

# When Dreams and Genes Go Bad

## Identifying Dream Pools that Poison Scottish Terrier Gene Pools

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**A**s publisher of *Great Scots Magazine* I hear from a lot of Scottie folks every week. Frequently, callers ask in urgent tones, “Can you please help me find a healthy Scottie to fill a gaping Scottie-shaped hole at the center of my life.”

I cringe when those calls come. The question is anything but easy to answer. It would be convenient for all of us were Scottie health a mere matter of locating an official kosher breeders list. We would not be required to think or to become change-agents; we’d simply plug-into the list and live happily ever after.

The truth is, it’s not that simple because health—in our dogs and in our Scottie community—is not that easy. Our dogs and our Scottie community are in trouble. Some of our problems are known and acknowledged; others go unrecognized, and they’re killing our dogs and breaking our hearts.

The acknowledged problems facing us and our Scotties lurk in our breed’s gene pool. No one who is informed denies our genetic problems and we’ve organized ourselves and medical research against them (see my articles on genetics and our breed: “*Deconstructing*



*the Diehard*,” Parts 1-3, **GSM**, Jul/Aug, Sep/Oct, Nov/Dec 2003). The more dangerous problems—more dangerous because they are hidden—lie behind our dogs’ gene pool in our own unrealistic *dream pools*. I’m referring to fuzzy, wrong-headed expectations on the part of both Scottie breeders and buyers, which, though less obvious than known Scottie genetic disease, are no less real in shaping our modern Scottie health predicament.

Unfortunately, whereas we can marshal medical research to help clean up our dogs’ gene pool, there is no comparable service available to clean up the toxins in our Scottie community dream pools.

My argument is we lose in a triple sense—Scotties, breeders, and owners—when genes and dreams go bad. Indeed, cleaning up the Scottie gene pool will be retarded until we first clean up our contaminated dream pools.

### **Dirty Gene Pool**

At the risk of laboring the obvious let me survey again our Scotties’ genetic health picture. The stark reality of our dogs’ predicament must be driven home to each of us, for until it informs us and frightens us and angers us it won’t motivate us to change the way we breed and buy Scottish Terriers.

According to Dr. George Padgett, internationally known canine geneticist, today’s Scottish Terrier breed carries a genetic load of 58 genetic diseases or defects, including endocrine/thyroid diseases, immune system dysfunction, eye and ear diseases, heart, blood, and lymphatic diseases, liver diseases, muscle and skeletal diseases, and urinary system diseases, to name but a few.

And that may be the good news. Padgett’s book and his Scottish Terrier breed research (***Control of Canine Genetic Diseases***, 1998) mentions nothing about predisposition to cancers now killing our dogs: lymphosarcoma, bladder cancer, malignant melanoma, mast cell sarcoma, hemangiosarcoma, and squamous cell carcinoma of the skin (see: Carole Fry Owen, “*Cancer: The Scottie War On Terror*,” **GSM**, May/June 2002).

One fact alone is the stunning ‘poster exhibit’ of our breed’s genetic predicament: the Scottish Terrier is 18 times more likely to develop bladder cancer than other breeds. Across all purebred dogs the risk for bladder cancer is 0.74, according to Purdue University researchers. Scotties carry a risk factor of 18.09! There is no plausible explanation for this shocking fact short of genetic predisposition. After all, our dogs’ world is the same polluted environment other modern breeds inhabit, yet Scotties are 18 times more vulnerable; our dogs are on the whole as well or better cared for as any breed, yet they are at massively disproportionate risk to die of bladder cancer.

This alarming Scottish Terrier vulnerability points to wider trouble in our Scottie gene pool. In “*Pet Dollars and Deconstruction*” (**GSM**, Sep/Oct 2003), I raised the troubling issue of inbreeding’s harmful impact on immunity, referencing the important recent research at University of California, Davis, which for the first time analyzed with 100 microsatellite markers the canine genome’s Major Histo-

compatibility Complex (MHC), best known for its role in the immune system. 28 dog breeds, representing the seven recognized breed groups of the AKC, were tested for genetic diversity. Diversity is crucial at the MHC site because the more genetically diverse the site, the wider the immunologic response the individual is capable of mounting, but the more duplicate alleles at the MHC site the narrower range of response an individual can mount when challenged immunologically. The MHC site, therefore, and the UC Davis microsatellite marker research, is a brilliant, hard-evidence look at how inbreeding produces animals that acquire the same allele or gene from both parents as a result of common ancestry. Research results: (1) the smaller the breed population, and (2) the longer registered by a kennel club, the more depleted the gene pool. Our 104 year-old AKC registered Scottish Terrier breed is implicated on both counts.

