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The functional Saluki - lessons from the coursing field

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Dan Belkin earned a Ph.D. in biology at the University of Florida in 1961. He was an evolutionary biologist specializing in physiological and ethological ecology, supported by a National Institutes of Health Career Research Fellowship at the University of Florida Medical School. He also taught respiration and nutrition in the physiology department. His interest in Salukis arose from his experience in falconry. He began flying hawks in 1947, and flew passage peregrines from 1956 to 1970. Dan has had a lifelong interest in predator/prey ethology. In 1971, he abandoned his scientific career in order to course Salukis full time, which he continued to do until 1985. He remained active by judging and otherwise watching Salukis. Dan married his wife, Laura, in 1961. They have had Salukis instead of children, and are responsible for the Bayt Shahin prefix.

Dan died of an inoperable brain tumor in April, 1998. This page is dedicated to the memory of his piercing intellect, his extraordinary objectivity, his wry humor, and his unparalleled devotion to the Saluki.

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Bayt Shahin Impulse, CC, CM

I WANT YOU TO LEAVE HERE with this idea: *things you cannot see are more important than things you can*. There are many things about Salukis that a judge can't see and can't feel, and functionally, those things are more important than the visible and palpable ones.

I'll give you an example. The standard says '**eyes, dark to hazel and bright, large and oval, but not prominent.**' It doesn't say anything about whether or not the Saluki can see. Laura and I went to England for an entire coursing season and attended all the coursing meetings. While we were there, it was our great pleasure to lead several famous Salukis in the field — Salukis we had seen in books. I noticed that one of them was seeing every hare that entered the field. Hares would come up 300 or 400 yards away and this bitch would turn and look at them. I looked around at the other Salukis that were close to me and none of them were seeing those hares. I could barely see them. Those of you who know dog anatomy know that a dog's eyes, even a sighthound's, are not, in general, as good as ours. This Saluki bitch's eyes were. (She was a Mideast import, by the way; she had not been bred in the UK).

The eye is an extremely complex piece of equipment. As an embryo develops, the formation of the eye depends on a large number of different genes. A whole lot of different genetic information goes into making the eye. If one tiny thing, out of maybe 300, goes wrong, the eye doesn't work as well. If two things go wrong, it works even less well. Any kind of animal that is not being selected for its eyesight over a long period of time will lose this genetic information through random mutation and will thus lose the ability to see. Look at cave fishes. Because functional eyes give them no adaptive advantage in a lightless environment, they usually become blind after a short period of evolutionary time. If we just breed Salukis to have pretty eyes in the show ring, soon they won't even be able to see their quarry, let

alone chase it. If all we are interested in is having beautiful, dark, almond-shaped eyes, that's fine, because our Salukis won't need them for anything but being pretty, but if we want them to retain something of what Salukis were originally bred for, then somehow or other we have to select for visual acuity. That's harder to do.

I'm going to be speaking from my experience of open-field coursing, that is, chasing live game, mostly black-tailed jackrabbits in California. I've also had some experience with the English brown hare and the Scottish blue hare.

There are various definitions of coursing. A broad definition is 'chasing anything with sighthounds.' More narrowly, it means what is done formally with Greyhounds in the UK — according to a definite set of rules which have been in effect for over 100 years. There are all sorts of things in between. We even have lure coursing, which is very different from chasing live game, but you can call it coursing anyway.

I want to make a distinction between coursing and hunting. In coursing, killing the animal that you are chasing is not important. In fact, it is often undesirable. In many cases a dog will kill after another dog has done a lot of work on the game. That will cause the dog that killed to lose the course. The point of coursing is to demonstrate or assess the athletic ability of the hounds, and the various rules for determining the winner are contrived accordingly. In hunting, on the other hand, the dog is supposed to bring you something to eat. As far as we know, the Saluki was used for both hunting and coursing in ancient times, so it's hard to define a true Saluki narrowly in terms of function.

A good hunting Saluki is not necessarily a good coursing Saluki. Let me tell you a little story about that. I once took two of our top hot-shot open field coursing Salukis to the desert on a camping trip. I also took along a friend's young Saluki. This puppy was a very big red dog, about 14 months old, 29 inches at the shoulder, 60 pounds and inexperienced. The first day we went out, the coursing dogs took off after a hare and the puppy tried to go with them. After about 400 yards, the puppy quit because he couldn't see the other dogs and the hare anymore. This happened several times and it was clear that the puppy, at that time, was not fast enough to compete with top flight coursing dogs. The next day, the hot-shot coursing dogs' feet were so sore that I wouldn't let them run. The puppy went out on his own. We were camped on a hill; I could watch the puppy go out and find a hare and start chasing it. If the hare ran fast, the puppy would quit and find another one. That puppy learned how to catch half-grown hares — which are the best ones to eat anyway. He would catch one and bring it back to camp, lay down in the shade of the car for awhile, then go off and catch another one. He fed the two coursing dogs, himself and me for a week, but he couldn't have gotten a coursing championship in Merced. Now, which one of those is a better Saluki?

From the audience: 'I guess it depends on how hungry you are!' (laughter).

During this talk I will try to use our own dogs as examples and not to name other peoples' dogs. I don't want anyone to think ill of me for leaving his Saluki out, or for saying bad things about it.



Winds swift Aqil Bayt Shahin, CC, CM

I'm going to go through the Saluki standard and try to relate what it says about function. Before doing that, I want to say something about what a Saluki is, so we have an idea of what we are talking about. Breeds, as recognized by the AKC, are a completely artificial concept from a biological standpoint. They are what would be called subspecies or races if they had evolved naturally. They're all interfertile and they are all members of the same biological species. What we call Salukis are one of these artificially created races. In the early part of this century people brought Salukis to England from the middle east, mostly from Egypt, Syria and Southern Iraq. They had two or three types, but they decided they were all the same thing, and called them Salukis and wrote a standard. I think it is fortunate for us that they did have several types, and had to make their standard fairly wishy-washy - so you can have whatever type you like and it's still OK. If those people had gone to slightly different places and brought back Azawakhs and Afghans instead, both of which are called Salukis where they come from, they probably would have thought they had two breeds, but all these Mideastern sighthounds are parts of a continuum, and we just happen to have picked out a little part toward the middle of it.

When we classify anything, whether as a zoologist or a secretary, we have to create pigeon holes. We often have to arbitrarily break up a continuous range of things into discrete classes. In creating an artificial system of breeds, what we end up doing is breaking up the continuum. We say, 'this Saluki looks like an Azawakh, so it's not a good Saluki' or 'this Azawakh looks like a Saluki, so it's not a good Azawakh,' and we are careful to breed for type, and therefore eliminate dogs that fall between our artificial categories. Actually, there is everything in between, and we could call all these breeds the same thing if we wanted to, but people who play the dog show game like to have many breeds. I have no desire to criticize that.

Dogs are a very plastic species genetically, so you can make just about anything you want out of them, as you can see by going to an all-breed show. Salukis, like many other breeds, were originally bred for function. The best coursing or hunting dog, for the ground and quarry where it lived, was the one that was bred from. That makes sense. But then a standard was written describing the appearance of the functional

breed, and implying that its appearance was the cause of the function. Wrong! The function led to the appearance.

