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CATTLE

OF THE

BOMBAY PRESIDENCY.

BY

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SUPERINTENDENT, CIVIL VETERINARY DEPARTMENT,
BOMBAY PRESIDENCY.



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This report will deal with the cattle of the Bombay Presidency district by district beginning with the most northerly.

AHMEDABAD DISTRICT.

Ahmedabad, the most northerly district of the Bombay Presidency, has a total area of 3,816 square miles and a population of about 784,662 souls, or 192.52 to the square mile. The chief city, Ahmedabad, is 309½ miles by rail from Bombay and takes about 9 hours and 40 minutes by the mail train.

2. It may briefly be described as a tract of country lying north and west of the Gulf of Cambay to which for administrative purposes the isolated lands of Prántij and Modása in the north-east and of Gogha in the south have been added. Roughly it is bounded on the north by His Highness the Gaikwár's territory and the Mahi Kántha, on the west and south by Káthiáwár, and on the east by the Gulf of Cambay, the territory of His Highness the Nawab of Cambay and the British district of Kaira. The outlying sub-divisions of Prántij and Gogha are completely detached.

3. The district is divided for administrative purposes into seven talukas. These, as shown in the following summary, have an average of 5.45 square miles, 127 villages and 104,952 inhabitants.

Talukas.

Name.	Area.	No. of villages.		
		Government	Alienated.	Total.
Prántij	447	160	8	168
Daskroi	345	125	14	139
Virangám	675	140	17	157
Sánand	341	82	4	86
Dholka	690	119	5	124
Dhandhuka	1,298	210	9	219
Gogha				
Total	3,816	886	58	944

into an arid waste swept by scorching winds. The flats around Dholera and thence along the coast, impregnated with salt and intersected by marshes, show all the bleakness of the Bhál with none of its fertility. On the western border the land changes into a reddish not unproductive soil of uneven surface and a narrow strip of the district runs right into the rocky interior of Káthiáwár.

Gogha is broken into hills of crumbling limestone bearing nothing but here and there a stunted tree and more or less abundant crops of grass; numerous small streams flow through the country, and valleys are fertile and well wooded.

6. There are two distinct river systems; one flowing south-west from the highlands of eastern Gujrát, the other flowing east from the Káthiáwár hills. Among the rivers none is navigable or of more than local importance. The Sábarmati with its tributaries, the Khári, Meshva and Majham, and the Shelva and the Andhari, rising from the northern hills and flowing to the Gulf of Cambay, form one group. To the other belong the Bhogava, Bhadar, Utávali, Nilka, Pinjaria, and Adhia, which flowing from the Káthiáwár hills pass eastwards into the Gulf of Cambay.

The Sábarmati is by far the most important river of the district. Rising as the Sábar in the Aravali hills it takes a southerly course through the Mahi Kántha, and at the north-west corner of the district is joined by the Háthamati from which point as the Sábarmati it forms the western boundary of Prántij. After passing through the intervening portions of the Gaikwár's territory it bisects Daskroi into two fairly equal proportions, separates Dholka from the district of Kaira; and after flowing about 200 miles and draining an area of about 9,500 square miles, discharges itself into the Gulf of Cambay. In the upper part of its course its banks are precipitous, in some places rising sheer to a height of 200 feet, but they gradually subside to from 30 to 50 feet opposite the city of Ahmedabad, and still lower as they reach the sea. The stream is mostly shallow and sluggish holding a winding and changing course through a broad bed of sand. Even near Prántij the bed is no less than 300 yards wide, while fifty miles from the river mouth it is said to be about 1,550 feet from bank to bank, with, in the fair season, a stream 375 feet broad.

The Khári has a course of about 105 miles. It passes in a south-west direction through the middle of the Prántij taluka and afterwards the eastern half of the Daskroi. Its breadth is nowhere great and in many places does not exceed twenty feet.

Other rivers are not of great importance, but the Rohor may be mentioned as an irregularly defined depression rather than a river, without an outlet, or mouth, which receives the drainage of a large tract of country in the western part of Sánand and Dholka. It extends north and south for a distance of about twenty-six miles.

Cattle of the Bombay Presidency.

During the rains it contains a large body of water, but most of it spreads over the low flat lands around the southern end of the channel.

A somewhat similar depression called the Bujva in Prántij extends for about sixteen miles from a little beyond the northern frontier of the district to the village of Jenpur where it meets the river Khári.

The Bokh is a broad and deep depression which begins near the meeting of the Háthamati and Sábarmati and runs south through Prántij at from 3 to 8 miles from the latter river. It is a chain of pools and morasses, the largest sheet of water in it, called the large Bokh, being about 156 acres in extent and averaging thirty feet in depth. The next in size, called the small Bokh, and lying opposite the town of Prántij, covers about thirty-five acres and is said to average about four feet in depth. Near the village of Mudhasna the course of the river Khári is merged into the Bokh.

floods.

7. In consequence of the ill-defined channels of the rivers and the low level of the ground on the lower course of the Sábarmati some parts of the district suffer periodically heavy losses by flood. Floods are mentioned in the following years: 1714, 1739, 1813, 1822, 1850, 1857, 1868, and 1875, (the highest on record when the railway and bridges were destroyed). The Sábarmati in its lower course and also the western rivers overflow their banks with disastrous effect. Elsewhere throughout the district, but more particularly in the Dholka and Sánand rice villages, the destruction of agricultural capital by surface floods and by the overflowing and bursting of ponds has been immense.

drainage.

8. The Viramgám and Sánand talukas become much water-logged in the rains. During the late period of famine two big drainage canals have been cut—one from Panar through Kariála, Aghar, Bodhana, Jaksi, Junapader, Ookhlad, Tret and Dediason. The other (the Doig ditch) from Panar to Baora, Kuran, Mainpur, Sasori, Mobikumad, Valana, Viramgám, Hasalpur, Suresar and Remalpur. The first 60 feet wide and 7 feet deep, the second 30 to 40 feet wide.

lakes.

9. Thirty-seven miles south west of Ahmedabad just on the border of the district the Nal covers an area of 49 square miles, most of it under water all the year round.

Ponds and reservoirs.

10. The ponds and reservoirs of the district cover an area of 13,946 acres. Especially in parts of Dholka, Daskroi and Viramgám, they are large, their stores of water far exceeding the wants of the villages where they are found.

The Chandola reservoir, about two miles south of the city of Ahmedabad, covers an area of 181 acres.

About three-fourths of a mile from the Raipur gate is another reservoir called Kutub's pond or the Kankariya (Kankar), that is, the limestone lake. It covers an area of 72 acres and is more than a mile round.

The Malik Saban lake, hardly inferior in size, is situated $2\frac{1}{2}$ miles east of the city near the village of Rakhial.

The Sarkhej lake at Sarkhej of 26 acres with a general depth of water of 7 feet.

The Mansar commonly called the Mainal-sar lake of 15 acres on the west of the town of Viramgam contains water all the year round of an average depth of 12 feet.

The Malav lake in the western outskirts of the town Dholka covers an area of forty-eight acres.

Also on the west of the town of Dholka is the Khan lake covering 25 acres.

The Multan lake on the north-west corner of the town of Dhanduka is 20 acres in extent.

At Dholera is a reservoir measuring 60 acres.

At Gogha the Sonaria reservoir through an underground channel supplies the town with water. It covers more than 48 acres.

11. Except in the hilly country of Modasa, where the supply is sometimes considerable, the rainfall throughout the district is generally light. The registered rainfall in the city of Ahmedabad during the seven years ending 1848 gives an average of 27.69 inches, that from 1853 to 1860 an average of 37.87 inches, that from 1870 to 1878 an average of 82.13 inches, and for the decade 1893 to 1903 an average of 29.37 inches. The rainy season generally begins in the latter part of June, expends its greater strength in July, and gradually loses force till its close about the end of September. In the cold season (November to February) though the range of temperature is very great and the cold, especially with a dry north-east wind, seems very severe, the thermometer rarely goes below the freezing point. From March till the rains begin, the wind, turning to the west, grows heated during the day time. February and June are said to be usually the healthiest months and October the most sickly. In that month except in Ghoga, where blows a fresh and healthy sea breeze, the climate is close and miasmatic fevers are common.

Climate.

12. Generally speaking the climate of the central portions of the district is more oppressive during the hot season and at all times less healthy than along the coast line or in the north, the coast benefiting by its nearness to the sea, and the north of the district by its height above the sea level.

Cattle of the Bombay Presidency.

Meteorological observations, 1902-03.

13. The following statement shows the general meteorological observations taken during the year 1902-03 :—

Month.	Barometer pressure at 8 a.m.		Maximum temperature.		Minimum temperature.		Rainfall.
	Highest	Lowest.	Highest	Lowest.	Highest	Lowest.	
1902.							
April	29.902	29.754	110.0	102.0	81.0	75.0	0.0
May	29.864	29.724	114.8	98.8	84.0	77.0	0.0
June	29.846	29.490	109.0	91.0	88.5	78.0	0.8
July	29.710	29.450	108.0	87.0	85.0	75.0	3.71
August	29.784	29.550	101.0	78.2	83.0	73.5	10.66
September	29.916	29.608	94.0	77.6	80.0	71.0	18.05
October	30.060	29.904	98.0	91.0	78.5	70.0	0.01
November	30.132	29.860	95.0	87.5	73.0	61.0	0.0
December	30.098	29.850	88.5	78.0	69.5	49.0	0.11
1903.							
January	30.086	29.940	88.5	76.0	66.0	47.5	0.0
February	30.150	29.944	99.5	75.0	64.0	46.0	0.0
March	29.984	29.786	103.5	85.0	74.5	54.0	0.0
Total ...							27.62

fodder.

14. Except in extraordinary times, such as the last famine period, when a great influx of cattle from other districts and provinces in search of grazing greatly increases the scarcity, forage is abundant. But for the inflow of foreign cattle the losses in the district would have been far less serious, resulting as it did in the consumption of all forage, so that breeding cattle perished in great numbers.

15. The only fodder crop grown specially for feeding cattle is *bávto*, *Eleusine coracana*. This is the name given to a crop which is sown in the month of September, reaped in November and dried and tied into bundles before it comes into grain. Prosperous cultivators reserve a portion of land for this crop and store sufficient for their bullocks during the monsoon, and the remainder is sold or fed in the fair season.

16. Fodder producing crops grown in large areas are *bájri*, *Penicillaria spicata*; *jovári*, *Andropogon sorghum*; barley, *jáv*, *Hordeum vulgare*; rice, *dánger*, *Oryza sativa*; and wheat, *ghau*, *Triticum sativum*; others are *math*, *Phaseolus aconitifolius*; gram, *Cicer arietinum*; tur, *Cajanus indicus*; mag, *Phaseolus mungo*; kodra, *Paspalum scrobiculatum*; gavar, *Cyamopsis psoralioides*; vál, *Dolichos lablab*, occasionally. Oil-cake and cotton-seeds, *kapsia* are also used for feeding purposes, the former made of the compressed seeds of *tíl*, *Sesamum indicum*; ground-nut, *chinnug*, *Arachis hypogea*; rape-seed, *sarsav*, *Brassica campestris var napus*; linseed, *alsi*, *Linum usita-*

Ahmedabad District.

(F. Josten.)

tissimum; mustard, *rai*, Brassica juncea; and others after the oil has been expressed. Sessamum oil-cake is most generally given. The latter, *kapasia*, the seeds of Gossypium herbaceum, are given whole with fibres of cotton still adherent to them. They seem to have little or no ill effects even when cotton seeds are given in fairly large quantities.

17. Appendix A gives for each taluka, as far as available, the area in acres of grazing land allotted to villages, also of waste land, Government birs, and private birs.

The totals for the whole district are:—

	Acres.	Gunthas.	
Grazing land allotted to villages	... 19,574	25	Grazed all the year round.
Waste land	... 265,142	27	
Government birs	... 6,647	32	
Private birs	... 2,940	0	Half this grows good grass for cutting and half inferior for grazing.

293 acres 4 gunthas of Government birs in the Sanand taluka are in possession of the Military authorities at Ahmedabad. Part of the grass supply of the Bombay Tramway Company comes from private birs in the Sanand taluka; only the grasses called in Vernaculars *jinjwa* and *ghandhi* are taken. Before the late famine grass was early grazed down on all grazing lands. Cattle of villages would meet and overlap, but they have been so much reduced in numbers that much long grass remains this year, especially in the Sanand taluka where grass fires have been common.

18. The grass on bir lands is sold by auction, after it is cut the lands are grazed by cattle and their manure is taken as a grazing fee.

19. The people stack fodder for their cattle in quantities sufficient for the fair season. For the monsoons they stack fodder for the bullocks only. Fodder is not stacked to provide against a possible scarcity.

20. Table B gives the number of wells and tanks for each taluka and Table C the area of land irrigated. For the whole district the following are the totals: Wells, kucha and pucca, for irrigation, human drinking purposes, and for cattle 18,529. For cattle alone 748. Tanks for similar purposes number 3,739, of which 2,278 are for cattle only.

21. Of the total area of 1,570,677 acres held for cultivation, 940,111 acres are unirrigated, 49,257 acres are irrigated, and 587,309 acres are fallow.

Water supply.

Cattle of the Bombay Presidency.

22. Wells for irrigation purposes number 15,619 and tanks 1,095. The number of acres irrigated from wells alone was not ascertainable. The wells, tanks, rivers and streams of the district afford a sufficient and convenient water-supply except in a few places. Bhál in the Dholka taluka was the only place reported with scarcity of water, and that only in times of scanty rainfall. Tanks, for instance, which ordinarily retain water up to the end of March, were in the past year dried up in November. The sub-soil water has also got very low. It is customary to water cattle at tanks until they go dry and then use the wells.

23. The Prántij taluka has many rivers and wells of sweet and good water. The Sábarmati, Háthmati, Khári, Meshva, Vátrak and Májham rivers flow throughout the year.

24. The Sábarmati, Khári and Meshva also cross the Daskroi sub-division.

25. Viramgám is without rivers, but is well supplied with ponds and reservoirs. In the north-east about one-third of the area is light, gorát soil, and sweet water is found near the surface; the rest, except chance light patches, is black and the water is generally brackish though sufficient,

26. The water of Sánand is good. Besides the Sábarmati watering some of the alluvial lands in the east, Sánand is crossed from north to south by the Kohar, which loses itself in the Sial marsh. In the light soil tracts the wells are generally brackish and from having a substratum of gravel most of the ponds are dry early in the season.

27. In the Dholka taluka except the Kohar, little more than a local drain, the only river is on the east, the Sábarmati. Its waters are much used for irrigation. The light soils, gorát, in the east near Dholka have a large store of well water, and the black brackish soils in the south and west are well provided with ponds.

28. The water-supply of Dhandbuka is scanty. There are no large rivers. The Bhádhhar and Utávali, little more than streams, lose themselves in the marshes. Ponds are comparatively bad and wells few. The rainfall is generally short, from 16 to 24 inches. In Gogha the rainfall is light, but falling on a retentive sub-soil is sufficient. Many of the streams, though small, flow throughout the year. Ponds are few and irrigation is chiefly from wells dug near the streams.

29. There is but one cattle market for the whole of the Ahmedabad and Kaira Districts, and that is the weekly market held every Friday at Ahmedabad at which some thousand or so cattle are usually to be seen. People come from all parts of these two districts to buy and sell cattle, which, with few exceptions, are of the

Ahmedabad District

(A. Joslen.)

"Gujrát" breed, the characteristics of which are given elsewhere. As a rule the best Gujrat cattle are not to be seen at this market, more often the ordinary and poorer class of bullocks. The needy cultivator, who does not live too far away, takes his bullocks there for sale after the ploughing season and buys again as he requires them, and superfluous bullocks of other cultivators for which there is no ready sale to dealers are also disposed of in this manner. Some fine cattle, however, can be obtained in the market. On one occasion I met an Army Transport Officer purchasing bullocks. He would in my opinion have secured better animals by visiting certain places in the districts, such, for instance, as Dhandhuka; Retal and Wásna in Sánand; Virangám; Pátri, Chandkheda and Naroda in Dakroi; Prántij; and Mahuda, Nadiád, A'nand, Umret, Dákor and Dabhan in the Kaira District.

30. The Ahmedabad and Kaira Districts are well suited for cattle-breeding, fodder crops and grazing being usually plentiful. In nearly all villages a few professional cattle-breeders, Rabáris and Bharváds, are to be found, and these men may be said to take the place of weekly cattle fairs such as are general in the principal villages of the Deccan. Bullocks for agricultural purposes are reared from the time they are a few months old at which age they are purchased, after castration, from Rabáris and regular buyers and sellers, Bharváds, many of whom go to the Pálanpur and Rádhanpur States where the best Kánkrej cattle are to be found and buy these calves. Most of the fine cattle in the Charotar, Kaira District, are thus obtained. At Nadiád I met a Rabári with 18 Kánkrej calves he had brought down from Rádhanpur and at Borsad a dealer was present with 15 young Kánkrej bullocks and bulls brought by him from Pátan in north Gujrat *via* Virangám and Dholka, the names of other places visited *en route* he could not give, or would not. This is his regular annual tour. Rabáris, who now own from two to three cows up to twenty, used to have from 50 to 150 or 200, with from one to three bulls, before late succession of famine years, accompanied with its influx of cattle from other parts, nearly resulted in the extermination of the breeding stock (cows and bulls, which are almost entirely maintained by grazing). Most of the best agricultural cattle were saved.

Cattle.

31. Table D gives the number of plough cattle, bulls, milch cattle, ploughs, carts, etc. There are but two breeds of cattle proper to the districts of Ahmedabad and Kaira, which are taken together under this heading as cattle are of the same class throughout both. These breeds are the Kánkrej or Wadhial and its variations, the Gujrat. But the variations are not sufficiently pronounced to constitute what might be called a distinct breed. It is like comparing, but in a lesser degree, the pure blood Arab to the ordinary Arab troop horse, both

Professional breeders.

Characteristic breeds of catt's including buffaloes.

Cattle of the Bombay Presidency.

are of the same breed yet very different horses. In their capabilities for work also the comparison holds good. There can be no doubt that the Gujrát cattle are mainly of the Kánkrej strain modified by local conditions and at some time or other a cross with a Málva cow, or bull, and rarely, a Káthiáwár. For breeding purposes a bull of Kánkrej breed is always procured if possible. Many of the cattle are indistinguishable from pure Kánkrej cattle and are in fact of that breed, but having been born from imported parents are called Gujrát or *deski*. Cultivators seldom know how their cattle are bred as they purchase them from Rabáris and from each other, and therefore almost always call them *deski*. Other cattle found in these districts are the Málvi and Káthiáwár. The former have been imported from Panch Maháls and Ratlám and issued to poor cultivators as takávi. A few of these, medium to small in size, are to be seen in nearly all villages, particularly the poor ones. Some of them are bulls. Care should be taken in future that all takávi cattle should be castrated as they are usually of the cheaper inferior sort. The Káthiáwár are very few almost insignificant in numbers, except in the Dhandhuka sub-division. One is occasionally seen in other parts, usually a cow, the cows of this breed of cattle being good milkers.

32. In some of the Gujrát cattle the forward bend and shape of the horns and the roundness of the forehead (the chief variations) are in all probability due to admixture of Málvi and Káthiáwár blood.

Buffaloes.

33. The buffaloes of Ahmedabad and Kaira are small, but very massive and wonderfully uniform in size and characteristics. A buffalo-cow might be taken from any village and it would represent the majority of the buffalo-cows of any other village, and if herded with them might not be readily distinguished again by a person unacquainted with the herd, unless minute details had been noted. The breed seems to have no particular name other than *deski*. Other breeds of buffalo are the Dehi, distinguished by their larger size and curled up horns, and the Káthiáwár, characterised by a coarse massive frame, big rounded broad forehead, and thick horns forming a spiral curve downwards. These, however, are but seldom met with. Buffaloes are semi-aquatic in their habits and may be seen lying in muddy pools or in tanks and rivers, often with only the upper part of the head above water, particularly during the heat of the day. Where there are no ponds and rivers they are washed every day.

34. Table E gives measurements of representative cattle and buffaloes of the districts of Ahmedabad and Kaira taken by myself or directly under my supervision. Measurements of cattle obtained through other people, excepting my special Assistant Mr. Buxy, are absolutely unreliable. A Mámlatdár, for instance, informed me that the height of bullocks, zamindars said, was most suitable for their requirements, was 8 feet behind the hump, and in girth 4 feet. This I

Ahmedabad District.

(S. Josten.)

have in writing from him. No two persons previously inexperienced and uninstructed would measure an animal alike in all respects. In measuring cattle they should be made to stand square on their legs, with the head up in a natural position, on level ground. The height was taken from the ground to the top of the hump and the top of the back behind the hump. The length of the body from the point of the shoulder to the end of the buttock passing just below the hip joint. The girth round the chest just behind the shoulder. The shank round the leg about two inches below the knee. The length of shank from where the shank or cannon bone begins to where it ends (two very indefinite points to one unacquainted with the anatomy of the animal). The length of horn from where the skin of the forehead ends, outside the curve to the point. The length of the face, from midway between the horns at the top of the forehead to the end of the muffle. The breadth of forehead at its widest part, generally about midway between the horns and eyes. The length of ear from its moveable base to the tip outside.

35. The height will vary considerably on uneven ground and the length of body varies greatly if a fore and hind leg are placed respectively forwards and backwards or one only so placed. The point of the shoulder and buttock also are indefinite terms. The proper length of shank can only be demonstrated on the subject itself. The girth will be several inches greater if the animal is excited and stands with muscles ready for action, after a drink of water, or a feed, or if the condition of the body is fat. All measurements should be taken with the tape drawn tight without using force.

36. The prevailing colour of the Kánkrej breed of cattle is white or silver grey with black muffle. The margins of the eyelids are also black and generally the front of the forearm, knee, fetlocks, and coronary bands. The tuft of the tail is black. Often the face, or face, quarters, and thighs, are black (see photographs)* The bull is generally more black than grey or white, frequently having only the sides of the chest, brisket, sheath, back of the legs and ears white. The inside of the ear is an orange colour with often a black patch near the point, the rest of the skin is black and the coat very fine, short and smooth. Gujrát bullocks are mostly a whole white or silver grey, except that they have the black margin to the eyelids, black in front of the knees and fetlocks and black coronary bands. The muffle and tuft of the tail are always black. A young bull will get blacker as he gets older. The horns are generally of a whitey-brown to black colour. They get whiter as age advances. The hoofs are of hard black horn.

Prevailing
colour,
Gujrát
cattle.

37. Káthiáwár (Gir) cattle vary considerably in colour, but are usually red, dull-red, reddish black, black and red, red and white, speckled red and white. A bull seen at Ránpur had the head, neck,

Káthiáwár
cattle.

* The photographs are issued in a separate paper case.

Cattle of the Bombay Presidency.

hump, quarters, and legs black, and the body a dull reddish black. The tuft of the tail and coronary bands are black. The photographs give a good idea of these colours which are quite characteristic.

38. The Málvi bullocks imported into Gujrát are all white, with the front of the knees and fetlocks and coronary bands black. The muffle and tuft of the tail are black, and sometimes the neck, shoulders, hump and quarters are silver grey to dark grey.

Buffaloes.

39. Buffaloes are generally black in colour or black with a white poll and white tuft to the tail. Many are a dirty grey or dun and in these the skin inside the thighs and fore arms is of a rosy reddish tinge. Sometimes an albino may be seen with wall-eyes.

General
description,
Kánkrej
cattle.

40. Kánkrej or Wadhíal cattle (so named after the best cattle breeding districts in the Pálanpur Agency) of the best kind have a very symmetrical, uniform, highly-bred appearance, such as can only have been produced by a long and uninterrupted period of breeding and rearing on sound and well established principles. The head shows the most strongly marked and constant characteristics. The horns, thick and quite round at the base, spring from the upper flattened ridge of the frontal bone which extends straight across from horn to horn protruding beyond the forehead on each side giving the horns the appearance of being covered with skin for the first two or three inches from their base. This skin recedes in aged animals. (Photographs 2, 5 and 7.) The horns are very symmetrical. They curve outwards, slightly backwards, then straight upwards and inwards with the tips curved backwards. The forehead is broad and flat with a slightly rounded elevation over both the eyes. The eyes are big, black and bold, but placid. The opening between the eyelids is elliptical, the upper lid, especially in the adult bull, generally having two or three parallel wrinkles over the bulge above the eyes. In the bull a small white streak passes downwards in front of the inner canthus from just above to just below the eye. The ears are white or black with a white margin, and a rich orange colour inside where they are devoid of hairs and sometimes have a black patch near the tip. The ears hang straight down with the opening forwards and inwards, as in photographs 1 and 5 when not in motion, otherwise they are moved backwards and forwards to the positions seen in photographs 4 and 2 respectively. They should be large. The face is short, narrow and finely cut, the muffle black, muzzle small and the nostrils clean cut and well defined. The neck is short and very thick in the bull, fine in the cow. The hump is big and well developed in the bull, curving over straight backwards on to the middle line of the back in a peculiar manner as though terminating in a short abrupt point folded under itself. It is medium sized or small in the cow. The dewlap is large and pendulous in the bull and the cow, but especially so in the former and consists of a simple fold of the skin extending from the chin to the

Ahmedabad District.

(E. Josten.)

brisket. The skin generally is thin and pliant. The chest is capacious with well turned ribs and the body long. The back has a slight upward inclination to the croup in many specimens and the quarters droop. The tail is thin with a tuft of black hair a foot or so in length and reaches to a little below the hock. The elbow is free and well defined. The forearm and thighs are muscular. The sheath is thin and small. The limbs are straight and clean, with good well defined bone and tendons. The feet are hard, black and well shaped and the action is level. The udder of the cow is small as a rule, but of good shape with well separated teats.

41. Gujrát cattle of the best sort have the same characteristics as Kánkrej cattle, are in fact of the Kánkrej breed; others have the same general form, but are wanting in such points as indicate quality, such as finely chiselled features, thin skin, clean straight limbs, well defined muscles and tendons, and spirit. Others again show deviations from the Kánkrej type and want of symmetry, though showing on the whole a preponderance of the Kánkrej strain. The head and horns give the surest indications as to how Gujrát cattle are bred. A rounded forehead and backward slope of the horns will denote a cross with the Gir or Káthiáwár though the colour remains white. A long narrow face and small horns, a Sind cross. A flat forehead, thick set frame, with small horns having forward slope a Málvi cross, and so on. Without the head as a guide it is doubtful if their extraction could be determined.

Gujrát
cattle.

42. Kánkrej and Gujarát bullocks are taller and bigger than their parents and have greater development of horn. They are thinner in the neck, light in the fore parts, smaller in the hump, wider in the pelvis and higher on the leg than the bull. This is the result of castration at an early age, (see photographs 22, and others). Castration is practised in Gujrát that bullocks may grow big and have weight, whilst in the Deccan it is delayed till about the fourth year of the animal's age in order that the bullock may become thick and muscular in the neck and strong. The reason for this would appear to be that in most parts of the Deccan where forage and grazing are scarce and keep expensive, a small stout hardy animal is indispensable, whilst in Gujrát where forage is abundant and the soil is heavy, size and weight are essential.

Kánkrej and
Gujrát
bullocks.

43. These are small bullocks with few exceptions, which have been distributed to poor cultivators as takávi. A few small Málvi cows are to be seen in most of the village herds. In Mollison's Text-book on Indian Agriculture, Volume II, Málvi cattle are thus very accurately described: "They are particularly true to type and have certain peculiar characteristics which leave no doubt as to their purity of blood. The predominating colour is pure white. Grey or silver grey specimens are common, but broken colours are unknown. In grey or silver grey specimens usually the limbs, neck, and head are a darker

Málvi cattle.

