CPA CONGRESS 1989

Visit to the USA 1988

by Mrs. Carmen Stubbs - Cattleman of the Year, 1987

First and foremost, a very big thank you to the Cattle Producers Association for their Cattleman of the Year Competition and the work they put into it. I gained from entering the competition - I was challenged by some of the remarks made by the judges - and, of course, I thoroughly enjoyed the prize.

Every cattleman of this audience should be prepared to enter - believe me it is worth it. To Coopers and Agrifoods and the other sponsors, a big thank you. In addition, I must express my gratitude to the many people in the United States who so willingly gave of their time and knowledge to make my trip worthwhile and stimulating. In particular, I want to mention Professors Jim Wiltbank and Bill Turner. Both these well-known cattlemen had thoroughly enjoyed their trips to Zimbabwe and were delighted to return hospitality received. Professors Jim Wiltbank in particular, arranged numerous visits through his many contacts across the United States. He was tremendously helpful.

Why Did I Choose the USA?

My understanding was that they had made the most progress in beef cattle selection, based on performance records, and my objective was to see this first hand, both on ranches and on research stations.

Where Did I Go?

The States visited were Utah, Wyoming, Idaho, Colorado, Minnesota, Iowa, Texas, New Mexico, Florida and Pennsylvania. I even managed a day into Mexico.

What Did I See?

From small farms to enormous ranches including the biggest - King Ranch, the Deseret Ranches, the McAllen Empire, Tom Lassiter's Beefmaster Ranch and Sam Skaggs' ranch. Universities I visited were Utah, Brigham Young, Colorado, Texas A & H and the corresponding research centres and University farms. Feedlots from small 10 head enterprises to Monfort, Greeley - the world's largest cattle feedlot with 100 000 head capacity. Canners and deboning factories - 48 arranged visits. Quite a tour!

Broadly I have divided the trip into five areas, which differed climatically:

AREA 1: Utah, Idaho, Wyoming and Colorado.

Beautiful mountainous country - wide open spaces, low rainfall with snow contributing to moisture. Summers similar to Zimbabwe Highveld. Arid areas to fertile valleys. Cattle run mainly on summer pastures on the mountain slopes and overwintered in feedlots in the valleys or left in protected areas and hay (mainly alfalfa - lucerne) is fed. Some of the land on the mountain slopes is privately owned, but the majority is leased from the State. State leased land is strictly controlled, and environmentalists are demanding more controls be imposed - in some places they had demonstrated for a total ban of cattle on mountain slopes. One claim read was that cattle pollute the streams, they even dung in the water!

My trip started in Salt Lake City - a lovely setting - a large saltwater lake surrounded by mountains - a fertile valley with the water supply being canalled from miles away from tanks (we call then dams) in the mountains. A Mormon stronghold with beautiful temples, and listening to the Tabernacle Choir live was truly beautiful - 200 singers and congregation of 6 000. The organ has 11 000 pipes, 189 voices and 5 keyboards and is considered to be one of the finest in the world.

Next day we focused on cattle - the Deseret Feedlot - completely controlled by electronics. One man and his relief co-worker ran the entire scene. Feed was delivered into the silos and from there could

be dispensed straight into the mixer lorry. The required ration could be punched in, and a mixture of different feeds and feed additives were dispensed simultaneously. When the lorry started, the mixing took place, and on reaching the feeding troughs, the exact amount required was released. Everything was automatically recorded. They were feeding 420 head that day, but had space for many more. Some of the dairy heifers had been in the feedlot since their first winter as small calves, they had been inseminated and would leave the feedlot for pastures shortly before calving.

The feedlot at Salina was privately owned by Brad Johnston and handled 3 500 head. He fed his own cattle and custom feeds as well. His computer showed the Chicago exchange situation, 10 minutes after trading - you could get instantaneous link up for a higher cost - as feed and cattle prices rose and fell, speculators jumped in and out of ownership. Electronic marketing and Futures trading were systems I was glad I did not have to cope with. However, video marketing, I enjoyed. Brad Johnston also had 1 200 cows - mostly Angus X Hereford X Gelbvieh - up on the summer pastures, run very extensively on his own land. He moved his cows from the higher slopes down to another farm to overwinter. Many mule deer were seen grazing with the cattle.

Beck to the feedlots. The Americans talk a lot about lean beef - but marbled beef is in demand, and the animals are finished to overfat condition.

