THE BARZONA STORY

The Development of a Breed of Beef Cattle

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Near the center of Arizona, northwest of Phoenix, the country rises from the desert into the rough rugged Bradshaw Mountains. During the late 1800s miners were drawn to the southern Bradshaw mines, and the once famous mining towns of Tip Top and Humbug flourished in the isolated canyons. These towns were abandoned long ago and today very little of them remains. Ranch homesteads were widely scattered throughout this harsh country where fences were few and far between and the livestock ranged over large areas. It was to this area, in the post-depression era of the late 1930s, that Mr. F.N. Bard, an Illinois industrialist, came in search of ranching land.

Men Of Vision Set A Goal

Francis Norwood Bard was born in Ohio, spent his early childhood in Indiana, then Chicago, and graduated from Cornell University with a Mechanical Engineering degree in 1904. For many years he lived on the North Shore of the Chicago area, later making his home in the countryside west of the city, where he had a manufacturing company and agricultural interests. His training as an engineer taught him to search for the reason why in any problem he encountered. He put this trait to use on his farm, where he worked with various types of livestock and crops.

In 1937 he developed an interest in Arizona agriculture, where his first investment was a citrus farm. His interest in ranching began in 1938 when he bought a train load of Mexican steers and ran them on leased desert land in Deer Valley north of Phoenix. He began buying ranch land north of Phoenix in 1939, first acquiring the TP Ranch. He soon added to this by buying adjacent ranches, and by 1942 he had acquired 400 sections of rangeland which came to be known as Bard Ranch.

At the south end of the main ranch, below Lake Pleasant, he had a farm known as the Valley Ranch, which he operated in conjunction with the main ranch.

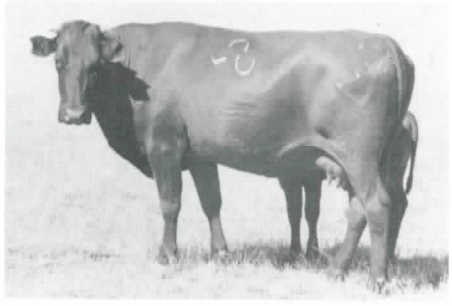
Bard at first maintained the herds of native cattle on the ranch. After watching his operation closely for awhile he determined that the native cattle just were not performing as he felt they should. In 1940 he purchased a load of King Ranch bulls, both Santa Gertrudis and Africanders, to breed to the native cows. In 1942 he bought a herd of purebred, unregistered, mountain-raised Hereford cows and began breeding them to the Africander bulls. He was intrigued with the results but had to wait until the end of World War II before being able to get into a concentrated breeding program.

In 1946 Bard employed Elliott S. (Jack) Humphrey to head his breeding program with these instructions: "I want to find a breed or make a breed of cattle that, with the same number on the same range, will produce more pounds of good saleable beef."

Thus began an association that lasted over 20 years. Humphrey's knowledge of genetics, plus his realistic and practical knowledge of the ranching business, combined with Bard's basic business sense, background in agriculture, and desire to produce beef economically in a tough environment, provided the bedrock for the development of Barzona cattle. Humphrey did the research, kept the records, and made his recommendations and Bard set the policies for their programs, made the final approval of major decisions and provided the financing.

Elliot S. (Jack) Humphrey was born in Saratoga Springs, New York in 1890 and headed west after graduation from high school. He spent several years working on ranches and at other jobs in Wyoming, California, Texas and Arizona, then began work specifically in the training and breeding of animals. Prior to World War I Humphrey was a horse instructor at the Graham School in Kansas City. Following the war he moved east and worked for several years with both horses and dogs, gaining a reputation in his work with Thoroughbreds, Arabians, and endurance rides. He and his family spent six years in Switzerland conducting a breeding program on German Shepherd dogs and in 1933 returned to the United States where Humphrey developed The Seeing Eye Foundation's breeding and training program near Morristown, New Jersey.

He began to feel the pull of genetic research and did some lecturing at Columbia University but the Second World War came along and he had to give up his plans to go into scientific research. After working with the K-9 Corps in the War, the Humphrey's moved to Arizona and in 1946



(Left) A Bard bred Barzona bull.
(Above) Barzona cow with calf showing Bard Kirkland Ranch holding and number brands.

Humphrey began his long association with F.N. Bard.