Cattle of the Bombay Presidency.

shade than the body." "The Málvi is generally very shapely in appearance, having the frame wide and deep but not very long. It is supported on squarely set, well shaped limbs, with good flat bone and round hard feet. There is a slight droop in the hind quarters. There is not much loose skin on the sheath, but that on the neck and dewlap is well developed. The hump is large. The head and horns are very characteristic. The muzzle is large and jet-black, the eye membranes and hair immediately surrounding the eye socket are also jet-black. This characteristic is a 'Hall mark' invariably found in pure bred Málvis. The head is short, the eyes are dark, prominent and have a floccile appearance. The ears are short with little or no tendency to droop. The horns are very characteristic. They are moderately thick at the base, of fair length, and are sharp pointed and invariably spring in a forward and upward direction from the head with a graceful outward bend." Often there is a slope in the line of the back from the hump to the croup. The forehead is flat and sometimes there is a prominent bony ridge midway between the horns. The tail is long, has a black tuft reaching almost to the ground. The front of the knees and fet locks and the coronary bands are generally black. Málvis are thick set, sturdy cattle slower than Gujrátis. (Photographs 35, 39, 40 and 41.)

Káthiáwár or
Gir cattle.

44. These, as might be expected, are not uncommon in the Dhandhuka sub-division. Káthiáwár cattle stand in the same relation to Gir cattle as the Gujarát to the Kánkrej. (Photographs 57 to 61 are illustrations.)

45. Gir cattle are thus described by Mollison in his Text-book of Indian Agriculture, Volume II: "The breed may be classed as medium sized. The general conformation of the frame would not indicate in any particular way that the breed is especially useful as a milk breed. In average specimens the udders are fairly capacious and the milk veins prominent. These are about the only indications of deep milking capacity. The udders are not usually well shaped being too pendulous with large teats irregularly placed. The frame should be square and wide, but usually there is, in cows especially, a very decided droop in the quarters and deficiency of the thigh. Very often animals otherwise well proportioned stand high and the term leggy can appropriately be applied. Usually Gir cattle stand fairly wide and square on their legs. The leg bones below the knees and hocks are, however, coarse, particularly so in bulls. The feet are large and soft, in old bulls particularly so, and often in cattle advanced in years get unshapely. In well bred specimens the loose skin on the sheath of the bull is very conspicuous as also under the neck and under the dewlap. There is also much loose skin under the neck and dewlaps of cows and also near the navel. The hump is very large in the bull, but only of medium size in the cow. The head, horns and ears are specially characteristic." "The peculiarity of conformation may,

Ahmedabad District.

(F. J. Josten.)

in part, he explained if it is true that Gir bulls were in olden times trained for fighting in all Káthiáwár Native States. The head of a present day Gir bull would make a first class battering ram. It is curious, perhaps significant, that the Jafferabadi buffaloes bred also round the Gir hills have similar extraordinary development of frontal bone. This development of frontal bone gives to Gir cattle a peculiar prominent rounded appearance of forehead. The greatest convexity, measuring from the base of one horn to the base of the other, is in an old bull as much as two feet. The prominence of forehead is made to appear all the more so, because the horns take a backward inclination. In the male the horns are thick at the base and in the most typical specimens curve backwards abruptly and then forward. They are longer and much thinner in the cow, but spring also backwards, with, however, a spiral inward sweep. The head looks short in the bull, but this is because it is so wide and massive. It looks long in the cow and in taking actual measurements it is found to be so. The muzzle is large and black. The eyes look sleepy and are shaded by a heavy prominent eye-brow, which gives a sinister appearance and indicates a treacherous irritable temper which is commonly, if not constantly, a characteristic failing. The ears droop as in a lop-eared rabbit and those of the calf reach to the nostril. They have a characteristic nick near the point on the inside." At about half their length they are bent backwards at an acute angle seen in photograph 80. The tail is long and thin with a big black tuft reaching nearly to the ground.

46. Buffaloes differ from oxen in their massive frame-work, absence of hump and dewlap, flattened horns and better developed secondary digits. The skin is thick and covered sparsely with coarse hairs, and the voice is different. Buffaloes of the Ahmedabad and Kaira Districts are small, short on the leg and of uniform size, the result in all probability of in-an-in breeding. (The best buffalo bull-calves are selected and kept for breeding purposes and not afterwards changed or transferred. In one instance a buffalo-bull had been with his herd of cows fourteen years and was covering his own progeny.) The horns are short taking a downward and backward, then upwards, and sometimes inward, direction till the tips nearly meet over the neck. They are flattened and transversely corrugated on surface. The forehead is rounded in all directions, the face suddenly narrowed below the eyes is long and terminated in a fine muzzle. The head is carried nearly straight out in line with the neck which is of fair length, thick, and muscular in the bull. The ears when at rest hang straight onwards and downwards with the opening forwards. The line of the back is, as a rule, by no means straight, the withers thin and sharp have a long well marked arch, there is a dip in the loins, the croup is high, the processes of the pelvic bones very prominent and the quarters have a considerable slope. All these features are much more pronounced in poor conditioned buffaloes. The brisket

Buffaloes.

Cattle of the Bombay Presidency.

is well developed and has a small thick fatty dewlap. It is larger in the bull and not so fleshy. The sheath of the bull is small. The stiff coarse hairs of the skin are longest and most numerous over the head, neck and shoulders, photograph 43. There is usually a tuft of long hairs on the front of the knee, photographs 46, 49 and 50. The arch of the last rib springing from the posterior end of the dorsal ridge plainly marks the junction of the back and loins. The flank occupies a triangular space between the last rib and the hip and is very hollow and ugly in thin animals. The pelvis is broad and large and the flesh seldom fills out the spaces between the processes unless the animal is highly fed and well taken care of. The body is massive, supported on very short, straight legs. The feet are well shaped. The tail varies somewhat in length, but usually reaches below the hock. The udder of the cow is well formed and capacious. The teats are peculiar in having a constricted base, photographs 51, 52 and 54. There is often one or two white necklace marks on the under surface of the neck, photograph 55. Many of the best buffalo-cows produced for my inspection were shaved and oiled; considerable trouble had been taken with their "toilet" and their owners were quite proud of them. This preparation gives them a very sleek and clean appearance. Sometimes they are only partially shaved so that the remaining hair forms fanciful patterns. They are shaved that they may not harbour lice.

Delhi buffalo-cows.

47. This breed of buffalo-cow is imported in considerable numbers for dairy purposes, especially into the city of Bombay. Photograph 56 illustrates a good typical specimen. They are much larger than the breed described above and give more milk, but it is doubtful if the percentage given per body weight is greater. The horns are very characteristic, being spirally curved upwards, backwards and inwards often forming a complete circle. The forehead is prominent and rounded; otherwise their conformation resembles that of the Gujrat buffalo. Buffaloes have a peculiar forbidding look when approached by strangers; the head is held out with the ears drawn back, the eye is black and glittering, but on the whole they are very placid and domesticated.

48. Names by which cattle are called at different ages:—

	Bull-calf.	Heifer.	She-buffalo.
Under one year ...	Váchhardo ...	Váchhardi ...	Pádi, Pádo (male).
Over one year, but under three years.	Gollo or Reddo ...	Vodki ...	Gotuor Jotdu.
Over three years ...	Balad (bullock) Bull-Akhla or Sándh.	Gáya ...	Bheus.

Abmedabad District.

(F. Josten.)

A male buffalo-calf at any age is called "Pádo".

49. The people do not appear to have any very accurate knowledge of the condition of the teeth of cattle at different ages. If they are to be believed the indications of age as afforded by the teeth vary considerably in different animals. As far as I could ascertain however they seemed to agree with those given by Major Pease and quoted in "Breeds of Indian Cattle, Punjab" which are as follows:—

Age.

Cuts temporary incisors, middle pair	3 days.
" " " lateral "	5 "
" " " outer laterals	12 "
" " " corners	35 "
" permanent " centrals	2 years to 2 years and 3 months.
" " " laterals	3 years.
" " " outer laterals	4 "
" " " corners	5 "

The condition of the teeth of cattle at different ages might advantageously be noted in those bred and reared on the Chharodi Cattle Farm of the Gujrát Cattle Preservation Association.

50. These will be dealt with under the headings "Cows, their milking capabilities" and "Bullocks, their capabilities for work".

Characteristics of working and milking capabilities.

51. The methods of feeding vary according to the crops grown in the locality, their market prices, and the means of the owner.

Methods of feeding, artificial and grazing.

52. Cows are with few exceptions owned by Rabáris, and except at the calving period are maintained all the year round by grazing. By others during the first few months of pregnancy they are given 30 lbs. of green grass, if available, or kadbí, and during the last three months a mixture of cereal and pulse fodder, 20 to 25 lbs. of kadbí or grass, 2 lbs. of crushed bájri, and an ounce of salt. If cows are well taken care of during the latter months of pregnancy they yield a fair quantity of milk after parturition. After calving boiled sava and bájri is given with a little treacle as a laxative, and during the period of lactation, which reaches its maximum yield about a month after calving, 1 lb. cotton-seeds, 2 lbs. crushed bájri or jowár, 1 lb. oil-cake, and 1 oz. of salt. This mixture is cooked, the oil-cake being broken into small pieces and sprinkled over the top. It is given in two feeds, one morning and one evening, and the cow is watered before the milk is drawn to increase its yield. Such feeding as this is not given by the Rabáris. If they live near the town where they can dispose of the milk they give at the most a mixture of pulse and cereal fodder.

Cows.

Cattle of the Bombay Presidency.

Economy in feeding.

53. Economy in feeding is well understood. In the fair season the following dry fodder is generally available :—

- (1) Dry cereal fodder—
 - (a) Jowári kadbi.
 - (b) Bájri stalks.
 - (c) Wheat straw bhoosa.
 - (d) Rice straw bhoosa.
- (2) Hay of good quality.
- (3) Pulse fodder—
 - (a) Gram
 - (b) Tur
 } straw, chaff, leaves and pods and others.

Bájri stalks are coarse and are cut into small (about half inch) pieces, and in order to utilize them to advantage they are mixed with crushed bájri or jowári, cotton-seeds, wheat straw, and the heads of bájri stalks without seeds. This mixture is put into an earthen pot, sprinkled with water, and cooked. Small pieces of oil-cake are spread over the mixture when it is dealt out into a basket for feeding. Some treacle is usually added to give it a relish. The pulse and cereal fodder are also mixed, sprinkled with water and set aside till fermentation begins. This softens the coarser parts.

The feeding of working bullocks.

54. The following represents a day's ration for a working bullock at Dholka :—

Guvár	...	...	3 lbs.
Cotton-seed	...	...	2 "
Oil-cake	...	...	2 "
Kadbi	...	...	25 "

But it is not usual to give both the guvár and oil-cake. One or the other is omitted. When cattle are much fatigued after work oil or ghi is mixed with the food. After the cultivating season an inferior quality of kadbi is given. Before the arrival of the rains math and guvár are given.

55. In other parts, Retul, for instance, cattle get kadbi, wheat bhoosa, and pulses, and 3 to 5 seers of cotton-seeds.

56. In Viramgám and other places grass in the birs after it is sold by auction is cut and made into hay and the birs are afterwards grazed. In the non-working season cattle receive kadbi, banti straw, and about 2 lbs. of oil-cake. Working cattle get—

5 seers kapásia	} per pair per diem.
5 " guvár	
5 " math	
1 seer jagari	
$\frac{1}{2}$ lb. ghi	

Ahmedabad District.

(F. Josten.)

and very little fodder.

57. In the Sānand tāluka working bullocks are not allowed to graze till the cultivating season is over because feeding on green grass is said to weaken their energy. During that time they get only jowāri fodder, specially grown and known by the name of bantū (a jowār crop cut before it grains) and 25 lbs. of other dry fodder per diem in addition to special food as follows:—

- (1) During the cold season one maund of half pressed til seeds, 2 lbs. per diem mixed with half a pound of molasses.
- (2) For the last two months of the hot weather and the two months of cultivating season jowār at the rate of 3 lbs. per diem. Ghi 1 lb. or so at a time is also given by a few well-to-do cultivators.
- (3) During the cultivating season 60 lbs. of dry jowāri per diem (including the bantū mentioned above).

58. At Jakhwāra bullocks get 10 to 15 bundles of kadbi, 5 to 10 seers of cotton-seeds, and 1 lb. oil-cake. For four months from November 5 lbs. of til oil are given, afterwards during the period of four or five days 2 lbs. of ghi, then for one week the following mixture:—

1 Maund bājari.
1 „ oil-cake.
5 to 10 seers gur.

59. At Wāsna cattle receive 4 seers guvār, 10 bundles kadbi and wheat bhoosa. Bullocks are grazed all the year round except when at work in the cultivating season.

60. The methods of feeding given above will seem to vary greatly. They will, however, give a general idea of the way in which cattle are fed. It is an extremely difficult thing to ascertain any definite methods in practice among agriculturists or the amounts of different foods they give their animals and it is doubtful if they have any particular hard and fast rule. A cultivator regulates the feeding of his animals in accordance with his means, the market price of the various food stuffs, the idiosyncrasies of his cattle, their age and sex, the periods of parturition and lactation in the cow, the time of year, and the amount of work done. He stacks his fodder and stores his grain, etc., in bulk and deals it out in handfulls or baskets so that as a rule he can only say he gives karbi, cotton-seeds, oil-cake, and so on. Enquiry, for instance, from a number of agriculturists as to the amount of a certain food, or mixture of food stuffs given to cattle, will elicit different replies from different individuals, all of which may be correct. Well-to-do agriculturists feed their cattle very liberally, whilst

Cattle of the Bombay Presidency.

Rabaris seldom allow them anything beyond what they pick up when out grazing or steal at night.

Buffalo-cows.

61. Buffalo-cows are fed in the same way as ordinary cows, but receive from two-thirds to twice as much and at times of parturition and lactation receive similar treatment. They are grazed all the year round and are given cooked food twice a day. The following is an example of a day's ration :—

Cotton-seeds	...	...	... 2 lbs.
Crushed bajri or jowari or a mixture of both.	4	..	..
Oil-cake	...	...	... 2 "
Salt	...	...	... 1 oz.

They will also be given kadbi, and a mixture of the leaves and pods of various pulses in greater or less quantities according to the amount and quality of grazing available and the means of the owner.

62. Cotton-seeds are given to increase the butter yield of the milk.

63. Buffaloes are turned out of their stalls or owner's houses into the precincts of the village in the early morning as scavengers.

Calves.

64. As soon as the calf is born it is placed in front of the cow that she may lick it. This has a laxative effect upon the cow and is beneficial to the calf. The "beastings" "khiru" or first milk which contains the colostrum is sometimes given to the calf, sometimes not. In Parantij the calf gets the whole of the first four days' milk. In Viramgam the first milk is given to the cow herself. In big towns it is purchased by Parsis and Mohomedans who make a sort of condensed milk cake of it, called buri, which is considered a great delicacy. For the first four or five weeks the calf remains simply on the milk of the mother, the quantity allowed being 2 to 4 lbs. a day, or less and sometimes supplemented with $\frac{1}{2}$ lb. bajri flour and curds. After this period the young calf, after suckling, is tied by the side of the mother that it may learn to partake of the concentrated food given to her, which it soon does, but it is not allowed more than $\frac{1}{2}$ lb. of this a day. At six to eight months of age when a cow-calf is weaned 1 to $1\frac{1}{2}$ lbs. of concentrated food or cotton-seeds are given and she is taken out with the herd to graze.

65. Bull-calves are generally allowed all the milk of the cow. They are weaned at 6 months old and are then taken out with the herd to graze, or sold. It is the practice to allow the calf to suckle after the milking of the mother.

66. Buffalo bull-calves are not reared. They are quietly made away with, handed over to the Mahajans who send them to the pinjrapol, or sold to butchers.

Ahmedabad District.

(F. Jansen.)

67. The cost of feeding per diem ordinarily is 2 annas 2 pies for a buffalo, 1 anna 6 pies for a cow, and 2 annas for a bullock.

68. The breeding of cattle is carried on almost entirely by professional breeders residing in villages where fodder is plentiful. These men are Rabáris and Bharwáds who make cattle-breeding their business and do nothing else. Many of them ruined by the late famine, had, before that time, herds of cows amounting to one or two hundred or more with several bulls. Now a herd of 50 cows belonging to one breeder is uncommon and bulls are very scarce. In the whole of the Sánand táluks, where grazing is plentiful, the number of superior cows is only about 300, and the number of bulls 15 to 20. Young first class bulls are allowed 50 cows and ordinary ones about 25. They are herded and taken care of along with the cows, and cultivators who keep cows are allowed their services free, it being considered morally wrong to charge a fee. The principles of breeding are thoroughly understood by professional breeders. Bulls are not allowed to cover their own progeny. When they have been so long with a herd that there is a possibility of this happening they are sold, made over to the Mahajans, or exchanged for others. The practice of turning loose pol bulls is not general. They are very often inferior animals dedicated to a temple and can be recognised by the way they are branded. The most common brand, delineated thus ♀ and ♂ represents the trident of the god Shiva which he carries in his hand as he is portrayed riding a bull. Another brand ∆ represents a temple and another ♀ the trident of the goddess Máta, the rings on the top standing for the lemons. Bulls belonging to Rabáris are branded with one or more circles ○ on the various parts of the body.

Methods of
breeding
generally,
mating, etc.

69. The brand of the pol bull is usually placed upon the near quarter and thigh which it is made large enough to cover. Rabáris and Bharwáds are very careful in the selection of their bulls and endeavour as far as possible to obtain only the best of the Kánkrej breed. Inferior bulls are handed over to Mahájans who send them to the pinjápol.

70. Nearly all the cattle required for agricultural purposes are bred by these people or are purchased as calves in the Pálanpur State and brought down by dealers for sale to cultivators who rear them.

71. In villages where no bull is kept cows are sent to the nearest village where one is to be found. A cow begins to breed at about 3 years of age. The period of gestation in the cow is about 9 months, in the she-buffalo 10 months. A buffalo-cow comes in season 4 to 6 months after calving. The period of œstrum is very short and may be recognised by the bellowing and restlessness of the cow. In the cow it is a little longer—one to two days.

Cattle of the Bombay Presidency.

buffaloes.

72. No particular care is taken as a rule in the breeding of buffaloes. The most promising bull-calves or such as are the produce of the best cows, are selected by the villagers and kept as bulls, and these bulls are herded with the cows so long as they continue vigorous. In one case already mentioned a bull had been over 14 years in a village. No objection is made to a buffalo-bull covering his own offspring. In some cases buffalo-bulls are kept by Vághris or Rabáris who charge a covering fee of 2 to 4 annas or 10 seers of grain, and the tendency in this case is for the owner to allow his bull to cover as often as he can. As many as 100 cows three times each may be covered in a year. August and September are the usual months for covering operations, calves falling in July. Ten per cent. miss breeding for a period of 18 months. On the whole the bulls seem suitable differing very little from the cow in conformation excepting in the head and neck which are more massive. It would appear that there is a good deal of in-and-in breeding going on and this perhaps accounts for the buffaloes of the Ahmedabad and Kaira Districts being so uniform and small in size. In Dhandhuka a buffalo-bull of the Káthiáwar breed is in use at the present time. He appears to be a half Gujrát half Gir bull. Photograph 44.

73. A young bull may sometimes be seen wearing an "apron" tied on round the girth and hanging down behind the forelegs to prevent him jumping cows.

Methods of
rearing
young stock.

74 Except in the manner of feeding there is no particular method of rearing young stock. They are kept in a fold till about 3 months old when they begin to graze and get strength. When weaned they go out to graze with the herd. If a calf has to be reared by hand it is taught to drink by introducing one or two fingers into its mouth while its head is held over a vessel containing milk in which the hand is placed.

castration.

75. Calves are castrated at from five weeks to six months of age. Usually when 2 or 3 months old. The operation is performed by Saraniás, Dheds, and Bhangis, who charge 3 pies for each calf that is gelded. The superior class of cultivator hands his young bull calves over to the Mahajans. The lower classes, Kois, etc., have their bull-calves gelded, but the numbers bred by them is too small to bear any proportion to those turned out by professional breeders. It is said that castration if delayed till the age of 8 months is dangerous and often proves fatal.

76. The operation is extremely simple, a piece of the scrotum at its lowest part is held between the finger and thumb and snipped off. The testicles are pushed out and the cords, which in the young calf are very slender and soft, are scraped through or twisted till separated. Little or no after treatment is necessary.

•77. Bullocks are put to work at from 3 to 3½ years of age.

Ahmedabad District.

(P. Seelan.)

78. Professional breeders select their own bulls with great care. They prefer bulls of the best Kankraj breed. "The best bull-calves of a particular year are chosen. The second or third calves of exceptionally well shaped, big, young, typical cows and got by a first class young bull of good pedigree, are chosen. The selected bull-calves are branded and fed and reared with great care, and allowed a full supply of food at all seasons. Such bulls are fit for service and are used at stud when 3 to 3½ years. Stud bulls are used from this age until they are about 6 or 7." (Mollison)—Regarding buffalo-bulls see former paragraph No. 73.

Bulls, their selection.

79. Gujrat cows generally speaking are poor milkers, though frequently one may be met with giving a good yield. This is not surprising in view of the fact that they are not bred by breeders for their milking capacity and seldom get anything beyond what they find out grazing. The average yield of milk of Gujrat cows is 4 to 10 lbs. a day, occasionally one may give 16 lbs. or more a day if well fed. Calves belonging to professional breeders are generally allowed nearly all the milk of their mothers. Others one-third to one-fourth. Cows remain in milk from 6 to 8 months.

Cows, their milking capabilities.

80. Buffalo-cows are kept and exported in such large numbers by agriculturists and even townspeople in the Ahmedabad and Kaira Districts that their maintenance, in addition to supplying their own wants, is evidently a source of profit. For dairy purposes they almost entirely take the place of cows, as they give more milk and manure. Large quantities of ghi, butter, and cream are exported to Bombay and Calcutta; see Appendix F, Kaira District report. The Kaira District especially might almost be called one of Bombay's dairies. A buffalo-cow gives 8 to 10 lbs. of milk twice a day. The quantity given reaches its maximum about a month or a little more after calving and continues for about 4 or 5 months, then gradually declines up to 8 or 10 months if the animal is not pregnant, if pregnant, about 6 months. The first milk of the buffalo-cow is called karantu. Ten lbs. of milk makes 1 lb. of ghi. Buffalo-cows give 6 or 7 calves after which they are starved. They are milked regularly morning and evening. Buffaloes are bred in numbers beyond requirements and the surplus, in adult age, are exported to Bombay and other places.

Buffaloes

81. Gir cows are noted as being good milkers, but cease to be so if removed from the locality in which they are bred. They are also somewhat irregular breeders. "Cows in the Deccan yield up to 12 seers (24 lbs) milk per day, but it is unusual to find them remaining long in milk, and an average of 6 to 8 seers after calving is more common yield than that noted." (Mollison.)

82. The quantity of milk given by a cow varies considerably under different circumstances. It is greatest after her second or third

Cattle of the Bombay Presidency.

calf, or from 5 to 12 years of age. A cow with calf does not give such good milk as one not in calf. It varies with the quantity and quality of food given, the time of day and frequency with which it is drawn and the season of the year. The last drawn milk is always richer than the portion first drawn. The milking capacity varies greatly in different breeds, and one cow will give a moderate yield for a lengthened period whilst another gives a larger yield for a shorter period. The former is usually the better of the two. Drinking water given before the milk is drawn increases its quantity.

83. "Indian cows and buffaloes are so excitable and irritable that a very trivial circumstance often affects the milk yield. Its secretion is influenced to a very great extent by good management. If the calf dies the milk yield may be diminished permanently." "Any sudden change in the food, a short journey by road or rail, a strange milker, a cold or wet day, any irregularity in feeding, and especially any irregularity in milking at once re-act on the milk yield. Indian cows, and more especially buffaloes, get attached often in a striking manner to the man that feeds and milks them, also to the companion animals occupying the adjoining stalls; at pasture they clique together in a curious way, and it will be easily understood that any disturbance of these friendly relations will have a distinctly unfavourable effect on milk secretion." "The maternal instincts are very strong and neither cows nor buffaloes will yield their milk unless the calf is suckling or is tied close by. When the calf dies it is common to stuff the skin and make dummy calf which answers the purpose admirably." (Mollison.) In one case the mere attempt to measure a cow caused her to fall down in a convulsive fit. On more than one occasion cattle collected for inspection stampeded from excitement.

bullocks,
their capabilities
for work.

84. It is a common saying in the districts of Ahmadabad and Kaira that a Kankrej bullock never tires and will work five years longer than a Gujrát bullock, and it is noticeable that the working bullocks of well-to-do cultivators are of the large Kankrej type, photograph 22, whilst the finest of these, of which photograph 24 is an illustration, are used in the Shigrams of native gentlemen.

85. Gujrát cattle are admirably suited for all kinds of cart and agricultural work. Except when drawing unusually heavy loads they have a characteristically free gait and stately bearing and it is surprising to see the ease with which they appear to draw the loads generally apportioned to them. The roads are usually lower than the surrounding country and several inches deep in sand with, more particularly in the Kaira District, a hedge on either side separating them from the adjoining fields. They are often several feet below the general surface of the land and serve the purpose of surface drains in the rainy season. Pacca roads have also an inch or two of dust upon them. The better class cattle will easily walk two miles an hour over these roads, and faster if required, drawing a country cart (photograph

Ahmedabad District.

(N. Osten.)

64) such as is in general use for all cart work. These carts weigh about 16 maunds (one local maund equals 40 seers of 40 tolas each, a tola being the weight of one rupee) and an ordinary load is 32 maunds (16 Bengali maunds) for two of the best sort of bullocks, which they can draw 12 to 15 miles daily; or 24 maunds 15 to 18 miles; or a load of 40 maunds on a made road 28 to 30 miles a day. Medium-sized bullocks can draw 20 to 24 maunds 10 to 12 miles a day.

86. A good pair of bullocks will plough as much as 2 acres of land a day through the rainy season if well fed. One and half acres at other times. Of heavy rice land only $\frac{1}{2}$ of an acre and of light sandy soil $2\frac{1}{2}$ to 3 acres. An ordinary pair of bullocks will plough $\frac{1}{2}$ to 1 acre and very small ones $\frac{1}{4}$ acre.

Buffaloes are not worked.

Photograph 65 illustrates a plough such as is in general use. It ploughs 8 to 9 inches deep and the width left between the furrows is about the span of a hand. The earth is not turned over. The plough is straight and sharp pointed like a simple spike. Some lands are ploughed two or three times, crossing and recrossing in different directions.

The imported Málvi cattle from Ratlám and Godhra have been found generally unsuitable for the soil of the districts.

Gujarát cattle are eminently suited for the heavy sandy soil and level lands of Ahmedabad and Kaira, but they are not hardy enough for use in other parts where forage is not abundant or the country hilly. They are never shod even for work on made roads.

87. Cultivators' cattle are sheltered at all times of the year in the houses of their owners or in rough sheds made for the purpose; those belonging to professional breeders are always kept in open enclosures (Vádas). During the rains mosquitoes are a source of great annoyance to cattle. They then prefer a shady tree in the wind to the shelter of a shed.

88. The prices of cattle prevailing generally in the Ahmedabad and Kaira Districts are as follows:—

Prevailing prices.