How does today's Scottish Terrier breed end up carrying a load of 58 genetic diseases plus carrying mortality risk of bladder cancer 18 times higher than other breeds? The answer is not flattering. *We brought this curse on the breed we love. We genetically engineered the modern Scottish Terrier by a century of fixation on appearance at the expense of genetic vigor and diversity, compulsively attempting to 'championize' the gene pool by rigorously breeding champions from champions.* But what we accomplished along the 20th century road to what Cindy Cooke praises as dogs "longer in head, shorter in body, and lower to the ground than their ancestors" (*The New Scottish Terrier*) is overuse of celebrated popular sires and dams which translated into genetic bottlenecks reducing our gene pool to a gene puddle.

Small populations made even smaller by hard-edged elimination from breeding stock of all but a certain phenotype with common ancestry are especially vulnerable to genetic disease because they lack both large numbers and randomization by which to spread the risk of problem matings. What they do spread is their inherited genes, and because those genes have high probability of being the same gene inherited from common ancestors, those genes, good and bad, are doubled.

What is killing us and our dogs are 'typy' good looks that hide recessive genes and late-onset diseases. However, the contamination of our Scottish Terrier gene pool can only worsen until we grasp this elemental truth of population genetics: diversity-reducing breeding practices, sustained over time, in a small breed population, lead inexorably to what population geneticists call "inbreeding depression." Classic signs of inbreeding depression abound in our breed today: (1) shorter lifespans (2) weakened immunology (3) smaller litters (4) increased whelping problems (5) spread of genetic diseases.

The tragedy here is simply this: a purebreed system lacking the perspective of biological conservation and driven rigidly by the aesthetics of 'type' is a system obsessed with a small portion of the genetic picture and functionally blind to larger gene pool dangers. Despite manifest signs of a troubled gene pool, we persist in our bargain with the devil for 'typy' good looks blind to the fact that handsome, 'typy' Scotties that have high coefficients of inbreeding can only deepen our inbreeding depression.

Worse still, our diversity-reducing breeding practices now are normalized and ensconced as responsible breeding practice setting in motion the irony of breed guardians who believe they are saving the gene pool by holding for rigid ‘type’ when in fact they are adding to the ravages of depleted genetic diversity in our breed.

The Scottie gene pool, it turns out, is poisoned most by our own contaminated dream pools.

### **Contaminated Dream Pools**

The dream pools to which I refer have to do with what philosopher Stephen Toulmin calls “warrants,” which are the assumptions behind our reasons for doing things, the values, goals, and dreams so much a part of us as justification for action they are taken for granted (Stephen Toulmin, *The Uses of Argument*. Cambridge: Cambridge University Press, 1958).

But they are anything but inconsequential. Warrants are extremely important in understanding persuasion because they are the ‘givens,’ the assumed definition of the situation, the unspoken mind-set which is typically so embedded in a group or community they work as an unspoken frame of reference, the unnoticed glue of group rationale.

To glimpse these warrants, these Scottie community dream pools, we must hold our behaviors up to the light and attempt to view our rationale from the bottom-up, asking what values are presupposed for this behavior to be justified? What beliefs ‘warrant’ our acts?

It is my argument we’ve allowed the Scottish Terrier gene pool to get away from us, we’ve polluted it, much as we’ve allowed our physical environment to get away from us, turning our world into a polluted planet. Just as our environment of clean air and water is finite and cannot be sustained at current levels of human exploitation and pollution, so also our Scottish Terrier breed gene pool is a finite resource that cannot be sustained using present diversity-reducing breeding practices. Just as it is important for community action groups to probe for what’s behind big polluters of our environment, so also it’s vital for us as Scottie lovers to examine the dream pools, the warrants, now driving decisions and behaviors that are contaminating our current breed health picture. Perhaps by rendering explicit our taken-for-granted assumptions, by examining how unwarranted our unspoken values are, we can see ourselves as for the first time and clean up our dream pools before it’s too late to save our Scottie gene pool.