The Environment Is Studied

Humphrey's task, given to him by Mr. Bard, was "to find a breed that would live, grow, and reproduce well on the Bard Ranch." He started with the premise that cattle and the traits which allow them to survive and produce marketable beef on a regular and profitable basis, must match or be compatible with their environment. Therefore, his first job was to thoroughly research the environment of Bard Ranch; its vegetation, stock water, climatic variations, and actual type and lay of the land. This took about four months as Humphrey traveled over the ranch in a pickup, in a low flying plane, but mostly on horseback, leading a pack horse with his bedroll and food.

What he specifically determined was this: The southern part of the ranch (200 sections), at an elevation of about 1500 feet, had an annual precipitation averaging about six inches and was a sparsely vegetated desert shrub type area. Here, where there were few perennial grasses, plants such as mesquite, cat claw, greasewood, and other shrubs, some edible and some not, covered the terrain. While the rated annual carrying capacity was only two head to the section, this area was capable of heavy stocking for three to four months in those years when good winter and spring moisture brought out the thick carpet of desert annuals.

North of this desert area, the ranch terrain rose into the foothill country where carrying capacity improved to four or five head to the section. Here the higher rainfall of around eight to ten inches supported some perennial grasses and some more desirable browse plants. These foothills steadily rose into the rugged mountain country that covered the entire northern part of Bard Ranch. While it was tough for cattle and cowboys to get around in this rough country, it was nevertheless good cow country since the twelve to fourteen inch rainfall and fertile soil sustained substantial strong grass and browse. This area was rated to carry seven or eight head to the section, though some range analysts discounted the figure 25 percent since they considered some parts too inaccessible even for a cow. Humphrey estimated that overall, the range ran very close to 70 percent browse and 30 percent weeds and grasses, the latter if and when it rained.

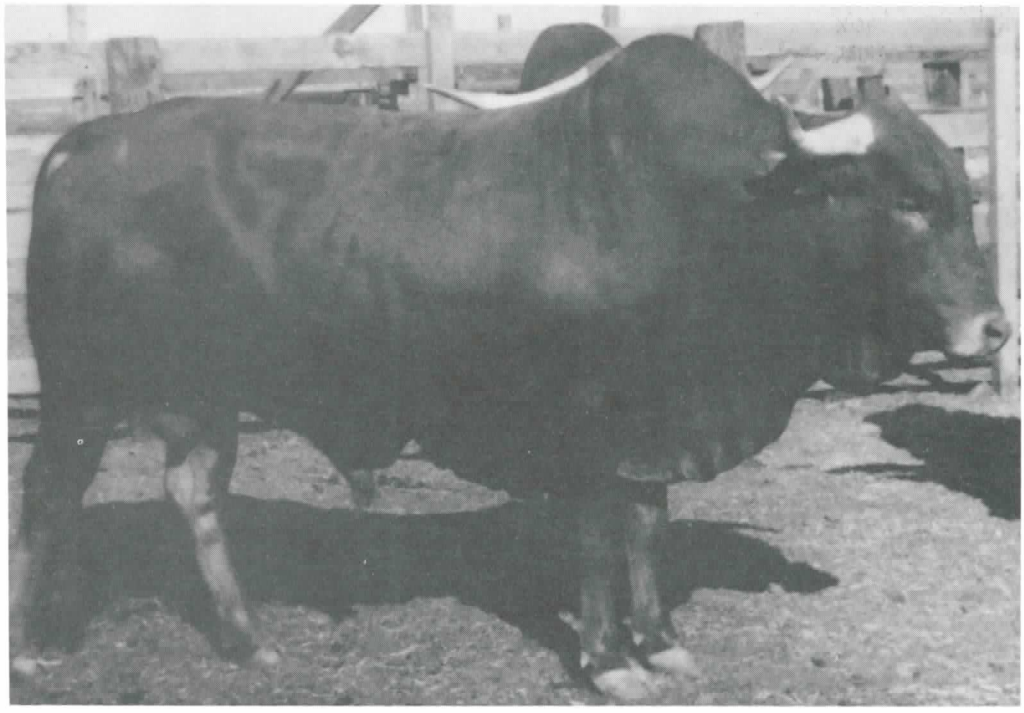
When Humphrey first went to Bard Ranch, stock waters were widely scattered and to some extent, unreliable. The only permanent waters were windmills and some year-round springs. In addition, there were some man made stock ponds, referred to locally as "tanks", scattered around the lower areas and many potholes in the mountains that filled when the rains caused run off. In many areas cattle had to travel long distances from feed to water, and if tanks or potholes dried up in the spring, would have to be driven many miles over rough country to another water.