	Cows.		Bullocks.		She-buffaloes.	
	Good.	Medium.	Good.	Medium.	Good.	Medium.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
6 Months	5 to 8	3 to 5	15 to 30	7 to 15	8 to 20	5 to 10.
1 Year	8 to 12	5 to 8	30 to 40	15 to 20	20 to 25	10 to 15
2 Years	15 to 18	10 to 12	40 to 50	25 to 40	25 to 40	20 to 25
3 Years	20 to 25	15 to 20	50 to 80	40 to 50	50 to 60	30 to 40
Adult	30 to 40	20 to 25	100	50 to 75	75 to 80	45 to 50

Cattle of the Bombay Presidency.

Cows and she-buffaloes are not as a rule sold till they have reached maturity.

A good Kankrej bull of 3 to 4 years would be difficult to obtain and would cost about Rs. 125 to Rs. 150; before the late famine the cost would have been about Rs. 100. A good buffalo-cow may fetch as much as Rs. 100. The imported Malvi bullocks are valued at about Rs. 15 each. The finest bullock used for carriage work cost from Rs. 250 to Rs. 300 per pair.

89. The price of manure is $\frac{1}{2}$ to 2 full cart-loads of 32 maunds each per rupee.

prevailing
seases.

90. Appendix F gives a list of the outbreaks of cattle disease in the Ahmedabad District, obtained from the Ahmedabad Veterinary Dispensary records.

91. Appendix G gives the prevailing diseases treated at the above dispensary for the same period.

92. Appendix H gives the vernacular names of the different parts of the body.

93. The names of all the common diseases treated forms a very long list and is therefore not given.

94. Epizootics do not seem to have been very prevalent in the Ahmedabad and Kaira Districts. This is perhaps due to the fact that they, along with the adjoining States of Palanpur and Radhanpur, usually breed sufficient cattle and buffaloes for their requirements and few others are imported. The general sandy nature of the soil may also have something to do with it.

photographs

) characteristic bull,
) characteristic cow,
) characteristic
bullock. -
general
marks,
including
suggestions as
to improve-
ments that
in lo-
lected under
ny of the
bove heads

95. As it is very difficult to give one representative photograph of a class of which the individuals vary much, several photographs* have been taken to represent one and the same breed.

96. The provision of good young bulls of the Kankrej breed for location in villages, to be presented to professional breeders, issued as takavi, or made over to village authorities and branded with a distinctive brand, should be taken into consideration without further delay, but owing to the late famine they are very difficult to obtain at the present time at an age suitable for breeding purposes. Such bulls might be shown to Civil Officers when they are on tour in the districts, and patels of villages should be induced to hand over to the Mahajans for despatch to the pinjrapol all bulls unsuitable for breeding purposes as soon as they can be replaced by better ones. The best way to get good young bulls at the present time would be

* These photographs are issued in a separate paper case.

Ahmedabad District.

(F. Joslen.)

perhaps to commission a well known breeder of repute to visit the best breeding districts of the Pálanpur and Rádhanpur States for the purpose of purchasing them. Later on young bulls will be obtainable from the Cattle Preservation Association's Farm at Chhárodi. The best young male stock on this farm should be secured for breeding purposes in the districts of Ahmedabad and Kaira, but they should be specially reared for that purpose, well fed, and constantly handled as they grow. I picked out the best young bull on the farm at my last visit for the purpose of measuring him, but he was so timid that it took six men to catch him and nearly as many to hold him, and the attempt had to be abandoned. Bulls that are inclined to be aggressive are not tolerated by cultivators. When at Mátar, in the Kaira District, I was informed that two good bulls of the Kánkrej breed had been handed over to the Mahájans to be removed because they were vicious, and but few bulls were brought for my inspection when on tour because they could not be driven in from the grazing lands. Three times I visited Virangám and on each occasion attempted unsuccessfully to photograph a Kánkrej bull belonging to the town, said to be a good stock getter. On the last occasion he escaped by jumping the gate of the station yard, a performance few horses would have done as creditably.

97. It would perhaps be best to issue bulls to professional breeders on takávi loans. These men would look after them. Poll bulls, and others sometimes presented to villages by wealthy persons who are interested in cattle breeding or who require draught cattle for trading purposes, are sometimes maimed or killed by cultivators for trespass on their fields.

98. There will be a ready sale in the future for young bullocks and bulls bred at the Chhárodi Cattle Farm provided they are the right sort and have been well fed.

99. Presents to farmers, for whatever service given, would be more appreciated if in the form of a good calf from the Chhárodi Cattle Farm instead of puggaries, swords, and cash.

F. JOSLEN, Major,
Superintendent, Civil Veterinary Department,
Bombay Presidency.

TABLE A.

Grazing Lands—Ahmedabad District.

Táluka.	Grazing land allotted to villages.		Waste land.		Government Birs.		Private Birs.		Remarks.
	A.	g.	A.	g.	A.	g.	A.	g.	
Prántij ...	6,159	11	59,913	31	1,566	25	Waste land, 24,193—19 assessed; the rest unassessed. This is for 13 Government villages. Figures for inám villages and tálukdári villages not available. There are some private birs, but figures not available.
Daskroi ...	4,402	23	27,057	38	1,194	20	...	...
Dholka ...	3,124	28	100,651	29	...	...	...	...
Dhanduka ...	697	7	5,634	6	1,658	37	...	...
Viramgám ...	2,553	6	21,978	36	1,063	0	...	...
Ghoga ...	425	7	34,924	7	304	11	...	...
Sánand ...	2,212	23	15,287	0	860	19	2,940	0	
Total ...	19,574	25	265,142	27	6,647	32	2,940	0	

TABLE B.

Wells and Tanks—Ahmedabad District.

Taluka.	Wells							Tanks						
	For irrigation.		Human drinking purposes.		Drinking purposes for cattle.		Total wells in each taluka.	For irrigation.		Human drinking purposes.		Drinking purposes for cattle.		Total tanks in each taluka.
	Pakka.	Kacha.	Pakka.	Kacha.	Pakka.	Kacha.		Pakka.	Kacha.	Pakka.	Kacha.	Pakka.	Kacha.	
Prantij ...	907	356	243	7	10	...	1,523	...	25	...	2	1	239	267
Daskroi ...	5,178	140	732	14	106	6	6,176	2	390	...	6	4	216	718
Dholka ...	2,456	254	374	21	281	9	3,395	...	233	...	40	2	451	726
Dhandoka ...	845	2,032	215	104	182	28	3,406	9	...	6	88	10	62	475
Viramgam... ..	1,176	484	251	35	50	6	2,002	...	91	...	145	1	940	1,177
Sauand ...	1,675	116	165	6	57	8	2,027	...	345	...	81	2	248	676
Total ...	12,287	3,882	1,980	187	686	57	18,529	11	1,084	6	362	20	2,256	3,739

Note.—Pakka means "built" and Kacha "not built".

TABLE C.

Details of Area—Ahmedabad District.

Taluka.	Total area in square miles.	Net area cropped.			Add fallow.	Total cultivated area.
		Dry land unirrigated.	Irrigated land.	Total.		
Prantij	447	107,010	4,018	111,028	46,883	157,911
Daskroi	345	109,899	14,684	124,033	26,848	150,881
Dholka	690	183,231	13,216	202,447	116,885	319,332
Dhanduka	1,298	251,847	6,126	257,973	203,669	461,636
Viramgam	675	194,776	2,005	196,781	104,064	300,845
Sanam	361	81,848	9,258	91,106	88,966	180,072
Total	3,816	934,111	49,257	983,368	587,809	1,570,677

Cattle of Bombay Presidency.

TABLE D.

Cattle—Ahmedabad District.

Talukas.	Oxen—Plough cattle.		Plough cattle—He-buffaloes.	Oxen and buffaloes for other use.		Bulls for breeding.		Milk cattle.		Young stock.		Total Cattle.	Ploughs.		Carts		Population 1901.	Number of persons per head of milk cattle.	
	Castrated.	Non-castrated.		Oxen.		Buffaloes.	Bulls.	Bull-buffaloes.	Cows.	She-buffaloes.	Calves.		Buffaloes-calves.	Small.	Large.	For riding.			For carrying loads.
				Castrated.	Non-castrated.														
Prantij ..	15,413	2,556	5	139	40	7	10	33	4,454	6,596	3,870	3,581	36,714	8,567	1	45	1,007	90,629	8.0
Daskroi ..	17,146	106	3	1,634	2	193	140	54	4,783	12,726	4,824	7,506	49,119	8,334	...	1,443	2,978	294,599	16.8
Dholka ..	14,737	543	1	254	25	5	27	40	3,455	5,546	3,338	3,450	31,430	7,177	...	814	2,661	87,998	9.7
Dhandbuka ...	13,225	3,243	3	247	...	7	101	54	3,902	5,162	2,467	2,156	39,544	7,681	5	166	3,417	107,199	11.8
Viranagam ...	12,538	35	5	290	2	13	48	29	4,164	4,385	1,958	1,925	25,477	6,203	...	82	2,429	91,323	10.6
Sansad ..	11,375	...	1	...	54	7	15	22	2,234	5,704	2,072	3,305	24,679	5,377	...	147	1,931	62,095	7.9
Total ...	84,381	6,494	17	3,501	132	232	347	232	22,987	40,109	18,549	21,932	197,903	43,399	6	2,203	15,223	734,662	...

Ahmedabad District.

(F. Joslow.)

TABLE E.

Measurements of Cattle taken by the Superintendent, Civil Veterinary Department, in the Ahmedabad and Kaira Districts.

Class	Height.		Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	Weight.	Photograph Number.
	Top of hump.	Behind hump.										
<i>Ahmedabad.</i>												
Large pair of Gujarát bullocks	5 2½	4 11	5 1	6 4	0 7½	0 6½	1 5½	1 11	0 8	1 2½	15 15	(25)
	5 3	4 9	4 6	6 7	0 7½	0 6½	1 7	1 11	0 8	0 10½	15 4	
Do. do.	5 8	4 9½	4 10	6 3½	0 7½	0 7½	2 0	1 10½	0 7½	1 0	12 28	(27)
	5 1½	4 10	4 9	6 0½	0 7½	0 6½	1 4½	1 9	0 8	1 0	12 31	
Pair of medium sized Gujarát bullocks	4 6	4 1½	4 4	5 4	0 6½	0 6½	1 3½	1 8½	0 6½	0 11	9 4	(28)
	4 9½	4 5½	4 6½	5 7	0 7	0 7	1 5½	1 10	0 8½	1 0	9 24	
Do. do.	4 9	4 6	4 5½	5 7½	0 6	0 6½	1 6½	1 9½	0 7½	1 0	11 3	(31)
	4 5	4 2½	4 3	5 5½	0 7	0 6½	1 10	1 10½	0 6½	1 0	10 38	
Pair of small Gujarát bullocks	4 7½	4 2	4 5	5 6½	0 6	0 6½	1 6	1 9	0 7½	0 10	9 2	(32)
	4 6	4 6	4 4		Too restrictive to be taken measurements.						9 18	
Pair of Gujarát bullocks, smallest	4 0	3 9½	3 10½	4 9½	0 6	0 5½	1 1	1 8	0 6½	0 9	6 14	(33)
	4 2	3 10½	3 10	4 9½	0 5½	0 5½	0 8	1 6½	0 6½	0 8½	5 37½	
Largest sized buffalo-cow	4 4	...	4 8½	6 1	0 7	0 5	1 8½	1 7½	0 7½	0 9½	11 28	(30)
Do.	4 4	...	4 1½	6 4	0 7	0 5½	1 1	1 8½	0 8½	0 10	10 7	(51)
Medium sized buffalo-cow	3 10½	...	4 3½	6 0	0 7	0 5½	1 10	1 8	0 7½	0 10	10 22	(51)
Do.	4 1	...	4 4	6 1	0 7	0 5	1 4½	1 8½	0 8	0 9	9 39	(52)
Small sized buffalo-cow	4 0	...	4 3	5 9½	0 7½	0 6	1 3	1 7	0 8	0 8½	9 12	(52)
Do.	3 11	...	4 1	5 9½	0 7	0 5	2 2	1 7½	0 8½	0 10	9 21	(52)
<i>Mr. Narimas R. Kothawala's Farm at Sidrud.</i>												
Pure Kankrej bull, age 2 years	4 3½	4 0½	3 10	5 3	0 6½	0 6½	0 6½	1 5½	0 7½	1 1	...	(5)
Pure Kankrej cow, age 8 years	4 4½	4 1½	4 2	5 5	0 6½	0 6½	1 11	1 7	0 8	0 11½	...	(8)

Cattle of the Bombay Presidency.

The Agricultural

Cattle form.														
11 00 11	Kankrej cow, pure bred	...	4 3½	4 1	4 4	5 4	0 5½	0 8½	1 5½	1 4	0 6½	0 11	...	(7)
11 00 11	Gojarati cow	...	4 3½	4 0	4 5	5 1½	0 6	0 8	1 0	1 5½	0 6½	0 10	...	(9)
01	Kankrej bull, age 15 years, name "Moojlo."	...	4 9 or 10					Behind the hump.					...	(1)
	Pure Kankrej cow	...	4 3½	4 1½	4 0½	5 4	0 6	0 6½	1 4	1 7	0 7	1 0	...	(6)
	Chandrodi Village.													
	Cow Malvi	...	4 3	4 0½	4 2	6 0	0 6	0 6½	0 10½	1 6½	0 0	0 9	...	(41)
	Chandkheda.													
	Kankrej bullock	...	5 1	4 9	4 10½	6 2½	0 8	0 7	1 10½	1 10½	0 8½	1 0	...	
	Do.	...	5 0½	4 9	4 9½	6 3	0 8½	0 7	2 2	2 0	0 9½	1 8	...	
	Do.	...	4 10	4 6	4 6½	5 9	0 7½	0 6½	1 4½	1 8½	0 8½	1 0	...	
	Do. full face view	...	5 0	4 7½	4 7	5 11½	0 7½	0 6½	1 6	1 10	0 9	1 2	...	(20)
	How of Kankrej bullocks	...				Showing	horns.—	These four	are the above meas.	red.			...	(21)
	Navoda.													
	Bull at Naroda	...	5 0	4 6	4 8	6 2	0 7½	0 7	1 6	1 10	0 8½	1 1	...	(4)
	A pair of Gujarati cow	...	4 0½	4 3	4 4	5 5	0 6½	0 6½	0 7	1 6½	0 6½	0 11	...	(16)
		...	4 2	3 11	4 1	5 4½	0 6½	0 6½	0 10	1 7½	0 6½	0 10	...	
	Dholka.													
	Kathiwar cow, red	...	4 0	3 7	3 11½	4 11½	0 4½	0 6	0 8	1 6	0 8	0 11	...	
	Buffalo-cow, 4 years	...	4 0½	...	4 0	6 0	8	0 6½	1 4½	1 6½	0 10½	0 8½	...	(55)
	Buffalo-cow, 10 years, one horn broken	...	4 5	...	4 5½	6 7½	0 11	0 7	2 0	1 8½	0 10	1 0	...	
	Cow, black and white, 10 years	...	4 8	4 0	4 5½	5 4½	0 0½	0 6½	1 2	1 8	0 7½	0 11½	...	(16)
	Malvi bullock	...	4 1½	3 10	4 0½	5 2½	0 6½	0 6	1 4	1 6	0 7	0 9½	...	(30)
	Gujarati bullock	...	5 3½	4 9	4 10½	6 6½	0 8½	0 6½	1 5	1 6½	0 8	1 2	...	
	Do.	...	4 10½	4 6½	4 3	6 4½	0 8	0 7½	1 4½	1 10	0 10	1 1	...	
	Do.	...	4 11	4 7½	4 10	5 10	0 8	0 7½	2 1	2 0	0 10	1 1½	...	
	Do.	...	4 10	4 7	4 6	6 1½	0 8	0 7	1 9	1 0½	0 8½	1 1	...	
	Do.	...	4 6	4 1	4 8	5 5½	0 7	0 7	1 9	1 7½	0 8½	1 0	...	
	Do.	...	4 5	4 2½	4 3½	5 4	0 7½	0 7	0 11½	1 7½	0 8	1 1	...	

Ahmedabad District

(F. Josten.)

Bullockin.

TABLE E—continued.

Class.	Height.		Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	Weight.	Photograph Number.	
	Top of hump.	Behind hump.											
<i>Dholk.</i> —continued.													
Gujarati bullock	...	Pair.	4 8½	4 5	4 6	5 9½	0 7½	0 7½	1 6	1 8	0 8½	1 6	...
Do.	...	Pair.	4 9	4 6	4 6½	5 9	0 7	0 7½	1 3	1 7½	0 9	1 1	...
Malsya bull	4 2	3 11	3 9½	5 2	0 6½	0 6	0 11½	1 5½	0 7	0 10½	...
Buffalo-bull	4 0	...	4 2	5 7½	0 8	0 5	1 5	1 5½	0 8½	0 8	...
<i>Bavia.</i>													
Bullock	...	Pair.	5 3½	4 11	5 8½	6 0½	0 8½	0 9½	1 6½	2 0½	0 11	1 2½	...
Do.	...	Pair.	5 2	4 8	4 9	6 4½	...	0 8½	1 10½	1 9½	0 10½	1 1½	...
Do.	5 4	4 10½	5 1½	6 2½	0 8½	0 7	1 3	1 9½	0 10	1 3	...
Do.	5 0	4 8	5 0	6 3½	0 8½	0 7½	1 5½	1 10½	0 8½	1 1½	...
Do.	5 3	4 7½	4 9	6 3	0 8	0 7½	1 9	1 11	0 8½	1 1	...
Do.	5 2	4 9	4 10	5 10½	0 8½	0 8½	1 3	1 9½	0 9½	1 2	...
Buffalo-cow	4 2½	...	4 6½	6 9½	0 8½	0 5½	2 0½	1 7½	0 8½	0 10	...
Buffalo-bull	4 1	...	4 8	6 4	0 8½	0 5½	1 9½	1 6½	0 9	0 10	...
<i>Wansa.</i>													
Gujarati bullock of Thuleta	5 3	4 9½	5 0	6 6½	0 8½	0 7½	1 11	1 10½	0 9½	1 1½	...
Do.	5 9½	5 2	4 11	6 7	0 8½	0 6½	2 7½	1 10½	0 9½	1 2½	...
Do.	5 1½	4 9	4 13½	6 0	0 8	0 7	2 3½	1 9½	0 8½	1 2½	...
Plough bullock of Wansa	5 6	4 10	4 10½	6 6½	0 8	0 7½	1 11½	1 9½	0 8½	1 0	...
Do.	5 5½	5 0	5 4	6 5½	0 8	0 7½	2 8	1 9½	0 8½	1 3	...
Do.	5 6	4 11	4 8½	6 6	0 8½	0 7½	1 8½	1 9½	0 8½	1 2	...
Buffalo-cow with white head and tail	3 11	...	4 5½	6 6	0 7½	0 5½	1 5	1 9	0 7½	0 10	...
Buffalo-bull	4 7	...	4 9	6 8½	0 9½	0 5½	1 8	1 7	0 8½	0 10½	...
Buffalo-cow with white poll and tail	4 4	...	4 4½	6 10½	0 8	0 6½	2 5½	1 7	0 9½	0 8½	...

Cattle of the Bombay Presidency.

(40)

(30)

(37)

(53)

(43)

(54)

Small cow	...	3 7	3 5	3 4	4 7½	0 4½	0 5½	0 4½	1 5½	0 5½	0 0	...	(62)
<i>Jalhoada.</i>													
Māiri bullock	... Pair	{ 4 5½	4 1	3 10	5 11	0 7	0 7½	0 11½	1 8½	0 7	0 0½	...	
Do.	...	{ 4 7	4 3½	3 9½	5 5	0 7	0 7	1 2½	1 0	0 7½	0 0	...	
Do.	...	{ 4 3	4 0½	4 6	5 4	0 6½	0 6½	1 4½	1 7	0 6½	0 0	...	
Do.	...	{ 4 1	3 9½	3 8½	5 2	0 6	0 6	1 3½	1 5	0 6	0 7½	...	
Do.	...	{ 4 5	4 2	4 0½	5 5½	0 7	0 6	1 4	1 6½	0 6	0 8½	...	
Do.	...	{ 4 4	3 10½	4 2	5 7	0 6½	0 6½	1 3	1 5½	0 6½	0 8½	...	
Goats 6	...	...	...	...	...	...	...	...	...	...	...	...
Cow, black and white	...	4 5½	4 8½	4 2	5 8½	0 6½	0 7	1 0½	1 6½	0 8½	0 11½	...	(17)
Cow, white	...	4 6	4 8	4 2½	5 5	0 6½	0 6½	1 5	1 7½	0 7½	0 11½	...	
<i>Tirangdām.</i>													
A Delhi buffalo-cow	...	4 7½	...	4 9	7 2	0 10	0 6	1 11½	1 10	0 9	0 11½	14 0	(56)
Gujarāt bull	...	5 0	4 5	4 9½	6 0½	0 7½	0 6½	1 10½	1 7	0 8	0 11	...	
Gujarāt cow	...	4 2	3 10	4 1	5 3	0 6½	0 6½	1 7	1 7½	0 7½	1 0	7 0	(13)
Largest sized pair of Gujarāt bullocks	...	{ 5 1½	4 8½	4 11	6 5½	0 9	0 6½	2 3	1 10½	0 8½	1 2	12 0	(23)
	...	{ ...	...	...	...	...	...	...	...	...	...	12 0	
Medium sized pair of Gujarāt bullocks	...	{ 4 11	4 7	4 4½	5 10	0 7½	0 7	1 3½	1 8½	0 7	0 11½	8 0	(20)
	...	{ 4 1½	4 7	4 4½	5 2	0 8	0 6½	1 0½	1 10½	0 8½	1 1	10½ 0	
<i>Patri.</i>													
Gujarāt cow	...	4 4	4 0	4 4	5 6½	0 6½	0 6	1 1	1 7½	0 7½	1 ½	...	(11)
Kāthiāwār cow, red	...	4 2	3 10½	4 4	5 8½	0 5½	0 5½	1 3	1 6½	0 10	0 11½	...	(61)
<i>Rdnpur.</i>													
A Gir cow speckled red and white	...	4 4	4 0	4 4	5 7	0 6½	0 5½	1 5	2 0	0 11	1 2	...	(60)
Kāthiāwār bull, color blackish red, neck and hump black.	...	5 0	4 3½	4 7	5 11	0 7½	0 6	0 8½	1 11	0 10	0 10½	...	(57)
Kāthiāwār bullock, red and white	...	4 0	4 4	4 4	5 8	0 7	0 6½	1 8	1 10	0 11	1 0	...	(58)
<i>Ahmedabad.</i>													
Gambia bullock, 10 years old	...	2 8	2 5½	2 0	2 4	0 3½	0 3½	0 10	0 11½	0 5½	0 5½	2 2	

Cwt. qr.

Mdn. Seers

Ahmedabad District.

(P. Jansen)

Bullocks

TABLE F.—CONTINUED.

Class.	Height.		Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	Weight.	Photograph Number.
	Top of hump.	Behind hump.										
<i>Kanduka.</i>												
Kankrej calves	3 0	3 3½	2 10½	3 6	0 5½	0 5½	0 0½	1 0½	0 6	0 10	..	(18)
Kankrej bullock	5 5	5 0½	5 5	6 6	0 8½	0 6½	2 6	2 0	0 10	1 0	..	
Wagod bullock	5 0	4 7½	4 11	6 3½	0 7½	0 6	2 2	2 0	0 8½	1 1	..	(63)
Kathiawar bullock	4 10½	4 5	4 7	6 1	0 7½	0 6½	2 5	2 0	0 10	1 1	..	(69)
Kathiawar buffalo-bull	4 5	..	4 9	6 5	0 9	0 5½	2 7	1 11	1 2	0 9	..	(94)
<i>Nadidi.</i>												
Large carriage bullock	5 8	5 0	..	..	..	..	2 1	..	..	..	..	(24)
Large pair of carriage bullocks	5 6	4 11½	6 6	6 10	0 8	0 5	1 8	1 10	0 9	..	12 2	(28)
	5 4	4 8½	6 8	6 8	0 7½	0 6½	1 9	1 11	0 8½	..	11 2	
Pair of good working bullocks	5 0	4 8	5 3	6 1	0 7½	0 8	2 3	1 11	0 9	..	10 0	(34)
	4 10½	4 7	4 10	6 0	0 7½	0 8	1 5	1 10½	0 7½	..	6½ 0	
Large pair of working bullocks	4 11	4 7	4 11	6 1	0 7½	0 8	0 11	1 10½	0 8½	1 1	9 0	(26)
	4 10	4 7½	4 8	6 0	0 7½	0 8	2 2	1 10	0 8½	1 1	9 0	
Milvi bullock	4 1½	3 11	4 4	5 4	0 6½	0 6½	0 11	1 9	0 7	..	6½ 0	(35)
Do.	4 1	3 7½	4 1½	5 1	0 8	0 6½	0 11	1 6½	0 6½	..	6½ 0	
Buffalo-cow	4 2½	..	4 3	6 10	0 8	0 6	Broken horns. 1 4	1 9	0 8½	..	10½ 0	(45)
Do.	4 1	..	4 4	6 7	0 8	0 6	..	1 8½	0 8½	..	10½ 0	(46)
Do.	4 2½	..	4 10	6 13	0 8½	0 6	1 10	1 10	0 9	..	12 0	(47)
Do.	4 1	..	4 6	6 5	0 8½	0 6	1 4	1 8½	0 8½	..	10 0	(49)
Do.	4 2	..	4 8	6 9	0 8½	0 6½	1 8	1 9½	0 9	..	11 0	(42)
Buffalo-bull	4 1½	..	4 7	6 4	0 8½	0 6½	1 6	1 8½	0 9½	..	10 0	(42)

Cattle of the Bombay Presidency.

The Agricultural

Ahmedabad District.

(P. Josten.)

<i>A'wad.</i>										
Buffalo-cow, ordinary	3 10	3 9	3 11	3 11	0 7	0 8½	1 6	1 8	0 8	...
Do.	3 11½	3 10½	4 2	3 2	0 7½	0 7	1 1	1 8½	0 9½	...
Buffalo-bull	4 3	4 3	4 3	5 8	0 8	0 7½	1 7	1 9	0 10	...
Good Gujrat bullock	4 10	4 6½	4 2	5 11	0 7½	0 8	1 8	1 10½	0 8	...
Do.	4 9	4 6	4 2	6 1	0 7½	0 8	1 5	1 9½	0 8	...
<i>Borsad.</i>										
Best working Gujrat bullock	5 2	4 9	3 11	6 0	0 7	0 9½	1 19	1 10½	0 8	...
Do.	5 1	4 8½	3 10½	6 1	0 7½	0 9	1 7	1 11	0 8½	...
Medium sized working Gujrat bullock	4 7	4 3	3 9	5 11½	0 6½	0 7½	0 8	1 8½	0 7½	...
Do. do.	4 6	4 2½	3 8	5 8	0 6½	0 7	0 10	1 8	0 8	...
Gujrat bullock, ordinary	4 9	4 5	3 9½	5 9	0 7	0 7	1 4	1 9	0 8	...
Do.	4 11	4 6½	4 0	6 1	0 7½	0 7½	2 8	1 9	0 8½	...
Ordinary Gujrat cow	4 8	4 4½	3 8	5 0½	0 6	0 7	0 7½	1 9½	0 7½	...
Do.	4 7½	4 4	3 9	6 0	0 6½	0 6½	1 0	1 8	0 7½	...
Buffalo-cow ordinary	3 9	3 8	3 8	6 0	0 7½	0 6½	1 6	1 8½	0 8½	...
Do.	3 10½	3 9½	3 9	6 2	0 7½	0 6½	2 2	1 8	0 8½	...
Buffalo-bull	3 11	3 10	3 8½	6 8	0 8	0 7	1 4½	1 9	0 10	...
Do.	3 9½	3 8½	3 7	5 5	0 6½	0 6½	0 11½	1 8	0 8	...
Do.	3 8½	3 7½	3 6½	5 4	0 6½	0 6½	0 11½	1 8	0 8½	...
Kankraj bullock good	5 2	4 10	4 4	6 2	0 7½	0 9	1 9	2 0	0 9	...
Do.	5 4	4 10½	4 5	6 4	0 7½	0 9	1 11	1 11½	0 9½	...
<i>Tidra.</i>										
Gujrat bullock, ordinary	4 6½	4 3	4 6	5 6	0 7	0 8	1 1	1 8½	0 8	...
Do.	4 6½	4 2½	4 5	5 5	0 6½	0 8	1 2	1 9	0 8	...
Buffalo-bull	4 8	4 2	4 7	6 1	0 8	0 7	1 1	1 9½	0 9	...
Gujrat cow good	4 5	4 2	4 7	5 5	0 6½	0 8	0 11	1 8	0 7½	...
Buffalo-cow	4 2	4 1½	4 9	6 2	0 7	0 6½	1 6	1 9	0 8	...
Gujrat cow	4 4	4 1	4 5	5 4½	0 6½	0 7½	0 8	1 7	0 6½	...