### **Polluted Value #1: Beauty Reigns**

The first of the contaminants in today’s Scottie lover’s dream pool is the assumption already touched on that ‘typy’ *beauty* = *supreme value*. We don’t debate whether beauty should trump other values in purebreed circles; we take it for granted. When we hold up our present Scottish Terrier gene pool predicament to examine it bottom-up to see what has warranted inbreeding our dogs to a degree that would horrify and frighten us were we looking at our own family tree, the answer is: beauty reigns. The end that justifies our means is *appearance*.

This hidden assumption that appearance is what we're all about lies unrecognized in the comment heard recently from a new breeder echoing the words of her mentor: "After all, that's what we have a standard for." Since our breed standard is at the core of what drives responsible breeding among us, it's worth pondering what our standard *is* for, is it show or substance?

No one objects to a quest to build a better Scottish Terrier, no one questions that 'well-bred' should reflect highest standards. I do, however, object to breezy rationalizing of inbreeding, to trivializing language, standards, and our dogs by reducing them to glamor quotients.

I realize this is a slippery slope, and that suggesting a comparison between human inbreeding and Scottie inbreeding will have critics accusing me of treating Scotties as if they were human.

I reject that criticism, not because I think humans are wronged by such comparison, but because our dogs are. Frankly, in our neurotic culture to treat Scotties like we treat humans is abuse! In fact, I'm arguing it is the beauty-as-supreme-value folks who are offending in the matter of Scottie/human separation by co-opting our dogs into our human obsessive-compulsive fixations on looks and appearance. I'm arguing our Scotties deserve better than the psycho-social abuse over appearance we heap on ourselves.

In a frightening sense we've become a 'Barbie Doll' culture in which ubiquitous glamor gurus turn little girls into sexy, thin, blonde, walking-eating-disorders, and turn the rest of us into obese neurotics because we can't live up to the image.

But image—whether negative or positive—is what it's all about. Logos and labels define our image starting in infancy at 'Baby Gap.' These days what once was private envy now is prime time drama: plastic surgery as instrument to happiness and the good life. We've made cosmetic surgery the growth industry of today's medical profession as we hypnotize ourselves in front of our TVs as voyeurs fantasizing our own "extreme make-over."

Although today we know everything the ancient Greeks knew nothing of, our culture knows nothing of what they knew well: the meaning of the good life. They saw clearly what we cannot grasp: that beauty, like all virtues, becomes vice in excess.

My point here is that our culture's obsession with looks by which we torment ourselves, narcissistically chasing the perfect non-aging body, the perfect hair, the perfect skin, the perfect image, is too easily transferred to our dogs. I'm saying the abuse here is that our dogs deserve better than to become yet one more extension of the blatant ways we reduce ourselves to meat and numbers. They are more than the slope of their nose and the length of their back—just as humans are more than "hunks." But in our culture, where we profoundly skew the measure of human *being*, can we trust ourselves to see beyond externals in the standard of the Scottish Terrier?

The danger of our being blinded by beauty is seen in its direct impact on our dogs' health. Recently, the notion that 'beauty reigns' was the false assumption behind new cases of vonWillebrand's Disease, a lethal blood disorder, despite the availability of a simple,

definitive DNA test to determine whether a dog is affected, is a carrier of the gene, or is clear—and that simple test has been available since 1996. I remember vividly the public heart-break of a respected international breeder going public on the Internet in 2003 with the acknowledgment she produced VWD dogs. She assumed testing was unnecessary expense in the case of her kennel because she ‘knew’ her dogs were healthy.

I’m not saying all breeders ignore VWD testing, nor am I demonizing this particular breeder—after all, in this VWD case she had the conscience and courage to own her mistake publically instead of hiding it, and to urge others to learn from her shame.

My point is, in our collective rush to dream solutions to our Scotties’ gene pool problems we’re making the mistake of focusing on our dogs and failing to examine ourselves. It’s a mistake because surrounding the magic land of DNA marker research lies the messy swamp of fuzzy thinking, distorted expectations, bad logic, and downright human apathy I’m calling our contaminated dream pools. DNA tests are worthless to us unless used, but such tests can appear superfluous in an environment where beauty defines ‘well-bred,’ where practitioners are entranced by phenotype instead of genotype. Why look for problems when I can see my success?