Temperatures varied to considerable extremes over the ranch, ranging from the upper teens in the winter in the higher areas to over 115 degrees in the summer on the desert portions. Weather conditions were variable and unpredictable and included long periods of drought, very wet spells, and snow in the higher country.

In addition to the physical characteristics which the cattle had to combat, the operational nature of the ranch was quite primitive. Within this rugged 400 square mile area there were almost no roads, and most of those that did exist were not regularly maintained, and after wet spells were often unusable for long periods. Some areas of the higher country were so remote that during roundups, which were held every spring and fall over the entire ranch to brand calves and gather cattle for sale, the crew of cowboys had to pack in and camp. There were five separate year-round camps scattered around the ranch where cowboys and their families stayed to oversee their area. This was a good ranch, capable of making money with the right kind of cattle under good management.

Needed Traits Are Defined

Bard and Humphrey determined that for cattle to best cope with this Bard Ranch environment, they had to be of a hardy nature, able to take care of them-



One of the Africander bulls used in the Bard program.

selves, and that certain characteristics were needed:

Natural fertility.
Good mothering instinct and milking ability.
Aggressive breeding habits.
Feet and legs to handle the tough country.
Ability to utilize an excess of browse.
Wild type grazing habits.
Easy calving.
Heat tolerance.
Insect resistance.
Medium size with the conformation of a profitable beef animal.

They decided that no one existing breed would ever be able to do the necessary job for them, and that they could only develop the desired characteristics through careful blending of genes from several breeds. In his studies, Humphrey utilized research and breeding experiments carried on in Texas and the Southeastern United States and in South Africa. The Brahman had been developed in this country in the early 1900s; the Santa Gertrudis and Beefmaster were gaining a foundation in Texas; and Dr. Bonsma in South Africa had begun the development of his Bonsmara breed from native Africander and imported Shorthorn and Hereford seedstock.

Humphrey also consulted with several experts, both in person and by mail. Notable among them were Dr. and Mrs. Leslie Dunn, John Hammond of England, Prof. Jan Bonsma of South Africa, H.L. Chung from Hawaii, Tom Lasater, and Dean Carlisle.

Humphrey thoroughly researched the two distinctly different genetic types of cattle: The *Bos taurus*, or humpless European and British breeds of northern Asiatic and European origin, and the *Bos indicus*, or humped Zebu breeds of southern Asiatic origin. His studies clearly defined the traits of each of the types. The *Bos indicus* was shown to be extremely heat tolerant, demonstrating superior adaptability to the tropics and subtropics. Humphrey believed it was the loose thick hide and short sleek hair coat that enabled the animal to dissipate accumulated body heat and also provide tolerance to solar radiation. His own observation indicated that dark hide pigment, regardless of hair color, aided in adapting to heat stress. The hide and coat types were also believed to make the *Bos indicus* highly resistant to insect borne diseases and external parasites.

The *Bos taurus* had been shown to be more adapted to temperate climates and not easily converted to a hot climate. Heat tended to lessen general activity and research showed that reproductive instincts and abilities were slowed.

Humphrey considered the nutritional needs and grazing habits of the two types. All breeds had shown that they could digest and subsist on a ration made up entirely of weeds and grasses, but research had shown that the digestive system of the *Bos indicus* and *Bos taurus* breeds differ substantially in the amount of browse that they could break down and actually utilize. Humphrey figured the *Bos taurus* animals could use 40 to 45 percent browse in their daily diets whereas the *Bos indicus* would range from 60 to 85 percent for some individuals of the Africander breed.

Two grazing habits were recognized and thought to be genetic in origin. One was described as the "lawnmower" type, common to most true *Bos taurus* breeds, that of grazing closely and cleanly as in a pasture or on a good grass range. The other was described as a "wild type", that of grazing as a deer does, a slow walk with a mouthful of browse or grass here, another a few steps beyond. The *Bos indicus*, being heat tolerant and having the "wild type" grazing habit, was able to graze in the heat and direct sun, with no ill effects, and travel long distances while feeding, covering a great deal of the range while doing so. The *Bos taurus* would tend to bush up or seek shade near the waters during the heat of the day, then during cool hours, graze close by, not ranging far from the waters.