Cattle of the Bombay Presidency.

Class.	Height.		Length of body.	Girth.	Shank.	Length of Shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	Weight.	Photograph Number.
	Top of hump.	Behind hump.										
<i>Dikor.</i>												
Kankrej bullock	4 10	4 0½	5 2	6 8	0 8½	0 0	1 7	1 10½	0 9	"	...	
Do.	4 9½	4 6	5 1½	6 0	0 7½	0 8½	1 7	1 9	0 8½	"	...	
Buffalo-ow	3 11*	3 10	4 5	5 11	0 7	0 6½	1 5	1 9	0 8	"	...	
<i>Matar.</i>												
Cow, white, 5 years	4 3	4 0	3 9½	5 6	0 6½	0 6	0 7½	1 5½	0 6½	0 8½	...	
<i>Náika</i>												
Bullock	5 0½	4 8½	4 11	5 10½	0 7	0 8½	1 8	1 9	0 8½	1 1	...	
Do.	4 11	4 7	4 7½	5 8	0 7½	0 7½	1 3	1 8	0 8	1 1	...	
Do.	5 0½	4 8	...	...	...	...	...	...	...	...	...
Do.	4 11	4 6½	4 8½	5 10	0 4½	0 8	1 1½	1 5½	0 9½	0 11	...	
Do.	4 11½	4 7½	5 2	...	...	...	...	...	...	0 9½	...	
Do.	5 2	4 10½	...	...	...	...	...	...	...	...	...
Bullock Mávi	3 11	3 8½	4 0	5 2	0 5½	0 4	1 2	1 1	0 6	0 4	...	
Buffalo-bull	3 9½	...	3 9	5 7½	0 4½	0 6½	0 8½	1 5	1 1	0 6	...	
<i>Lakhsanpura.</i>												
Mávi bullock	4 3	4 0½	5 1	5 10	0 7	0 7½	1 4	1 8	0 7½	"	...	
Ordinary Gujarát ow	3 11	3 9	3 11	5 1	0 6½	0 7	0 8	1 7½	0 7½	"	...	
Buffalo-cow, ordinary	4 1½	4 1	4 8	6 4	0 7½	0 7	1 9	1 9½	0 9	"	...	
<i>Umret.</i>												
Gujarát bullock, largest	5 3	4 10	4 11	6 5	0 8	0 2½	1 2	1 11	0 9	"	...	
Do.	4 10	4 6	4 9	5 11	0 7½	0 8	1 6	1 10½	0 9	"	...	
Gujarát bullock, medium	4 7	4 3	4 2	5 6	0 6½	0 7½	1 4	1 8½	0 8	"	...	

Ahmedabad District.

(F. Joshi.)

Do.	4 4	4 1	4 1	5 6	0 7	0 7½	1 1½	1 8	0 7½	...	...
Buffalo-cow	3 10½	3 9½	4 3	5 10	0 7	0 6½	1 5	1 8	0 7½	...	...
Do.	3 10	3 8½	4 2	6 3	0 7	0 6	1 7	1 8	0 8	...	...
Buffalo-bull	3 11	3 9½	---	---	---	---	---	---	0 8½	...	...
Do.	4 2	4 1	4 7	6 1	0 7½	0 7	1 6	1 8½	0 10	...	...
Do.	4 0½	3 11	4 6	5 10	0 7½	0 6½	1 4	1 8	0 9	...	...
Big Gujarat bullock	5 5	4 10	5 2	6 7	0 8	0 9½	1 4	1 11½	0 9	...	...
Do.	5 4	4 9½	5 1½	6 11	0 8	0 9	1 8	1 11	0 9	...	...

Cattle of the Bombay Presidency.

TABLE F.

List of epizootics prevailing in the Ahmedabad District.

Name of epizootic.	Period of the prevalence of the disease.		Number of animals attacked.		
	Month.	Year.	Recovered.	Died.	Total.
Aptha epizootica .	August 1893	1893-94	...	...	...
	January 1893	1897-98	475	4	479
	Information not available.	1898-99	94	1	95
		1901-02	9	...	9
Variola vaccina ...	October 1896	1896-97	27	60	87
	January 1898	1897-98	18	178	196
	... ..	1898-99	124	17	141
Gloss anthrax ...	July 1894	1894-95	29	289	318
	September 1903	1903-04	4	85	89
Rinderpest ...	October, November and December 1893.	1898-99	A large number of cattle attacked. Details not available.		
Foot and mouth disease.	Information not available.	{ 1895-96 1890-97 }	} Isolated cases.		

TABLE G.

Prevailing diseases in the Ahmedabad District, 1893 to 1903.

B 821—8

Year.	Disease.
1893-94 ...	Bronchitis. Fever. Indigestion. Mange. Tumours. Thrush. Ulcers.
1894-95 ...	Abscess. Bronchitis. Conjunctivitis. Diarrhœa. Fever. Indigestion. Mange. Œedima. Parasites, external. Thrush. Tumours. Ulcers.
1895-96 ...	Bronchitis. Conjunctivitis. Fever. Impaction of Rumen. Indigestion. Mange. Parasites, external and internal. Thrush. Tumours. Tympanitis. Ulcers.
1896-97 ...	Bronchitis. Cancer. Fever. Indigestion. Mange. Parasites, external. Thrush. Tumours. Ulcers.
1897-98 ...	Aptha epizootica. Bronchitis. Cancer. Diarrhœa. Fever. Indigestion. Mange. Parasites, external. Parasites, internal. Thrush. Tumours. Tympanitis. Ulcers.
1898-99 ...	Abscess. Bronchitis. Conjunctivitis. Diarrhœa. Fever. Indigestion. Mange. Thrush. Tumours. Tympanitis. Ulcers.
1899-00 ...	Abscess. Bronchitis. Cancer. Diarrhœa. Fever. Hepatitis. Indigestion. Mange. Parasites, internal. Tumours. Tympanitis. Ulcers.
1900-01 ...	Abscess. Bronchitis. Cancer. Debility. Diarrhœa. Fever. Indigestion. Mange. Parasites, internal. Tumours. Tympanitis. Ulcers.
1901-02 ...	Ulcers. Tumours. Mange. Bronchitis. Cancer. Indigestion. Fracture. Fever. Tympanitis.
1902-03 ...	Ulcers. Fever. Tumour. Indigestion. Mange. Bronchitis. Cancer. Diarrhœa. Tympanitis. Debility. *Aptha.

Ahmedabad District

(F. Josten.)

Bulletin.

41

Statement showing the Vernacular names of different parts of animals (Ahmedabad District).

No	English name of part.	Vernacular name in Gujaráti.	Vernacular name in English.	Vernacular name in "Bálbodh".
1	Hump ...	ખ ધાલો ...	Khandholo ...	કંધોલો.
2	Fore-head ...	કલોઠ ...	Kaloth ...	કલોઠ.
3	Face ...	કપાલ ...	Kapál ...	કપાલ.
4	Horns ...	માથાવતી ...	Máthávati ...	માથાવટી.
5	Muzzle ...	ચેહેરો ...	Chehero ...	ચેહેરો.
6	Fore-arm ...	શીંગડા ...	Shingdá ...	શીંગડા.
7	Shank ...	છું છું ...	Chhuñ chhuñ ...	છું છું.
8	Foot ...	નલો ...	Naló ...	નલો.
9	Shoulder ...	હડો ...	Hadó ...	હડો.
10	Back ...	નળી ...	Nali ...	નળી.
11	Girth ...	પગ ...	Pag ...	પગ.
12	Brisket ...	દાબડો ...	Dábdô ...	દાબડો.
13	Dewlap ...	ખભો ...	Khabhó ...	ખભો.
		ખરપડી ...	Kharpadi ...	ખરપડી.
		પીઠ ...	Pith ...	પીઠ.
		વાંસો ...	Váñso ...	વાંસો.
		છાતીનો ઘેરાવો ...	Chhátino gherávo ...	છાતીનો ઘેરાવો.
		છાતી ...	Chhátí ...	છાતી.
		કામલો ...	Kamlo ...	કામલો.
		ધાબલો ...	Dháblo ...	ધાબલો.

Cattle of the Bombay Presidency.

The Agricultural

14	Loins	...	कमर	...	Kamar	...	कमर.
			कड	...	Kéd	...	कड.
			करोड	...	Karod	...	करोड.
15	Flank	...	कुप	...	Kukh	...	कुख.
16	Croup	...	चमेली	...	Chumeli	...	चमेली.
17	Buttock	...	ढेको	...	Dheko	...	ढेको.
			ढगद	...	Dhagrañ	...	ढगद.
18	Hip	...	थापो	...	Thápo	...	थापो.
19	Thigh	...	जांग	...	Jañg	...	जांग.
			साथळ	...	Sathal	...	साथळ.
20	Tail	...	पुंछडी	...	Punchhadi	...	पुंछडी.
			दुम	...	Dum	...	दुम.
21	Tuft of tail	...	चमरी	...	Chamri	...	चमरी.
22	Hock	...	पाछयो घुंठसु	...	Páchhlo ghuñtan	...	पाछयो घुंठण.
			पाछयो दीससु	...	Páchhlo dbinchān	...	पाछयो दीचण.
23	Gaskin	...	फेंच	...	Phēñch	...	फेंच.
24	Udder	...	बावलु	...	Bávalu	...	बावलु.
			आंठ	...	Āñ	...	आंठ.
			अडासु	...	Adán	...	अडाण.
25	Teat	...	आंचळ	...	Āñchal	...	आंचळ.
26	Belly	...	पेट	...	Pét	...	पेट.
27	Sheath	...	मुतरणी	...	Muturni	...	मुतरणी.
28	Scrotum	...	कोथळी	...	Kothali	...	कोथळी.
29	Chest	...	छाती	...	Chhāti	...	छाती.
30	Tongue	...	जीभ	...	Jibh	...	जीभ.
31	Eye	...	आंख	...	Ankh	...	आंख.
32	Nose	...	नास	...	Nās	...	नास.

Cattle of the Bombay Presidency.

No.	English name of part.	Vernacular name in Gujaráti.	Vernacular name in English.	Vernacular name in "Bálbodh".
33	Ear	કાન	Kán	कान.
34	Knee	ઘુંટણ	Ghunṭan	घुंटण.
35	Rib	પાંસલી	Dhinchan	ढीचण.
36	Stump of tail	પાંસલી	Pānsali	पांसली.
37	Hoof	ખરી	Dodi	डोडी.
38	Fetlock	મુઠીયું	Khari	खरी.
39	Nostril	નસ્કોરું	Muthiá	मुठीऊं.
40	Gullet	ગણું	Naskorá	नसकोरूं.
41	Teeth	દાંત	Gald	गळूं.
42	Poll	ગરદન	Dáñt	दांत.
43	Point of shoulder	હડો	Gardan	गरदन.
44	Point of elbow	ઘુંટી	Hado	हडो.
45	Mouth	માઠું	Ghuñto	घुंटी.
46	Chin	મોઠું	Modhu	माठूं.
47	Pastern	મોઠું	Mo	मो.
48	Naval	હડપણી	Hadapchi	हडपची.
49	Neck	ગાળો	Gálo	गाळा.
50	Eyelid	ડુંટી	Dññti	डुंटी.
51	Eyelashes	કાંઠ	Kāñdh	कांथ.
52	Eye-ball	પોપણું	Popchu	पोपचूं.
53	Lip	પાંપણ	Pānpān	पांपण.
54	Jaw	ડોલો	Dolo	डोळो.
55	Palate	ઓઠ	Óth	ओठ.
56	Gums	જાબડું	Jabdu	जबडूं.
		તાલવું	Tálvu	ताळवूं.
		પેદું	Pedhu	पेडूं.
		અવાણું	Aválu	अवाळूं.

Kaira District.

(F. Joslen.)

KAIRA DISTRICT.

The district of Kaira has a total area of 1,600 square miles. It is separated from the head of the Gulf of Cambay by a narrow strip of territory. It has a breadth of about twenty-five to forty miles and stretches towards the north-east for more than sixty miles along the right bank of the river Mahi. Towards the north, from the Sábarmati to the Mahi, no natural boundary divides Kaira from Ahmedabad, the Mahi Kántha and Báláñor. On the east, south-east and south, the river Mahi separates it from the Panch Maháls, Baroda and Broach. On the south-west lies the Cambay territory, and to the west is the Sábarmati with Ahmedabad beyond. To the north and east the area included within these limits forms, except for an occasional Mahi Kántha village, a compact tract under the charge of the Collector of Kaira. But from the west a broad belt of Gáikwári territory passes nearly into the centre of the district, and on the south the villages of the Borsad sub-division are interlaced with those of Baroda and Cambay.

Boundaries.

2. The area included in the Kaira District is for administrative purposes distributed over seven sub-divisions. These, as shown in the following summary, have on an average an area of 228 square miles.

Sub-divisions.

Name.	Area.	Population.
Kapadwanj	279	75,258
Thásra	255	73,980
Mehmadabad	171	75,926
Nadiád	223	148,452
Mátar	215	61,522
A'nand	241	143,305
Borsad	216	137,889

3. Except a small corner of hilly ground near its northern boundary, and in the south-east and south, where along the Mahi the surface is roughened and furrowed into deep ravines, the district of Kaira is one unbroken plain, sloping gently towards the south-west. Though almost all fit for cultivation the land varies much in character. In the north and north-east, with patches of rice land, much lies open and untilled, covered in places with little but low brushwood. In the centre is the Charotar or goodly land, a tract of most fertile and well-tilled soil. The people, skilful cultivators and rich, live in large well built villages. Their fields, yielding the choicest crops, are sheltered by high hedges, and the whole country is clothed with rows and clusters of large shapely trees. Westwards this belt of rich vegetation passes into a bare, though well cultivated, tract of land. This

Aspect.

 Cattle of the Bombay Presidency.

towards the south grows barrener and more open till, as it nears the Gulf of Cambay, the fields are separated by unfruitful patches whitened by a saline deposit.

Soil.

4. Geologically the Kaira plain is, with the exception of the few sandy hills and rocks in Kapadwanj and Thásra, a deep bed of flint and lime alluvium, most of it the debris of the felspathic and limestone rocks of the Arávali hills. The soils of the district are of four chief kinds, light or gorát, medium or besar, black or káli, and alluvial or bhátha. For agricultural purposes each of these main classes includes several varieties. The light or gorát is the prevailing soil, varying in quality from the loose grained yellow sand of the fields near the Sábarmati and the Mahi to a rich brown mould common in the central sub-divisions, and found to perfection in the south-west corner of Mátar. The richer variety, known as gorádu besar, contains a large proportion of organic matter and seems to a great extent to be artificial, the result of careful tillage of the Kuni cultivators. Under medium or besar come several soils, varying from heavy sands to light clays. Soils of this class are pretty generally distributed over the whole district, though nowhere over any large area. Under black or káli comes clayey sedimentary soil that collects in low lands and ponds; the salt or khár, and the cotton land in the south-west of Mátar; the rice land in the north near the Khári river; the waste and ill-drained mál or upland in Kapadwanj and Thásra; and a coarse and dry soil, called mardi, found near the river Mahi. As a rule the Kaira black soil is poor. It is scarcely ever deep, and is most of it mixed either with soda or lime-stone. Alluvial soil or bhátha is chiefly found near the Vátrak river. This, without dressing or fallow, yields year after year rich crops of tobacco, safflower and other garden produce.

Climate.

5. From November to March the air is pleasant and bracing. But even this long share of cold weather fails to make up for the severe heat of the rest of the year, dry and parching in March, April and May; moist and oppressive from June to October. To the people of the country, except in the eastern sub-divisions of Kapadwanj and Thásra, and on the north-west in the marshy rice-bearing lands near the Khári river, the climate is not hurtful; and the central tract known as the Charotar is considered healthy. From March to October the general direction of the wind is from the south-west, and from November to February from the north-east. From 1852 to 1861 the average rainfall was 33.78 inches; from 1862 to 1871, 27.45 inches; and from 1872 to 1877, 28.10 inches. Except an occasional shower in the cold season, the whole rain supply falls between June and October. Thermometrical readings registered during the ten years ending with 1861 vary from 104.1 in May to 54.6 in January. They give for the whole period an average mean temperature of 79.6.

Kaira District.

(F. Joslen)

6. Table A gives the area in acres of grazing land allotted to villages, waste land and Government birs. For the district the totals are:—

Fodder.

Grazing land.	Waste land.	Government Birs.
10,389	133,371	3,661

7. Table B gives the area in acres of unirrigated land, irrigated land, fallow land, total area cultivated, area of cultivated land per pair of plough cattle, number of persons per head of milch cattle, number of plough cattle and number of milch cattle. The totals for the district of unirrigated cropped land is 576,722 acres, of irrigated land 34,889, of fallow land 113,068, of cultivated land 724,679.

8. The fodder crops are bajri, *Pennisetum typhoidium*; rice, *dāngar*, *Oryza sativa*; jowár, *Andropogon sorghum* var. *vulgaris*; kodra, *Paspalum scrobiculatum*; bávtó, *Eleusine coracana*; wheat, ghau, *Triticum sativum*; barley, jav, *Hordeum vulgare* and miscellaneous cereals comprising maize, makai, *Zea mays*; Káng, *Setaria italica*; and rajgaro, *Amarantus paniculatus*. Nearly every known kind of pulse is grown: math, *Phaseolus aconitifolius*; tur, *Cajanus indicus*; gram, chana, *Cicer arietinum*; mag, *Phaseolus mungo*; guvár, *Cyamopsis psoraliodes*; and miscellaneous pulses, adad, *Phaseolus mungo* var. *radiatus*; chola, *Vigna catiang*; and vál, *Dolichos lablab*. Oil-seeds raised are gingely, tal, *Sesamum indicum*; rape-seed, sarsav, *Brassica campestris*, var. *napus*; cotton, kapás, *Gossypium herbaceum*; sugarcane, sherdi, *Saccharum officinarum*; and safflower, kusumbo, *Carthamus tinctorius*, are also grown.

9. Sundhia, a variety of jowári, *Andropogon sorghum* var. *ceruus* is specially grown for cattle in the monsoon and by well-water irrigation in the hot season. It can be reaped about two months after sowing. Guvár is also specially grown for cattle.

10 Fodder is stacked in sufficient quantities for the year, mainly grass, jowári and bajri stalks, rice and kodra straws, and "gotar" composed of leaves and twigs of the plants of the various legumes and the husks of their pods. In almost every field a broad strip of land is left along the hedges upon which a sufficiency of grass is grown. This is either grazed, or preserved and cut twice a year. Government birs are sold by auction as far as possible. What remains becomes available for grazing, and on the portions sold cattle which come from other parts of the district are allowed to graze after the grass has been cut, the manure dropped by them being taken as a grazing fee. Large quantities of grass from the birs in Thásra and Kapadwanj are exported to the Tramway Company in Bombay. From the Thásra railway station alone as much as sixty lákhs of pounds are sent away annually.

11. Table C gives the number of wells and tanks for each sub-division of the district.

supply.

Cattle of the Bombay Presidency.

12. The district contains no natural lakes. Of the reservoirs only two, the Gomti lake at Dákor and the village reservoir of Belora in the Mátar sub-division, are of any great size. As most of them are dry or very low in the hot season, they are of little use for perennial crops; but in October and November, after the rains are over, they are very serviceable for watering rice. Except in parts of Kapadwanj and Thásra sub-divisions, where the land is impregnated with soda the district is well supplied with wells, ponds and rivers of sweet water.

13. In the raised tracts, along the banks of the Mahi, water is found only at a depth of from eighty to one-hundred and ten feet. Away from the river wells have their springs from forty to sixty feet deep, rising through strata of earth mixed with limestone nodules alternating with sand overlying sheet limestone. From this limestone, when tapped, water rises to within twenty-five feet of the surface. The last succession of dry years caused a general sinkage of well water.

Rivers.
The Mahi.

14. The district has two chief rivers, the Mahi for nearly 100 miles its boundary to the east and south, and on the north-west the Sábarmati, touching the district for only a few miles, but of great importance, as into it, along the channels of the Shedi and Vátrak, the whole local drainage flows.

15. The Mahi, with a course of from 300 to 350 miles, a drainage area estimated at from 15,000 to 17,000 square miles, is, after the Narbada and the Tápti, the largest of Gujarát rivers. For the first part of its Gujarát course it passes through the lands of the Mahi Kántha and Rewa Kántha chiefs. It then enters British territory, separating the district of Kaira on the right from the Panch Maháls and Baroda on the left. Flowing between high alluvial banks much cut by ravines, the hundred miles of its Kaira course may be divided into three sections, a stretch of forty miles over a rough and rocky bed, then about ten miles of sand the stream unaffected by the tides, and the last forty-five miles its course as a tidal river. At Verá-khandi, the limit of the flow of the tidal wave, the bed is in the dry season 500 yards wide, the stream 120, and the average depth of water a foot and a half.

16. The waters of the Sábarmati river, the fourth river in Gujarát, are largely used for irrigation during the fourteen miles of its course along the western limit of the Kaira District.

The Shedhi.

17. The chief drainage line of the plain between the Mahi and the Sábarmati is the river Shedhi. This stream enters the north-east corner of the Kaira District within two miles of the Mahi. Passing west through the Thásra sub-division it is joined from the right bank by the Sindak river, and further on near the centre of the district, about eight miles north of Nadiád, it receives the Mohar from the north. Then flowing west, on the right just before entering the town of

The Sindak.
The Mohar.

Kaira District.

Kaira, it is joined by the Mul Khári. Beyond Kaira the Vátrak from the north-west and together they wind south-west into the Sábarmati; a narrow quick flowing stream, its banks steep, and in many parts its bed rather deep in mud, the Shedhi is at all times hard to cross. Sweet and good when it enters the district, after meeting the Mohar its water is charged with soda and, being found hurtful to the crops, is little used for watering. Except for a mile or two above its meeting with the Vátrak during the hot season the bed of the Shedi is dry. Its tributaries all join it from the right. During its forty miles' course through the Kaira District, the Vátrak, between alluvial banks about twenty feet high and with a shallow unfailling stream, flows over a bed of sand about 150 feet broad. By the help of lifts its waters are much used for irrigation.

The Mul
Khári.
The Vátrak.

18. The Khári passes through a few villages in the extreme west of Kaira and falls into the Sábarmati to the north-west of the village Radu, a little above the meeting of the Sábarmati and Vátrak. The land here is very flat and during the rains is subject to flooding. Here for more than a century rice fields have been watered by banks thrown across the river.

The Khári.

19. Though its average yearly rainfall is not more than 30 inches the district of Kaira has, since the earliest years of English management, been liable to suffer from floods. This has been especially the case in the two low-lying tracts. In the west between the Shedhi and the Sábarmati, Mátar stretches an almost level plain, and in the south-west and south where the southern lands of Nadiád, Petlád, and the north of Borsad are at times swamped by the flood waters from the raised tract along the right bank of the Mahi. Though with no marked courses the flood waters of the Kaira low-lands set along three chief lines, west into the Vátrak, south-west into the Alang Canal, and south by the Chor ravine into the Mahi.

Drainage.

20. During the period of heavy rainfall between 1814 and 1822 floods and standing water caused much damage. Besides smaller floods three specially severe storms visited Kaira, one in 1837, a second in 1868, and a third in 1871. In 1837 after two days (the 28th and 29th August) of an average rainfall on the evening of the 30th a storm burst with heavy thunder and wind. The flood continued to rise till 9 in the evening of the 31st. The waters kept in their extreme height for about an hour and then slowly fell. Near the town of Kaira the Shedhi and Vátrak uniting rose till they covered the whole country for miles. From the 31st August to 2nd September, between the Collector's house and the town, a stream ran too deep to be crossed. At this time the water stood waist high on the steps of the rest-house near the library (where the height reached by the various floods is marked) and flowed over the Ratanpur bridge. It rose to four of the town gates, the Lál, the Ahmedabad, the Pura, and the Balápir, leaving at the Balápir gate only four feet of the arch open,

Floods.

Cattle of the Bombay Presidency.

and flooding about thirty-five houses inside. This flood is said to have been due to the very unusual rise in the rivers above the Kaira District rather than to the excess of the local rainfall. In the whole district the lands of eighty-six villages were flooded, twenty-one in Nadiad, twenty-one in Matar, fifteen in Mahudha, ten in Borsad, eight in Thasra, and five in Kapadwanj. The drainage system is most useful in relieving the district of the flood waters.

21. Between the 9th and 13th August 1868 with much wind, 22.4 inches of rain fell. On the 12th the Vátrak rose rapidly, and in the morning of the 13th both the Vátrak and Shedhi overflowed their banks. Near Kaira, except the town, the Collector's house, and the camp, the country was flooded for miles. On the walls of the library in the low land south of the town the water stood five feet two inches deep. As far as an estimate could be framed the total amount of damage done was calculated at £13,858 (Rs. 1,38,590).

22. On the 2nd of August 1871 a storm broke over the district, with a fierce south-west wind and rain, varying in 24 hours from 3.50 inches in Thasra to 11.41 inches in Matar, and averaging 7.72 inches over the whole district. Round the town of Kaira the country was flooded for miles. The water hid even the highest hedges, and at the town of Kaira stood from 16 to 18 inches higher than in 1868. The loss of property was calculated at £25,031 (Rs. 2,50,310).

23. There are no cattle markets or shows held in any part of the district. As in the Ahmedabad district cattle dealers and breeders supply the wants of the people or they go to the Ahmedabad weekly cattle fair to buy and sell cattle.

24. The district of Kaira, but more especially the tract known as the Charotar, is sometimes called the garden of India. Every field has its hedge rows and one or more shady trees. Roads as a rule are below the level of the surrounding country sometimes several feet, and several inches deep in sand. In many cases they serve as drainage channels during the monsoons. Table H gives the names of the principal trees. The district has no forest or forest lands. The trees either stand singly or in small groves. Especially in the southern parts the timber is found in the hedge rows, with here and there a well grown solitary tree. The leaves of trees are given to cattle. They also sometimes eat creepers and plants growing in the hedges. Table I gives a list of these.

25. These have been described under this heading in the report on the Ahmedabad District, with measurements, prevailing colour and general description.