If we want to try to preserve the abilities for which a breed was originally created, we cannot do it by just looking at the dog, because what it looks like doesn't tell us what it can do. People who have coursed dogs for any length of time learn that all their preconceived correlations between form and function have a lot of exceptions. After a while, they come down to the knowledge that just about any dog might be a good one, and they can't tell until they run it and see. So people who are breeding dogs that look like Salukis aren't necessarily breeding functional Salukis.

The working definition of a Saluki that I'll start with is: a dog that looks like a Saluki. My major professor at the University of Florida once wrote a rather fanciful key to the fishes of Florida to impress his future wife. A key is a set of branching either/or questions designed to help identify something. It might say 'Nine or more dorsal spines; or fewer than nine dorsal spines,' and depending on which is correct it directs you to the next dichotomy. When he came to identifying a catfish with his key, he put in the statement 'any fool knows a catfish.'

Well, any fool knows a Saluki - you can look at a dog and see it's a Saluki, right?

Once upon a time I went to California to give a lecture at UCLA. I got there a bit early, so I went out to Venice Beach. While on the beach I saw a Saluki. This was back in the days when there were fewer registered Salukis in the US than there are at this show today, and I thought I was familiar with nearly all of them. I looked at this Saluki and saw, for sure, that it was not of any breeding I knew. It was a beautiful glossy dark red with a lot of feathering and a strange looking head with much more stop than I'd seen before. I followed it around for half an hour looking for the person to whom it was attached. Finally, I found the person and asked, 'What is the breeding of your dog?' He replied, 'The father is an Afghan and the mother is an Irish Setter.' If he had wanted to get an ILP on that dog as a Saluki, he could have.

So, I must add that not only is a Saluki a dog that looks like a Saluki, but also a dog that works like a Saluki. In the middle east. Saluki just means 'coursing dog' or 'sighthound.' There are Salukis that are sprinters, like Greyhounds, and there are Salukis that are marathon runners. The crusaders brought 'Greyhounds' back from that area: they brought Salukis back and made them into what we now call Greyhounds, by breeding them to course the brown hare. When, hundreds of years later, these Greyhounds were brought to the Middle East, the Arabs called them English Salukis. We don't want to make our Salukis into Greyhounds, so we say the Saluki is a distance runner. I'll modify my working definition of a Saluki to read: 'a dog that looks like a Saluki and can run two miles in under four minutes.' This is fairly easy for most well-conditioned Salukis, but something most other present-day sighthounds cannot do.

There are many variations in what Salukis can do, or what one wants them to do, depending on the ground they are running on and the quarry they are coursing. The nature of the ground a Saluki runs over determines what sort of Saluki gets to the quarry the most quickly. On smooth ground some dogs can run faster; on rough ground other dogs will outrun the ones that will beat them on smooth ground. A long time ago, we had a little red bitch who didn't do very well in open field competition at Merced, so she usually got left home. We used to take her to an area of soft sand dunes closer to home to run hares. She would run with Cirrus, who was high-scoring Saluki at Merced, and she would beat him in the dunes; but competitive coursing was not done on sand, so she didn't do well at it.



Windsswift Aqil Bayt Shahin, CC, CM

Cirrus, whom we ran for the Alexanders, and our own Impulse were extremely successful coursing dogs in Merced, and ran up tremendous records. One of the reasons they did was that in the days they were competing there, most of the courses were run in open pastures with little cover and rather hard ground. They could really stretch out and run fast, with a long stride - something they were exceptionally good at. If we had been running on rough ground, like plough, or in heavy brush, they might not have won. We just happened to be using venues that were favorable to Salukis of their type. Impulse was long coupled, over 50 lbs. and over 26 inches — which is very big for a coursing Saluki bitch. Impulse's mother, Taffy, was much shorter coupled and tiny — she was about 24½ inches and 30 lbs. When they chased a hare on open ground or on a road, Impulse would leave Taffy far behind; when they ran on rough plough, Impulse didn't stand a chance against her. Taffy's short stride gave her more agility on the irregular surface.

NOFCA once scheduled a mixed hunt in the desert (in a mixed hunt all the sighthound breeds compete against each other). This desert was flat ground of relatively soft sand with bushes about six feet high spaced about 50 feet apart. On the drive out we were speculating about which dogs would win. I thought the Whippets would win because they were light and wouldn't sink into the sand. Other people thought the Salukis

would win because they were bred to run in the desert. The dogs that won were the Greyhounds, because they were the only ones that could run fast enough to stay close enough to the hares to follow them through the bushes. So theory is OK, but it is usually wrong.

The quarry also dictates the type of Saluki you need. If you are coursing donkeys (which used to be done), Oryx, or other large antelope, you need quite a different dog than if you are coursing hares. Theoretically, if you want to build a hound with which to course gazelle, and also build a hound to course hares, you are going to end up with two quite different hounds. When Salukis chase gazelles they run them down by exhausting them. There is no Saluki, in this country anyway, that can run anywhere near as fast as a gazelle. The Saluki can't just outsprint a gazelle as a cheetah does, but must somehow keep it in sight and

exhaust it. For this, the Saluki needs a very efficient gait. It doesn't have to be a sprinter; it doesn't need to be able to turn in its own length at speed; it only has to be a good distance runner. If you want a Saluki for hares, you want an agile sprinter - a hound that can get up to the hare fast, with a long neck to reach out and catch it when it tries to escape by turning. Those are two very different looking dogs. If you look at the Salukis that have been imported from the Middle East you will see both of those types. That's why both of those types are there.

In wild animals, you can see specialization for function that has evolved without regard for appearance. People select dogs to be dual-purpose - they just can't help it. The Arabs have selected Salukis not only to be the best dogs for coursing and catching things, but also to be pretty. Nature doesn't work that way because nature doesn't care about pretty. If an animal comes out pretty, that just happens. To see a naturally evolved animal that is an agile sprinter, like a Saluki bred to course hares, look at the cheetah. I like to think of the cheetah as God's Greyhound. The cheetah can do many things better than any coursing dog can do them. The conformation of a cheetah may tell you something about what our Salukis should be like if we breed them to course hares. Cheetahs are interesting in that not too long ago the world population of them was reduced to a very small number, so genetically they are all practically clones. They are about the most line-bred mammal in the world, aside from what has been bred by man. It pleases me to think that God got what He wanted and linebred it.

The predator that most closely resembles the Saluki in the natural world is the African hunting dog. Their conformation is that of a moderate Saluki. Everything about them is moderate. They run about as fast as a Saluki, if they want to, and they have great endurance. They are a little different from Salukis because they don't run hares; they run in packs and take down animals that weigh ten times what they do. They are what our hounds would be like if we bred them solely for coursing large, fast ungulates.