Studies have also shown that the pure *Bos taurus* strains, during dry or poor feed cycles would drop off in milk production, their systems working to maintain their own condition and ability to rebreed. Thus the calf would suffer, often being stunted, but the cow might still raise a calf the following year. On the other hand, under the same stress, the system of the Bos indicus operated differently in that it would work to continue milk production and raise a good calf, but might be less likely to cycle back for breeding. However, when good feed returned, the *Bos indicus* regained normal balance more quickly and

seemed to have the ability to substantially improve milk production to a greater degree than the *Bos taurus*.

The Genetic Pool Is Selected

The breeds selected to form the genetic pool were Hereford, Angus, Africander, and Santa Gertrudis. The *Bos indicus* Africander, a native of South Africa, historically was used there as a draft animal as well as a beef and dairy animal. It was most commonly a solid red with very long oval shaped horns which extended laterally or slightly downward from the head with a slight backward curve. Wanted from the Africander were: the longer head with wide muzzle; good milk production; ability for high browse utilization and "wild type" grazing; small calf at birth; hide, pigment, and hair coat for heat and insect tolerance; close sheath and body depth; and genes for marbling without excessive back fat.

Also needed for the particularly rough terrain of Bard Ranch were the Africander's hard feet and strong boned flat legs. The leg had to be long enough and the bone strong enough to carry the cow long distances over the roughest kind of country. The desired bone seemed smaller than that of some English or European breeds. In fact, the actual bone was as large, but there was not as much connective tissue surrounding the tendon and the leg appeared flat, with the tendon showing plainly.

From the Hereford, they specifically wanted early maturity, hindquarter, close sheath, and rangeability. They then wanted to add Shorthorn blood for spread of pelvis and milking ability. An extensive search for bulls did not produce a Shorthorn with feet to handle their range. Humphrey did find some Santa Gertrudis bulls with the Shorthorn factors that were desired, and it was felt that the 3/8ths Brahman blood in the Santa Gertrudis was worthwhile from the standpoint of browse utilization; hide and hair; good marbling characteristics; small calf at birth; and good milking ability. Thus it was decided to use the Santa Gertrudis.

From the Angus they wanted the good carcass and marbling characteristics; small calf at birth followed by rich milk; good hindquarter; and heat tolerance in spite of hair color.

The development of the Barzona actually began with Bard's purchase of the herd of young Hereford cows from the Spence (Steeple X) Ranch in Springerville, Arizona, in 1942. These cows were always bred to Africander bulls and were kept in production until 1949. There were six Africander bulls used, three bred by the King Ranch, and three by the Kennedy Ranch, both of Texas.

Added to the Hereford X Africander herd were a few cows from the Bard Ranch which were out of top range cows by Africander or Santa Gertrudis bulls. These combined to make the first cross herd. Santa Gertrudis bulls were selected and purchased from ranches in Texas and Oklahoma and were intially bred to first cross cows.

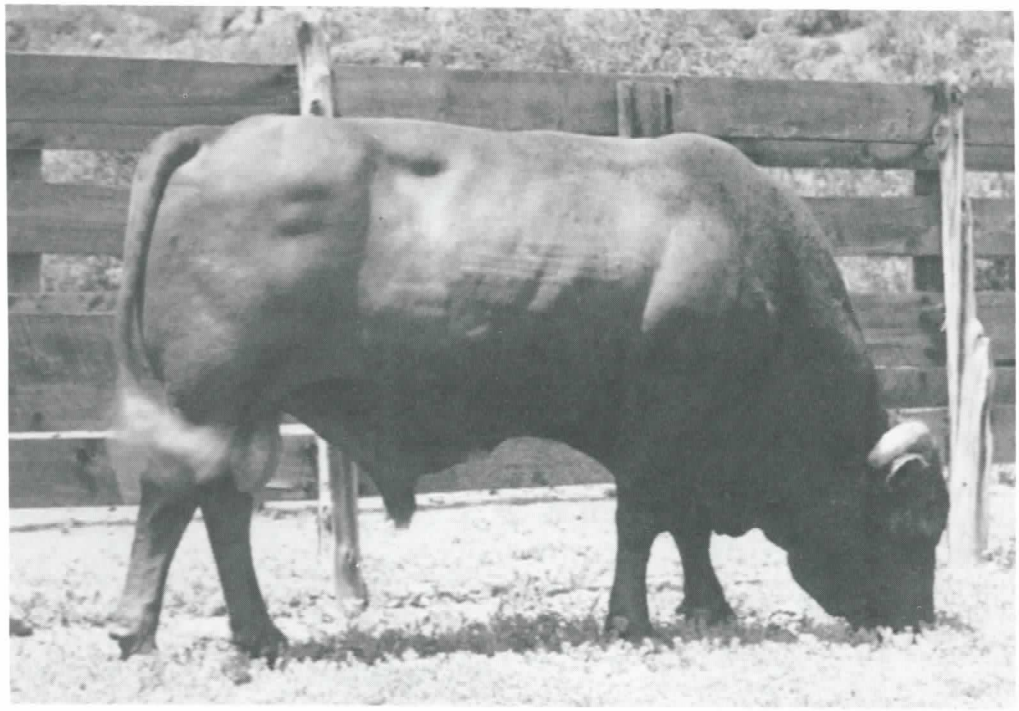
The desired Angus blood was infused by using a black "Indu-Angus" bull brought from Texas, sired by a purebred Brahman bull out of a purebred Angus cow. He was single sired to some first cross cows from 1948 through 1951, producing calves that were both horned and polled, and all but three were solid red in color. In 1952 this bull and five of his sons were bred back to another group of first cross cows.