26. These have been given under this heading in the report on the Ahmedabad District.

Cattle
markets.

General
charac-
teristics.

Characteristic
breeds of
cattle includ-
ing buffaloes.

Charac-
teristics of
working and
milking
capabilities.

Kaira District.

(F. Joslen.)

Methods of feeding, artificial and grazing.

27. It is customary with the people to stack sufficient fodder for their cattle for one year's supply. The fodder stacked is chiefly jowári and bájri stalks, rice and kodra straws, and "gota" (the pods, leaves and twigs of math. adad, tur, chola, etc., etc.); guvár leaves and cotton seeds are also stored for cattle. Cattle are stall fed twice a day, morning and evening. The fodder is put before them at any time when they are not actually at work.

28. The following are the methods of feeding ordinary working cattle:—

(I) From August to October:—

Green grass ... 1½ to 2 maunds daily.

From November to July:—

Jowári or Bájri stalks, or a mixture of both, the latter is usually cheaper ... } 30 lbs. daily (10 to 12 bundles).

"Gota" ... 8 to 10 lbs. daily.

Throughout the year:—

Guvár beans cooked and mixed with an ounce of salt ... 2 to 3 lbs. daily.

For 3 or 4 weeks in the cold season draught bullocks receive the following special food:—

"Kacharia."—This is a mixture of sesamum seeds (til) pressed in an oil-mill, but without the oil being extracted. One pound of this mixed with ¼ lb. of treacle is given daily. Some cultivators give instead cooked adad 2 lbs. mixed with ½ lb. ghi and ¼ lb. treacle.

Some well-to-do cultivators also give cooked adad 2 lbs. mixed with ¼ lb. each of ghi and treacle for a week or two to their bullocks when they have been required to work very hard during the rainy season.

(II) From August to October:—

Green grass ... 1 to 1½ maunds daily.

From November to July:—

Jowári stalks ... 1 maund daily.

Throughout the year:—

• Guvár cooked ... 2 lbs. daily.

Salt ... 1 oz.

For about a month in the rainy season or in the cold season:—

Ghi and sweet oil ... ¼ lb. daily.

Occasionally in the dry season:—

Bájri stalks and pods of guvár, math and other pulses } Small quantities.

Cattle of the Bombay Presidency.

(III) From July to October :—

Green grass ... 1 to 1½ maunds daily.

From November to June :—

Bájri and Sundhia stalks... 1 to 1½ maunds daily.

Throughout the year :—

Guvár or math	} 2 lbs. daily reduced to from 1 to 1½ lbs. in the cold season.

During the cold months :—

“Kacharia” (til, bájri, and
molasses) ... 1 lb. daily.

I, II, III apply to the Charotar generally.

(IV) In the monsoon :—

Green grass ... 1 to 2 maunds daily.

Gram ... 3 lbs.

In the cold months :—

Sundhia stalks ... 1 to 1½ maunds daily.

Guvár ... 3 lbs.

and over the whole period as required a mixture of til
2 maunds and ghi ½ maund.

In the hot weather :—

Dry grass ... *ad libitum*.

Gram ... 3 lbs. daily.

This method of feeding applies to Borsad.

(V) In the monsoons :—

Green grass ... 1½ maunds.

Guvár boiled ... 2½ seers daily.

Salt ... 2 oz.

Rich cultivators also give ½ lb. til oil daily for 15 days.

In the cold and hot season :—

Sundhia or bájri bundles ... 30 seers.

“Gota” ... 10 „

In the cold season in addition :—

“Kacharia” (til 1 maund powdered and mixed with
treacle ½ maund) as required.

This method applies to Thásra.

(VI) The following is an example of how cattle in full hard
work are fed :—

Jowári stalks	2 maunds	} daily.
Guvár seeds	...	...	4 seers
Math chaff	...	...	½ maund.
Til	...	...	2 seers.
Gur	...	...	½ seer.

And for one week during the monsoons ½ maund of
ghi is given to strengthen them.

Kaira, District.

(F. Joslen.)

Buffalo Cows.

- (I) From August to October :—
 Green grass 60 to 80 lbs. daily.
 From November to July :—
 Jowári or bájri stalks,
 or a mixture of both. 15 to 20 lbs. daily.
 Alternated with rice or
 Kodra straw 8 lbs. daily.
 and
 "Gota" (pods, etc., of
 pulses) 10 lbs. daily.

In addition to the above buffalo-cows while in milk get :

Bájri cooked	... 2 to 3 lbs.	} mixed and given daily for the first two weeks after partu- rition.
Treacle	... ½ lb.	

Then—

Guvár or bájri seeds	... 1½ lbs.	} daily.
Cotton-seeds	... 2 lbs.	
Oil-cake	... 1½ lbs.	
Kunski (pounded husks of rice) when available.	1 lb.	
Salt	... 2 to 3 tolas.	

Half the above is given in the morning and half in the evening at the time of milking. The oil-cake is broken into small pieces and mixed with the other three after they are well cooked.

For two or three weeks in the cold season as a special food, milch buffaloes also are given "Kacharia" 1 lb. mixed with treacle ½ lb.

(II) When in calf :—

Jowár stalks	... .. 10 to 15 bundles.
Cotton seeds	... .. 2 to 4 lbs. daily.
Oil-cake	... .. 1 to 2 lbs.
Husks of math, mag, tur, etc.	... .. 10 lbs.

When not in calf :—

The same as when in calf, but the last, *viz.*, husk of mag, math, tur, etc., 10 lbs, is omitted. Bájri stalks, rice straw, or grass may be substituted for or used with jowári stalks.

Cattle of the Bombay Presidency.

- Two or three pounds of bajri cooked and mixed with about $\frac{1}{2}$ lb. treacle are always given for from a few days to several weeks after calving.

The above are representative examples of the way buffalo-cows are fed.

Cows.

29. Milch cows usually get about half the quantities of the same food given to buffalo-cows. Rabaris' cows get only what they can pick up while out grazing or pilfer from cultivators' fields.

30. Buffaloes are turned out of the peoples' houses in the early morning into the village and its vicinity as scavengers to pick up anything they can find.

31. Cattle are grazed in the fields after the crops are cut.

32. Other matters referred to under other headings for the Ahmedabad District apply equally to the Kaira District and need not therefore be entered here.

• 33. Attached is, also, Statement D, giving the number of plough cattle, bulls, milch cattle, young stock, etc., etc.

34. Statement E, showing the number of cattle and maunds of ghi, butter and cream booked during the year 1903 from Nadiad railway station chiefly to Bombay, has been obtained from the station master. The Bombay dairies keep milch cattle only; as soon as a buffalo-cow becomes dry she is sold and replaced by another in milk.

35. Statement F shows the amount of cream, condensed milk and milk sent away in one week from the Anand railway station, obtained from the station master.

36. Table G gives the names of ordinary diseases prevailing among the cattle in the Kaira District with their vernacular names. Table G (a), "Epizootics".

37. Table H gives the names of the principal trees found in the Kaira District, the leaves of most of which are often given to cattle.

38. Table I gives the names of creepers and plants growing in the hedges, some of which are frequently eaten by cattle.

39. Table J gives a list of different parts of cattle with their vernacular names.

F. JOSLEN, Major,

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her
adings.

ppendices.

TABLE A.
Grazing Lands—Kaira District.

Táluka.				Grazing land allotted to Villages.	Waste land.	Government Birs.	Private Birs.
				A. g.	A. g.	A. g.	
Mehmadabad	1,849 33	16,606 11	454 8	} Not available.
Métar	...	...	...	1,592 25	22,256 18	112 14
Nadiád	...	...	...	957 13	11,833 28	..... .
Kapadvanj	...	...	...	1,317 20	34,119 1	2,400 36
Thásra	...	...	...	1,586 2	37,325 15	694 2
Anand	...	...	...	2,904 31	10,266 17	.....
Borsád	...	...	...	1,181 3	874 19	.....
			Total	10,389 7	133,371 29	3,661 20

Kaira District.

(F. Joslem.)

TABLE B.

Details of Area—Kaira District.

Taluka.	Total area in square miles.	Cultivated area.					Area of cultivated land per pair of plough cattle.	Number of persons per head of milch cattle.	Plough cattle.	Milch cattle.
		Net cropped.			Add current fallow.	Total area cultivated.				
		Unirrigated i.e., dry land.	Irrigated land.	Total.						
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.			
Mohandabad ...	171	61,552	5,319	66,871	14,572	81,443	11.8	10	11,855	7,807
Matar ...	216	66,897	4,211	70,608	21,096	91,704	16.6	9	8,527	6,570
Thakra ...	257	71,370	494	71,864	18,607	90,471	12.1	11	11,875	6,496
Kapadvauj ...	279	91,499	1,217	92,716	25,654	118,370	13.4	10	13,783	7,430
Nadiad ...	224	99,405	8,953	108,338	13,707	122,055	14.5	10	14,981	15,065
Borsad ...	305	76,533	9,908	86,441	8,777	95,218	8.3	10	10,395	13,198
Anand ...	244	109,966	4,807	114,773	10,645	125,418	8.4	9	13,601	16,335
Total ...	1,596	676,722	34,889	611,611	113,063	724,674	14.4	10	84,493	72,901

Cattle of the Bombay Presidency.

TABLE C.

Wells and Tanks—Kaira District.

Taluka.	Wells						Tanks						Other sources besides than wells and tanks		
	For irrigation.		For human drinking purposes.		For drinking purposes for cattle, etc.		For irrigation.		For human drinking purposes.		For drinking purposes for cattle, etc.				
	Pakka.	Kacha.	Pakka.	Kacha.	Pakka.	Kacha.	Pakka.	Kacha.	Pakka.	Kacha.	Pakka.	Kacha.	For irrigation.	For human drinking purposes.	For drinking purposes for cattle, etc.
Mehamdabad ...	1,742	67	165	2	95	...	8	205	...	...	2	234	4	13	...
Matar ...	1,119	250	188	6	61	6	7	312	...	5	8	187	29	4	10
Thara ...	428	179	328	13	75	2	2	492	...	7	...	181	33	10	19
Kapadvanj ...	1,114	267	846	5	24	...	1	121	...	1	3	488	...	...	10
Nadiad ...	2,274	151	416	32	231	10	1	293	...	...	32	644	...	6	34
Borsad ...	1,956	253	308	15	63	7	1	23	...	...	25	667	...	...	...
A'nand ...	3,301	105	401	13	43	2	1	44	...	1	32	763	5	...	...
Total ...	9,834	1,272	2,050	86	592	28	16	1,490	...	14	102	3,144	71	33	73

Note.—"Pakka" means "built" and "Kacha" means "not built".

Kaira District.

(F. Jones.)

TABLE D.

Cattle—Kaira District.

Taluka.	Plough cattle.		Bulls for breeding.		Oxen for other use.			Milk cattle.		Young stock.		Total cattle.	Total plough cattle.	Total milk cattle.	Ploughs.		Carts		Population, Census, 1901.	
	Oxen.		He-buffaloes.	Bulls.	Bull-buffaloes.	Oxen.		Cows.	Cow-buffaloes.	Calves.	Buffalo calves.				Small.	Large.	For riding.	For loads.		
	Uncastrated.	Castrated.				Uncastrated.	Castrated.													He-buffaloes.
Mohamdebud	146	11,801	9	12	24	11	103	4	1,260	6,047	1,826	4,283	24,934	11,355	7,307	5,711	...	195	2,616	75,926
Matar	148	8,379	...	7	80	1	65	7	1,335	5,235	1,637	3,610	20,469	8,527	6,570	4,905	...	253	2,216	71,522
Thiara	104	11,771	...	31	26	...	28	...	2,615	4,463	2,393	2,028	23,076	11,875	6,496	6,597	...	126	2,323	73,060
Kapadwan	650	12,123	...	5	25	5	90	22	2,308	5,122	2,341	3,834	27,035	13,783	7,430	7,228	...	161	2,587	75,258
Nadiad	210	14,862	9	20	59	5	199	31	1,305	12,700	1,828	3,756	40,924	14,961	15,065	3,227	...	297	4,200	148,452
Bornad	...	10,395	...	9	61	...	77	...	631	12,667	1,211	6,964	33,215	10,395	13,198	6,243	...	376	3,947	137,859
A'nand	...	13,601	...	7	76	...	158	4	965	15,380	1,773	9,356	41,310	13,601	16,335	2,525	...	241	4,098	143,805
Total	1,157	88,842	18	61	310	22	726	68	10,367	62,534	13,008	40,231	211,963	84,499	72,901	47,438	...	1,838	21,827	716,332

Cattle of the Bombay Presidency.

Kaira District.

(F. Josien.)

TABLE E.

Statement showing the number of cattle and maunds of ghi, butter and cream booked from Nadiad Station, Kaira District, during the year 1903.

Number of cattle.	Maunds of			Remarks.
	Ghl.	Butter.	Cream.	
3,374	2,920	899	781	
Total ... 3,374	2,920	899	781	

Cattle of the Bombay Presidency.

TABLE F.

Statement showing particulars of cream, milk, etc., booked from A'nanad Station, Kaira District, per week.

No.	Articles.	Cans.	Baskets.	Number of lbs. per week.	Number of lbs. per day.	Remarks.
1	Cream (a) dessicated ...	160	...	6,720	960	(a) Small can contains 14 seers. Large 28 seers. Taking at an average a can of 21 seers or 42 lbs. the above calculation is arrived at.
2	Máwa (condensed milk) (b) ...	...	139	8,340	1,191	(b) Máwa basket contains 30 seers or 60 lbs.
3	Milk (c) ..	29	...	870	124	(c) Milk can contains 15 seers or 30 lbs.

Kaira District.

(F. Josien.)

TABLE G.

Names of ordinary diseases prevailing among cattle in the Kaira District

English name.		Vernacular names.
Abscess	...	Gad. ગડ.
Albugo	...	Phul. ડુલ.
Albuminuria	...	Pesábni dhát. પેસાબની ધાત.
Anœmia	...	Páandu rog. પાંડુ રોગ.
Aphthæ	...	Thulio va યુલીયો વા
Do. epizootica	...	Mováso kharváso. મોવાસો ખરવાસો.
Bronchitis	...	Dhoñso. ઢોંસો.
Burns	...	Dáh દાહ.
Cancer (horn)	...	Karmodi. કરમોદી.
Capped elbow	}	No particular name.
" hock		
" knee		
Carries	...	Hád gambhir. હાડ ગંભીર.
Cataract	...	Motio. મોતીઓ.
Catarrh	...	Sardi સરદી.
Choking	...	Gungláva. ગુંગલાંવું.
Colic	...	Chank. ચુંક.
Conjunctivitis	...	A'nhno varam. આંખનો વરમ.
Contusion	...	Már. માર.
Corns	...	Talvát. તલવાત.
Cysts	...	Rasoli. રસોલી.
Cystitis	...	Peeábni kothlino varam. પેસાબની કોથલીનો વરમ
Debility	..	Nablài નખલાઇ.
Diarrhœa	...	Jhádo. ઝાદો.
Dysentery	...	Mardo. મરદો.
Dislocation	...	Sándho khasvo. સાંધો ખસવો.
Eczema	...	Kharajru ખરજરુ.
Ectropia	...	No special name.
Epilepsy	...	Phephru. ફેફરું.

Cattle of the Bombay Presidency.

TABLE G—continued.

English name.		Vernacular names.
Epistaxis	...	Naskori phutvi. नसकोरी फुतवी.
Exostosis	...	Hádkáni, gáñth. हाडकानी गांध.
Fever	...	Táv. ताव.
Fractures	...	Hádkánu bhágvu. हाडकानु भागवुं.
Gangrene	...	Modadál. मुडदाळ.
Gastritis	}	No synonyms.
Gastro-enteritis		
Glossitis	...	Jibhno varam. जिव्हनो वरम.
Hæmaturia	...	Lál pesáb. लाल पेशाब.
Hæmoptysis	...	No particular name.
Hepatitis	...	Pitni gáñth. पीतनी गांध.
Hernia	...	Antargal. अंतर्गल.
Impaction of rumen	}	Bandh kos (a vague term अंधे कोस for all).
" omasum		
" bowels		
Indigestion	...	Ajirn. अजिर्ण.
Jaundice	...	Kamlo. कमलो.
Laryngitis	...	Galáno varam. गलानो वरम.
Leucorrhœa	...	Pradar. प्रदर.
Lymphangitis	...	Ras vikár. रस विकार.
Mammitis	...	Bávláno varam. आवलानो वरम.
Blind teats	...	No particular name.
Mange	...	Khujli. खुजली.
Necrosis	...	Hád gambhir. हाड गंभीर.
Edema	...	Sojo. सोजे.
Ophthalmia	...	A'ñkhno varam. आंखनो वरम.
Paralysis	...	Pakshaghát. पक्षघात.
Parasites, external	...	Jivda. जिवडा.
" internal	...	Karamia. करमीया.
Prolapsus uteri	...	Máti khasvi. माटी खसवी.
Retention of placenta	...	Or na padvi. ओर ना पडवी.
Parturient fever	...	Suva rog. सुवा रोग.

Kaira District.

(F. Joslen.)

TABLE G—continued.

English name.	Vernacular names.	
Pneumonia	... Mujháro	મુઝારો.
Polyuria	... Bahú pesáb.	બહુ પેસાબ.
Punctured foot	... Pagma khilo lágvo.	પગમાં ખીલો લાગવો.
Rheumatism	... Sandhiva.	સંધીવા.
Rinderpest	... Bališ.	બલીયા.
Gloss anthrax	... Galsunda.	ગલસુંડું.
Scrofula	... Málvi rog.	માલવી રોગ.
Retention of urine	... Bandh pesáb.	બંધ પેસાબ.
Ringbone	... Chakrával.	ચકરાવલ.
Spavin	... Motro.	મોતરો.
Sprain	... Karmod.	કરમોદ.
String-halt	... Tanáchh.	તણ્ણહ.
Tumours	... Gáñth.	ગાંઠ.
Tympanitis	... Aphro.	આફ્રો.
Urticaria	... Silas.	સીલસ.
Ulcers	... Cháñdi.	ચાંદી.
Wounds	... Jakham.	જખમ.
Warts	... Masa.	મસા.
Otorrhea	... Kán pákvo.	કાન પાકવો.

Cattle of the Bombay Presidency.

TABLE G (a).

List of Epizootics prevailing in the Kaira District.

Name of epizootic.	Period of the prevalence of the disease.		Number of animals attacked.		
	Month.	Year.	Recovered.	Died.	Total.
Hoss anthrax.	July to September 1894.	1894-95	23	305	329
	July and August 1895 ...	1895-96	13	220	233
	June 1896 ...	1896-97	1	7	8
	August and September 1897 ...	1897-98	1	32	33
	July to September 1898.	1898-99	34	138	172
	August 1900 ...	1900-01	3	152	155
	Total ...		75	855	930
Foot and mouth disease.	January and February 1895 ...	1894-95	40	...	40
	October 1895 to March 1896 ...	1895-96	345	4	349
	December 1897 to February 1898 ...	1897-98	358	...	358
	September 1898 ...	1898-99	161	...	161
	January and February 1899 ...				
	February and March 1903 ...	1902-03	13	...	13
	Total ...		917	4	921
inderpest ...	May, September, and November 1896 and January 1897. ...	1896-97	184	186	370
	April and May 1897 ...	1897-98	4	9	13
	March 1899 ...	1898-99	96	103	199
	April, May 1899 and January 1900 ...	1899-1900	128	122	250
	February 1902 ...	1901-02	32	13	45
Total ...		444	433	877	

TABLE H.

Names of the principal large trees found in the Kaira District.

No.	English name.	Botanical name.	Vernacular name.
1	Mango tree	... <i>Mangifera indica</i>	... Amba.
2	Tamarind tree	... <i>Tamarindus indica</i>	... Ambli.
3	Banyan tree	... <i>Ficus bengalensis</i>	... Vad.
4	Sacred fig tree	... <i>Ficus religiosa</i>	.. Piplo.
5	Babul tree	... <i>Acacia arabica</i>	... Bával.
6	Neem tree	... <i>Melia azadirachta</i>	... Limdo.
7	Jujube tree	... <i>Zizyphus jujuba</i>	... Boydi.
8	Mowra tree	... <i>Bassia latifolia</i>	... Mahudo.
9	Wood apple	... <i>Feronia elephantum</i>	... Konthi.
10	Rayan tree	... <i>Mimusops hexandra</i>	... Ráyan.
11	Jhinji tree	... .....	Jhinji.
12	Asopálav tree	... <i>Polyalthia longifolia</i>	... Asopálav.
13	Samda tree	... <i>Prosopis spicigera</i>	... Samdo.
14	Wild fig tree	... <i>Ficus glomerata</i>	... Umardo.
15	Silk cotton tree	... <i>Eriodendron anfractuosum</i>	... Shamlo.

Cattle of the Bombay Presidency.

TABLE I.

Names of creepers and plants growing on hedges in the Kaira District.

I—Creepers.

1. Vev.	वेव.	Eatable by cattle.
2. Galo.	गलो.	Given to buffaloes for increasing milk, 1 lb. at times.
3. Ghilodi.	धीवोडी.	Eatable by cattle, bears long round fruits sometimes used as vegetable.
4. Dodi.	दोडी.	Flowers and leaves used by the poor as a tonic vegetable.
5. Antarvel.	अंतरवेव.	Long thread like yellowish, green throughout the year.
6. Abyo.	आभयो.	With a big pod; not eaten even by goats.
7. Chanokhdi or Chanothi.	चनोअडी अगर चनोडी.	The red and black seeds used as weights, also as needle poison for cattle.
8. Varsádodi.	वरसादोडी.	Eatable by cattle and the flowers and fruits as vegetable.
9. Galki	गलकी.	Fruits used as vegetable.

II—Plants.

1. Kanthár.	कंधार.	The stem bears curved thorns and the leaves are eaten by cattle.
2. Harero.	हररो.	.....
3. Pilávo.	पीलावो.	.....
4. Kamboi.	कम्बोय.	.....
5. Arni.	अरणी.	.....
6. Khoyni.	खोयणी.	A hedge tree.
7. Bordi (chani)	बोर्डी ओरडी.	Stem bears thorns, leaves eatable by cattle and fruits by the people.
8. Thor (cactus)	थोर.	Bearing thorns and having acrid white juice which, if of old plant, is used by natives as counter-irritant on rheumatic swellings and the leaves freely eatable by goats.
9. Khársánda.	खरसाँदी.	Having acrid juice.
10. Bhoý kánski.	भोय कंसकी.	.....
11. Castor oil plant, Divelo.	दीवेवो.	.....
12. Sargavo.	सरगवो.	Flowers and pods used as vegetable.
13. Kanaj.	कणज.	A fairly big leaf.
14. Sitáphali.	सीताफली.	Bearing big sweet fruits eatable by human beings; fairly big ovoid leaf.

Kaira District.

(F. Joslem.)

TABLE J.

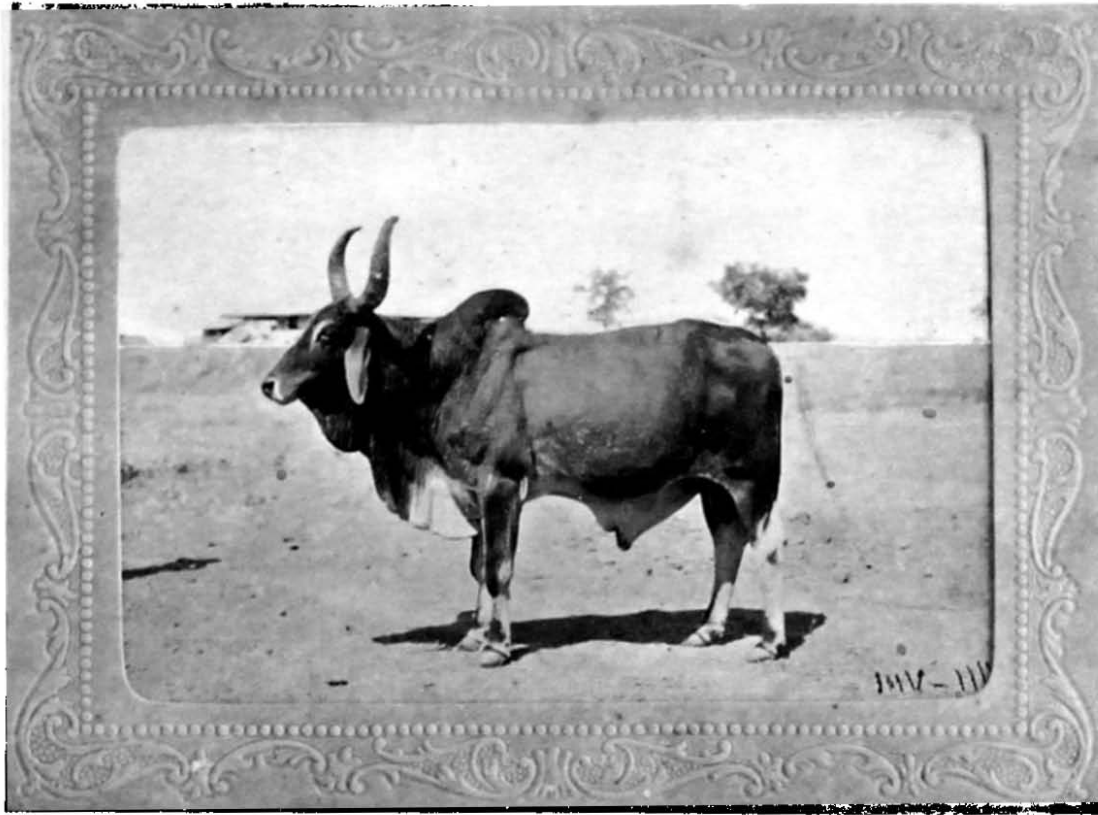
List of different parts of cattle with their Vernacular names.

Name of parts.	Corresponding Vernacular names	
	Written in English characters-	Written in Gujarāti characters.
Hump	... Khandholi	... ખંધોલી.
Fore head	... Kapál	... કપાલ.
Face	... Chehro	... ચેહેરો.
Horns	... Shingda	... શીંગડા.
Muzzle	... Mho	... મહો.
Fore-arm	... Nalo	... નલો.
Shank	... Nali	... નલી.
Foot	... Pag	... પગ.
Shoulder	... Khabo or Thápo	... ખબો, or થાપો.
Back	... Pith	... પીઠ.
Girth	... Chhátino gherávo	... છાતીનો ઘેરાવો.
Brisket	... Chhāti	... છાતી.
Dewlap	... Kámlo	... કામલો.
Flank	... Kúkh	... કુખ.
Croup	... Chameli	... ચમેલી.
Buttock	... Dheko	... ઢેકો.
Hip	... Punthu or Ked	... પુંઠું or કેડ.
Thigh	... Jáng	... જાંગ.
Tail	... Puchhdi or Dum	... પુછડી or દુમ.
Tuft of tail	... Chamri	... ચમરી.
Hock	... Tani or Ghuntu	... તણી or ઘુંટું.
Gaskin	... Sáthal	... સાથલ.
Udder	... Bavlu or Av	... બાવલું or આડે.
Teat	... A'ñchal	... આંચલ.
Belly	... Pet	... પેટ.
Sheath	... Mutarni	... મુતરની.
Scrotum	... Kothli	... કોથલી.
Chest	... Chhāti	... છાતી.
Tongue	... Jibh	... જીભ.
Eye	... A'ñkh	... આંખ.
Ear	... Kán	... કાંન.
Nose	... Nák	... નાક.
Nostrils	... Naskora	... નસકોરાં.
Knee	... Dhichan	... ઢીચણ.
Fetlock	... Muthiu	... મુઠીડું.
Loins	... Ked or Kammar	... કેડ or કમર.