Indirect sanction for such thinking resides at the core of the purebred world of dogs itself where the superficial is ritualized, not deep stewardship. I base this observation on the fact that purebred clubs are organized as embodiment of the culture of canine beauty pageants and these pageants have devolved into contests having everything to do with looks and show and nothing to do with deep issues of genetic health and vitality. In a cumulative two minutes per animal or less, a showring judge ostensibly validates a breeder’s work and worth as “conformation” to the breed standard. Such one-dimensional glamor assessments venerated as canine triumphs of perfection are in truth caricatures of what “well-bred” could and should mean and we’re too deep into our tradition to see what our reductionism is doing to our dogs and to ourselves.

Here at the core of our dog culture is the tainted expectation, the pernicious myth, the contaminated dream that will keep harming our Scotties despite our DNA discoveries: we’ve taught our best people through public pagantry that appearance defines what matters in the breed and in the breeder, that ‘typy’ good looks are what counts. When judges choose Best In Breed based on looks alone, whether we admit it or not, we’ve instructed Scottie breeders and buyers to do the same.

Until we deepen our perspective as to our own worth as well as to the true measure of our Scotties, DNA break-throughs will enchant us but they will not help us get beyond one-dimensional thinking by which we torture ourselves and harm our dogs.

**Polluted Value #2: Winning Is the Apex and**

**Inbreeding Makes Winners**

If image defines our culture’s obsession, competition and winning define our soul. We wrote the book on competing to win.

Given our culture's orientation to competition it is inevitable our Scotties would become extensions of our competitiveness. I have no objection to competitiveness in principle, since it is, of course, possible to compete without being obsessive, to be competitive without being driven.

My problem with our drive to win applied to breeding for purebred exhibition is, as already shown, this competition has everything to do with appearance and little to do with genetic fitness. Because this arena is devoted to glamor rather than deep issues of genetic vitality a drive to win in this arena is always at risk of breeding for show and not for substance.

Breeding to win takes on genetic jeopardy when it passes from mentor to novice breeder in the form of received wisdom that linebreeding is the path to breeding champions.

Examples abound. Chris Walkowitz speaks for purebred culture in general: "Linebreeding is the method most commonly used by novice and veteran breeders alike. This is a safe method if the novice concentrates on the bloodlines of a quality dog that produces quality" (C. Walkowitz and B. Wilcox, *Successful Dog Breeding*. N.Y.: Howell Book House, 1994).

In Scottie circles the received wisdom is much the same. Consider John T. Marvin's influential voice:

"The surest and quickest way to be successful, which is attested to by all leading breeders of any kind of livestock, is to acquire the best matron obtainable, of high quality and unquestioned pedigree, and then line or inbreed her to the best stud dog available . . . Breed her well, and if only one litter is whelped she has done her part in the long-term program. From this litter, select the best one or two female puppies, if there is a choice, and breed them in the same family" (*The New Complete Scottish Terrier*, 2nd ed. NY: Howell Book House, 1986, p. 210) .

Similarly, Muriel Lee enjoins as the first question to be asked of any proposed breeding: "1. Is your bitch of quality? Does she have a good pedigree, linebred with a championship background? (And one champion out of 64 descendants does not make a championship background.)" (*The Official Book of the Scottish Terrier*. Neptune City, NJ: T.F.H. Publications, Inc., 1994, p. 155).

So also the late, great Betty Penn-Bull, of Slough, England, wrote of linebreeding:

"This is probably a programme which is most widely used and it can be a very successful system. A number of animals may be introduced into a line, regularly carrying an infusion of fresh blood, but also linking up with certain key dogs which reinforce the family type. It is not sufficient that they carry the required bloodlines; they must also conform to the desired type." (*The Kennelgarth Scottish Terrier Book*, 2nd ed. Windsor, England: The Scottish Terrier Emergency Care Scheme, 1995, p. 227).

These are respected authors revered among us, much loved for their contributions to our Scottie community. It is, therefore, with respect and reluctance that I take issue with them. Nevertheless, I believe their advocacy of linebreeding is biased by preoccupation with 'typy' good looks, and hence with breeding to win, and is in conflict with the best insights of contemporary population genetics.