What we have done with the coursing Saluki in the west is to make it into a middle-distance runner. If you want a long-distance runner, you get something like an American Foxhound — it can't go as fast as a Saluki, but it can go farther. We want a Saluki to be able to run about two miles, as that is how long it takes to wear down a hare. This they can do. If we were coursing antelope, we would want a Saluki with even more endurance, but it would be slower. The difference between Salukis and Greyhounds is that the Greyhounds are faster than most hares, and the Salukis are not - the Saluki wears the hare out; the Greyhound sprints and catches it quickly. If the hare is not killed by a Greyhound in the first mile or so, it usually escapes. Salukis often don't cause the hare much worry until that point. This is a recent development, as the Greyhounds in England, before the land was enclosed, coursed hares the way our Salukis can, and maybe better.

There is an account, by Ernest Thompson Seton, about a Greyhound in California during the gold rush days which could regularly catch pronghorn antelope. It took about ten minutes to run one down. I've never seen a modern Greyhound that could do anything like that, but some Salukis can.

As far as the speed of the Saluki goes, Charles Alexander built a d mile track in northern Washington on which he would drag a lure made out of fur with his motorcycle. We timed all the Salukis we could get to run on the track, and they all ran very close to the same speed. The fastest Saluki could run about 33 mph, while the slowest ran about 30 mph, with most of them running 31 to 32 mph. In coursing, it doesn't take much difference to win. A dog that is 1% faster; say it is going 31.3 mph instead of 31 mph, will be 1% ahead in 200 yards — that's 2 yards; that's more than a body length. The Saluki, as we are breeding it now, is a middle distance runner rather than a marathoner or sprinter. That is its distinction from other sighthounds. The Greyhounds that we ran on the track usually couldn't make it around twice without getting into a bit of trouble, although most were significantly faster than the Salukis for one lap. I had a Saluki from Iraq at that time who would run laps around the track, and his fourth lap was the same speed

as his first. One of the reasons that Cirrus did so well on the coursing field was because he could run the second and third lap faster than any of the other Salukis. If we had been running in a place where sprinting was important, though, two other Salukis which we had would have beaten him; they could out-sprint him for the first ¼ mile every time.

The main thing that I want to tell you about Saluki structure, based on my experience in the coursing field, is that visible, palpable aspects of conformation don't mean as much as most people think they do. You can have apparently malformed, unsound looking dogs that you would swear couldn't run perform brilliantly. We once had a noted all-rounder dog show judge, in his critique of Cirrus, say 'this dog could never run.' Someone came out with two Salukis with paper feet (feet that are absolutely flat on the ground, the toes are splayed with no arch and the nails don't even touch the ground), which is a severe fault. But, those dogs were quite competitive and never hurt their feet where we were running. I never would have guessed that, but that's the way it goes. Theoretically, one would assume that a large Saluki would be faster than a small one, but of the Salukis we observed coursing in England, the fastest appeared to be a bitch which I guess stood about 23 inches. When we started breeding Salukis I made a study of all the running dogs I could find. One of the things I found was that closed-park coursing Greyhounds have absolutely upright shoulders - the most upright shoulders you ever saw, and are very straight in the rear as well. These dogs have to be able to run 100 — 200 yards fast. That's the whole thing they are bred for, to get to the hare fast, and first. There is no compromise in their breeding because there is a lot of prize money at stake. So, I thought in order to run fast, upright shoulders must be necessary. I would have told you that three or four years ago. But since then, I have seen a number of Salukis that are over-angulated in front and can run fast. I've seen some that are over-angulated in the rear — the top scoring Saluki of two years ago is one - that can certainly run fast enough to win. There is very little you can look at that will tell you whether or not a Saluki can run well. I still look at dogs and say 'That dog looks like it can run,' because it looks like a number of other dogs I've seen who could, but I know that maybe it can't.



Bayt Shahin Impulse CC CM (Am Can Ch Srinagar Cirrus al Talat CC CM ex Windswift Afri Bayt Shahin CC CM). Her matchless performances in the coursing field during the late 70s are made more vivid in memory by her shining whiteness. Fast, powerful and fearless; even today to "run like Impulse" is the highest praise a new competitor can hope to hear.

This leads to another major idea I'd like you to remember when you leave here today: *breeding to the standard will not preserve function*. All it can preserve is appearance. That is rather obvious when you stop and think about it, because the qualities that make the dog good at its job are by and large not those

described in the standard. Most breed standards were drawn up from dogs that were bred for function. What people did, and this is true for other breeds as well as sighthounds, was to obtain dogs from people who had bred them to do some particular thing. They looked at them and said 'This is what they should look like if they perform this function,' and drew up a standard accordingly; sometimes very precise, sometimes not. Then they bred dogs to look like those which did that thing, instead of breeding them to do it. That's fine if all they wanted was dogs with that look. But, if they expect those dogs to do what resulted in that look they are going to be disappointed.

Now I'm going to go over the breed standard and discuss it from the viewpoint of function, insofar as I can. Most of what I'm going to tell you is theory or opinion, speculation, conjecture, because tests have not been done. Please bear in mind that what I say isn't necessarily true, it is just what I think.

Head long and narrow, skull moderately wide between the ears, not domed, stop not pronounced, the whole showing great quality. Nose black or liver.

I don't know what great quality is, so I won't talk about that. It's a bit unfortunate that it says long and narrow because that makes some breeders think the longer and narrower the better, and we get some hideous heads in the show ring. If a Saluki is meant to catch hares, it needs a relatively long muzzle because a dog catches things with its mouth. But not too long. If it gets too long the structure weighs too much and slows the dog down. The Saluki doesn't need a very strong jaw because hares are not very big, and gazelles are too exhausted, by the time they are caught, to put up much of a struggle. It doesn't need very large teeth, like an Afghan has, because the smaller ones work just fine.

You could say that a narrow head has less wind resistance. For a Saluki running at better than 30 mph a difference of 1/2 inch in the width of the head might make a difference of about 1 foot per hour in speed. The size of the head is a compromise between what is best for speed and agility (small head) and for strength to subdue the quarry (large head). For catching hares a Saluki doesn't need a large head; a small one will do and is less weight to carry - look at the heads on Greyhounds compared to the size of the dog. If it is meant to catch something like a wild donkey or Oryx it should have a fairly big head with strength to the jaw. There are different types depending on the intended quarry. I course hares, and I prefer small heads, so our Salukis all have them. I think that small heads look good, but perhaps that's because I'm besotted with cheetahs.

The standard says nothing whatsoever about the most important aspect of the head: what's inside it. When we first went coursing in Merced, the dominant Saluki was a Billa de Esta dog, named Lance. The way the judging was done in those days tended to reward a dog for hunting rather than coursing. The reason Lance was such a great hunting dog was that he knew hares — he acted as though he could read their minds. The hounds would be slipped and off they would go. Off Lance would go in a direction 90 degrees from that taken by the hare — and the hare would come to him — *always!* Many Salukis, particularly those that have run the lure, will hedge (run to one side of their quarry, rather than at it). Some of the coursing Salukis will hedge, taking a chance that they know which way the hare will turn. Some of the good hunting Salukis can identify a place where the hare might escape, such as some brush or a fence, so they hedge and give away a little ground to keep the hare from going that way and getting to the cover. I never saw Lance make a mistake. He would go to where the hare was going to go. Lance loved to course, and loved to run hares. He didn't particularly want to kill them. When he caught up to the hare he would run alongside and look at it, occasionally looking back over his shoulder to see if the other hounds were catching up. If he saw them catching up he would kill the hare. He had the best coursing record of his time — because of what was in his head, not because of his athleticism, as there were many Salukis that could run faster and turn better than he could.

