

# Logic of Dachshund Structure



## Functional Design

Badger earths were not air conditioned. As oxygen was reduced by repeated breathing, it became necessary to breathe a larger volume of the depleted air to support maximum exertion. Lungs extend back as far as the soft ribs, which help the diaphragm act as a bellows: the oval cross-section of the chest provide liberal room for the lungs and heart without extending the shoulder structure to excessive width. The longer the rib-cage, the more air could be processed; and a long rib-cage also helps support the long back, resembling in design, box girders under the southern approach to the N.Y., N.H. & H.R.R. Hell Gate bridge.

To move this long body freely through badger setts, it was necessary for the legs to fold to a minimum length. Anyone experimenting with a carpenter's rule can convince himself that three sections of equal length can fold shorter and extend longer than any comparable sections of unequal lengths. In the forequarters, the shoulder blade, upper arm, and forearm (elbow to wrist) do this folding. In the hindquarters, the thigh and shin bones and the 'bone' from hock joint to foot, are so folded in crawling through a burrow or under a bureau. Fully extended at a gallop, these same short Dachshund legs can cover an unexpected amount of ground.

When wild animals digging their tunnels encountered a rock or a large root, they dug around or over it, leaving a constriction. If an eager dachshund forced its chest past such an obstruction and had to back up to get clear, it became important that the breastbone of the after chest have the same gradual sled-runner up-curve as the forechest; like a shoehorn to ease the chest over the obstruction in either direction. A cut-up (chicken-breasted) afterchest could be 'hung' over such an obstacle as though by an anchor fluke. A properly constructed dachshund, with forelegs at the deepest point of the hammock-shaped keel can crawl through a tunnel which just clears its depth from keel to withers, equally able to move its legs ahead or back. Turned-out 'digging' front feet (once said to 'throw dirt to the sides' where there is no room for it in a tunnel) have been replaced by snug arched feet with forward



## Logic of Dachshund Structure, continued



alignment. Too heavy a chest, or too coarse bone are as much of a handicap as underdevelopment. A properly proportioned dachshund suggests the symmetrical build and lithe agility of the middle-weight boxing champion.

A long head provides suitable accommodation for the organs for keen scenting ability; and for strong jaws and teeth of maximum effectiveness, with scissor fit of incisors, interlocking fangs, and shearing capacity of molars. Eyes are protected by a deep setting, and well-developed surrounding bone structure. Ears set on high and well back can be drawn up over the neck out of harm's way, like small braided pigtailed. A neck of good length serves the thrusting and parrying purposes of a fencer's nimble wrist. Even a tail of good size and length, in continuation of the spine, has been used by a hunter's long arm forcibly to rescue many a dachshund from places of great tightness.

Further to adapt it to work in constricted space, a dachshund whose skin was elastic enough to stretch and slip like a loose glove, had an advantage. But as soon as released the skin should snap back to a slick fit, like the modern two-way stretch foundation garment; for a wrinkle of loose skin, by folding over, could (like a clutch) grip a dog in tight quarters. Loose skin around head and throat could be grasped or torn by an adversary with dangerous loss of blood; skin hanging around the ankles, like wrinkled socks, is also undesirable.

To avoid fatigue, straight legs, viewed from front or rear with gait parallel like locomotive side-rods make efficient use of muscular energy. Viewed from the side, front- and hind-leg action suggesting a broad capital 'A', expends this energy on desirable reach and thrust walking or trotting with surprising, apparently effortless speed, and split-second rocketlike 'low gear' getaway. The ninety-degree upper-arm to shoulder-blade angulation (each forty-five degrees from the vertical) provides 'shock-absorber' action, running or jumping. A fair clearance under the breastbone is needed, as under an automobile crankcase, to clear rough ground, or the treads of a staircase. Pawing the air, like the goose-step, under chin or belly, or throwing feet in or out waste energy and are undesirable. So are 'dancing' or 'weaving' gaits, or short stilted steps, or too many other variations from the correct gait above to be pictured. The back should stay level in motion, neither roach, sag or bounce.

*Written by Laurence Alden Horswell in the 1958 edition of "The Pet Dachshund"*