

SORTING OUT DANE COLOURS

by Jill Evans

The Great Dane Standards of all countries accept five colours for showing: fawn (a rich golden preferred, usually with a black mask), brindle (like a fawn with black stripes), black, blue (a deep steel-blue preferred), and harlequin (white with irregular black patches). In Canada a sixth colour is now accepted at shows, which is really part of the harlequin family and is called the Boston Black because the markings are like those of the Boston Terrier. In Germany these are called *manteltiger* (mantle-harlequins) and are shown with blacks. Except for harlequins and Bostons, none should have white on them although a small patch on the chest or toes is acceptable. All are supposed to have dark brown eyes, although a lighter eye is acceptable in blues and harlequins, which sometimes have eyes of different colours. These colours really belong in three families for breeding purposes: fawns and brindles in one group; blue-bred blacks (try saying that three times quickly!) and blues in another; and harlequins, Bostons, and harl-bred blacks in the third group, which, for breeding purposes only, also includes merles and whites. There are also blacks and blues resulting from fawn x black or blue crosses, and these may be very handsome indeed but should only be used for breeding very judiciously, for reasons which may become apparent later. Is this beginning to sound complicated? Well, it is, and a little knowledge of basic dominant-recessive genetics is helpful.

When one considers what a variety of colours was evident in early Danes, perhaps one can appreciate how carefully breeding rules should be followed in order to keep the results predictable and attractive. Here is the description from the first English breed standard of the 1880s, drawn up by the judge Gambier Bolton:

"Colour and markings. --- The recognized colours are, the various shades of Grey (commonly termed Blue), Red, Black, or pure White, or White with patches of the beforementioned colours. These colours are sometimes accompanied by markings of a darker tint about the eyes and muzzle, and with a line of the same tint (called a trace) along the course of the spine. The above ground colours also appear in the Brindles and are also the ground-colours of the mottled specimens. The mottled specimens have irregular patches or "clouds" upon the above-named ground colours; in some instances the clouds or markings being of two or more tints. In the mottled specimens the wall or china eye is not uncommon, and the nose is often parti-coloured or wholly flesh coloured. In the whole-coloured specimens the china or wall eye but rarely appears, and the nose more or less approaches black, according to the prevailing tint of the dog, and the eyes vary also in colour. The whole-coloured reddish yellow, with black muzzle and ears, is the colour least cared for, as it is indicative of the Mastiff cross." (A little different from nowadays!)

At a Munich show in 1886 a bitch called Juno-Essig created a sensation in spite of her colour, which was "*white with yellow and brown spots*". The AKC Studbook for 1888 lists a bitch called Nora as being "*lemon yellow, blue and white*". In 1911 Hans Friedrich of Austria wrote an article on coat colour for the Deutsche Doggen-Club Studbook and mentioned *blue-striped brindles* (from crossing with blues) and *silver-striped* ones (rare), as well as harlequins with *yellow, red, golden brindle*, and even *yellow and blue* patches on white. He also mentioned seeing an "otherwise very good bitch with a *lustrous deep red* colour" at the 1907 Vienna show. She was the result of a breeding between a champion fawn dog to a champion blue bitch. There is another colour he mentions, described in German as "*Drappfarben*", which doesn't appear to have an English equivalent. (*Drapp* is not a translation of "drab", which is "*trüb*" in German.) He describes this as "probably not a different pigment, but a paling of the blue. Along with the coat colour, the dark colour of the nose disappears. It becomes leather-brown, and likewise the nails become light."

In the 1920s and '30s the German Studbooks had a section registering Danes which were not the accepted shades and called them "Other Colours" (*Andersfarbige*). These registrations just go to prove how immortal genes are,

because in spite of half a century of trying to keep colours pure and breeding only within the colour-families, look at what showed up: *Isabella* (a pinkish-brown, probably dilute chocolate or liver), "*Drapp*" (apparently not the same thing as *Isabella*), *silver brindle*, *blue with fawn* (and only a few years ago one was seen at a show like this - marked like a blue Doberman with tan points), *blue-brindle*, *white and fawn* spotted, *white with brindle* spots, *white and brown*, *grey with brown* spots, *white with red* spots, *blue-and-white* harlequin, and so on besides the expected grey with black spots (merle) which is a necessary part of harlequin breeding but not acceptable at shows. And even in 1971 a *chocolate brindle* bitch out of at least 10 generations of pure-colour breeding was shown in California.

Why all these strange colours? How does one avoid them? Ah, that's the whole point. We have to start thinking of colours in *layers*, which can hide each other. And then we have to pay some attention to *patterns*, and "bleaches" or *dilutions*. (There is a very technical way of explaining all this which involves gene loci and alleles, and this is covered exhaustively in other books. For the geneticists, suffice it to say that in Danes the following occur: A^S , α^Y , and rarely α^I : B , b : C , c^{ch} (rarely c^e and c^a): D , d : E^m , E , e^{br} , possibly e : g : M , m : S , s^I , s^P , s^W : t , and maybe T but rarely. Others may occur but are as yet unknown.) We beg the indulgence of the academics in presenting this oversimplified view.