Another feedlot I saw was the Monfort complex. It claims to be the only major beef producing company encompassing cattle feeding, beef and lamb processing and local distribution on a nationwide basis. For interest, lamb is not popular in these States - they produce Iamb, but mostly it is shipped to the East Coast. At Greeley, Monfort had a beef packing and fabricating plant - and a portion foods plant. Annual sales exceeded $2 billion. $150 million worth of meat, exported mainly to Japan. Monfort has its own cattle buyers who purchase feeder steers directly from ranchers, farmers and auction markets throughout the western United States. Monfort has 100 000 head capacity. I was told most breeds were represented but they were reluctant to accept more than 3/8 Brahman in the steers they bought as feeders. The yearling steers they bought weighed 300 to 385 kg. The newly arrived cattle are vaccinated against disease and dipped for pest control. The pens are checked daily by horseback riders and any sign of illness - the "cattle ambulance" removes the animal to the hospital area where sick animals are treated in isolation by resident veterinarians.

On site there was a steam cooker and steam roller to produce easily digested cornflakes; 2 000 tons of grain is daily is processed. Monfort produces more cornflakes annually than the leading manufacturer of cornflakes produces for people.

High-up on the 5th floor from a vantage point, the area is surveyed from the computer tower. Two people sit in the glass dome observing all movement - numbered trucks coming and going, the exact time the steam blows, the "cattle ambulance" and how many are being transported. All personnel are trained to report to the tower, they look up and give signals and immediately this information is fed into the computer. The feed ration for each pen depends upon the age, weight and general condition of the cattle in that particular pen. Cattle are fed 100 days to 150 days to average 520 kgs and produce a carcass average of 325 kgs. I questioned the high dressing out percentage (averaging +/- 63%) but the Managing Director of Monfort said those were his last month’s figures. The carcasses were 9 fat cover and 29mm fat was being trimmed off - the reason being the Japanese market calls for marbled beef.

While I was in Colorado a Japanese consortium bought one of the largest slaughter facilities in California - this gave rise to much talk, as there were only three big operations left in the slaughter and packing business in the USA. The feeling was that this was close to becoming an unhealthy monopoly.

At Woodruff I watched 500 weaners get separated from their dams and their destiny was "stocker" rearing in another State, and then feedlot. The dams were to return to the hills. This was the first time the weaners had ever been in the corral for handling - average age +/-6 months; after handling they would be shipped. A 6 man, 2 wives team worked through the weaners. The cowgirls each had two backpacks and automatic syringes and gave the injections. Each weaner was immobilised with a lip

and anal hold electrical system and they kept completely quiet in the headgate hold. In an average of 55 seconds per weaner they were castrated (burrdizzo), branded (electric branding iron), dehorned, earnotched (females), vaccinated, ear-implanted, a nasal spray used and pour-on insecticide applied.

Nasal spray: IBR P13 was for chest infection
Ear implant: Synovex
Vaccinations: 8 way Braxy-blackleg (QE)
Homophilis somus for snotnose
BRSV
Vit. A, B, E
Penicillin
Insecticide: Warbex (pour-on)

It was extremely well organised and impressive, but hard work. The Veterinary Department has to inoculate for brucellosis to ensure it is done, and done properly.

Off to Wyoming to see bison being run with cattle. We saw a large herd and they were relatively tame. By law they have to be inoculated annually for brucellosis and this, they said, posed the biggest headache. They have a research centre on the farm run by a microbiologist. To help with funds they allowed access to trophy hunters. Counting the animals and calves, we worked out an approximate 50% calving percentage. This herd was given winter maintenance.

On one of the return trips, we saw Robert Redford's private ski resort in the Utah mountains - a very fancy establishment.

Next morning a horseride to see cattle was arranged, the truck and lowloader trailer arrived with two horses inside already saddled. We drove far up into the mountains to the large paddock of State owned land they leased. The exercise was to condition score the cows as the decision had to be made when to bring the cows and calves down to the valley. On State owned land you can move the cattle off the slopes after reporting that you are doing so but on a fixed day all cattle are compulsorily brought down and have to be collected. I had just settled on a gloriously tooled saddle when the cowboy herder came careering down the slope, tilted his hat and said "Hi ya Ma'am - are you rip-roaring ready and raring to go?" I replied "Sure cowboy" but soon regretted it - they tore off and I really had to concentrate to stay on. I didn't rate highly as a cattleman on a horse!