This basically completed the infusion of blood into the genetic pool and the Barzona breed was slowly developed by the studied, careful planning of matings to blend these different breeds and fix the desired characteristics. Second cross bulls were the first Bard bred bulls used back in the breeding program. No outside blood was added to the herd after 1955.

In the early stages of the program a few bulls of different breeds were used at one time or another but their progeny were either eliminated from the breeding program or figured so little as to not be considered in the make up of the Barzona. For several years a separate Santa Gertrudis herd was maintained which was sold in 1954.

Demanding Breeding Program Is Followed

From the very onset of the Barzona breeding program Bard and Humphrey both recognized the absolute necessity of applying two management practices to their program as the matings were planned and made: First they determined to keep



Barzona bull in Bard Kirkland corrals.

adequate records on the entire herd to record and measure the performance and production of the cattle. Second, they had to consistently and unmercifully apply selection pressure on the cattle for the desired traits and cull those animals not measuring up to their standards. All this was done.

A description of the great volumes of data and calculations that Humphrey kept and made on these cattle through the years would occupy several chapters in a text book. They can best be summarized as follows: All animals were identified by a fire branded number. Individual weaning weights, complete physical descriptions, and evaluations were recorded for each animal produced. In addition, for those animals going into the breeding herd, yearling weights and complete lifetime production records were kept. Humphrey developed a Breeding Cow Index which had over twenty items of data analyzing the cow. He kept many files of cross-references on each cow, and each breeding animal had its own permanent card listing its performance and production data.

In order to compare their cattle to each other and to plan matings, Humphrey meticulously prepared volumes of figures, charts, and graphs, using figures such as fertility percentages and his "P2" - which is the total weaning weight of all calves the cow weaned divided by the number of years she could have calved beginning at age two.

In 1971, all of the performance and production records from the beginning in 1942 were placed on microfilm and then transferred from Humphrey's hand kept card files onto a computer. From then on the computer stored all data and made yearly calculations of adjusted weaning weights, weaning weight ratios, and MPPAs (most probable producing ability) for all cows.

In applying selection pressure to retain the desired and discard the less desirable combinations that turned up, Humphrey and Bard held to the theory that an animal should be born, raised in, and selected from the environment in which he would actually be used. They knew that it had been shown time and time again that few problems in adapting to an environment occur when an animal moves to more favorable conditions, but troubles may well show up when the change is to an area of added stress. They knew that selection under tough, adverse conditions such as heat and drought (causing shortage of feed) appear more effective as differences in vigor, reproduction, and adaptation are more apparent.

So, the cattle were subjected to the often harsh conditions of central Arizona where Humphrey's records and calculations were fully utilized, and regular, consistent selection pressure and culling standards were applied. Consideration was first given to an animal's ability to live, grow, and reproduce regularly on that ranch; to an individual's performance rather than its color, markings, head shape, or conformation details.

Fertility, or regularity of production, was the first consideration when a cow was evaluated. For a female to stay in the program she had to wean four calves out of every five years, beginning as a two-year-old, regardless of any environmental stress she underwent. Many top foundation cows weaned a calf every year to ages of thirteen to fifteen years. In addition to the desired characteristics set forth above, selection consideration was given to producing a heavy weaner calf, early maturity to breed at fifteen months of age, early shedding, rangeability in rough country, adaptability to changes in range or pasture conditions, and the ability to gain profitably on the range and in the feedlot.