One of our bitches, Manarah Zubediya, learned where the hares in a particular field usually ran when coursed. If she was slipped on a hare with other Salukis, she would run directly to that place and wait for them to bring the hare to her. If she was slipped alone, she would pursue the hare in the normal way.

We had another bitch, Windswift Aqil, whom we retired from competitive coursing when she was about five years old because she would start a course with the other dogs and just follow them if they were doing good work. If they were in danger of losing the hare, she would go past and catch it, but if they were working it, she'd wait for them to tire it, get in a little closer, and when they had it turning she would dash past them and kill it. That is called running cunning, which is a serious fault for a competitive coursing dog. In coursing we are trying to assess the athletic ability of the hound, not how smart it is. You don't want a particularly intelligent Saluki for competitive coursing; you do want a smart one for hunting.

When she was about 6 years old, we took Aqil to a lure trial. She had never seen a lure before. The first time she ran it, she did so honestly and rather well. The lure operator encouraged us to enter her because he thought she could win. We ran her a second time and could see she had her head up looking for the next pulley, and ran to it, anticipating that the lure was going there. The third time she just walked over to where the lure was going to come. She didn't have a good head as a lure chasing dog. There are some Salukis who are just as smart as she, but understand the game of lure chasing and will follow the lure very well. She didn't see it that way.

Some dogs have a lot of what people call desire, and some dogs don't. Some will give 110% to try to get to the hare — they go full out. You don't see this so much with lure coursing as you do in the open field. Some of the dogs who are winning now are like that. They have a great deal of desire and go so hard that they beat dogs who could beat them if they tried harder. Neither Cirrus nor Impulse usually ran as hard as they could. They might have done even better if they had tried harder. I saw Impulse go full tilt a couple of times and I just stood there with my mouth hanging open, but usually she worked only as hard as she had to. That's something you cannot tell by just looking at a dog in a show ring — no way. One of our Salukis was extremely fast off the line. If the course went for a quarter mile he would win; if it went much farther, he would get passed by the other dogs because he tried too hard and wore himself out. To me this showed lack of type. Perhaps he had too much desire.



*Windswift Afri Bayt Shahin (Taffy) and Windswift Aqil.
Taffy was the dam of Impulse.*

One must be careful not to leave a racing Greyhound unsupervised at a training facility; it will go to the training track and run laps to the point of dangerous exhaustion. Of course, such hounds have been rigorously selected for wanting to run as fast as they can on tracks.

I don't think the quarry cares about how much stop the Saluki has, or what color its nose is.

Ears long and covered with long, silky hair hanging close to the skull and mobile.

The standard doesn't say anything about whether or not the Saluki is deaf. That's important when you use your voice or a whistle to direct your hound in the field.

There are fashions in showing. There are things that are not in the standard that judges think are important and they reward or penalize dogs accordingly. The standard doesn't say anything about earset or parallel planes. I personally like high earset and parallel planes. That looks pretty to me, but the standard doesn't say anything about it. It's just a fashion. There are Salukis in the middle east with Borzoi heads; some are down-faced or dish-faced, and you can be sure that when they run game they do it well, because that was what their breeders cared about. The shape of their heads doesn't have much to do with it. A great deal of the selection we do is based on aesthetics. I very much doubt that earset is of much importance in running down a gazelle. There may be a small advantage to a Saluki with cropped ears — a bit less drag and they pick up fewer burs.

Teeth strong and level.

You don't need strong, level teeth to catch things. An extreme overshot or undershot bite can still catch a hare. The only function that is involved here is the eating of the quarry after it is caught.

Neck long, supple and well muscled.

A slow motion movie of a Saluki catching a hare will show that sometimes he dives straight at it and sometimes he dives at it and the hare turns and he turns his head to the side to grab it. That's five pounds to hold on to while tumbling at 30 mph. A strong, well-muscled neck is necessary so as not to break, and it's long and supple to be able to reach. Other breeds can reach to the side better than Salukis, Borzoi for instance; they have to because they can't turn as well as a Saluki. However, too long a neck puts a hound out of balance and slows it down. Some show breeders have obviously gone too far.

Chest deep and moderately narrow.

Depth of chest has very little to do with endurance. I have seen Salukis that are shaped like pipes and can run farther than Salukis that have great deep chests. On the other hand, one of my favorite Salukis has a chest that is really too deep. It comes down way below the elbows, and she has extreme tuck up to go with it. She can run very well, though, so having a deep chest doesn't seem to be a handicap. People who say they want room for heart and lungs are over-simplifying things to the point of absurdity. There was a study of lung volume in animals. They took mice, elephants, and everything in between, and measured the weight of the animal and the volume of its lungs and ran a linear regression and the points were all very close to the line. This means that lung volume is generally independent of body shape. The important thing about the lung is oxygen diffusing capacity: how fast the animal can get oxygen from the air to the

blood stream and to the cells. That has to do with how well the animal ventilates and perfuses its lungs. When it breathes, air goes down into the alveoli. Some of the alveoli are better ventilated than others. Some of them stay shut off, so the blood going through those doesn't get any oxygen. Some of them get too much ventilation, and the blood gets saturated with oxygen before it's halfway past them, and that ventilation is wasted. A Saluki needs a lung that works efficiently. The heart should pump just enough blood to work properly with the lungs. These are things that are impossible to consider in the show ring. They must be tested by observation in the field, or in a physiology laboratory. I think Salukis have tremendous aerobic reserve capacity. We've taken them to high altitude where I was puffing and faint after walking slowly uphill a few hundred yards, while they were tearing around chasing marmots and each other and not seeming any more stressed than at sea level.

The heart is different. If you condition a dog the heart will get larger and stronger. Since the Saluki was bred for long-distance running, it has a heart that is considerably larger than that of other dogs to start with, and it can, indeed, get very big. Racing pigeons, which are another example of an animal that has been bred for extreme aerobic capacity, have a heart weight that is over three times the weight of a street pigeon's heart. That large heart beats more slowly. A Saluki, particularly when it is in good condition, has a very low heart rate because each beat pumps so much blood. It is the same with human distance runners. The Saluki comes this way genetically, and then develops more through conditioning. Apparently there is always enough room for the heart, regardless of the shape of the chest.

Barrel chests are bad. A dog in a full gallop brings its hind legs far forward, and the knees come up alongside the chest. If the chest is too wide the knees hit it. Even if they don't hit the chest, they have to move farther to the side, which causes wind resistance, which is inefficient. There is a condition in racing Greyhounds called 'track leg' in which the knees get very sore from hitting the chest. You want a relatively narrow chest. I have seen Salukis with wide chests, and narrow chests, that run well, so what I have just been telling you is theory, and what practice says is that it doesn't seem to make much difference.

One of the better open field coursing Salukis years ago was a medium-sized dog with a narrow, absolutely slab sided chest. You could look at his sides and they formed parallel planes. That dog did not do well on a short course, but if you saw him follow a hare and disappear down a road a mile away you knew he would come back with the hare. And he almost always did. He would lose the course, though, because the judge had stopped judging when the dog was too far away to see. I've known some very small-chested dogs that had outstanding endurance.