I visited Colorado Springs and Dale Lassater showed me the ranch. They have very fancy offices steeped in Beefmaster history. Tom Lassater - now in his 80s - insisted on driving me to see the calves. His licence has been withdrawn because of dangerous driving and I endorse that, but I thoroughly enjoyed the bonny calves - AUTUMN calving. The cows were in excellent condition, long backed - and deep, but less uniformity in type than I expected. Large paddocks and piped water - some rotational grazing. We discussed Autumn calving at length but I will leave Johann Zietsman to try to convince Zimbabweans of its merits. Suffice it to say the idea is gaining ground, although slowly.

At Colorado University, Don Lefevre looked after me - he had hosted Tony twenty years previously. An interesting visit was paid to the State University Dairy Centre; they had Brown Swiss, Guernsey, Holstein and Jersey cattle - Brown Swiss giving the most milk and Jersey the highest percent butterfat. On nutrition, I listened to a discussion on immunoenhancing vitamins for cattle - some animals may become at risk of being deficient in the antioxidant nutrients. Also, a discussion on minerals for feedlot cattle - minerals are required for the utilisation of energy and protein, but to complicate the picture, there are about 70 known mineral inter-relationships and these and other interactions lead to confusion in mineral recommendations for feedlot cattle. Another topic was whether photoperiod modulated the establishment of postpartum oestrus cycles and conception. Generally, the interval from calving to uterine involution was reduced by exposure to 18 hours light/day. Interesting, but mostly over my head.

AREA 2: Midwest, Minnesota and Iowa

Corn growing States, smaller intensive cropping "patchwork" farms - hilly areas left for cattle, and stud breeding more popular. I visited Angus, Hereford, Simmental, Barzona and Saler stud breeders in this corn country. A breed I was not familiar with was the Barzona - these I saw at the Radakovich Cattle Company, Earlham. The Barzona breed was started in 1942 in Arizona by crossing Afrikander bulls on mountain-raised Hereford cows - the first cross was bred to Santa Gertrudis (Shorthorn Brahman cross) then some Angus blood was infused. It's a smooth, long bodied, medium sized, red animal with a longish head.

Farming in Iowa was more intensive. Dave Nichols for example had 3 000 acres and ran 1 100 cows. He sold an average of 350 bulls a year and fed 800 head a year in the farm feedlot. His bull test facility had a large area under cover, divided into ten pens, each opening onto a 4 acre sloping lot.

Near Des Moines I visited Hawkeye Breeders; here they can process and freeze over 10 000 units daily and store 2 million units of semen. They offer the service of farm collections and semen evaluations with two completely equipped mobile laboratories. They export semen to many countries, Australia being a major importer.

AREA 3: Western States, New Mexico and Texas

Climatically similar to us, except for the Gulf region which is hot and humid and more like Beira. Cattle ranching is closest to what we see in Zimbabwe but still divided into cow/calf operations, stocker and feeder operations. They tend to specialise in one aspect and want to do it well. In Texas a Zebu ingredient is considered an advantage, especially in the Gulf area. The old slogan "the more ear the better" has been dropped, as feedlots and packers discriminate against too much ear. The Brahman crosses looked good - I saw Braford, Brangus, Brahmousin, Bralers, Gelbray and Simbrah and, of course, the Santa Gertrudis. The other breed I saw was the Texas Longhorn - very little improvement seems to have gone into these tough cattle, their horns of course are formidable and they lack fleshing but they are very efficient in extensive conditions.

King Ranch is in the Gulf region of Texas, it covers 825 000 acres and is the home of 60 000 cattle and 1 000 quarter horses. Here they developed the Santa Gertrudis breed in 1920 combining British Shorthorn and Brahman. Production is 25 000 beef calves a year, a stocker programme growing out calves and a 15 000 head feedlot. They run the Santa Gertrudis purebred herd and the other herds are varying mixtures of breeds. Most cows I saw were in splendid condition on lowveld type country.

In an effort to increase production, King Ranch have a resident physiologist. They also have a veterinary surgeon on their staff and use consultants Jim Leachman and Stan Parsons - many of you may remember Stan.

