Tumbler youngsters, aged 18 days, of yellow naked-neck parents. The white squab shall not develop a bare neck.
A: detail of the neck plumage of the white squab at 18 days of age. The feathers develop normally without any disability.
B: age 20 days.
C: age 22 days.
D: Both youngsters at an age of 2 months. De neck feathers are fully developed in the white bird whilst the yellow bird has a bare neck (with feather stubs as normal at this age). Photos: Hein van Grouw.

The fact that feathers do indeed grow on the neck means that feather follicles, from which the feathers emerge and develop, are not absent from the skin. The Naked-neck Fowl, in comparison, lacks feather follicles altogether and therefore the chicks hatch and develop with the neck already completely bare.

The cause of the midterm failure of feather development remained unknown for a long time. Recently, however, the author observed that growing *white* feathers do not wither and drop off. This phenomenon has also been detected by fanciers in Romania. In both cases the goal was to breed a Romanian Naked-neck Tumbler in recessive white (self-white or bull-eyed white, z^{wh}). It turned out that the white offspring of coloured Naked-neck parents that were heterozygous for white never developed naked necks. Birds that were pied/white spotted in the neck area, having both coloured and white feathers, lost only the coloured ones whilst the white feathers developed fully.

From these findings conclusions can be drawn that the cause of feather death must be found in the pigment cells (melanocytes) in the skin. Normally these melanocytes produce melanin pigment that is deposited in the feather cells during feather development. It is likely that in the naked-neck mutation the melanocytes are altered to produce a toxin of some sort in addition to the pigment, which causes the growing feathers to die. White feathers in pied and recessive white birds are the consequence of the absence of these melanocytes in the skin. That means that besides inhibiting the pigment production, no toxin is deposited, despite the presence of the naked-neck gene. As a result, the feathers are able to develop fully.

As mentioned earlier, the Romanian Naked-neck Tumbler only exists in ash-red based colours and the author is aware of no examples in the blue/black and brown base colours. The pigments responsible for the ash-red base colour are phaeomelanins, whilst blue/black and brown are made up of eumelanin. The chemical composition of phaeomelanin and eumelanin are different, and thus the melanocytes follow a different pathway of chemical synthesis for each. It is likely that the melanocytes responsible for eumelanin production are not sensitive to the naked-neck mutation. This would explain the absence of naked-neck pigeons in blue or black plumage.

Conclusion and discussion

The bare neck of the Romanian Naked-neck Tumbler is not entirely featherless. Feather follicles in the skin are indeed present and at least once a year feather growth begins, though these feathers die off prematurely.

From the fact that the neck feathers of recessive white pigeons (z^{wh}) homozygous for naked-neck (Bn) develop fully, it can be concluded that featherlessness is promoted by the presence of pigment cells (melanocytes) in the skin.

The pigments in the pigeon are eumelanin (black/grey/brown) or phaeomelanin (red-brown) and both these pigments have a different chemical composition.

Naked-neck pigeons are only found in colours based on the ash-red base colour and pigeons of this base colour only produce phaeomelanin. With this knowledge in mind it can be concluded that only feathers supplied with phaeomelanin are affected by the naked-neck factor. The naked-neck factor does not appear to have a growth inhibiting effect on feathers supplied with eumelanin.

As the external appearance of the naked-neck mutation is only apparent in ash-red based pigeons, it is highly probable that the mutation occurs more often, but is hidden when it arises in pigeons with the wrong base colour.

The number of plumage colour possibilities is therefore limited as, for example, blue bar, brown T-pattern or recessive white seem to be impossible. Nevertheless, despite being bound to the red base colour, with some creativity it should still be possible to create some new colours. Theoretically it is possible to create a white Naked-neck. To do so it is necessary to use grizzle (G) instead of recessive white (z^{wh}). Homozygous grizzle combined with ash-red base colour should give full white plumage. Unlike recessive white, in grizzled pigeons melanocytes *are* present in the skin, enabling the development of a naked neck. It is still unknown whether the melanocytes must actually produce phaeomelanin to have the growth inhibiting effect on the feathers. If this is indeed the case, a bare neck will not develop in red grizzle (B^A, G) either, as pigment production is blocked by the influence of the grizzle factor. But if the “toxin” of the naked-neck factor is produced in the melanocytes anyway, regardless of pigment synthesis, then the white pigeon with bare neck could be possible. A great challenge for breeders!

If the growth inhibiton is indeed coupled to phaeomelanin production then it should be possible to breed naked-neck pigeons in, for instance, Black-winged Copper (Archangel) or Blue-winged Gold. These colours are based on Archangel Bronze combined with the black base colour. By the influence of this Archangel Bronze, the head, neck and body feathering of a normal blue pigeon is changed to red-brown, and this red-brown happens to be phaeomelanin. In the case of Copper Blackwing, the feathers are supplied with both phaeomelanin and eumelanin. It is not yet known whether the growth inhibition occurs

when both pigment types are produced; another interesting experiment for the challenge-hungry breeder.
Despite these new challenges, it is of the utmost importance that the original colours are not forgotten. The risk of out-crossing with other breeds to create new colours is that the breed specific traits of the Romanian Naked-neck Tumbler may be compromised. Potential new colours may be an addition to the breed, but fanciers must always be vigilant that the original characteristics are not lost.

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Calling
The author would like to hear about the experiences of other Naked-neck breeders, especially those who keep birds in colours other than those based on ash-red. Please come forward! Please send ideas, opinions and photo material, to Hein van Grouw: h.van-grouw@nhm.ac.uk