

The Prepotency Phenomenon

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In the not-too-distant past, a few short months ago in actual fact, whilst in the conduct of a judging appointment there came into my ring, in different classes and among the two sexes, three puppies which were absolutely carbon copies of each other, almost uncannily so. They were so close to being identical that they had the countenance of clones! My goodness, I said to myself, how very interesting. Quite obviously they, one dog and two bitches, were related and, as I found out afterwards, were by the same sire, a relatively little-known dog which had not been made up, out of two different dams. They were of such outstanding quality, so exemplary in make and shape, so beautifully balanced, with textbook perfect movement for their breed, that they almost took my breath away. How exciting it is when this sort of thing happens. In my experience, one rarely encounters such uniformity, even among littermates. I ended up awarding Best of Breed to the dog puppy, from the six to nine month puppy class, over several excellent but much older dogs; he was that good. In fact, I would go so far as to say that he and his fraternal siblings were among the best-made dogs that I have ever laid my hands on in this breed and I have judged several of the great ones over the years. The resemblance between these exhibits was quite extraordinary and that set me thinking about all of the vicissitudes of the hereditary process, all those things that complicate inheritance, but yet when things click they surely click. One of the factors involved, of course, is the phenomenon that we know as prepotency when a particular dog or bitch has exceptional influence over the characteristics of their offspring. I have no hesitation in suggesting that the dog which sired these puppies might well prove to be prepotent and could potentially have, if used appropriately and intelligently, a significant, highly-positive and even far-reaching impact on his breed.

In the evolutionary history of the pedigreed dog, the phenomenon of prepotency, where individual animals have an unusual ability to transmit characteristics to their offspring because of homozygosity for numerous genes, has played an important and, indeed, pivotal role. The present day condition of many of our breeds has, remarkably, in large part, been brought about by the influence, in each respective case, of a relatively small number of dogs. When you think of the thousands upon thousands which have been bred over the years, it is surely no less than astonishing that only a comparative few have fulfilled

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the role of consequential and notable progenitors. These are the animals that have essentially neutralized and largely counterbalanced that force which we often refer to as the drag of a breed. These are the dogs, the great sires, which have single-handedly or, in some cases cumulatively, so to speak, overcome the inherent, countervailing resistance and changed breeds for the better, as well as anchored them through many generations. The prepotency factor, this extraordinary genetic power or influence, sometimes seemingly works like magic for it is often apparently unrelated to such matters as pedigree composition, to ancestral particulars. Some of the dogs which have historically achieved the status of preeminent sires or dams have been the product of outcrosses, others

have resulted from linebreeding, still others from inbreeding. There is seemingly neither rhyme nor reason to this. Therein lies some of the mystery, some of the intrigue; the mythical dimension we might call it! This is not exactly something beyond understanding but yet there is an element of the enigma, of the puzzle, of even defying logic, in why prepotency crops up when and where it does.

Despite the fact that this strong ability to transmit characteristics from one generation to the next, this formative force if you will, has played such a very important role in the advancement and perfection of breeds, it is a phenomenon that is evidently not always truly appreciated for its full worth. This is hard to comprehend given our collective historical experience with the pure-bred dog. It obviously goes without saying that the recognition of prepotency can be a very important element in breeding success and can certainly contribute enormously to the maintenance of quality within a breed and even to appreciable betterment. That is, after all, how we've got to where we are today. **Without the great producers where would we really be?** This is the one sure way to offset that opposing genetic force which can lead to a drift toward ordinariness and ultimately to pervasive mediocrity. The interbreeding of individuals within one line of descent to perpetuate desirable characteristics is all well and good but this does not always, let us not forget, necessarily achieve

what is being aimed at. There is such a thing as breeding oneself into a corner. Remember the enormous number of individual dogs that have had little or no influence on the continued well-being, quality-wise, of their respective breeds. If exhibiting dogs for purpose of comparing respective merit of breeding stock is to have any value, when indication of this intrinsic genetic strength becomes noticeable fanciers should take note and avail themselves of the opportunity, if possible, of obtaining the services of said possessor.