I like tuck up. I think dogs with deep chests and high tucks look pretty. African hunting dogs don't have much tuck, yet they can do everything a Saluki can do about as well, so it doesn't seem to make any difference. I think the Arabs bred their Salukis with tuck up because they thought it was pretty, too.

Forequarters. Shoulders sloping and set well back, well muscled without being coarse.

Dogs who have shoulders set very far forward seem to turn better than those with shoulders set far back. Dogs with upright shoulders can usually run faster than those with sloping shoulders; at a gallop they appear to have more reach than do those with more shoulder angulation.

There are no bone-to-bone attachments of the shoulder girdle to the rest of the skeleton. It's only attached by ligaments and muscles, so it can be set almost anywhere. There is usually some mention made that loose shoulders are bad. Have you ever seen a cheetah walking? I don't know if such shoulder mobility interferes with the ability of a dog to run, but it probably serves a useful purpose in the cheetah. Maybe it's

like a long-travel suspension on an off-road motorcycle. Perhaps the energy it takes to stabilize such loose shoulders is detrimental to endurance.

Forelegs straight and long from the elbow to the knee.



Am Can Ch Srinagar Cirrus Al Talat CC CM, (Ch Srinagar Surya ex Ch Srinagar Vara Hubini al Talat) 1969-81, with his first hare. Bred by Jayne Harpling and Srinagar kennels, owned by Charles and Marian Alexander. Natural speed and agility, and incredible stamina enabled him to dominate Californian coursing for many seasons during the mid 70s. Pictured with Dan Belkin.

The important thing about the forelegs is that they don't break. Back in the early 70s there was a litter of Salukis in California that I remember for having the most beautiful eyes I've ever seen. Several of them went to people who ran them. Four of them broke their forelegs. One bitch broke hers twice while running on a sandy beach. She had what appeared to be dense, bladed bone, but it wasn't strong. That is something that is hard to evaluate in a show ring. When bone is stressed its internal structure changes, that is, it gets stronger. Dogs which are worked have stronger bones. If you run a dog that has spent its life on the couch in a rough field, it is more likely to get broken than a conditioned dog which has been pounding on its legs. Those bones will get stronger. However, there is also a genetic component; some dogs have stronger bones to start with.

The femur of a chicken is easy to break, about like a pencil, but if you take the same bone from a red-tailed hawk you will find that much more force is needed to break it. Yet those bones look and weigh about the same; one is just much stronger structurally than the other. The same thing is probably true of our dogs. Some of them have strong bones that are not apt to break and some of them don't. You can't tell by looking at them.

A dog that is twice as tall as another will weigh eight times as much. This means its bones must be eight times as strong. The legs have to be bigger and heavier to support that weight. The power that it takes to swing those legs back and forth when the dog is running has to be eight times as great, which means it needs more muscle mass, which makes it even heavier. That limits size, and that's why we don't have huge Salukis. That's why the little ones are less liable to be injured than the big ones. If you are interested in coursing per se, you should get Greyhounds. And you should be ready to see them get hurt. If you are interested in coursing Salukis and don't want yours to be injured, you should get little ones. A small, light, well conditioned Saluki will be less likely to injure itself in the field.

Hindquarters strong, hipbones set well apart and stifle moderately bent, hocks low to the ground, showing galloping and jumping power.

Most Arab standards call for 4 or 5 fingers width between the hipbones. I always thought that meant something. After 25 years of observing coursing Salukis, I can't say that I've seen any difference in speed or endurance between wide — and narrow-hipped ones. That sounds almost like sacrilege, but that's the way it seems to be.

A mistake has crept into dog standards. The people who originally wrote the standard were a small group who didn't know any more about dogs than we do. They needed a form to follow so they seem to have looked at horse standards. Horses are not dogs. Horses are big animals with different needs and structures. The standards written for horses say hocks well let down. I'm told that doesn't mean close to the ground. It means that the ratio of the length of the calcaneum (heel bone), from the attachment of the Achilles tendon to the hock joint, to the length of the tarsus and metatarsus, from the hock joint to the foot, is relatively great. In other words there is a relative mechanical advantage for force instead of for speed. Of course, if you look at the hind leg of a horse you will see that the relative length of the metatarsal segment is much greater than is the case with that of a dog. So when the horse people say 'hocks well let down' they are taking a system designed for speed and sacrificing some of that speed for a bit more power.

Look at the hind leg of an impala. Its hocks are certainly not close to the ground! It is noted for how well it can gallop and jump. Look at the hind leg of a bear. The hock is as close to the ground as you can get. Bears do not jump well. The statement 'hocks close to the ground' in the standard is a mistake.

In fact, the relative lengths of hind leg segments do not vary much in dogs. Even in breeds bred for pulling power, such as Huskies, the proportions are not much different than in sighthounds. While we were in England, I measured all the limb segment lengths of about 50 Salukis, and the leg proportions were all nearly exactly the same. None of them had hocks proportionately any higher or lower than any of the others, within 2% or 3%. The only Salukis whose hocks were closer to the ground were the ones that were sitting.

In running animals, in general, the main work is accelerating the legs back and forth. For efficiency in doing that, the distal parts of the legs should be as light as possible. The heavier they get, the more force it takes to move them back and forth. Antelope have delicate looking slender, lower legs, with the muscle mass all bunched at the top. Notice that dogs are not as extreme, and neither is a cheetah. That may be because, since they are chasing something to try to catch it, as opposed to running away from it, they need the extra strength and power to turn and accelerate.



Laura and Dan with, left to right: Srinagar Chichak (Afghan), Manarah Zubediya, Bayt Shahin Bonne Chance, Bayt Shahin Saadi Indiya, Windswift Aqil, Bayt Shahin Impulse and Windswift Afri. Summer 1976.

Angulation, both front and rear, is a matter of posture, not structure. Any of you who have had Salukis for a long time know that they become more angulated in old age. The way they stand doesn't mean much; what's important is how the legs flex and extend in use. I have made a generalization, that I will probably decide is not a good one in another five years, that a lot of angulation is not good for running fast but is good for endurance. Perhaps that is because a hound with a straight front and rear can sprint and tends to do so, but can't go as far because it uses up energy more quickly or becomes overheated.

The croup angle doesn't seem to have much to do with how fast a dog runs either. If you had asked me ten years ago, I would have told you that dogs with flat croups generally run faster than dogs with steep croups, but since then I've seen a number of exceptions. It doesn't seem to mean much, but I think a croup angle of about 30 degrees looks best and doesn't seem to hurt.

Loin and back. Back fairly broad, muscles slightly arched over loin.

The length of the loin, and the length of the back in general, will influence stride length. Running on smooth ground, without a lot of turning, a long dog will usually be faster than a short one. Two things determine speed: stride length and frequency of stride. That is obvious. A dog with a longer back will have a longer stride. But, it is also in the air for a greater distance between strides. If you want to turn and are in the air, as football players attempting flying tackles have found out, you can't do it until you come down. So hounds that run down fast prey in open places tend to be longer than ones which run in rough terrain and chase prey that is agile and turns a lot. Cheetahs have long backs. The sort of back your Saluki has depends on what you want it to do.