List of Photographs of cattle referred to in Bulletin No. 26 of 1905.

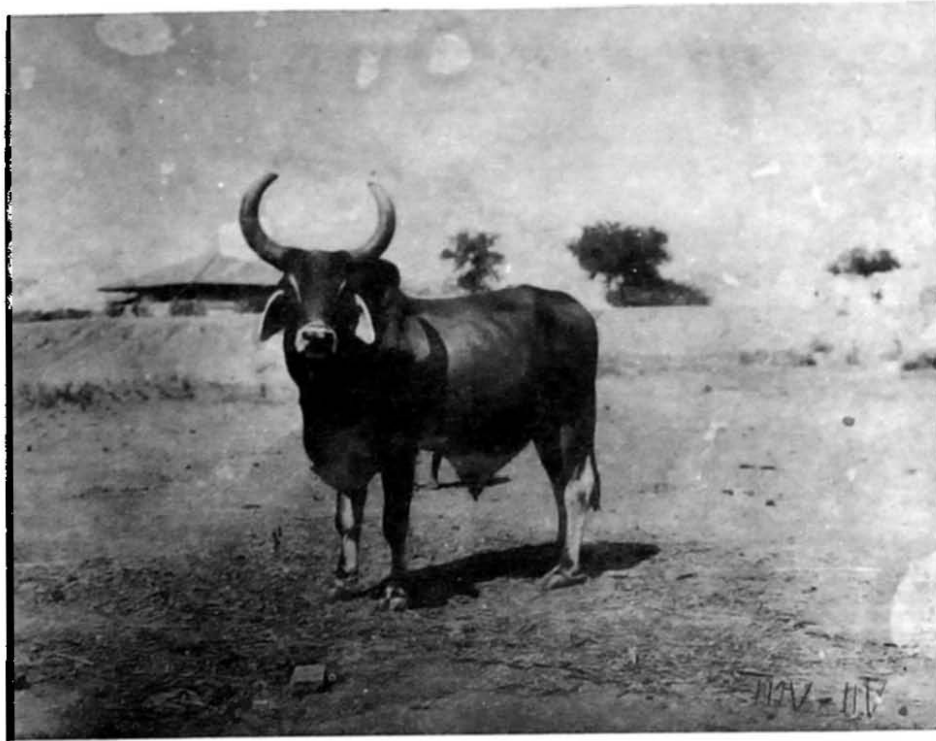
Serial No.	Name of animal.	Serial No.	Name of animal.
1	Kánkrej bull No. 1.	33	Pair of medium sized cattle.
2	Kánkrej bull No. 2.	34	Pair of good working bullocks.
3	Gujarát bull at Kapadvanj.	35	Pair of Málvi plough bullocks.
4	Gujarát bull at Naroda.	36	Pair of Gujarát plough bullocks.
5	Young Kánkrej bull.	37	Plough bullocks, Vásna.
6	Kánkrej cow.	38	Plough bullocks, Naroda.
7	Kánkrej cow.	39	Málvi bullock.
8	Kánkrej cow.	40	Málva bull and buffalo-bull.
9	Gujarát cow of Kánkrej breed.	41	Málvi cow.
10	A herd of Gujarát cattle at Ohharodi.	42	Buffalo-bull, Nadiád.
11	Gujarát cow.	43	Buffalo-bull, Vásna.
12	A herd of cows at Pátri.	44	Káthiáwár buffalo bull.
13	Gujarát cow.	45	Buffalo-cow, Nadiád.
14	Cows of Bavla.	46	Buffalo-cow, Nadiád.
15	Gujarát cow (Dholka).	47	Buffalo-cow, Nadiád.
16	Two Gujarát cows, Naroda.	48	Buffalo-cow, Nadiád.
17	Two Gujarát cows.	49	Albino buffalo-cow.
18	A pair of Kánkreji calves.	50	Pair of large sized buffaloes, Ahmadabad.
19	Gujarát bullocks.	51	Medium sized buffaloes at Ahmadabad.
20	A Kánkrej bullock.	52	Small sized buffalo-cows, Ahmadabad.
21	Kánkrej bullocks at Chandkbeda.	53	Buffalo-cow, Vásna.
22	Four Gujarát bullocks.	54	Buffalo-cow, Vásna.
23	Two large Gujarát bullocks.	55	Buffalo-cow, Dholka.
24	Large carriage and plough bullocks.	56	Delhi buffalo-cow, Virangám.
25	Large pair, Gujarát plough cattle, Ahmadabad.	57	Káthiáwár bull.
26	Pair of working bullocks.	58	Káthiáwár bullock.
27	Pair of agricultural bullocks.	59	Káthiáwár bullock.
28	Large pair of agricultural bullocks, Nadiád.	60	A Gir cow.
29	Medium sized agricultural cattle.	61	Káthiáwár cow, Pátri.
30	Pair of large agricultural bullocks.	62	Gannia cow.
31	Medium sized pair of working bullocks.	63	Wagad bullock.
32	Pair of small agricultural bullocks.	64	Bullock cart.
		65	A plough.

*Kankrej bull "Mujio" at the Gujrat Cattle Preservation
Association's cattle farm at Chharodi.*

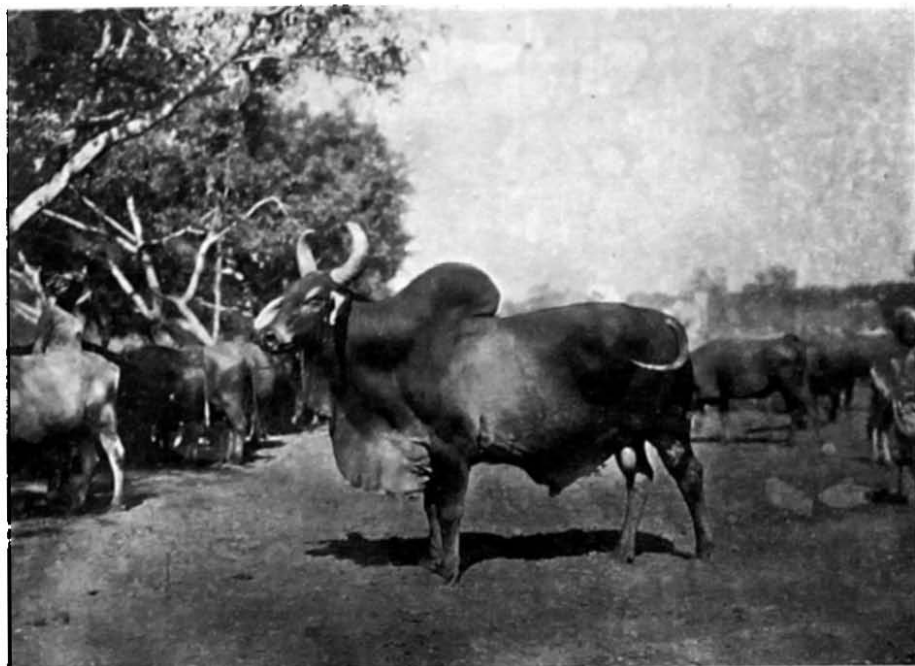


*Aged about 15 years. 4 feet 10 inches behind the hump. Colour black.
Coat very fine, skin beneath black. Ear orange coloured inside.*

Full face view of No. 1. "Mujin."



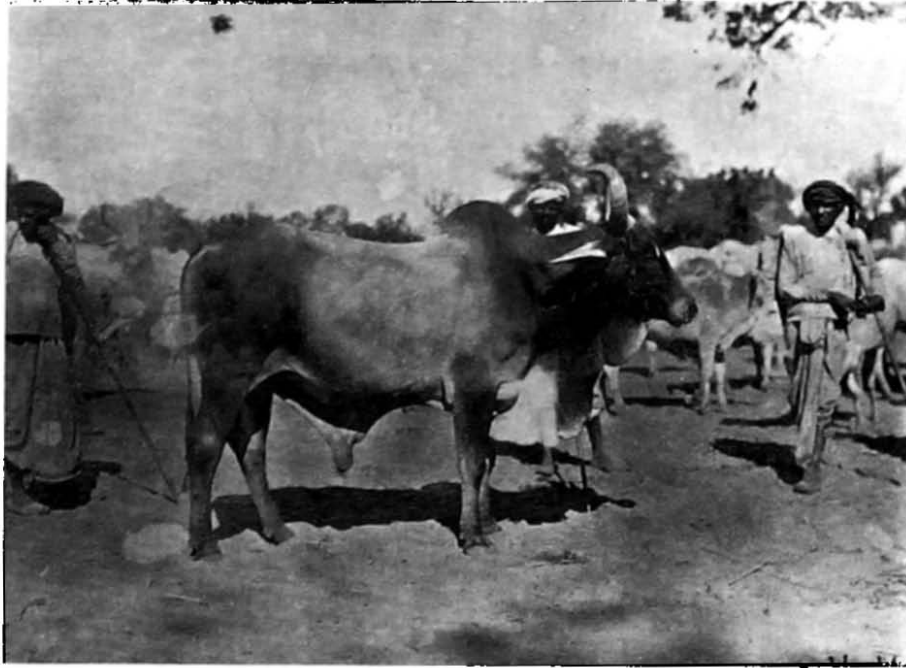
Bulls are generally quiet when left alone, but fiercely resent being handled. The above animal could not be measured. The Rabaris refused to attempt to put him under restraint.



GUJRAT BULL AT KAPADWANJ, KAIRA DISTRICT.

59 inches to the top of the hump, 51½ inches at the back of the hump, brand near quarter, representing the trident of the God Shiva.

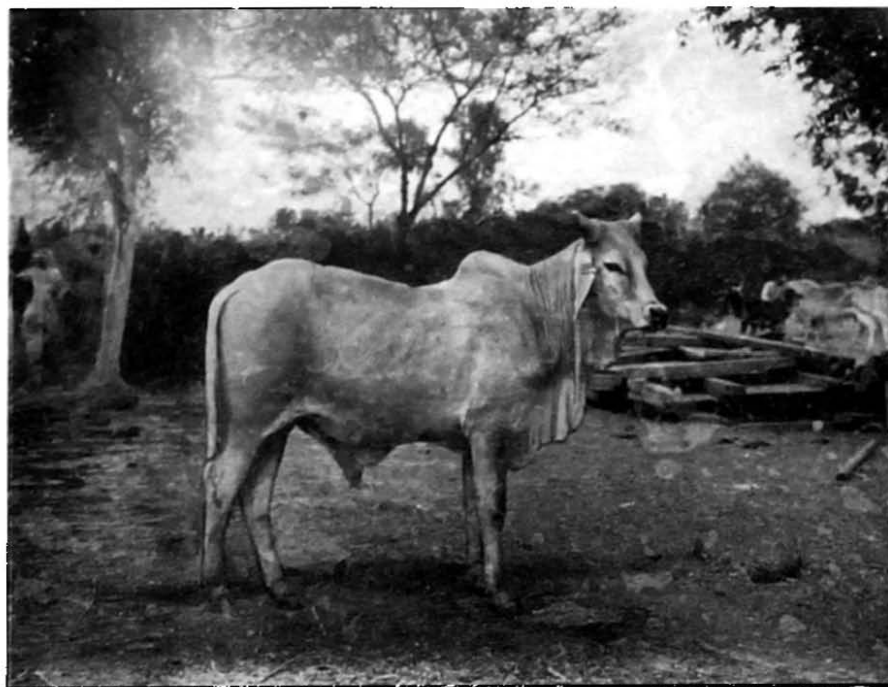
Gujrat Bull at Naroda.



<i>Height.</i>		<i>MEASUREMENT</i>								
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear,</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
5 0	4 6	4 8	6 2	0 7½	0 7	1 6	1 10	• 0 8½	1 1	

*Young Kankrej Bull on Mr. Nariman R Rothwala's Farm at Sannad.
Age 2 Years Colour Silver Grey, passing to iron Grey and black as age advances.*

Note the short face, thick horn, long ear, broad flat forehead, level line between the horns, and fineness of the face with small clean muzzle, - also big but thin dewlap and small sheath straight clean limbs and general high bred appearance. Thin skin, short fine coat, black skin beneath.

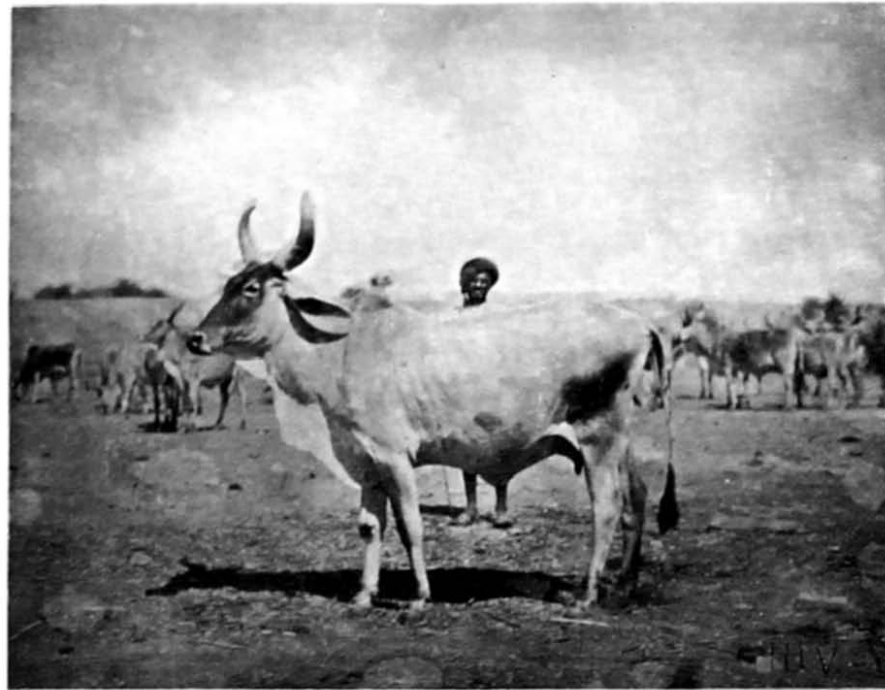


Too high at the croup, but otherwise a splendid young bull. This is the class and age of bull which should be selected for breeding purposes. Full grown ones can seldom be obtained.

Height.		MEASUREMENTS.								
Top of hump.	Behind hump.	Length of body.	Girth	Shank,	Length of shank	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
3 ¾	4 ¼	3 10	5 3	6 ¾	0 6 ½	0 5 ½	1 5 ½	0 7 ½	1 1	

Association's Cattle Farm at Chharodi. This is a fine specimen of a pure Kankreji cow. The off knee has been injured.

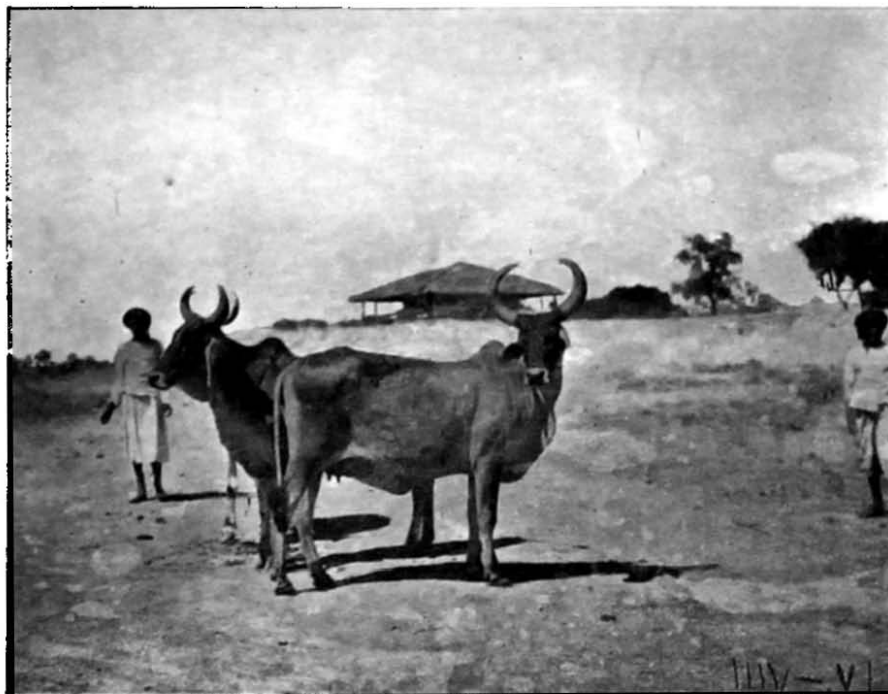
Note in this and No. 8 the thickness at the base of the horn and the graceful curve outwards & upwards with the bend of the points backwards



Height.		MEASUREMENTS.								
Top of hump.	Behind hump.	Length of body.	Girth	Shank.	Length of shank	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
4 3½	4 1½	4 ½	5 4	0 6	0 6½	1 4	1 -7	0 7	1 0	

Kankrej cow at the Gujrat Cattle Preservation Association's cattle farm at Chharodi. Face view. A fairly good specimen of a Kankrej cow.

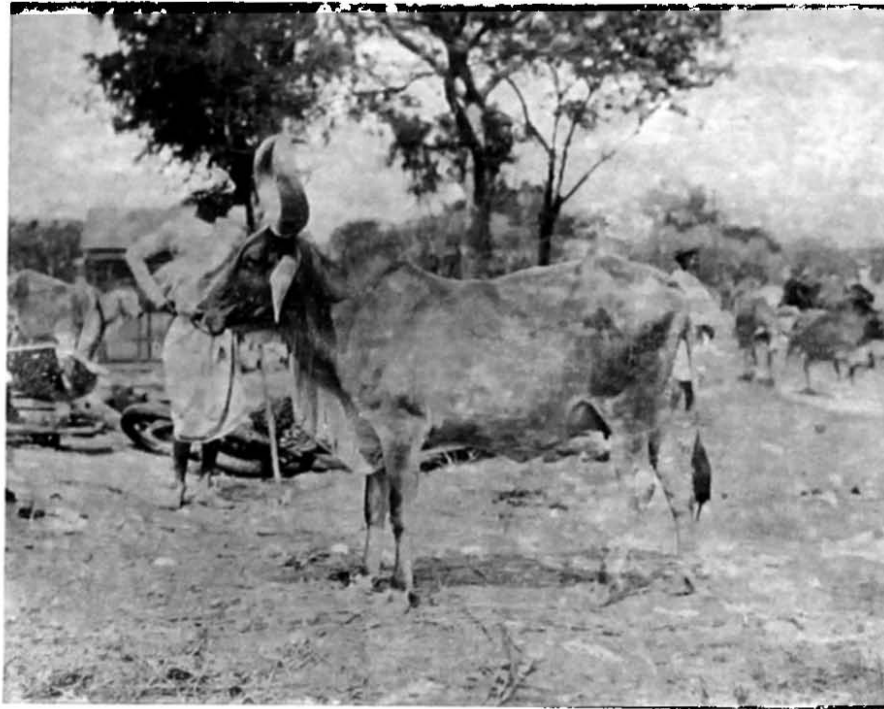
CHARACTERISTICS
General thorough bred appearance. Finely chiselled features, thin skin and fine coats, big horns and ears, fine black muzzle, big and beautiful eye with black lids. Horns thick at the base, straight and clean. Limbs of fine good hard bone. Skin black colour black merging into silver grey. Flat forehead. Body somewhat long, neck short. Knees and fetlocks black in front black coronets, feet hard big dewlap of a simple fold of skin, udder of medium size, teats well placed, Tail extending to just below the hock with a black tuft about a foot in length.



MEASUREMENTS.

Height.										
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
4 3½	4 1	4 4	5 4	0 5½	0 6½	1 5½	1.4	0 6½	0 11	

A fine Kankrej cow on Mr. Nariman R. Kothawala's farm at Sanand.



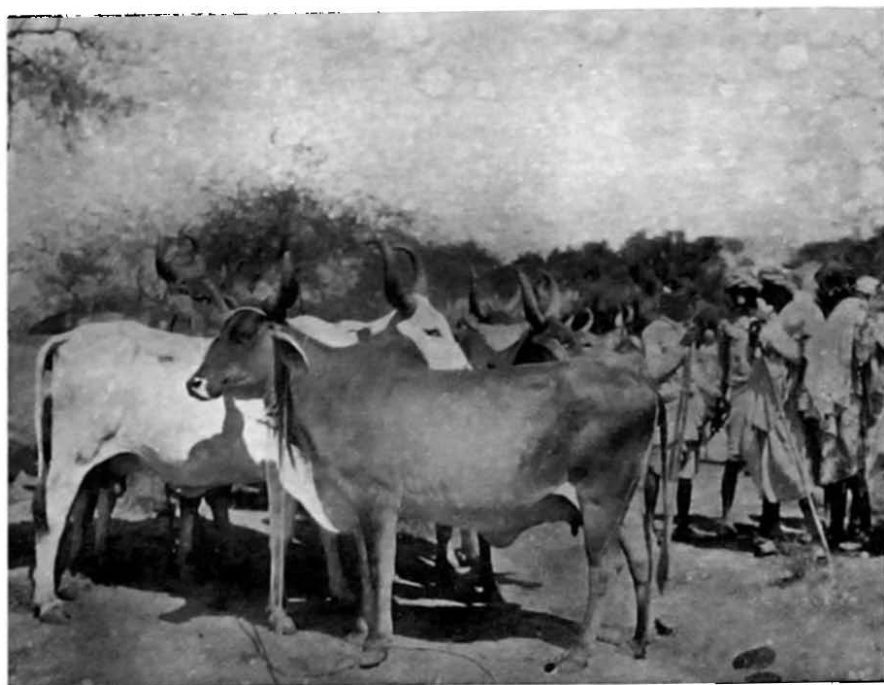
Height.		MEASUREMENTS.								
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	*Length of shank of horn.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear,	
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
4 4½	4 1½	4 2	5 5	0 6½	0 6½	1 11	1 7	0 8	0 11½	



The best herd at the Gujrat Cattle Preservation Association's cattle farm at Chharadi. No. 1 bull "Mujio" with his cows all of the best Kankreji breed.

•

*Typical Gujrat cow of the best sort for breeding, taken at Patri.
Kankreji breed, of mature age*

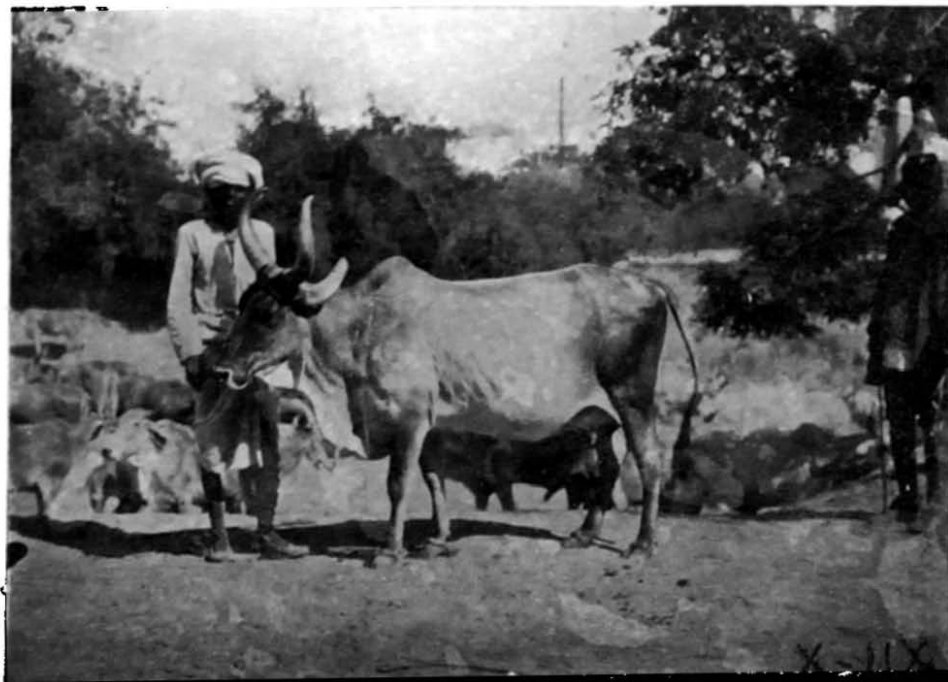


Height.		MEASUREMENTS.								
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	Length of shank of horn.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
4 4	4 0	4 4	5 6½	0 6½	0 6	1 1	1 7½	0 7½	1 1	



A herd of cows at Patri from which No. 11 (which may be taken as an average specimen) was taken. The best Gujrat cows are but little removed from the pure Kankrej breed.

Gujrat cow (Kankreji breed). Taken at Viramgaum.



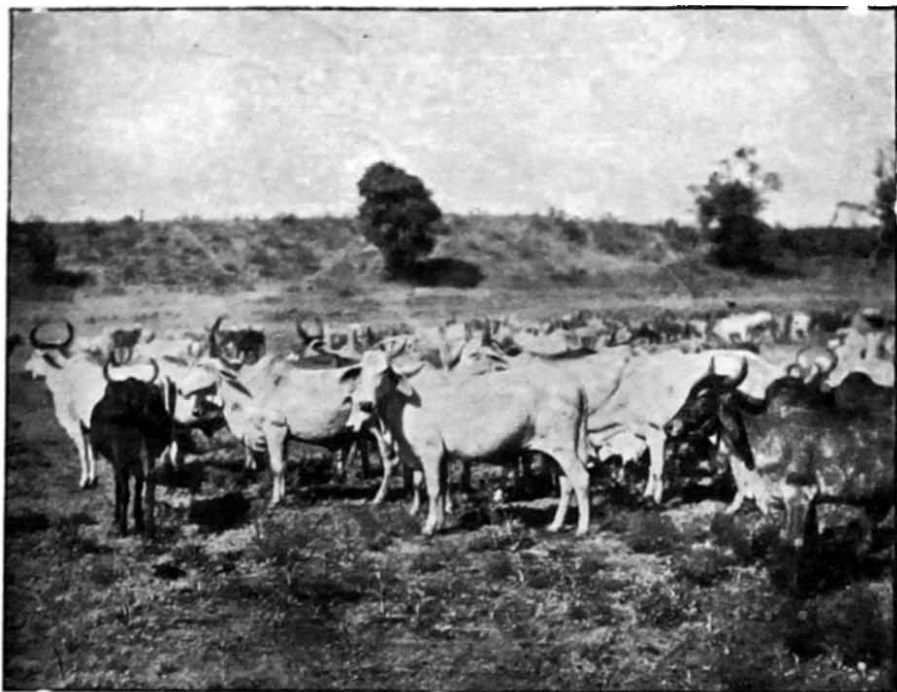
Weight
7 cwt.

Height.

MEASUREMENTS.

