

## 30 YEARS OF BREEDING FOREIGN WHITE CATS

No doubt you have sometimes seen them on shows: those elegantly oriental built white cats with their sapphire blue Siamese eyes: the **Foreign White**.

### Breeding history

Around 1960 in England the idea was conceived to breed white cats of Siamese type, but without the inherited anomalies that will often go hand in hand with the breeding of white cats in different breeds. These congenital defects include partial or total deafness, bad eyesight in dusk, lack of tension in the blood vessels, lack of defence mechanism against diseases, metabolism disorders, infertility and lack of vitality in general.

On November 5, 1962, cat breeders in England decided to install a breeding program, in which they started crossing dominant white British shorthaired cats and Siamese with the best eye colour, the seal pointed.

Some lines started from white cats with orange eyes, one line from white cats with blue eyes. One particular line in Ireland used Red point Siamese and white British shorthairs. The leading lady of most of these programs was the expert in cat genetics Patricia Turner. The lines that kept producing deaf cats were discontinued as well as the Irish line with the Red point Siamese as soon as it became clear that the combination of the gene "W" (for dominant white) and the gene "O" (for red) attracted the "Waardenburg"-syndrome.

In The Netherlands two separate Foreign White (FW) breeding lines were established. Both lines used orange-eyed white cats and Siamese. These programs only started in the seventies when in England the first difficulties had already been overcome. Klaas van der Wijk (cattery Benvenida) started the first Dutch line of FW. I have been breeding Foreign Whites from these lines for many years and many of my FW cats have been going to other breeders in Holland, Belgium, France, Norway and Germany.

### Waardenburg syndrome

Because inherited deafness as is known in dominant white cats is unknown in Siamese, it was thought that if the dominant white of the British shorthair could be combined with the blue eyes of the Siamese, the problem of the deafness would no longer exist.

This inherited deafness in white cats is an indication of the **Waardenburg-syndrome**. It develops as a result of a disruption in the development of the neural system in the embryo, influenced by the gene W which is the gene that makes the cat appear white. The Waardenburg-syndrome is inherited irregular dominant and is the cause of two groups of anomalies:

1) pigment anomalies which can be divided in two kinds:

a) the eyes

b) skin and fur. The completely white cat shows his pigment anomaly in its white coat

2) disruption of hearing (partial or total deafness). Pigment anomalies of the eyes can be seen by the lack of tapetum lucidum in the eyes.

By breeding Siamese blue eyes into dominant white cats an attempt has been made to push aside the deafness.

### Tapetum lucidum

**Today Foreign White cats have been bred who have the Siamese blue eyes with tapetum lucidum** and also carry the possibility of orange or green eyes, which makes their eye structure identical to that of the Siamese. This means that these dominant white cats, just like Siamese, have "tapetum lucidum" in both eyes. This tapetum lucidum can be seen by ophthalmoscopic examination and is seen as a fluorescent green to yellowish green.

The **tapetum lucidum** has a dominant role in the eyesight of the cat in dusk and dark. It exists of 15 very thin layers of flat cell structured like tiles, and it forms a triangle to a half moon. Tapetum lucidum lies just beneath the retina. Its function is to reflect the light such as the reflection of cat's eyes in the dark.

In white cats we can see two non-pigmented eyes (the so-called white-blue eye), two pigmented eyes (green or orange), or one white-blue eye and one pigmented eye (odd-eyes). All pigmented eyes have tapetum lucidum; none of the white-blue eyes has.

So there are two different groups of eyes: the white-blue eyes that usually occur in dominant white cats (with the gene *W*) without tapetum lucidum, and the Siamese blue eyes of the Siamese cat with tapetum lucidum. It is most peculiar that some Foreign Whites are odd-eyed in the sense that one eye is Siamese-blue (or Turner-blue) as described in 2) and the other eye is white-blue as described in 1). However, the appearance of both eyes may look the same. The white-blue eye lacks tapetum lucidum and has a red reflection. Sometimes the lack of tapetum lucidum can be seen with the naked eye by the wider opening of one eye or a slight difference in colour. However, usually it cannot be seen without the help of an ophthalmoscope.