Feet of moderate length, toes long and well arched, not splayed out, but at the same time not cat-footed; the whole being strong and supple and well feathered between the toes.

The best form for the foot depends on what sort of ground the Saluki is expected to run on. If a dog with very long hare feet and long toes, even if they are arched, is running on rough ground, it will be apt to

break or dislocate them. There is too much leverage on them. Long feet are desirable for running on sand or smooth ground because the greater length of the distal leg segment will contribute to speed. Salukis that run on rough, rocky ground should be fairly cat-footed and Salukis that run on loose sand should have a long, hare foot. My personal preference is for a longer hind foot and shorter toes in the front (hare footed but not exaggerated) because the hind feet don't seem to be as prone to injury as the front ones. As to feathering between the toes: it may be of some use for protecting the feet when running on rocks or sand, but if the Salukis do much running most of it is soon worn away. If a Saluki is running on sticky plough or the like, the feathering is a great detriment because it collects mud and is like running in weighted boots.

Arched toes are a good, useful thing. If the claws bear on the ground you don't have to trim them all the time. They stay shorter and put less leverage on the joints, which means fewer dislocated toes.

Some Salukis have feet that turn out at a slight, or more than slight angle. As far as I can tell it doesn't make much difference in their running. I have the impression that feet that turn out make for greater agility than do those that point straight ahead. Dogs with feet that turn in seem to be more prone to injury. Of course, a dog can place its foot any way it wants, so one should watch them when they are running to see how the feet are oriented. I haven't done that.



*Cornering hard ...
Bayt Shahin Folly, CC*

Tough pads are valuable on the coursing field. Laura's favorite, Zubediya, had notably durable pads. During the fall, when the ground was hard and abrasive, the other Salukis would tear their pads off and have to rest for two weeks to heal. Bediya never hurt her pads; she had very tough feet. She would run in a course with other Salukis, run the same speed over the same ground, turn hard, and not damage her pads, while the others tore theirs. You couldn't tell it by feeling her pads or looking at them; the only way

we knew that was by running her.

Tail long, set on low and carried naturally in a curve, well feathered on the underside with long, silky hair, not bushy.

Salukis seem to use the tail for balance. When they turn you see it move to one side; when they stop it comes up. The tail also gives them a certain amount of wind resistance because it has all that feathering on it, and it weighs something. If you wanted a dog to run fast in a straight line you would dock the tail. Some of the Salukis who come from the Middle East have very slender tails and some have heavy, large-boned ones — there's a considerable difference in weight. I haven't seen enough of them to guess at the functional significance of that. If you have a Saluki that is going to chase gazelle, it doesn't need a tail. If you have a Saluki meant to chase hares, it does.

Coat smooth and of a soft, silky texture, slight feather on the legs, feather at the back of the thighs and sometimes with slight woolly feather on the thigh and shoulder.

The main thing is that you don't want a woolly undercoat that will insulate the dog. A primary problem coursing dogs have is overheating in warm places. Most of the dogs that you see pulling up are not doing so just because they are tired, they are doing so because they are going to die of heat stroke if they don't stop. Their temperature is going up. Dogs get rid of heat largely through respiration, but also from the skin. When they are running, extra blood flow is directed to the muscles, and some is also shunted to the skin to get rid of heat. This raises skin temperature so that heat can be lost by radiation and convection. Sighthounds, in general, and particularly Salukis, have very thin skin, so the heat can get from the muscles out. The important thing about the skin is that it be a good heat transfer agent. If you were breeding Salukis with this in mind, you would look at the skin and see how well vascularized it was. Nobody, including me, has done that. It has been done in horses. Of course, horses have a greater problem with overheating than Salukis because of their unfavorable surface-volume ratio. A horse that is twice as tall has four times the surface area, but it has eight times the mass producing heat, so it's twice as hard for it to rid itself of heat. That same relationship holds for dogs — big dogs get overheated more easily than little ones. If you are running Salukis in the desert in the daytime you would want them to be small. The big ones will die. In mixed hunts in Merced, I have seen several Greyhounds die of heat stroke; very few Salukis do. The reason for that is, with analogy to a car, a Greyhound has a much bigger engine than a Saluki, but the same cooling system. It goes faster but doesn't go as far because it overheats. Salukis can keep going because they are not producing heat quite as fast and they can get rid of it.

Colors: White, cream, fawn, golden, red, grizzle, and tan tricolor (white, black and tan) and black and tan.



Dan with Zubediya and Cirrus

I once took a fawn Saluki and a black-and-white parti Saluki to the desert. Off they went after a hare. When they got about 400 yards away I couldn't see the fawn one any more. When they got about a mile away I could still see the black-and-white parti. On the other hand, if they were stalking a hare, the fawn would have had a better chance to succeed if the hare was looking. These are two sorts of function color might have. I guess it depends on whether it's more important that your Saluki catch the hare or that you get to see it catch the hare.

Question from audience: Could color be important in heat tolerance?

About half the radiant energy input is in the visible range, the other half infrared. White reflects visible light best, but what we perceive as shiny reflects infrared. If I were trying to build a dog that would not take on heat from the sun, I might be tempted to build a shiny white dog. On the other hand, the coat has to radiate heat that is coming from inside, so on that basis I would want a matte black dog. The dogs who run in the hot places of Saudi Arabia are mostly a light fawn color. I don't know if that is related or not.

General appearance: The whole appearance of this breed should give an impression of grace and symmetry and of great speed and endurance coupled with strength and activity to enable it to kill gazelle or other quarry over deep sand or rocky mountains. The expression should be dignified and gentle with deep, faithful, far-seeing eyes. Dogs should average in height from 23 to 28 inches and bitches may be considerably smaller, this being very typical of the breed.

I don't know how a Saluki can give the impression called for to all onlookers — it depends on what you have seen before and with what you associate it. In deep sand you need a completely different dog than you do for rocky mountains, so that makes it a little difficult to have both. Deep, faithful eyes sounds too subjective to have much meaning to me. I guess far-seeing means not nearsighted. I've never seen a judge test this. Height is important if you are running in desert with low bushes. Taller dogs, which can see over the bushes, have a real advantage in keeping the quarry in sight. The Salukis that course gazelle in Saudi

Arabia are generally very tall, thin, lanky dogs who look something like Azawakhs. Part of that may be just to get their head up to see where their quarry is going. On the other hand, standing way up off the ground makes it harder to turn. The center of gravity should be lower to be able to turn. A small dog is usually better if agility is a factor, when the hounds have overtaken their quarry and it is trying to escape by making rapid turns. The tall dogs, in order to swing those long legs have to be heavier and are more likely to get hurt, and as I just said, to overheat.

The smooth variety: In this variety the points should be the same with the exception of the coat which has no feathering.

The smooth coat is convenient in that smooths don't pick up trash, such as burs, foxtails, etc. as easily as feathered Salukis do. I have the impression that there is more to the structural difference caused by the smooth and feathered alleles than simply coat type, but I haven't analyzed that impression.