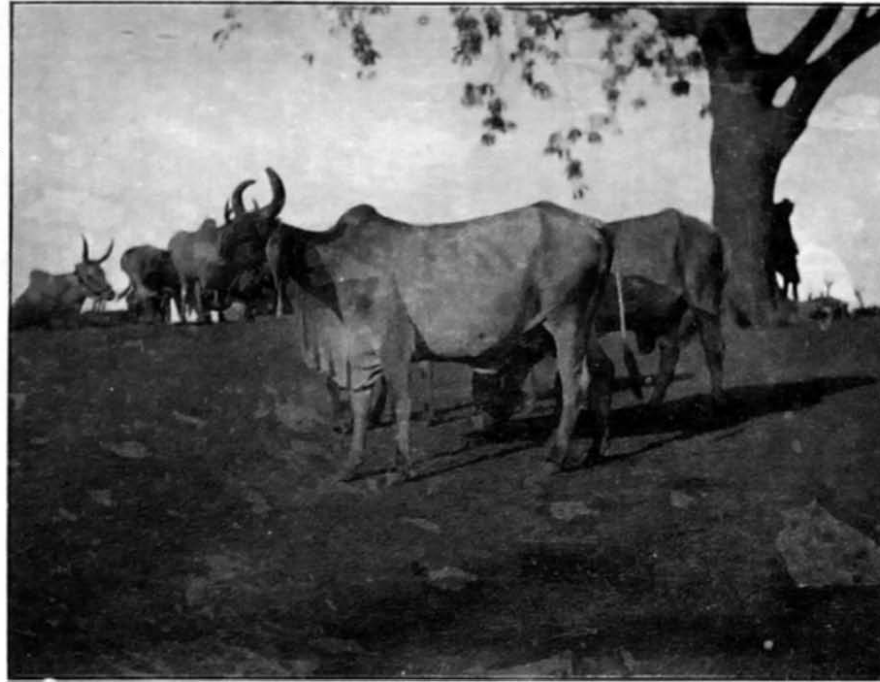
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
4 2	3 10	4 1	5 3	0 6½	0 6½	1 7	1 7½	0 7½	1 0

Cows of Baola. Kankreji breed.



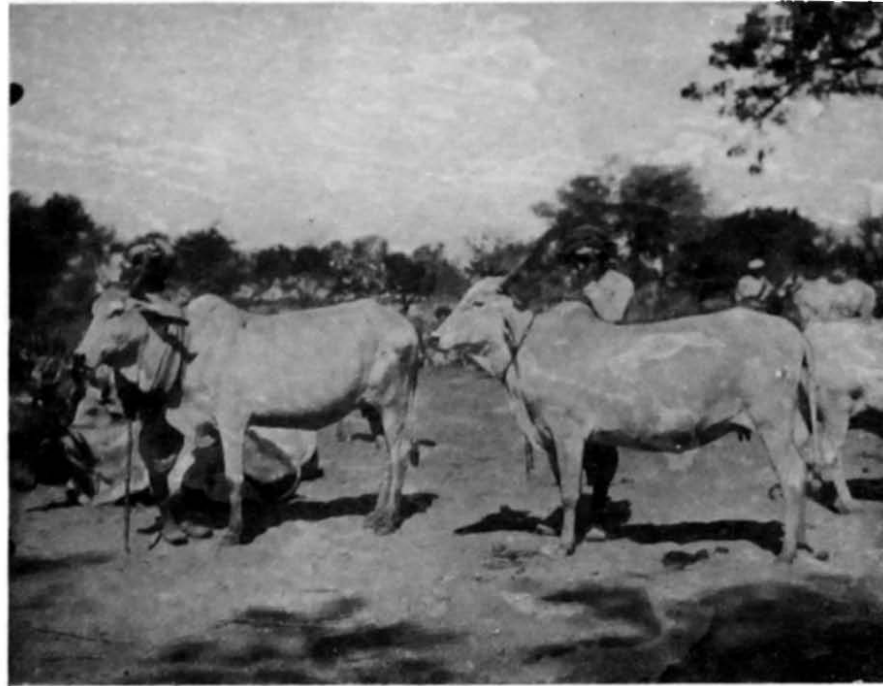
Gujrat cow (Kankreji breed). Taken at Dholka. Black head and neck.

Gujrat cows are wanting in quality, are "not so beautiful", to use a native expression. They are meaner and coarser in the head often rounded in the forehead. The horns are smaller as a rule, thinner and much less symmetrical.



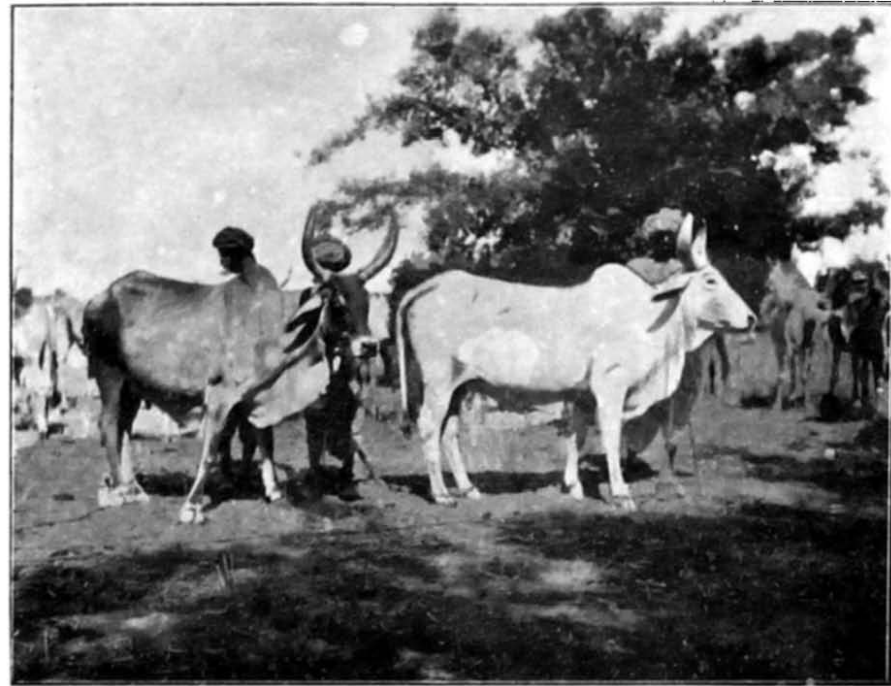
<i>Height.</i>		MEASUREMENTS.							
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 3	4 0	4 5½	5 4½	0 6½	0 6½	1 2	1 8	.0 7½	0 11½

Two Gujrat Cows. Taken at Naroda.



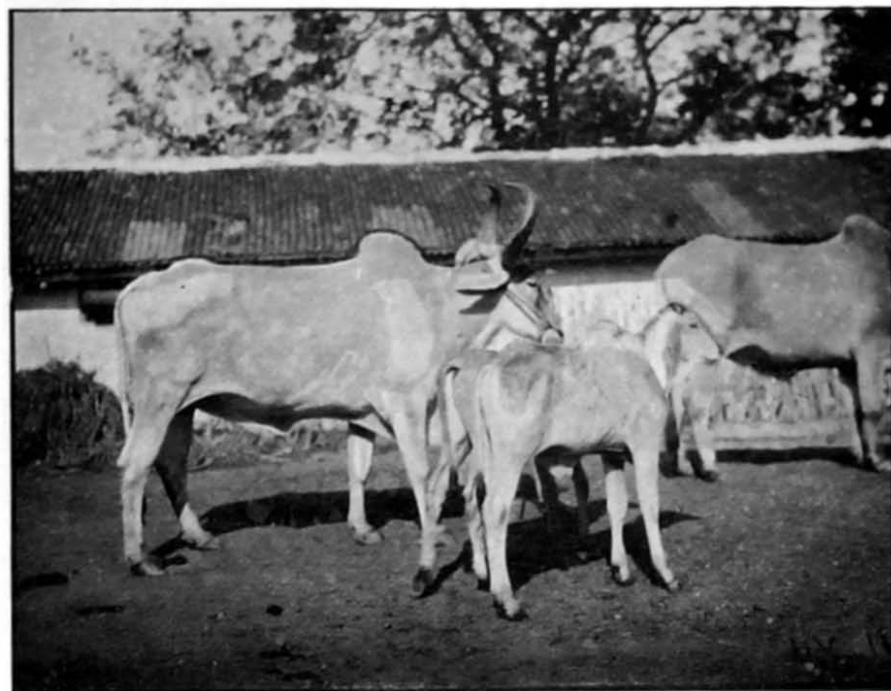
<i>Height.</i>		MEASUREMENTS						
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 6½	4 3	4 4	5 5	0 6½	0 7	1 6.	0 6½	0 11
4 3	3 11	4 1	5 4½	0 6½	0 10	1 7	0	0 10

Two Gujrat cows. Taken at Jakhirara. One black, one white.



Height.		MEASUREMENTS.									
Top of hump.	Behind Hump.	Length of body		Girth.	Shank.	Length of shank of horn.		Length of face.	Breadth of forehead.		Length of ear.
ft. in.	ft. in.	ft.	in.	ft. in.	ft. in.	ft.	in.	ft. in.	ft. in.	ft. in.	ft. in.
4 5½	4 3½	4	2	5 8½	0 6½	0	7 1 6½	1 6½	0 8½	0 11½	
4 6	4 3	4	2½	5 5	0 6½	0	6½ 1 5	1 7½	0 7½	0 11½	

A pair of Kankreji calves. Taken at Dhandhuka. Purchased by a cultivator for Rs. 75 the pair. Each 4 months of age. A Gujrat bullock (Kankreji breed).

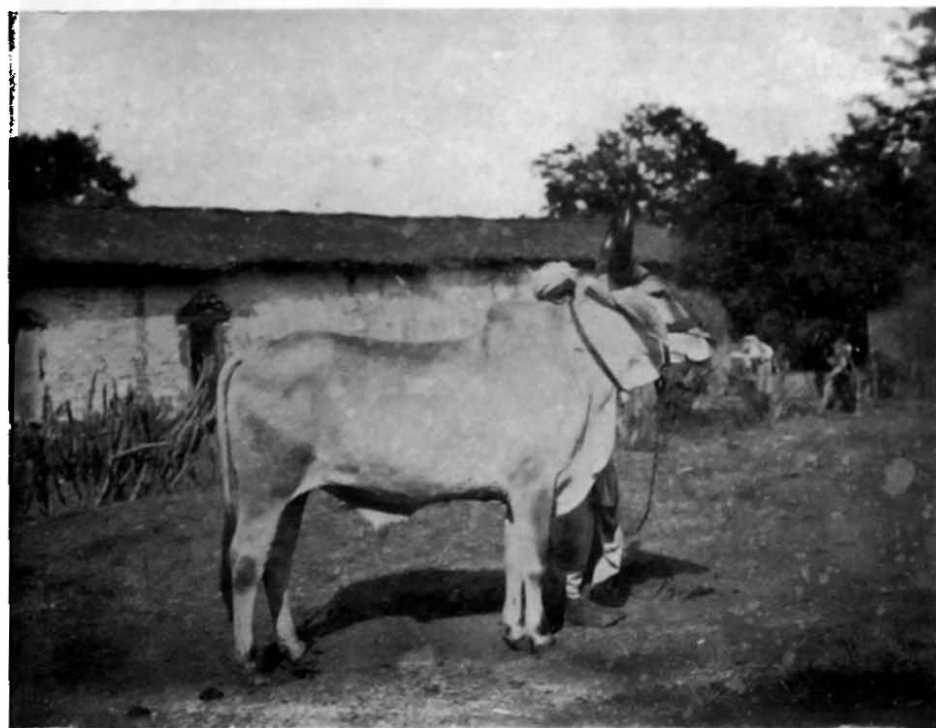


	Height.		MEASUREMENTS.								
	Top of hump.	Behind hump.	Length of body	Girth.	Shank.	Length of shank	Length of horn	Length of face.	Breadth of forehead.	Length of ear.	
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
<i>Bullock</i>	5 5	5 0½	5 5	6 6	0 8½	0 6½	2 6	2 0	0 10	1 0	
<i>Calf.</i>	3 6	3 3½	2 10½	3 6	0 5½	0 5½	0 ½	1 ½	0 6	0 10	



Gujrat bullocks drawing a heavy load.

A Kankrej Bullock. Taken at Chandlhera.



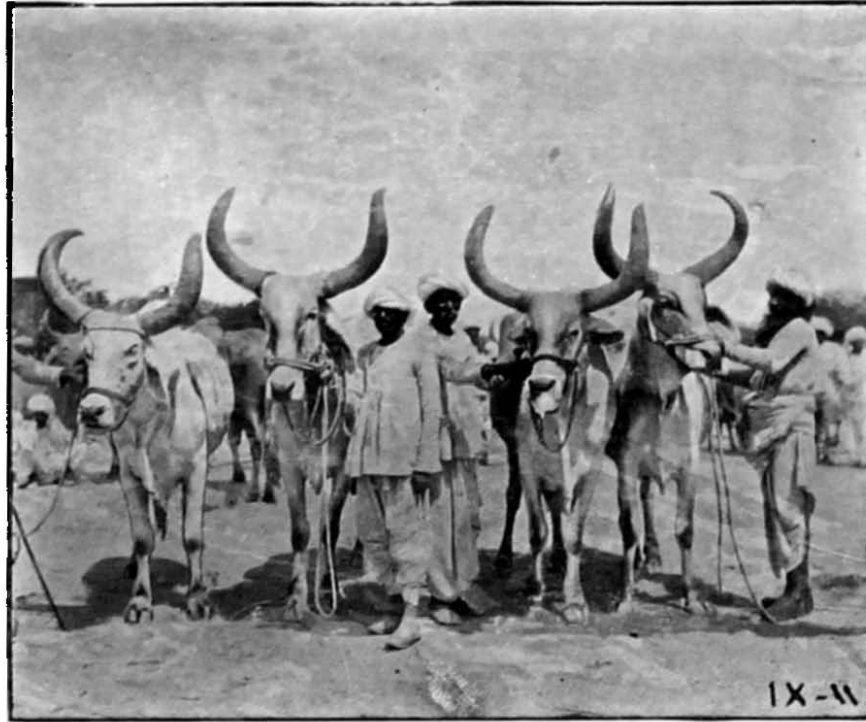
<i>Height.</i>		MEASUREMENTS.									
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth</i>	<i>Shank,</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>		
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
5 0	4 7½	4 7	5 11½	0 7½	6 6½	1 6	1 10	0 9	1 2		



MEASUREMENTS.

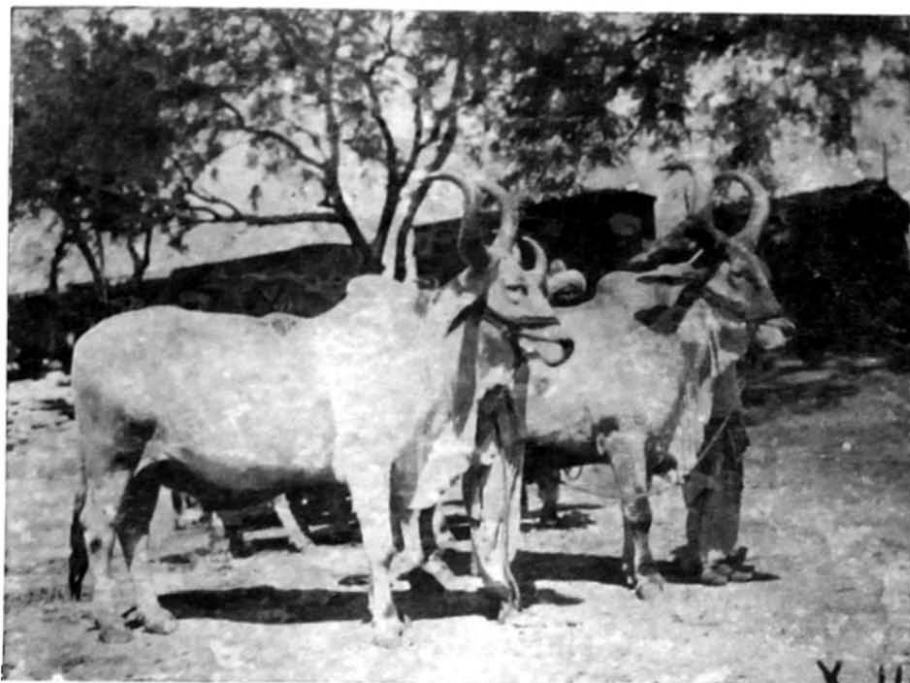
<i>Height.</i>													
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>		<i>Length of ear.</i>			
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
1-5	1 4 9	4 10½	6 2½	0 8	0 7	1 10½	1 10½	0	8½	1	0		
2-5	0½ 4 9	4 9½	6 3	0 8½	0 7	2 2	2 0	0	9½	1	3		
3-4	10 4 6	4 6½	5 9	0 7½	0 6½	1 4½	1 8½	0	8½	1	0		
4-5	0 4 7½	4 7	5 11½	0 7½	0 6½	1 6	1 10	0	9	1	2		

Agriculturists prefer cattle of the Kankreji breed with horns as represented here (one of its chief characteristics). They say a Kankrej bullock never tires and will do fifteen years work to a Gujrat bullocks ten.



Four Gujrat bullocks of Kankreji breed. Typical specimens of the best agricultural bullocks. Taken at Patri.

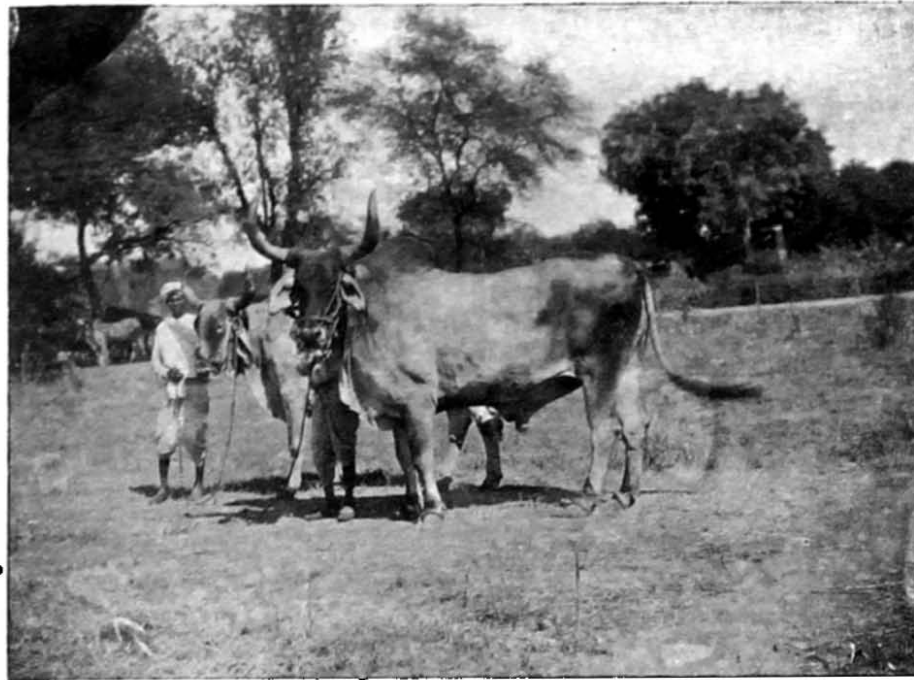
Two large Gujrat bullocks- Viramgaum. Kankreji breed.



*Weight
12 cwt each.
Only the one
in front could
be measured.
Used for
plough and
cart work.*

Height.		MEASUREMENTS.								
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.	
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	
5 1½	4 8½	4 11	6 5½	0 9	0 6½	2 3	1 10½	6 8½	1 2	

Large carriage and plough bullock. Nadiad. Kankreji breed.



*Used only for
carriage work.
cost from
Rs. 250
to
Rs. 300*

<i>Height.</i>				<i>Length of horn.</i>	
<i>Top of hump.</i>		<i>Behind hump.</i>			
<i>ft.</i>	<i>in.</i>	<i>ft.</i>	<i>in.</i>	<i>ft.</i>	<i>in.</i>
5	8	5	0	2	1

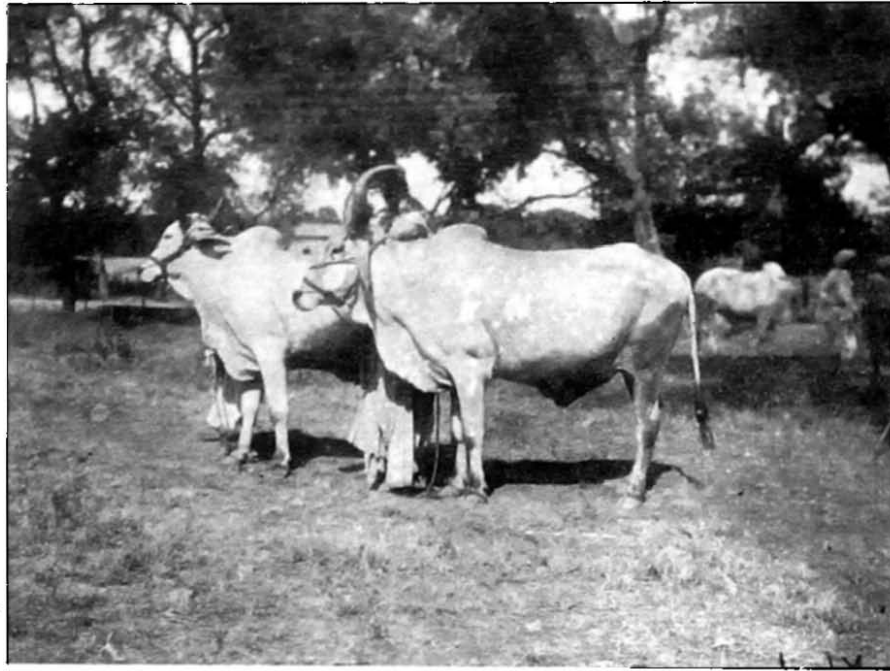
*Other measurements
could not be taken.*

Large pair Gujrat plough cattle. Ahmedabad.



*Weights
15 maunds
15 seers.
and
15 maunds
4 seers.*

<i>Height.</i>		MEASUREMENTS.									
<i>Top of hump</i>	<i>Behind hump.</i>	<i>Length of body</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>		<i>Length of ear.</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
5 2½	4 11	5 1	6 4	0 7½	0 6½	1 5½	1 11	0	8	1 2½	
5 3	4 9	4 6	6 7	0 7½	0 6½	1 7	1 11	0	8	0 10½	

Large pair working bullocks — Nadiad.

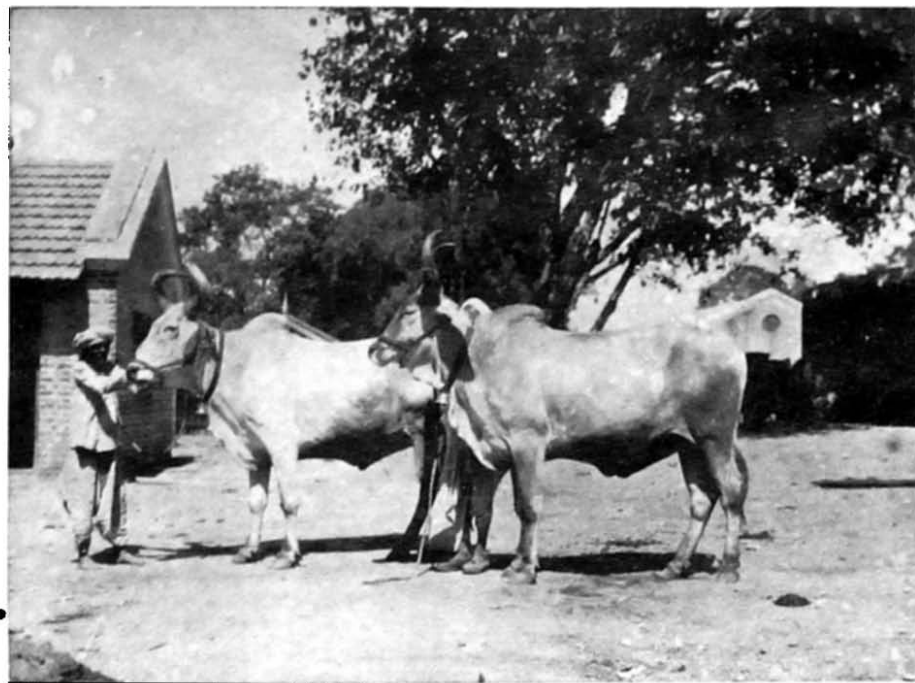
Weight
9 cwt
each.

Height.

MEASUREMENTS.

<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 11	4 7	4 11	6 1	0 7½	0 8	0 11	1 10½	0 8½	1 1
4 10	4 7½	4 8	6 0	0 7½	0 8	2 2	1 10	0 8½	1 1

Large pair agricultural Bullocks- Ahmedabad.



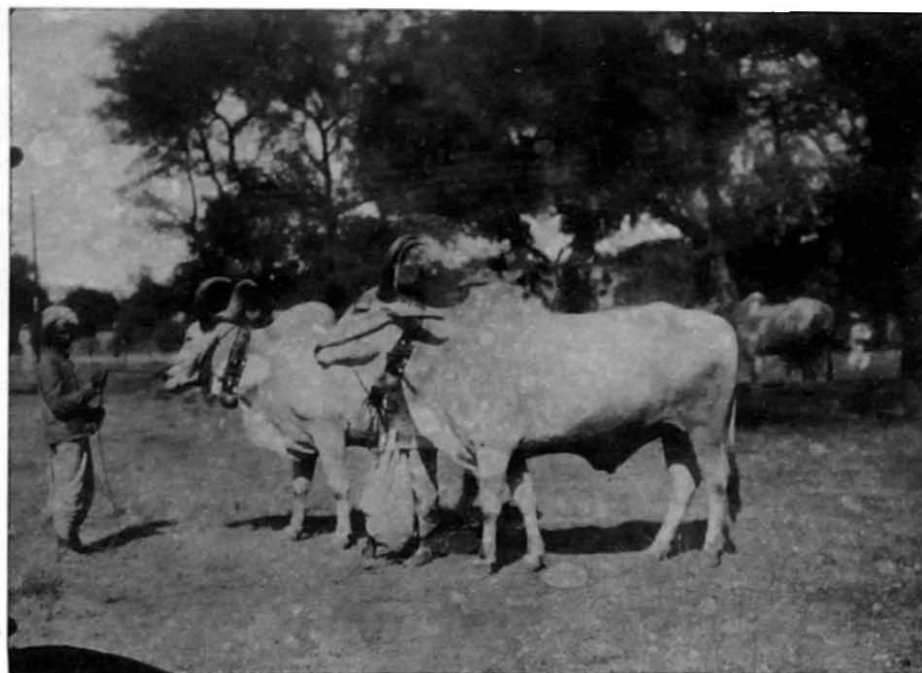
Weights
12 Maunds
28 seers.
and
12 Maunds
31 seers.

Height.

MEASUREMENTS.

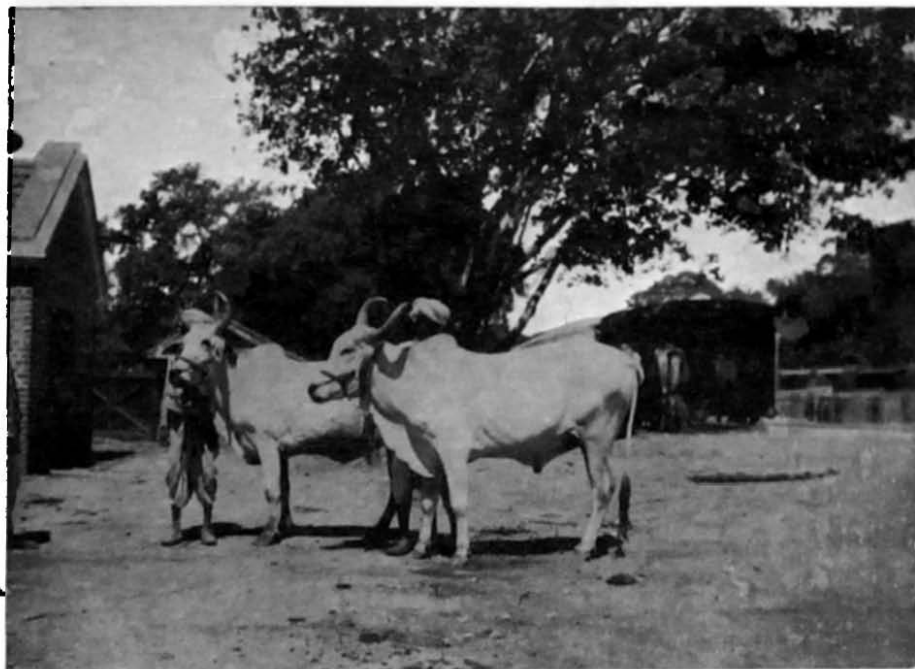
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
5 3	4 9½	4 10	6 3½	0 7½	0 7½	2 0	1 10½	0 7½	1 0
5 1½	4 10	4 9	6 0½	0 7½	0 6½	1 8½	1 9	0 8	1 0

Large pair agricultural bullocks - Nadiad.