Neglecting to do so or to place restriction on access and availability, based sometimes on idiosyncratic myopia or personal conflicts, is to essentially shortchange a breed. In some countries, Canada and the U.S.A. included, I regret to say, there are those who will only allow certain individuals the use of their stud dog or dogs. If you are not among the chosen few, tough luck, you are out in the cold. How damaging is this? Ostensibly the reasoning behind this *modus operandi* is to safeguard breed quality by not letting the best get into the wrong hands, but the result may be just the opposite. In any case, there is something very possessive about this attitude, particularly if the persons who are turned summarily down are perfectly legitimate and respected breeders. I do not know if this type thing happens in Australia or New Zealand but the message here is surely universal especially in this day and age when the world is getting smaller and smaller and the dissemination of gene pools is made increasingly possible via frozen semen. **The owners of prepotent dogs have a certain obligation and responsibility.** They came by them, after all, mostly by genetic serendipity and not purely by man-induced design. They lucked out in the biological inheritance crapsheet. The dogs themselves are a legacy that has a dimension beyond the personal. Shame on those who practice unreasonable, discriminating, exclusionary elitism in this context. They surely do their breeds, in the long run, more harm than good. It is important that rivalry not be allowed to impact negatively on what is good for the maintenance of breed well-being. The human condition has, on occasion, been a hindrance that is always, in the larger scheme of things, to be regretted.

One of the fundamental truths about breeding pedigreed dogs is that not all animals are created equal, by any means, in terms of their ability to stamp their offspring with those characteristics deemed worthy of perpetuation. Hence the vital importance of sires which can impress upon their progeny a certain level of quality that will breed on. **This is all about the preservation and transfer of difficult-to-maintain virtues.** Those exhibits which are today's big winners in any country can readily be traced back to a very few pivotal sires whose influence has been both formative and quite widespread. Let me repeat; the considerable excellence evident in very many breeds today, worldwide, is a direct reflection of the dominating

prepotency of a highly limited number of ancestors whilst it stands relatively unaffected and unimpacted by the great many dogs that have been bred and exhibited over the course of the decades. The legacy is an extremely narrow one, pedigree-wise; genetically speaking that is. **The vast majority of dogs, and this is true in all breeds, just do not produce the sort of consistent quality that breeders strive for.** Therefore, the result of many matings is merely an increase in the number of dogs in existence with no assurance of quality maintenance, let alone improvement, and, in some instances, a slide back toward commonality and even mediocrity. The fact of the matter is that only relatively few dogs have the capacity of procreating

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offspring that can be considered above average and may even, on occasion, be better than themselves.

If we look at this in a broad, historical context, breed by breed, we readily see abundant evidence that each entity has been advanced, and increased quality has subsequently been sustained, by relatively few, in most instances, very exceptionally prepotent dogs; of both sexes I might add, although the sires have obviously had the greater influence because of the numbers of progeny which they have been responsible for. Hand in hand with the genetic transcendence of the dogs themselves has been the acuity and perspicacity of the breeders who realized their potential and made very good use of it. This has been a crucial factor in the advancement of the pedigreed dog and the selective process that has led to where we are today. How very interesting it is that many of the changes which have occurred within breeds have been brought about during the course of one's own lifetime. My main purpose here is to point out, especially to relative newcomers to the challenge of consistently producing high quality dogs, how central a role prepotency has played. Not only is the quality existing in most breeds today a legacy of comparatively

few exceptional dogs, it can also be said that breed improvement has had as its main foundation the prepotency of certain individuals. Even more significantly, perhaps, is the anchoring function which these dogs have performed. Without this the drift away from true breed type might well be greater. The importance of recognizing potential in this regard and facilitating its realization are surely at the very heart of any serious breeding activity.

In the present day hustle and bustle of breeding and showing dogs, one sometimes wonders if part of the reason for the lack of quality often seen in our show rings is, at least in part, a reflection of insufficient attention being paid to this pattern and intensity of inheritance matter. By that I mean that not enough focus is placed on the force of prepotency; its recognition and application. Perhaps it is sometimes forgotten that not all dogs, however well made they might be themselves, however successful they are in the show ring, are not necessarily going to be good producers. That is sometimes a hard pill to swallow but the proof of the pudding is always in the progeny. It is the easiest thing in the world to assume that a superlative dog will be capable of reproducing its kind. Not always so, I'm afraid. Hence the kennel blindness bit and the unwillingness to face reality in this regard. The capacity of a particular dog to pass on desirable traits cannot be accurately predicted because of the complexity of the hereditary process and the various permutations that are involved in gene interactions. What is important for the continued well being of breeds is that we recognize prepotency when we see it, when it stares at us in the face so to speak, which is what I think I did during the judging activity mentioned in the first paragraph of this essay. When all is said and done, the sires and dams of eminent distinction often emerge from the crowd by virtue of the high and consistent quality of their puppies, not necessarily always by what they are themselves.

For Dr Morgan Jones' profile, see last issue. page 12.