I quote from memory and rough notes, what Jim Leachman wrote in the Gulf Coast;

Cattlemen:

1. Use bull power and breed differences to progress.
2. Not more variation within a breed than between breeds.
3. Differences between breeds are more predictable and those differences can be used to advantage in breeding for a specific set of qualities.
4. You can mate a synthetic (4 breeds of equal parts) to itself, to infinity, and maintain 75% of the heterosis of an F1 cross.
5. Culling is a negative way to get at a problem, the positive way is through selection.
6. Records are important cold hard facts that can be used to improve any herd of cattle.

Jim Leachman claims he has achieved highly predictable results by using known facts about breeds of cattle and crossing them in a highly disciplined programme. He is putting some of this into practice at King Ranch.

I enjoyed three full days at King Ranch and still felt there was much more to see. The handling facilities were excellent and the cowboys on their horses worked the cattle well. The cowboys on King Ranch were of Mexican origin and the section managers spoke in Spanish to them. They had a Spanish school on the ranch. One cowboy told me he was third generation to work for King Ranch and another older Mexican Alberto told me he had taken "Macho" or another Santa Gertrudis bull of fame up a lift at the airport to the third floor and to the ticket counter to buy an air ticket as a sales promotion gimmick for the television team to film.

Besides a museum in Kingsville and a restaurant and their bank and leather shop, etc, they also run a shrimp farm on the coast. When I was there a Vietnamese expert was trying to aerate the water with a paddle wheel as he felt the shrimp fry were not doing as well as they should - however, they tasted superb in the restaurant. Of course, King Ranch, as other ranches on the Gulf Coast, made their big money with oil.

I had been warned to look out for rattlesnakes but the only one I saw was curled up in Hal's deep freeze He also kept a live bobcat but it snarled at me so I kept my distance.

Further towards the Rio Grande was McAllen's Empire. He has a large whitetail deer enterprise and was breeding them for larger trophy horns. Hunters pay US$2 500 for a good pair of antlers. Here I saw the best creep feeding management. Close to where the cattle watered they had built a long narrow mesh-fenced area with low feeding troughs. Narrow gates with cross poles which could change height were all the way down on the water side - the calves could roam in and out at will. After the calves were weighed at 100 days they were given access to creep feed.

In the Rio Grande valley I saw a huge vegetable nursery - plants in seedling trays on conveyor belts, the seedlings got chopped by automatic mowers twice before being hardened, then were transported to Mexico where land and labour was cheap and the vegetables were grown out, then transported back to the USA for sale fresh, and the surplus canned.

From the Rio Grande valley I hopped into Mexico for a day - a lot of fun, their goods were incredibly cheap when you paid in US dollars.

At this stage Hurricane "Gilbert" was looming and we watched Padre Island being evacuated. I was impressed at the organisation - television warnings, possible time of expected impact, wind direction maps and tips of how to be prepared. Coast Guards cleared everything they could - hauled away caravans, rehoused people, checked on centreas with provisions, etc. In Brownsville wo taped the windows and they erected plywood in front of the large glass sliding doors and installed a standby generator. In 1968 they had been under 3 feet of water. Half of me wanted to experience the hurricane but I took one of the last flights out (chicken). Later I heard Brownsville had been prepared and had not suffered too much damage but the Mexicans on the other side of the Rio Grande had suffered a rough period.

Next visit was Texas A & M University and Dr. Bill Turner was host. He talked me into giving his students a talk on my farm in Zimbabwe and methods of production. The students asked a host of lively questions and two black Zimbabwean postgraduate students took me out to lunch afterwards. One had visited the farm with the Zimbabwe University Animal Production tour the year previously. Both were delighted to hear any news about home.

I enjoyed a Show Day at which Bill judged the cattle. Mainly Brahman and Simmental on display but a fair sprinkling of other breeds. Excitement was watching a turkey-gobbler race - the people's antics were much more amusing than the strutting, overfat and pompous, turkey males.

Texas has +/- 160 auction markets. At the auction I attended they sold one animal at a time, announced teeth and weight and disclosed any history. Excellent indoor facilities and I could not help but unfavourably compare that service to what we get dished up here.

A & M University Meat Science Section was collecting data on carcases related back to sires. They were trying to identify lines of cattle with the best combination of muscling, marbling and external

finish. One of the bulls seen at Granada had passed through this carcass evaluation system and they quoted 79% of the progeny sired by him graded Choice and 77% were yield Grade 2 and they met Excel's specifications for quality grade, ribeye area, fat cover and carcass weight.