To find out the eye structure of your Foreign White you need to have the eyes examined by a veterinarian to find out whether your cat has tapetum lucidum in none, one or both eyes. From the age of 4 months tapetum lucidum can be clearly recognised.

### **Inheritance of Siamese blue eyes**

The **inheritance of Siamese blue eyes in white cats** is, just like orange eyes and odd eyes in white cats is irregular - ie. Foreign White parents with two Siamese blue (Turner-blue) eyes each can still produce kittens with and without tapetum lucidum. A mating from a Foreign White without Siamese blue eyes mated to a Siamese is no guarantee for kittens with Siamese blue eyes. Very often they produce odd-eyes in the sense that one eye is Siamese blue and the other eye is white-blue, though they are seldom deaf.

### **Breeding policy**

In England mainly seal point Siamese are used in breeding Foreign Whites, as they feel that its genotype is the best guarantee for deep blue eyes. However, blue point is seen as the second best choice, although I have seen many chocolate points with even better deep blue eyes!

Most importantly for determining whether the Siamese is suitable for breeding with Foreign White is a deep blue eye colour, which nowadays we certainly can find in other colour Siamese also.

Siamese x Foreign White mating is the rule and Foreign White x Foreign White test mating can only be allowed when both cats, and preferable also their FW parents and FW grandparents, have proven to have Siamese-blue eyes.

FW matings to red-, tortie-, cream-, apricot-point or -tabby-point are not allowed as they appear to attract the "Waardenburg" syndrome.

Matings to tabby (lynx) point Siamese is not recommended because moles may appear on nose and lips, which is not permitted.

### **Breeding program of Pat Turner**

The set-up of the FW breeding program in England had the signature of Pat Turner and worked as follows:

- 1) To start with an orange-eyed white British shorthair was mated to a seal point Siamese. From this mating an orange-eyed white kitten (F1) was kept
- 2) F1 white orange-eyed kitten x SP Siamese, another orange-eyed white kitten (F2) was kept.
- 3) This F2 white kitten was mated to a SP Siamese and a white kitten with orange or green eyes selected to keep (F3). This was repeated with kitten F 3 and F 4, selecting on white kittens with orange or green eyes only.
- 4) F4 kitten x SP Siamese and white kitten with blue eyes (F5) selected
- 5) F5 kittens x SP Siamese gives only Siamese and Foreign White kittens
- 6) At first carefully selected FW's with Siamese blue eyes were mated together. This was done in accordance to the GCCF rules for recognition. Unfortunately, white-blue eyes reappeared again (due to the irregular inheritance of the Siamese blue eyes in FW's) and subsequently FW x FW matings were abandoned. FW's were recognised by the GCCF when it became clear that FW x Siamese breeding was the only possibility to avoid deaf cats.

In matings of FW X FW, where a massive reduction of pigmentation takes place, the chance of appearance of the Waardenburg-syndrome and deafness increase dramatically as well as the chance of sterility and lack of vitality. Matings of Siamese x FW show a decline in the percentage of deafness. Breeding the Foreign White as a variety of its own was not possible, therefore breeding as a Siamese variety started.

### **Breeding history in the Netherlands**

In 1972 the first English Foreign Whites were imported to the Netherlands. Well-known names are Flayre White Christmas, Florentine Fugue and Nasyla Snowdrift. Also a FW brother and sister were imported from a FW X FW mating. The female was sterile, the male was not deaf and sired normal kittens.

The FW X FW matings in the Netherlands (5) were not at all favourable. Of the 22 kittens that were born, 2 were still born, 2 Siamese and 18 FW's. Of these 3 were deaf, 3 kittens had cleft palates (2 FW, 1 Siamese), 1 kitten was deaf as well as hermaphrodite (organs of both sexes), 1 kitten was infertile. Fertility of a large number of these kittens was unknown. Furthermore, the two deaf kittens both died young; the first one had an accident and the second one did not grow well and had severe metabolism disorders. Moral of the story: when mating FW x FW one must be certain to only use cats that have parents and grandparents with Siamese blue eyes!