The very top layer is the *white* of the harlequin, which can be thought of as a blanket with holes in it where other colours can show through. Various things can affect this layer and they are not very well understood at this point - we'll get back to it later. The next layer is solid *black*, and it can cover up all the other colours. It can also hide a layer which occurs rarely in Danes but does exist - called brown, liver, or *chocolate*. These can both be affected by a *dilution* factor which turns the black colour into *blue* and the chocolate into *isabella*, which is an accepted colour in Dobes but seldom seen in Danes, although we know it's there from those old studbook accounts. The dilutions, however, are recessive and hidden unless they're present from both parents. The third layer is *brindle*, which is like a fawn with stripes, and it covers up (is dominant to) *fawn* with a mask, which doesn't cover up anything (it's recessive) and has to be there from both parents for it to show. All this may seem quite straightforward, but we have to remember that the stripes and masks of fawns and brindles can also be affected by the layers above. That is, they're not necessarily black, but can be affected by the dilution factor which would turn them blue, or not be of the black line at all, but chocolate - or even isabella if the dilution was working there too.

Other factors are at work too, such as one which affects the intensity of fawn coloration and can produce a washed-out shade. If the dilution factor is present as well, plus blue-brindling, it may well produce the "silver-brindles" we heard about from the old days, or perhaps the mysterious "*drappfarben*" as well because they seemed to occur in blue breeding when there had been a fawn recessive carried forward from past generations.

Something that may seem strange at first can also happen. If a blue Dane (which must have the double-recessive dilution present for the colour to be evident) is (shudder!) bred to a brindle with a black mask which is not carrying the recessive dilution factor, the resulting puppies will all be *solid black*. This is because in this case *solid* covers up a *pattern* (brindling and/or mask) but the black of the stripes and mask is dominant to the blue dilution. If the brindle *were* carrying the blue dilution under the black of its stripes and mask, half the pups would be solid black and the other half solid blue. But what a hodge-podge the next generation could be in these examples! Here come the fawns-with-blue-masks, blues carrying fawn (yes, they can - although both are recessive, remember solid covers pattern), blue-striped brindles, and so on, lurking under those perfectly normal-looking blacks and blues, all ready to show up if one of them were bred to another normal-looking black or blue which was also a carrier. These recessives can be carried unnoticed for endless generations.

Sometimes conscientious breeders of blacks will cross to a fawn or brindle in order to get an improvement in conformation which is not available in the black family's restricted gene pool. As long as there is no recessive dilution factor (or chocolate, which is also covered up by black) hiding under the solid black coat or the fawn's

black mask this can be perfectly safe, but it is very hard to tell without doing a test breeding, and most people are unwilling to do that. The resulting pups would appear to be normal blacks, but would be carriers of the fawn-brindle recessives, and if they were bred by an unsuspecting buyer to a blue - well, eventually the hodge-podge would show up again. So good breeders will be very careful about who gets any such un-neutered pups, and will try to make sure that no dilution factors creep into the breeding programme.

Harlequin breeding is something else again. There must be a dominant Merle (*M*) gene present for the pattern to show up, and its recessive partner *m*. Nobody quite understands how this works. Some think there may be a layer under the harl white which is the dappled merle colour, because there are often white Danes with merle patches on them, as well as solid merles. Others think there may be a "clearing" mechanism involved, which removes the merling from the white of the harlequin. Others think it's the action of yet another gene - the *S* or "spotting" one, which in one of its manifestations produces the Boston pattern of white collar, blaze, stockings, and tail tip, and in another a white chest, belly and legs as well, and in yet another the small white spots acceptable on all colours yet undesirable. And there are many variations in between.

But one thing is sure - two merles must never be bred together, because there is a semi-lethal factor connected with the double-dominant *MM*. The offspring are commonly (if alive) albino, deaf and/or blind, or with tiny eyes, often sterile, and constitutionally weak. This applies in other breeds too.

As you can see, harlequin breeding is not for the faint-hearted. Two beautifully marked harls can be bred together and produce nothing but merles and/or mismarked blacks, and if there are other colours in the pedigree, such as fawns, brindles, or blues, there can be "fawniquins", "brindiquins" or blues with big white collars and blazes, or - well, use your imagination - anything's possible! Even among harl offspring some can be too heavily marked and others too light, or some can have too much merle on them and others too much ticking in the white.

These are the basics of Dane colouration, but there are other facets which need more study, such as the appearance of "sooty" fawns, early greying of masks, and modifiers of all kinds.

Great Dane clubs in most places have rules about breeding the colours only within the families mentioned above, and perhaps the necessity for this has been shown. It's also important to have extended colour-marked pedigrees available for this breed so that mismarks can be avoided.

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