Granada only dealt with animals that had "superior" genetics for semen and embryo transfer. They had just paid $64 000 for an Angus heifer - I saw her and had I not been told her breed I would have stabbed a guess at a Black Chianina, fancy, stylish with lots of character, long straight legs, not the usual Angus at all. Here they talked of manipulating a fertilised ovum at the 2 cell stage, producing identical twins or at the movula stage producing 4 genetically identical embryos from one ovum. Work was also being done on Chimeras - fusion of two or more embryos and thus having four or more parents and parthenogenesis - development of ovum without chromosomal participation of the other sex - "virgin birth". (Don't ask me questions on this, it is for interest only).

AREA 4 Florida

Hot and humid - more humid than the Gulf area. When working, by 9 am one was bathed in perspiration.

Deseret Ranch of Florida is 300 000 acres and much work has been done on improved pastures and 1 200 acres are in citrus. The herd size is 30 000 head of mature cows, 4 000 replacement heifers and 1 200 bulls. The ranch follows a three breed rotational crossbreeding system. Breeds used are Red and Black Brangus, Braford and Simbrah. The ranch is divided into 11 individual cattle units, each with a foreman, two cowboys, and a set of corrals and handling facilities. The units run 3 000 mother cows with ±300 head in an individual herd. Ratio of 1 000 cows per cowboy.

An interesting feature was an old bath in each paddock, this they fill with molasses through the winter – a tanker replenishes on a weekly basis. Winter supplement is protein cubes with the molasses available. Year round they have a specially formulated mineral supplement available. In September they wean the calves at about 8 months old and immediately ship them to buyers in the midwest and high plains areas - average weaning weight 222 kgs. The size of cows here was smaller, average 386 to 410 kgs but were weaning calves at 55% of cows mature weight and calving percentage was 85%. They were selecting for useful cattle. Their aim was increased growth while keeping low birth weight, early maturity and lighter mature weights. Paul Genho, Managing Director, says "make no mistake, gaining mature size is a sacrifice." Last year the ranch produced 36,9 kg of calf per 100 kg of cow maintained. A co-worker at the ranch said that they select for growth rate for a given mature size and only want moderate size. They want adaptability and convenience which includes:

(a) fertility
(b) soundness
(c) fleshing ability
(d) calving ease
(e) survivability
(f) temperament

Efficiency is the name of the game (not size). The increase in salvage value (i.e. return at slaughter) of a big cow is negligible compared to the lifetime cost of a cow.

The bulls they select now are relatively nondescript - not the "eye catcher" and not the "extreme" - they are selecting for overall genetic merit. They want reliability and predictability and animals suited to the environment. Thay believe the low cost producer will be the survivor.

The pasture programme on this ranch was, to attempt to extend the grazing season - earlier in the spring and later in the fall. They used rotational grazing, fertilising and liming and controlled burning; also non-native grasses such as hermarthria and legumes such as aeschynomene (tropical legume). Dr. Stan Schank of Florida University was running trials on the ranch. Their wildlife programme consists of 40 hunting clubs which lease hunting rights on the ranch for white-tailed deer, turkey, hogs, dove and quail and bass fishing. A wildlife biologist administers the programme.

AREA 5 Pennsylvania

Cool, temperate, moist and very fertile area - beautiful large trees and clear streams abound. Very built-up, property values high. Smallholdings and high value animals sought after, "fancy breeds" e.g. Romagnola, Blonde d'Aquitaine, Chianina. The breeders are usually "city slickers" with money to burn and a yen for rural life. I visited a Blonde d'Aquitaine herd of 20 lovely cows and a bull, being catered for as pets - the businessman ran a butchery in Philadelphia where he claimed to sell only very lean Blonde d'Aquitaine meat - I couldn't help wondering where it all came from!

OVERALL IMPRESSIONS

1. Breeds - did any breed stand out - what are the trends?

The choice of breeds is overwhelming with more than 50 breeds available and new synthetics being added all the time. The Americans have latched onto the phrases "we farm grass, the animal is just the machine that processes it" and "which breeds and systems will produce the highest net income". The universities teach the Systems Concept of Beef Production which concentrates on the overall efficiency of the cattle enterprise. You choose your system that fits in with your environment, sort out the economics and only then choose the cattle that best suit the system. It is very obvious in the States that no one breed can possibly satisfy all needs - breeds are more often referred to as an ingredient of the mixture. There will always be purebred herds and they will have to improve performance and have records to back up their claims - the slogan is "Bull dust with cold, hard facts."