As the Barzona breed developed, the standards as to what was retained and what was culled were raised. As a result, the overall performance of the cattle improved steadily with a side result that they became more uniform in color and overall conformation. Careful attention was given to minimize any possible depression or loss of size, vigor, or fertility as the increasing generations lessened the hybrid vigor.

New Range Is Acquired

While Bard Ranch showed the need and provided the basis for the development of Barzona cattle, it soon became evident to Bard and Humphrey that the sprawling, inaccessible range did not lend itself to their present type of breeding program. A smaller outfit was needed which could be managed efficiently and on which several breeding pastures could be developed. In 1948 Bard acquired the "Bard Kirkland Ranch," some 40 air miles northwest of Bard Ranch and just

Barzona steers in the feedlot.

west of the little town of Kirkland, Arizona. The entire breeding program was moved to this location.

This was a rough mountain ranch and offered the same stress conditions to cattle as Bard Ranch. It was set up so that the cattle could be managed and watched more closely but still remain out in the environment for which they were being developed. The initial capacity of Kirkland was around 200 head but through the years some neighboring ranches were purchased, bringing the size to about 45,000 acres, and some improved pastures were developed so that the carrying capacity was increased to over 500 head of mature cows plus yearlings, etc.

Bard recognized the vital importance of measuring the feedlot performance to help evaluate the program and later to provide information for customers. Beginning in the mid 1950s steers and sometimes heifers were sent to custom feedlots each year and data on their performance collected. The information gathered was very useful to the breeding program and in sales promotion. It showed clearly that Barzona would gain very well even in the hot desert summer; that they would convert feed to beef very efficiently; that they could be brought to high good, low choice grade at 1000 to 1050 pounds; and that they yielded a trim, meaty, desirable carcass.

The original purpose of Bard's breeding program and of the Kirkland Ranch was to provide bulls and surplus females to go back to Bard Ranch and improve the stock there. This was done regularly until Bard Ranch was sold in 1959. By this time an outside demand for Barzona cattle was growing and all of Bard's cattle efforts were centered at Kirkland. Bard always recognized that a good genetic program was of little value without good management, and in 1961 named Neil Hampton as general Ranch Manager.

Barzona Breeders Organize

By 1968 Barzona cattle were generally recognized as an established breed, were well accepted by feeders and packers, and the bulls in demand by commercial ranches for use in crossbreeding programs. An increasing number of cattlemen were becoming interested in having purebred herds, and the need for a breed association was apparent.

In January, 1968, a group of interested cattlemen met in Phoenix to form the Barzona Breeders Association of America, Inc. F.N. Bard was elected president and E.S. Humphrey secretary. The purpose in forming the associaton was to provide a breed registry, to encourage continued improvement of the breed, and to answer inquiries and provide information about the cattle.

F.N. Bard passed away in Wickenburg, Arizona, in January, 1970. The Bard Kirkland Ranch and Foundation Barzona herd were part of a charitable remainder trust established by the Bards in 1959, with Bard and his wife, Phoebe, as co-trustees. Upon his death, Mrs. Bard assumed the responsiblity of directing the operation of the Ranch. She was also elected President of the Barzona Breeders Association.

In 1971 Jack Humphrey, at age 80, retired from active work for Bard Ranch. With his retirement as record keeper and geneticist, Mrs. Bard decided to place all Bard Ranch performance records into a computer. The services of Dr. James S. Brinks, Professor of Animal Science at Colorado State University, Fort Collins, were obtained to undertake this task. Dr. Brinks worked as genetic consultant and breeding planner, working very closely with Neil Hampton, who remained as manager. Hampton contributed considerable marketing talent, and the two made a fine team, producing a smooth running operation.

Bard Ranch Sold – Herd Dispersed

In 1973, despite Mrs. Bard's personal desire to continue with the cattle operation, it became necessary to liquidate the ranch in order to comply with terms of the Bard Trust. The Bard Kirkland Ranch was sold and the entire foundation herd of Barzonas was dispersed. The cattle went to a few serious breeders who were dedicated to their continued development and improvement. With Barzonas in the hands of these practical cattlemen, supported by a well organized, active association, the stage was set for this breed to go ahead to make a substantial contribution to the beef industry in America.