Traditional canine wisdom distinguishes between 'inbreeding' and 'linebreeding,' defining inbreeding as mating closely related

individuals such as brother to sister, son to mother, and sire to daughter, and linebreeding as matings of relatives more distant than one generation, where breeding attempts to concentrate the genes of some outstanding ancestor. While inbreeding is today often recognized as dangerous, especially for novice breeders, linebreeding is touted as the favored approach for serious breeders.

Geneticists, however, rarely make such distinctions between inbreeding and linebreeding since they realize linebreeding is a form of inbreeding and that mating individuals separated by more than one generation can produce same-gene pairings and concentrate defective genes as strongly as matings that are deemed incest breeding.

And that is our hidden danger. We're looking at individual dogs in our breeding decisions rather than thinking breed-wide as biological conservationists assessing our breed's cumulative degree of relatedness in the gene pool—the overall coefficient of inbreeding. We're thinking litters and the showring but not asking whether proposed matings will lower or raise the percentage of homozygosity, or genetic duplication, in our breed.

Inbreeding produces animals that acquire the same version of gene from both parents as a result of their common ancestry. Inbreeding increases the probabilities of pairings of suboptimal genes, and worse, of doubling up on seriously deleterious traits carried by a shared ancestor.

Geneticists can predict negative health effects in a population based on its degree of inbreeding. Dr. John Armstrong, international geneticist of the University of Ottawa, researching Standard Poodles, found that the least inbred group (cumulative coefficient of inbreeding lower than 6.25% over 10 generations) lived longer by more than three years than the most highly inbred group of Poodles (COI 35%), and that a 10% increase in COI will likely reduce litter size by about 7% (John Armstrong, *Population Genetics and Breeding*, July 2000).

Inbreeding, in other words, is at the heart of the deconstruction of the Diehard and unless we change our thinking about how we breed so as to lower our breed's degree of kinship we're dooming our dogs. That's why I take issue with a pioneer as influential as Betty Penn-Bull who wrote the book on what today is our conventional wisdom in Scottie breeding when she says:

“There seems to be a widespread belief that out-crossing [mating of unrelated animals, Ed.] automatically imparts certain benefits in the way of improved virility, health, character and substance, but this is not the case. All these qualities must be bred for and if the out-cross dog fails in any of these qualities he is liable to pass on his weaknesses. The fact that he is unrelated will not enable him to impart qualities he does not possess himself.

However, there are certainly occasions when it is advisable to introduce an out-cross into a line. Faults may have crept in and if these are widespread throughout the family, it may be difficult or impossible to eradicate them without bringing in stock which excels in the qualities in which the stock fails.” (*The Kennelgarth Scottish Terrier Book*, 2nd ed., p. 228).

Betty is right in saying an out-cross dog cannot impart genes he does not possess, but she, and conventional Scottie breeding wisdom, because they are focused on safeguarding rigid ‘type,’ miss the whole point of modern population genetics which warns that a

closed population at risk for inbreeding depression has far graver issues at stake than loss of ‘typy’ good looks. Betty misses the population genetics insight that in a context of inbreeding depression the unrelated out-cross dog she discounts has potential more valuable than glamor—his unique genes offer promise of *genetic effectiveness* for new vigor and life.

To her credit, Betty worries over bad genes in family lines of Scotties and counsels judicious out-cross breeding. Perhaps it never occurred to her that her remedy for a troubled breed line would be applicable in the 21st century to our entire breed. A century of on-going linebreeding, fixing and shrinking breed ‘type’ into narrower and narrower family lines is not sustainable. It leads to precisely where we are today: a genetic load of 58 known diseases, plus a cancer mortality risk 18 times higher than other breeds.

A conservation biologist looking at our breed’s genetic load would consider the Scottie with the lowest mean of kinship to be the “best looking dog” among us because he’s the most genetically valuable in terms of managing diversity in the population. Beauty, as we’ve known from childhood, turns out to be in the eye of the beholder. If we would do no harm we must correct our vision to see beauty beyond ‘typy’ good looks; we must learn to see our Scotties with the eyes of conservationists.