I have been breeding Foreign Whites from 1977 until 1996 and I have had 27 Foreign White x Siamese litters with 82 kittens: 42 FW and 40 Siamese. Not all of these cats had one or two Siamese blue eyes, but not one was deaf. One male was sterile.

Sterility only becomes an item when someone wants to breed with a cat. Many cats are just sold as pets and altered because the owners do not want to breed. Unfortunately this does not inform us about the breeding capability.

### **Oriental white**

It is unwise to mate a FW to an Oriental shorthair, because the Waardenburg syndrome gets a chance to pop up again. With it comes the partial or total deafness, the lack of fertility, the metabolism disorders, etcetera.

The blue-eyed whites that result of such a mating might well be Oriental shorthairs under their white coats and have white-blue eyes, instead of being Foreign Whites with double Siamese underlying pattern. Sometimes the difference is very difficult to see, but most Oriental white's have a coloured patch on the head when born. These patches disappear with maturity.

GCCF (in England) and Fife (in Europe) do not supply kittens from FW x Oriental breeding with a pedigree, and register them separately.

I must admit that a white cat with green eyes is a beauty, but if you know that you can also get blue eyed and odd-eyed deaf cats in breeding with it, you must think twice.

### **Breeding Foreign White**

So, the best thing to do is mate your FW to a typy Siamese with deep blue eyes and a nice short coat. Because deaf white cats also occur in other white breeds, it is possible to introduce Siamese or colourpoint pattern in these cats in the same way as has been done in breeding Foreign White. In some European countries it is already forbidden to breed with deaf white cats. Breeding is only allowed if a Vet has established through a special test that your cat can hear with both ears.

In Persians, Rexes and British shorthair there are plenty of possibilities to replace the deaf blue-eyed white's with the Siamese or colourpoint blue eyed white by breeding them as we did the Foreign White.

From the paper about Foreign White's (M. Raadveld, Het Syndroom van Waardenburg bij de Foreign White kat) it is clear that the percentage of deaf Foreign White's in England (637) and the Netherlands (200) can be ignored as it is 0.8% and 0% respectively. It would be a good idea to have the eyes of all the Foreign White's, especially of those used for breeding, would be examined by a Vet with

anophthalmoscope for breeding, examined by a Vet with an ophthalmoscope to determine whether they have tapetum lucidum and thus true Siamese blue eyes.

In breeding Foreign White's you can hear the oddest opinions. I have been asked for Foreign White kittens repeatedly because people thought they could be used in breeding Siamese with paler coats, especially in the seal points! Of course this is fiction. The white coat does not influence the colour of the Siamese at all. The coat colour of Siamese is influenced by polygenes for light and dark and polygenes for warm or cold colour and the result is the coat you see on your Siamese.

### **Standard of Foreign White**

The standard of points for Foreign White is the same as for Siamese except for coat colour. The coat should be pure white, without any trace of yellow and silky, shining and close lying. Nose leather and paw pads pink. Coloured hairs or coloured patches on paw pads and nose leather are not permitted and may cause disqualification at cat shows (except in kittens).

Foreign White's have been bred with enormous patience and devotion. In spite of repeated set backs when a program had to be ended or cats were sterile, they went on bravely, trying to breed a white cat of Siamese type. And look at them now: by breeding so many good Siamese in them they are now real Siamese in type and character, talkative, sweet, charming, mysterious and elegant. Did you ever realize how much work and ambition this has taken in those 30 years?

Hetty Berntrop

### **Literature:**

Roy Robinson, Genetics for Cat Breeders, 3<sup>rd</sup> ed.

Foreign White Cat Fanciers Handbook.

Marian Raadsveld, Het Syndroom van Waardenburg bij de FW kat.