There's something else I wanted to mention, another perfectly obvious 'any idiot can see it' thing. The working gait of a Saluki is the double suspension gallop. We show them in the ring at a trot because we can't run fast enough to get them to gallop at their working speed. Free coursing Salukis in the field trot a little, but slowly and without much extension. They are not going much faster than 3 or 4 mph; most of them walk. If you are taking them very far, on a camel or in a car, you don't have them run alongside, you put them inside. So, we shouldn't be too concerned about the Saluki trot. If we breed Salukis to trot like German Shepherds, they're probably not going to be able to run as well. Of course, we don't know that. I was recently told of a bitch who will not break her trot at 16 mph. We don't know if that handicaps the bitch when running or not, because nobody has tested her. It would be interesting to do so. One of today's best coursing Salukis breaks from a trot to a gallop at about 5 mph. It may be that she just hasn't had that much practice trotting. I think that's probably it; she feels more comfortable galloping. If you want a functional Saluki, that is, for coursing or hunting, you needn't pay much attention to the trot. The original Salukis that came here had a trot you've all heard described, and show people get all excited about it. The way Salukis characteristically trot, with that light, floating gait bringing the front legs up, looks pretty. I like it, and consider it an important aspect of Saluki type, but I don't think it has much to do with whether or not they can catch hares.

I was originally attracted to Salukis because I had heard about them through falconry. I thought they could run fast and it would be fun to watch them catch things. I was a hunter more than a dog person. The first time one of my Salukis actually caught a hare I was ecstatic; it kept me happy for over two weeks. Now I'm more or less used to it. I had read many accounts about how fast Salukis could run. The Guinness Book of Records said that the Saluki was the fastest dog (it has since recanted). Several of Esther Knapp's columns in the American Kennel Gazette told about Saluki speed. We measured the speeds of about fifty Salukis in this country and the fastest one we could find was Cirrus, whose best effort was ½ mile at 33½ mph. People racing Salukis in Europe (Germany) have reported speeds of 36 mph. But, if you read the literature, you encounter seemingly credible accounts of much higher speeds.

When I visited Esther Knapp in 1969, she told me that Walter Brown had told her that Edward Aldrich used to take his Salukis out on the beach and run them next to his car. Brown said that Aldrich always wanted to get one to go 60 mph, but he never quite did. That was a long time ago. Our Salukis have had a lot of time to degenerate because they haven't been selected for speed. Maybe they used to be able to go 45 mph or 50 mph... who knows?

There's another story that I like from a matter-of-fact British oil geologist who was driving his land rover in Iraq. He told that a Saluki came over a hill, ran a circle around his car, then ran back up over the hill. At

no time was the car going less than 45 mph. Why would he lie?

Part of Esther Knapp's column for June, 1957 is a letter that was written to her by Gwen Angel in England, quoting a letter that Gwen had gotten from a Mr EA Camp in Iraq. He said, 'The run from Beirut to Baghdad we did in two days. It was mostly across desert through Syria, Trans-Jordan and into Iraq. We saw quite a number of Salukis while crossing the desert. Many of them no doubt thought our car rather a strange affair because they chased us for considerable distances, but it certainly proved how fast they can travel. We were moving around 40 mph to 45 mph and they were just running abreast of us without any undue exertion at all.' My subjective and admittedly romantic assessment is that there's about a 5% chance there are Salukis somewhere much faster than any we have here. That's why every time new imports surface I want to see them and try to get to see them run. We donated a trophy to the English Saluki or Gazelle Hound Club to be given to the import who did the best in the coursing field. Maybe they're out there — we just don't know. Salukis are becoming less common in the Middle East. We must hope that the people there, who have sufficient resources to course for sport and breed for speed, remain interested in doing so. The villagers who keep Salukis to put food on the table breed for skill in hunting, not for pure athletic ability. Maybe we've lost the fast Salukis; it's a crying shame if we have.

The last thing I would like to impress on you is that if you don't select for something, you are going to lose it. If you fail to select for visual acuity for a long enough time, your Salukis are not going to be able to see at all. If you only select your Salukis for moving correctly at a trot, eventually you are going to have Salukis that can't gallop well enough to catch anything. Look at show Afghans if you want to see an example of that. That's the way selection works. That's the way genetics works: any characteristic which is not actively selected for will degenerate. It will go away. That's true throughout the animal kingdom and is true for our dogs as well.

Questions and answers

Please note: Many of the questions were not clear on the tape. We have tried to reconstruct them based on the answers.



Windsswift Afri Bayt Shahin, CC, CM (Taffy)

What has been your experience with Salukis imported from the Middle East?

The desert-bred dogs I have seen in the field are not as fast as ours, but - perhaps because they don't run as fast - they have more endurance. I think I mentioned our Iraqi dog earlier, when talking about timing Salukis on the mile track. We could run him around the track six times, and his sixth lap would be nearly as fast as his first. The English and American Salukis could not do that. The penalty paid for having this endurance was that he wasn't as fast as the English and American Salukis. I haven't seen many desert-breds on the coursing field, and I still hope that some will appear that are significantly faster than any of ours.

Do you notice any problems with upright pasterns?

No. A Saluki who stands with its pasterns bent at a slight angle looks racy, but it's just standing there. When the feet hit the ground while the dog is running, even if the pastern is straight or knuckled over, the pastern is going to be bent down to the ground because the leg is going to hit at an angle. If you've seen photos or slow-motion movies of sighthounds running, you'll have noticed that the stop pads go right to the ground. So, the way the dog stands doesn't mean a whole lot functionally at a gallop. It does at a trot. If the dog is trotting, but not reaching very far when it sets its feet down, being knuckled over might cause a little more jarring and if you're riding on the dog you won't get a very smooth ride. I've seen knuckled-over dogs who were very good runners.

When a Saluki is chasing live game, does it carry its head more forward or upright? In lure coursing they often run with their heads up to see where the lure is going.

If the dog is trying to run fast the neck will be forward, not upright - no question - they can't run nearly as fast with it upright. When dogs, Salukis and Greyhounds in particular, are running full out the head and neck will be going up and down, oscillating around a point ahead of the shoulders, counterbalancing the front legs. When the front legs are coming up, the neck is going down. If you watch a cheetah running, the head is absolutely still, like the head of a bird sitting on a limb that is moving. The neck doesn't move at all. Cheetahs have a small head and short neck, which saves weight. The reason dogs have a long neck is because they kill things with their mouths, and have to be able to reach out. Since they have to carry this extra weight, they use it as a counterbalance. Although a cheetah does kill with its mouth, it stops its quarry by hitting it with its foot. So the cheetah doesn't need a long neck, and doesn't use it as balance - a dog uses it for balance.

You referred to a coursing meeting as a hunt. Where did that terminology come from?

Lyle Gillette initiated organized open field coursing in the central valley of California in the early 1960s. The Gillettes were Borzoi breeders, and were doubtless aware of descriptions of Borzoi coursing meetings in Russia, which were called, in translation to English, hunts. Perhaps through ignorance of the venerable traditions of coursing in the British Isles, Lyle invented his own rules and terminology, much of which came from his experience in Beagle field trials. Although the principles of judging have, to some extent, evolved toward conventional ones, much of Lyle's creation remains in use, including such terms as hunt.