Despite these truths known since the 1960s to livestock breeders and biological conservationists monitoring the genetic health of endangered populations, the purebreed dog community continues to espouse linebreeding, and in the case of the Scottish Terrier, we pursue our linebreeding without reference to Sewall Wright’s “coefficient of inbreeding” formula which is a statistical tool for estimating how any given breeding program helps or hurts vital genetic diversity in a gene pool. We’re adding to our pool’s toxicity without even monitoring our own pollution levels! (For more on this argument on effects of inbreeding and Wright’s “coefficient of inbreeding” see my article “*Deconstructing the Diehard: Pet Dollars and Deconstruction*” *GSM*, Sep/Oct 2003).

When we ask ourselves why on earth we would pursue such a wrong-headed course in our stewardship of the Scottish Terrier, when we attempt analysis by looking bottom-up at our current practices to see the warrants behind our universal promotion of diversity-reducing breeding practices, competitiveness looms as rationale, competitiveness codified in the conventional wisdom that linebreeding is the path to exhibition success.

And it *is* demonstrably a show-winning path. It fixes ‘typy’ good looks that win. Exclusively applied over time, however, it also kills our Scotties.

But linebreeding rests on a false dilemma. I insist there is evidence the conventional wisdom that assumes you can’t win without it is wrong, or at least unnecessary, as a directive for showring success. I believe out-crossed breed lines selected to produce dogs with low percentages of common ancestry can win handsomely in the show ring and can produce winning progeny. I believe our taken-for-granted stock wisdom is *not* the only path to competitive success and that alternatives not only work, but better serve our breed’s health. I believe

this because other breeds facing serious gene pool problems have succeeded in breeding for genetic diversity and winning championships at the same time, and I'm convinced Scottie folks are at least as dedicated and conscientious as enthusiasts in other breeds.

In at least two other breeds known to me it has been documented that linebreeding and high coefficient of inbreeding are not necessary to exhibition success. Dr. John Armstrong, the Canadian geneticist mentioned above, published in 2000 a study of Standard Poodles in which he documents successes by Poodle breeders to produce winning litters with least inbreeding by choosing matings representing fewest common ancestors ("*Inbreeding and Diversity*," see the Canine Diversity Project, <http://www.canine-genetics.com/inbreed.htm>). Even more definitive, Dr. Jim Seltzer, using a database of approximately 20,000 Dalmatian pedigrees and computing Wright's coefficient of inbreeding to 10-generations on each animal for which detailed pedigrees were available, looked at the degree of inbreeding in the All-Time Top Show Winners, the All-Time Top Sires, and the All-Time Top Dams. His conclusion:

"Inbreeding, is it necessary? From these data the answer is resoundingly no. Inbreeding is not necessary to win in the show ring. Inbreeding is not necessary for a sire to produce champion get. Inbreeding is not necessary for a dam to be a top producer. Top Dals in each of these categories achieved at the highest levels even though they were the results of outcross matings" ("*Inbreeding in Dalmations*," *The Dalmation Quarterly*, Spring 1999, pp.24-29; and his article "*Inbreeding—Is It Necessary*" at [www.canine-genetics.com](http://www.canine-genetics.com)).

I'm not saying outcrossing of breed lines is without risks. The biggest risk is the unknown. But I would remind us that the health 'unknowns' we face today exist as our contemporary penalty because we did not establish an open health breed registry mandatory for all responsible breeders of our breed twenty years ago—and we persist in rejecting an open health registry today. Because we've chosen to view registries as problems rather than as opportunities, we've left ourselves facing each mating as a 'test breeding' without full knowledge of genotype, 'guesstimating' outcomes in the absence of what Dr. George Padgett calls "genetic pedigrees." Full and accurate health records kept across the life of every responsibly bred Scottie ought not to strain our capabilities. After all, we're quite good at keeping accurate records: we've kept and managed meticulous records of titles and showing championship points for more than a century.

There are risks to face in changing our breeding philosophy in our present situation of known gene pool contamination and lack of an open health registry. There are unknowns. But those unknowns must be weighed against the *known jeopardies* ahead if we persist in our present course of diversity-reducing breeding habits.

But let me say again, out-crossing can win as well as help our Scottie gene pool. If Standard Poodle and Dalmatian breeders can breed for lowest inbreeding coefficients and still win in the show ring, so can progressive-minded Scottie breeders.

But suppose linebreeding is the only option. What if it turns out to be true that the only way to win a Best In Breed as a Scottie exhibitor is to double-up on suboptimal recessive genes through strict linebreeding to common ancestors leading to impairment of our dogs' immune systems? What if there are no options but to harm our breed to win?