LIST OF BREEDS (Taken from Texas A & M University new combinations are continually being added)

Amerifax	O	Brown Swiss	D	Maine-Anjou	SP	Sahiwal	I
Angus	M	Charbray	C	Marchigiana	SS	Salers	O
Barzona	C	Charolais	SS	Markey	SS	Santa Gertrudis	C
Beef Friesien	SP	Char-Swiss	SP	Milking Shorthorn	O	Scotch Highland	M
Beefalo	M	Chianina	SS	Murray-Grey	M	Senepol	C
Beefmaster	C	Devon	M	Nellore	I	Shorthorn	M
Belted Galloway	M	Galloway	M	Normande	O	Simbrah	C
Blonde d'Aquitaine	SS	Gelbray	C	Piedmont	SS	Simmental	SP
Braford	C	Gelbvieh	SP	Pinzbrah	C	South Devon	O
Brahmaine	C	Guzerat	I	Pinzgauer	O	Sussex	M
Brahman	I	Gyr	I	Polled Hereford	M	Tarentaise	O
Brahmanstein	C	Hereford	M	Red Angus	M	Texas Longhorn	M
Brahmousin	C	Holstein	D	Red Brangus	C	Welsh Black	O
Bralers	C	Indu-Brazil	I	Red Poll	O	White Park	M
Brangus	C	Limousin	SS	Romagnola	SS	Zebu	I
Braunvieh	SP						

M: Middle of the road. Good to very good in efficiency extensive conditions.

O: Low to good in efficiency under minimal management. Higher productivity making them more likely to react adversely to nutritional stress.

C: Synthesized crossbreeds medium to very large in size, medium to late maturing.

SP: Super producers, large to extreme in size. Nutritional requirements high and therefore are low to moderate in efficiency under minimal management.

SS: Super sires, large to extreme in size. Late maturing, low to moderate milking abilities. Moderate to good efficiency under minimal management.

I: Bos indicus, small to very large range in size. Latest maturing. Moderate to very good efficiency under extensive conditions.

2. Performance Testing

Overall it was felt that changes in management and feeding that followed breeders' participation in recording schemes brought about large and relatively rapid improvements in performance and productivity - particularly in herds of low previous productivity. Unfortunately for some, the name of the game became production figures and more unfortunately size was latched onto as an ultimate goal i.e. size per se not seen in the context of herd productivity.

Selecting like this for genetic change does lead to cumulative genetic implications and the scene became one of fantastic size at the expense of herd productivity.

PROBLEM:
1. Dystoria calf too large
2. Decrease in fertility
3. Increase in mortality.

Now the main emphasis is to selection towards adaptability and productivity, and performance recording is considered essential to pinpoint weaknesses and to help in the decision of which bulls to buy. If one just buys the popular breed, one lands up with inferior value. Bull buyers must demand performance figures if they want productivity. The slogan is "Use Bull power and breed differences for progress". One of the essential figures the American buyer asks for is expected birthweight, as they are all tired of pulling calves. Professor Wiltbank says the most important factor in ease of calving is the birthweight in relation to the pubic size of the dam. What they do know is that their Bos indicus breeds have lower birthweights and that the low birthweight is primarily a maternal characteristic. The birthweight from these females is lighter than expected, even when large sires of other breeds are used BUT CONVERSELY when Brahman-type bulls are used on other females, the birthweights can be high. So the Brahman female will throw a smaller calf, but the Brahman bull will not suppress the "in utero" hybrid vigour.

Highly predictable results can be achieved by using known facts about breeds of cattle and crossing them in a highly disciplined programme with recording.

Maternal breeding value and yearling/weaner breeding value, sire summaries, expected progeny difference and accuracy - all are tools to help decision-making. Now values include the individual growth rate plus the growth rate of the ancestors and half sibs, making these values far more reliable genetic predictors of growth than just the individual's own weight or index. The slogan is "for improvement demand records."

A wonderful trip - so much to see - thank you to all who made it happen. My parting slogan is "Bull power to be effective requires cow power."

16.6.89