I'd like to know what influence eye color has on vision. What color were the eyes of the Saluki you mentioned who could see hares that the others couldn't?

My recollection, which is not good at this time because that was over 20 years ago, is that she was dark eyed. She was a dark grizzle, and they usually have dark eyes. We have coursed notably light-eyed and quite dark-eyed individuals, and I haven't noticed any obvious differences in their visual acuity.

What do you know about missing hip bones?

Some Salukis lose the dorsal part of the ilium, which we call the hip bone. This happens when they are about three months old; the pelvis seems to develop normally until then. The loss can be unilateral or bilateral. It may be the result of trauma, such as bumping against a hard surface, but the tendency for it appears to be inherited. This deformity doesn't seem to hinder Salukis in the show ring; I know of two champions, I think one is a group winner, who suffered from it. Maybe the judges just thought the hip bones were covered with fat. Oddly enough, one of the fastest Salukis on the coursing field had a missing hip. The sartorius and gluteus muscles attach to the ileum, so there must be enough of it left for that. The Salukis I have seen with missing hips never appeared lame. I wouldn't recommend breeding from stock which has demonstrated this trait, since it seems likely that a predisposition to other less functionally benign skeletal problems might go with it.

Do you think a Saluki with excessively upright shoulders or other structural problems is more likely to break down as it gets older?

We've had a number of dogs who have lived 15 years or so, who have coursed almost daily for years, often on hard ground, and none of them have broken down, aside from minor arthritis in old age. Some of them have had upright shoulders, some have had highly-angulated shoulders; it didn't seem to make a

difference Remember that Salukis were, and should be, bred to gallop, not trot Upright shoulders cause more stress in trotting, not galloping. I believe that the forces imposed by large size are a much more influential factor in predisposing dogs to injury than is the minor concussion they receive from trotting on excessively upright forelimbs. Larger, heavier Salukis are more likely to break down than small, light ones.

Haven't you said that coursing Salukis when they are young is bad for them?

The major cause of breakdown in coursing Salukis seems to be running them when they are too young, before the epiphyses of the long bones are fused (about 14 months). It is particularly dangerous to let them run on hard ground. Again and again, I've seen that it's just too difficult for the owner of a particularly promising young hound to be patient and wait until the pup's bones and joints are no longer jelly and can stand the stresses and pounding of hard running. Salukis are not naturally evolved animals that have developed appropriate behavior to safeguard them from this sort of injury. At a year of age, their muscles are too strong for their skeletal system, and they are perfectly willing to damage themselves, unless we prevent them from doing so, particularly if they are relatively large or heavy.

Don't you think that coursing Salukis are more likely to break down than are show or pet Salukis?

I think if you put the same dog in the hands of a coursing person or a show person, it would have about the same chance of breaking down. In the hands of the coursing person it would be worked harder; it would do a whole lot more running during its lifetime and receive much more wear and tear. In the hands of the show person it would be kept fatter and in less good muscular condition and that would make it more liable to be injured.

(Comment from audience)

Speaking of dogs breaking down, in my veterinary practice I have found that as dogs age, those that toe in do break down, they get bad arthritis and degenerative joint disease in the lower carpi and have a great deal of trouble.

You have said that the AKC should allow the registration of Salukis imported from Saudi Arabia and other middle eastern countries. Salukis are supposed to be pure bred. Wouldn't this make them less so?

To a biologist, the idea of dogs being 'pure bred' is absurd. Most dog breeds are as diverse genetically as are full species of other animals. Genetic diversity is beneficial. It contributes to both species and individual adaptability and vigor. The only mammals that approach a genetic uniformity that might qualify them for being called pure bred are certain strains of laboratory mice and rats, and perhaps cheetahs. I believe that Middle Eastern Salukis can contribute valuable traits and abilities to the gene pool of our dogs, and it would be a shame to prevent this.

My Saluki has short toes. Is this good for coursing?

If you are lure coursing short toes are a good thing because lure courses are run mostly on turf (which is a devilish, particularly dangerous surface to run on) and they are less likely to be dislocated or broken. Otherwise, short toes would be better for running on rough, rocky ground and not as good in sand or on

smooth ground.

Ring judges seem to be very concerned about sound trotting. Are there differences in soundness among Salukis at the gallop?

We had one Saluki who was extremely fast, could nearly beat Greyhounds on the run up and would outrun all the great coursing Salukis for the first $\frac{1}{4}$ to $\frac{1}{2}$ mile. If you looked at that Saluki from behind while running, he looked like some sort of vegetable shredding machine. Everything was going every which way. The other dogs would look much more efficient, with their legs going pretty much straight back and forth. In $\frac{1}{2}$ to $\frac{3}{4}$ mile they would pass the vegetable-shredder dog. One theoretical explanation for this might be that his gait was inefficient.

Do you advocate CERF test for eyes? Do you think it is of concern in the breed?

This is a test for defects. It detects physical degeneration. A dog that passes does not necessarily have good vision. I would prefer a functional eye test, such as having your Saluki read a chart. (Laughter.) I wouldn't breed from a dog that fails the CERF test, but just because it passes doesn't mean it can see very well.

My Saluki has been diagnosed as hypothyroid. How would this affect her as a coursing dog?

Hypothyroidism (producing a subnormal level of thyroid hormone) is fairly common in Salukis. It occurs in a number of lines. You see signs of it in lack of hair on the thighs, etc. It is possible that this is a functional adaptation that was bred into these dogs, so that they would not overheat. One of the things that the thyroid hormone does in mammals is to uncouple oxidative metabolism so as to produce heat for thermoregulation. Hypothyroid people have trouble keeping warm, but when they exercise it takes them longer to overheat. If a dog is hypothyroid it may be because it was bred for functioning well in a hot environment. A number of hypothyroid Salukis have done well on the coursing field.

What type of muscles do you prefer?

Flat, rather than bulgy. I have the impression that the flat muscled dogs have more distance and the bulgy muscled dogs have more sprint. Flat muscles look smaller, which would be less weight to carry. It's no big thing; both seem to work well. If you're concerned with type, I think weight-lifter muscles are inappropriate for Salukis. Of course, Saluki muscles, like those of most athletes, should be well defined. Otherwise, the dog appears poorly conditioned or too fat.

You don't think Greyhound-type muscles are a result of conditioning?

No, because we've had littermates who were treated exactly the same, and one would come out with flat muscles; the other with bulgy ones.

What do you call distance? How far would you expect a Saluki to be able to run well, efficiently and quickly?

It depends on your quarry. If you are coursing hares, at least a mile and a half. We have asked those we bred from to be able to go at least two miles, because we think this is an important aspect of Saluki type, distinguishing our breed from other sighthounds. If I were testing to see if they were good Salukis, I'd test them over that distance. It's hard to do. If you try it with a lure machine most get tired of the lure and stop running hard before they get that far. What we did was to set up a measured course on a dirt road and pull a fox tail behind the car. Laura would slip the dog as I drove by at 35 mph and we'd go for two miles.

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Windswift Afri Bayt Shahin, CC, CM (Taffy)