Those who love Scotties have a ready answer: winning at such price is raw exploitation and if our culture of purebreed competition is structured such that winning forces us to make harmful breeding choices, then our world of dogs has forgotten its reason for existence and our Scotties need us to rewrite the rules.

The truth is, it is not our purebreed culture at-large nor our breed standard that now put our dogs in harm's way; it is our *interpretation* of the standard, it is literalism elevating the letter of the standard above the spirit of the standard, it is our inculturated fixation on perfect form and our passion to win, hijacking what it means to be “well-bred” and getting us and our dogs into real trouble. The enemy is not “out there.” The enemy is within. The problem is our dream pool is poisoning our Scottie gene pool.

Thankfully, rigid inbreeding is *not* forced upon us, as conservation-minded Standard Poodle and Dalmatian breeders have demonstrated. In the face of these models from other breeds showing a better way, Scottie breeders and buyers have a choice to make. We can ignore this healthier path to genetic diversity and persist in old-style diversity-reducing breeding practices thereby deepening our inbreeding depression. On the other hand, we can love our Scotties as much as forward-thinking Poodle and Dalmatian folks have loved their dogs—enough to change our minds and our ways.

#### **Polluted Value #3: Technology Saves**

A third pollutant in our collective dream pool putting our Scottish Terrier gene pool at risk clusters around modern medical technology. The American way is to buy our way to the good life. Since everything to us is a commodity on the shelves of the ‘Super Center of Life,’ health and happiness are commodified, too, and we direct our high priests of technology to invent the pills.

It never occurs to us that the enemy is us, not disease, that we're killing ourselves with our own forks, that the heartburn and indigestion we've parlayed into a billion dollar pill industry, the high blood pressure and arterial sclerosis wiping us out daily, are diseases of our own excess, that our predicament is not a lack of the newest “purple pill” but that we're eating junk, eating obscene quantities, and getting no exercise. We'd rather put our faith in biotechnology to save us from ourselves by magic potions than face the self-discipline required to change bad habits.

I fear something like this learned helplessness is now being transferred to our Scotties. Instead of rolling up our sleeves and grasping our Scottie health predicament firmly on the prevention side of the equation by changing our breeding and buying habits to revitalize what geneticists call “hybrid vigor” in our dogs through increasing genetic diversity in our gene pool; instead of that, I see us opting for a disease-by-disease approach, banking on biomedical magic bullets to solve our troubles.

Don't misunderstand me here. I am not questioning the value of medical research on Scottie-related disease. We must push for breakthroughs, and we who love Scottish Terriers must generously fund that research.

At the same time, just as in our human diseases of excess, we must remember that we ourselves are players in this drama. Scottie genetic disease is exacerbated by our own bad habits and therefore cannot be fixed by others. It won't be enough to pay the bills; we must change our ways.

To see this at work, consider Stephen Toulmin's notion of "warrants" applied to our current official resistance to a Scottie open health registry. Why would intelligent, good people fight against such a commonsense step? It may be because there is in place the unexamined assumption that 'technology saves,' that we can avoid the upheaval of mandating accurate health records and putting a moratorium on high coefficient of inbreeding matings because we're investing in medical research, and research will save us from ourselves.

What I am saying is as we harness medical research against known diseases in our dogs we cannot forget that *preventing genetic disease* makes more sense than scrambling to clean up the gene pool. I'm saying if we will learn to think and act as biological conservationists who must rescue an endangered isolated genetic population by breeding to increase diversity and health, not linebred 'typy' sameness, we may be able to avoid yet more expensive DNA marker research.

There is no doubt DNA-Marker tests represent the ultimate, definitive method for breeding against known diseases. But we have at least 58 known genetic diseases, plus genetic predispositions to cancers to test for. To date the record of use and failure to use the one, already available DNA test (vonWillebrand's), is salutary warning against assuming that biomedical miracles when and if they arrive will solve our problems.

The good news is, cleaning up our Scottish Terrier gene pool does not have to wait on magic bullets from genetic research. We have available to us today, without years of research, at no extra cost to us save the price of self-discipline to change our minds and our ways, the common-sense wisdom of an open health registry for all responsibly bred Scotties, as well as the hard-earned wisdom from population genetics to enable us to see our Scottie stewardship with conservationist's eyes which could reverse our diversity-reducing breeding practices.

Our Scotties' deepest need at this moment is not for bio-medical wonders. The Diehard's greatest need right now is for *friends*—true friends—who will clear away culture-blinded eyes to see him in his real peril and rise to his defense with every weapon at our disposal.

Technology is not a savior. It cannot save us or our dogs from ourselves. It is only a tool. Because tools can neither love nor care, it is not more tools our dogs need. They need friends whose love and care will save.

#### **Conclusion**

Looking at our Scottish Terrier world and surveying how collective dreams and genes have gone bad makes clearer why I said at the beginning that locating health in our breed is not easy because the issues are not simple.

It is my argument that reflected in our mini-world of Scotties are global crises of the 21st century. Just as bad philosophy and distorted values have led us to pollute our planet, so contaminated dream pools in our canine world of purebred dogs have driven us to pollute our Scottie gene pool. Just as modern dependence on technology has made it easier to pop a pill in health matters than to discipline ourselves to avoid diseases of excess, so in our present Scottie genetic health predicament we're more eager to turn to bio-genetic research than to discipline ourselves to change our breeding and buying ways.

Seeing these parallels is important because it is salutary demonstration of what I frequently emphasize in these pages, viz., that the little black dogs at our side are much more than objects, so much more than "just a dog." To the thoughtful, our Scotties and our present struggle to control a contaminated Scottie gene pool are Scottie-shaped windows onto the global drama of man's battle to save the planet from himself. To see and understand deeply our Scottie predicament is to see the enemy, and the enemy is us.

I have argued that our Scotties cannot thrive genetically under the control of the fuzzy, wrong-headed logic that has defined our purebred tradition: our obsessive fixations on appearance and image that have driven us to interpret our breed standard as one-dimensional glamor guide, our passion for competition which has fueled short-sighted inbreeding as path to exhibition success, and our learned helplessness in health matters which now blinds us to our own responsibilities in prevention in matters of Scottie wellness and leads instead to abdication to technology. Combined, these powerful but skewed values form toxic dream pools out of which leach our diversity-reducing breeding practices which foul the gene pool.

I believe our world of purebred dogs, like Western culture at-large, has lost its way, has forgotten its reason for existence. We need new mythology, a new and defining narrative of what it means to be dog people. The seeds of that kind of re-defining myth are already present in our Scottie experience. We sometimes joke in Scottie circles about being *owned by* our dogs but there is more in the saying than a joke. Here is important truth that our culture has forgotten: we belong to the earth and to the animals more than they belong to us.

That wisdom is captured memorably in a creation story from the Jicarilla Apache's ancient oral tradition. Their account of beginnings goes like this:

Black Hectcin, the creator, first made Dog and the world and then asked the dog what he was going to do in the world.

"Oh, Grandfather, will you make me a companion?"

Black Hectcin lay down on the ground with his arms outstretched, and told the dog to draw a line around his shape with his paw.

They both looked at the shape scratched on the ground, and Black Hectcin told the dog to go a little ways off and not to look.

The dog went off a short distance, and soon he looked back.

"Oh, someone is lying where you were lying, Grandfather."

“Go along and don’t look,” said Black Hectcin.  
The dog went a little farther, but soon looked.  
“Someone is sitting there, Grandfather,” he said.  
“Don’t look. Walk farther off,” said the creator.  
At last the creator called him. “Now look.”  
“Oh, Grandfather, he moves,” cried the dog.  
So they stood and looked him over.

“He’s wonderful!” said the dog.  
Next, Black Hectcin lifted the man to his feet and taught him to walk, then to run, then to talk and to shout.  
“What else?” the creator thought to himself.  
“Laugh!” Black Hectcin said. “Laugh, laugh, laugh, laugh.”  
The fourth time he said “laugh,” the man laughed.

The dog was very happy when the man laughed. He jumped up on him and ran in circles and jumped up on him again the way dogs do today when they are full of love and delight.  
The man laughed and laughed.  
“Now you are fit to live,” said the creator, as he sent the dog and the man out into the world together.

Standing deep in our culture’s self-destructive patterns, I need that story. We all do. It is time to reincarnate that old perspective on our servant role in the natural order of things, time to change our minds and our ways so we honor and conserve the circle of life. Perhaps then we will learn again to laugh with our dogs.

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