Weights
 12 cwt
 2 qrs.
 11 cwt
 2 qrs.

<i>Height.</i>		MEASUREMENTS.								
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
5 6	4 11½	5 6	6 10	0 8	0 8	1 8	1 10	0 8	—	
5 4	4 8½	5 8	6 8	0 7½	0 8½	1 9	1 11	0 8½	—	

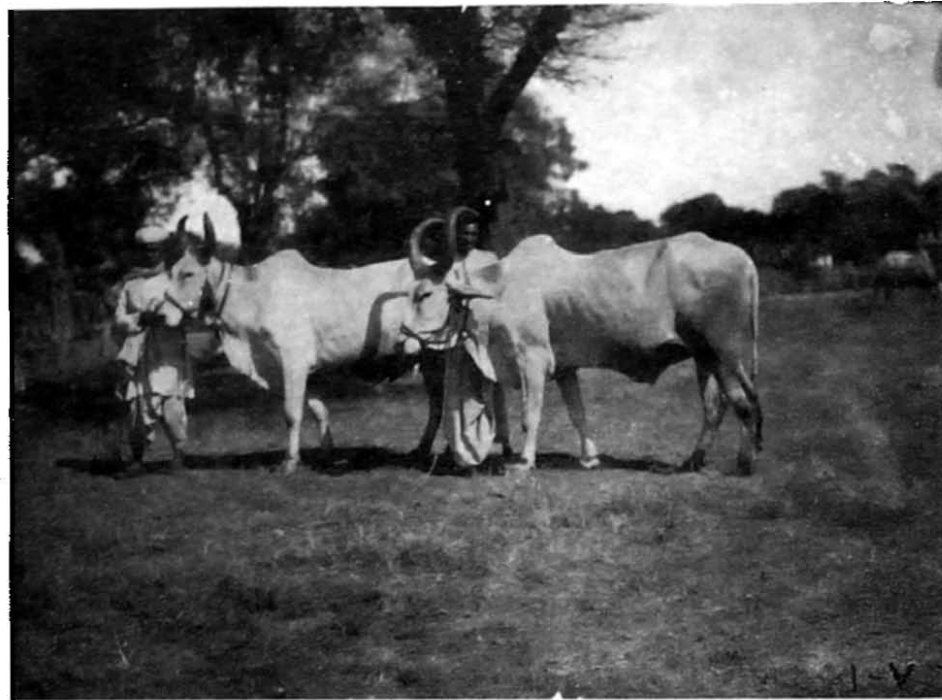
A pair of medium sized cattle - Ahmedabad.

Weights
9 Maunds
4 seers
and
9 Maunds
24 seers.

<i>MEASUREMENTS.</i>										
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 6	4 1½	4 4	5 4	0 6½	0 6½	1 3½	1 8½	0 6½	0 11	
4 9½	4 5½	4 6½	5 7	0 7	0 7	1 5½	1 10	0 8½	1 0	

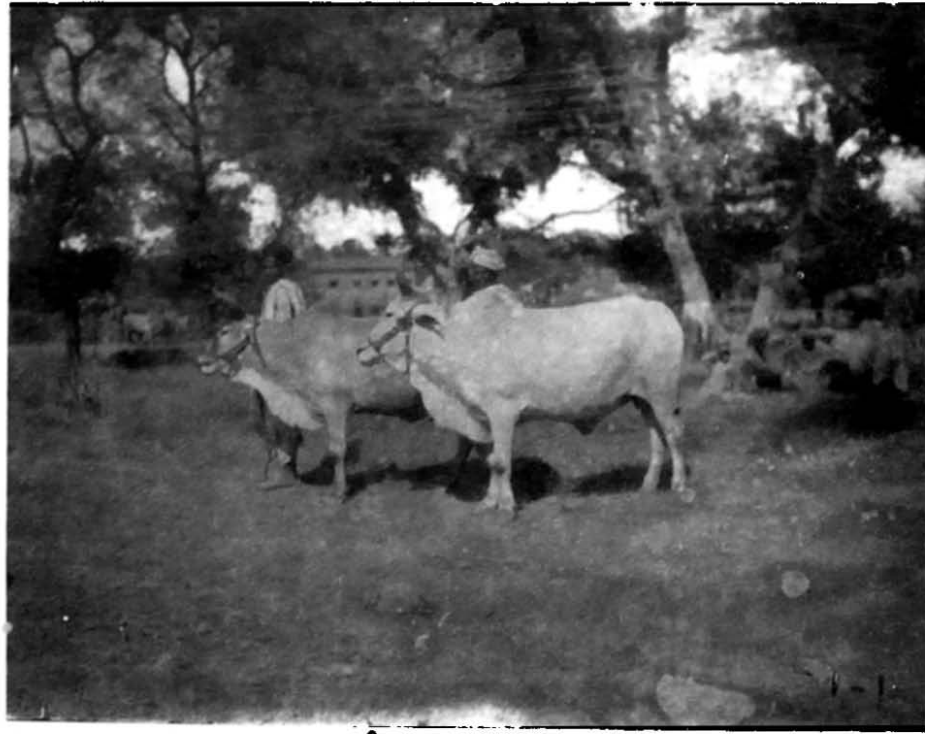
A pair of good working bullocks. Nadiad.

*Weights.
10 cwt.
and
8½ cwt.*



<i>Height.</i>		<i>MEASUREMENTS.</i>						
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
5 0	4 8	5 3	6 1	0 7½	0 8	2 3	1 11	0 9
4 10½	4 7	4 10	6 0	0 7½	0 8	1 5	1 10½	0 7½

A pair of Malvi plough bullocks. Nadiad.



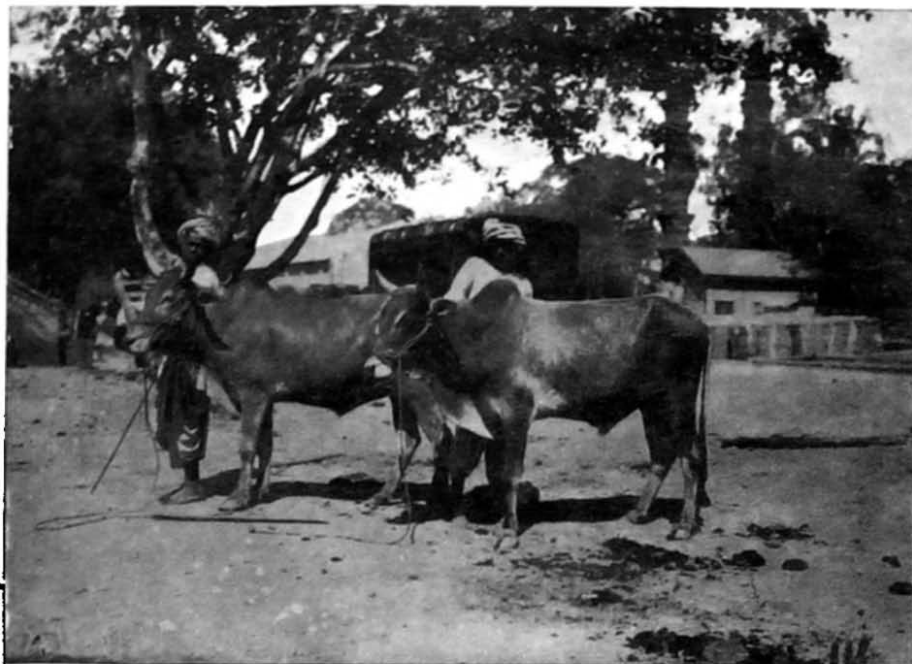
*Weights.
6½ cwt.
and
6¼ cwt.*

Height.

MEASUREMENTS.

<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
5 1½	3 11	4 4	5 4	0 6½	0 6½	0 11	1 9	0 7
4 1	3 7½	4 1½	5 1	0 6	0 6½	0 11	1 6½	0 6½

A pair of Gujrat plough bullocks, smallest size - Ahmedabad.



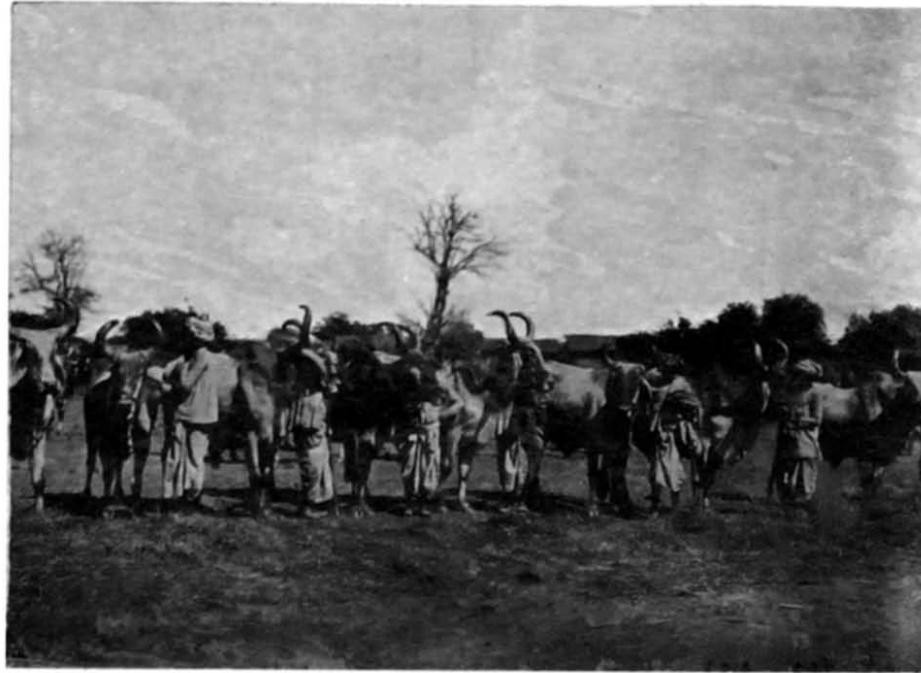
*Weights
6 Maunds
14 seers
and
5 Maunds
37½ seers.*

Height.

MEASUREMENTS.

<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 0	3 9½	3 10½	4 9½	0 6	0 5½	1 1	1 8	0 6½	0 9
4 2	3 10½	3 10	4 9½	0 5½	0 5½	0 8	1 6½	0 6½	0 8½

Plough bullocks - Wasna. Big and Medium.



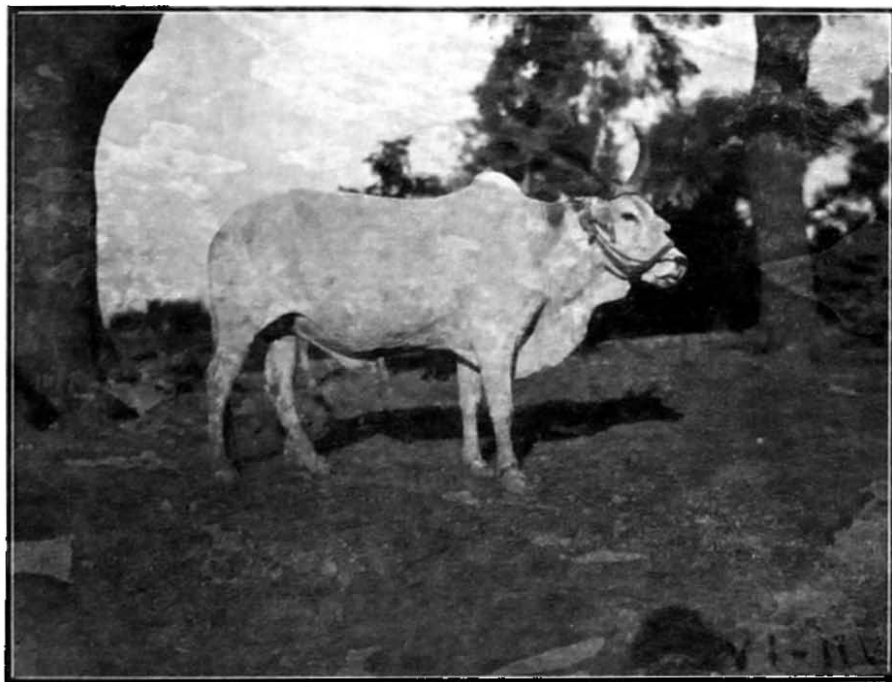
Height.

MEASUREMENTS OF THREE OF THE ABOVE, BIG SIZE.

Top of hump.	Behind hump.	Length of body.		Girth.		Shank.		Length of shank.		Length of horn.		Length of face.		Breadth of forehead.		Length of ear.	
ft. in.	ft. in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
5 6	4 10	4	10½	6	6½	0	8	0	7½	1	11½	1	9½	0	8½	1	0
5 5½	5 0	5	4	6	5½	0	8	0	7½	2	5	1	9½	0	8½	1	3
5 6	4 11	4	8½	6	6	0	8½	0	7½	1	8½	1	9½	0	8½	1	2

Plough bullocks at Neroda showing the variations in the horns of Gujrat - cattle.

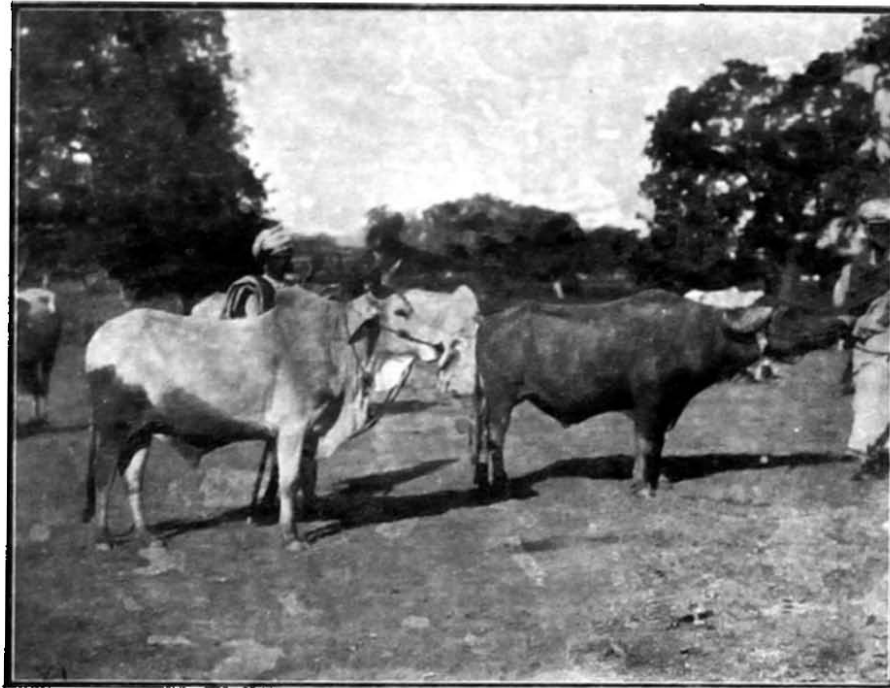


A Malvi bullock. Dholka.*Height.*

MEASUREMENTS.

<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 1½	3 10	4 0½	5 2½	0 6½	0 6	1 4	1 6	0 7	0 8½

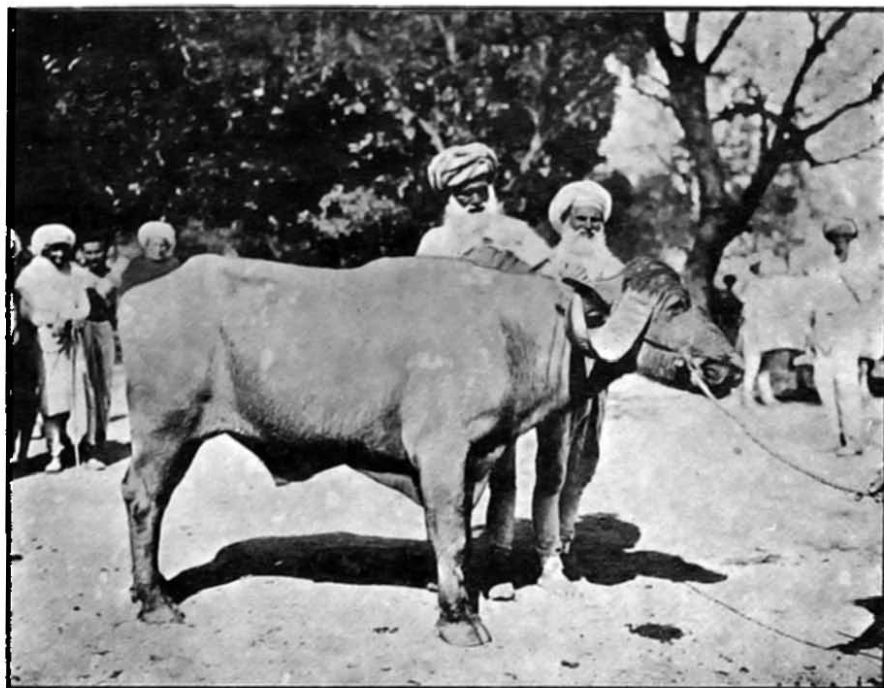
ca bull and buffalo bull. Dholka.



Height.

MEASUREMENTS.

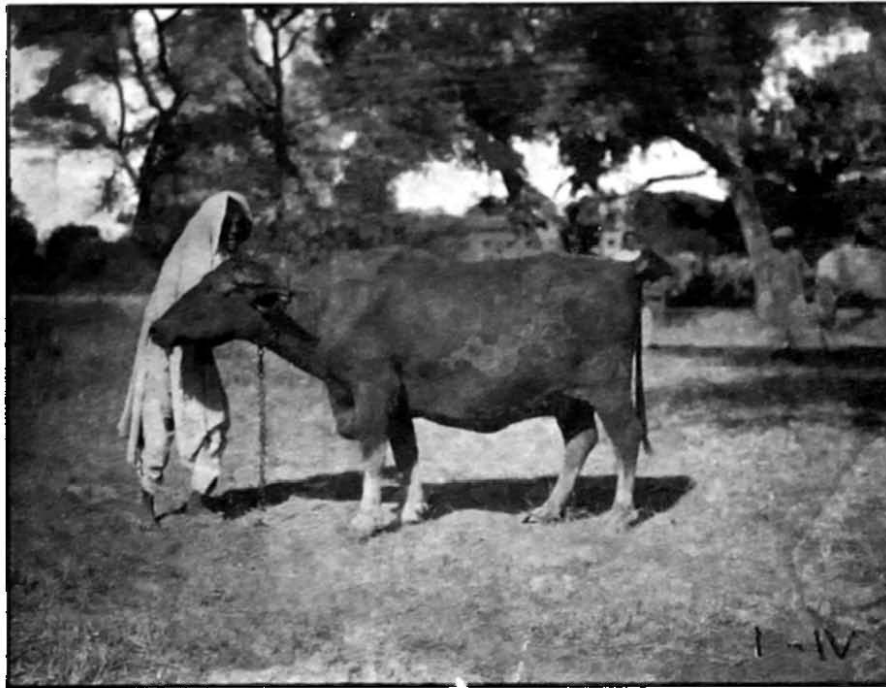
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	Length of shank	Length of horn.	Length of face.	Breadth of forehead.	Length of ear
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
4 3	3 ^s 11	3 9½	5 2	0 6½	0 6	0 11½	1 5½	0 7	0 10½
4 0	—	4 2	5 7½	0 8	0 5	1 5	1 5½	0 8½	0 8

Kathiawar buffalo bull. Dhandhuka.

MEASUREMENTS

<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 5	4 9	6 5	0 9	0 5½	2 7	1 11	1 2	0 9

Buffalo cow—Nadiad.



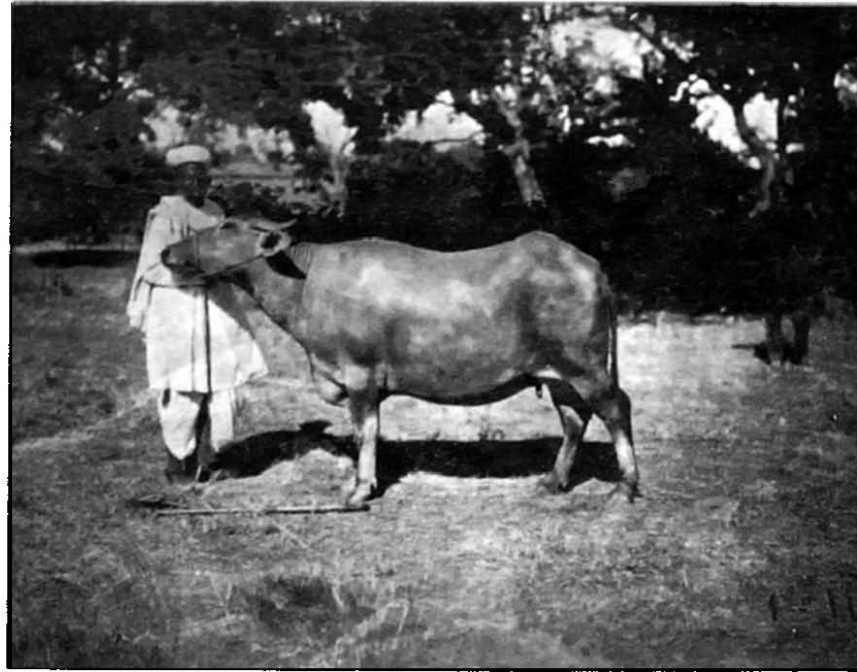
Weight
10½ cwt.
horn
broken off

MEASUREMENTS

<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 2½	4 3	6 10	0 8	6 6	broken off	1 9	0 8½

Buffalo cow. Nadiad.

These buffaloes are called the black breed. The horns are short, pass backwards, downwards, then curved upwards, sometimes almost meeting over the neck. Head carried with the nose out nearly straight in line with the neck. Withers thin and sharp, a dip behind the withers. Croup pointed more or less, sloping quarters, large rounded brisket. Teats constricted at the base. Tuft of hair on front of knees.

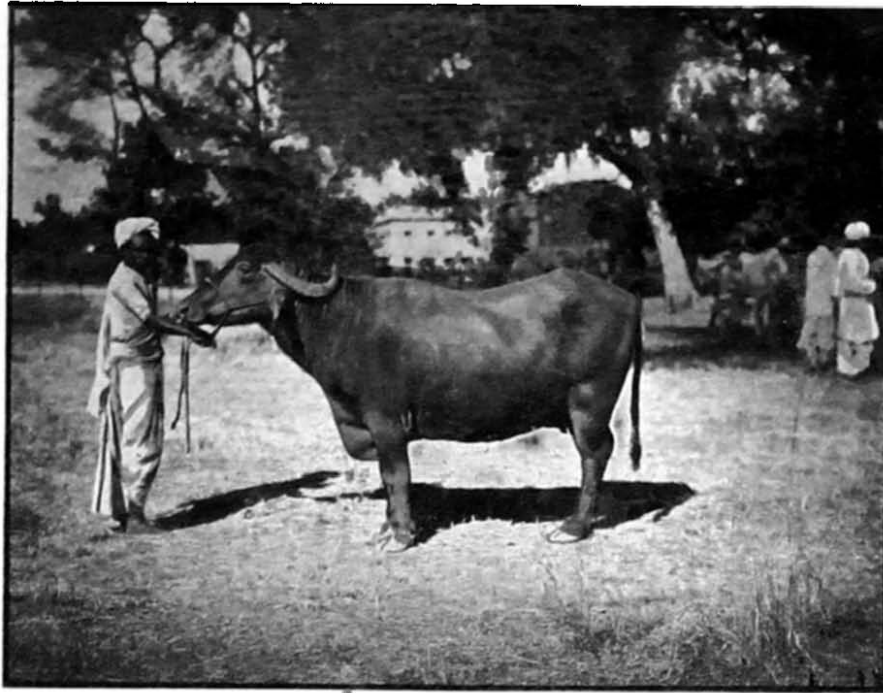


Weight.

10½ cwt

MEASUREMENTS.

Height.		Length of body.		Girth.		Shank.		Length of shank.		Length of horn.		Length of face.		Breadth of forehead.	
ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
3	1	4	4	6	7	0	8	0	6	1	4	1	8½	0	8½

Buffalo cow. Nadiad.

Weight
12 cwt.

MEASUREMENTS

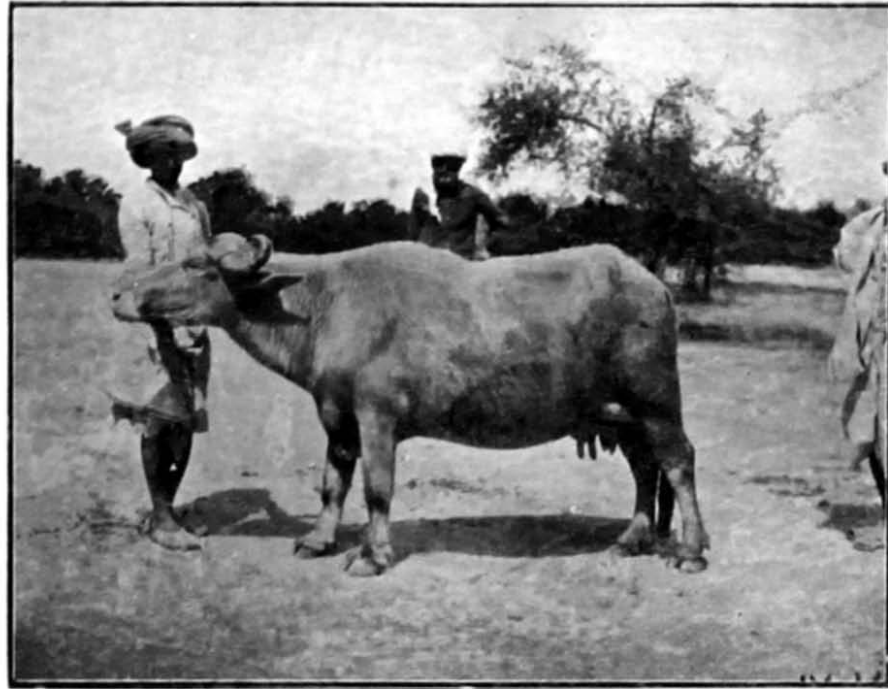
<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 2½	4 10	6 10	0 8½	0 6	1 10	1 10	0 9

Buffalo cow. Nadiad.

Weight
10 cwt.

MEASUREMENTS

<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 1	4 6	6 5	0 8½	0 6	1 4.	1 8½	0 8½

An albino buffalo cow. Patri.

*This was a white skinned buffalo though it does not appear to
be so in the photograph*

Now and then an albino buffalo is to be met with.

A pair of large sized buffalo cows. Ahmedabad.

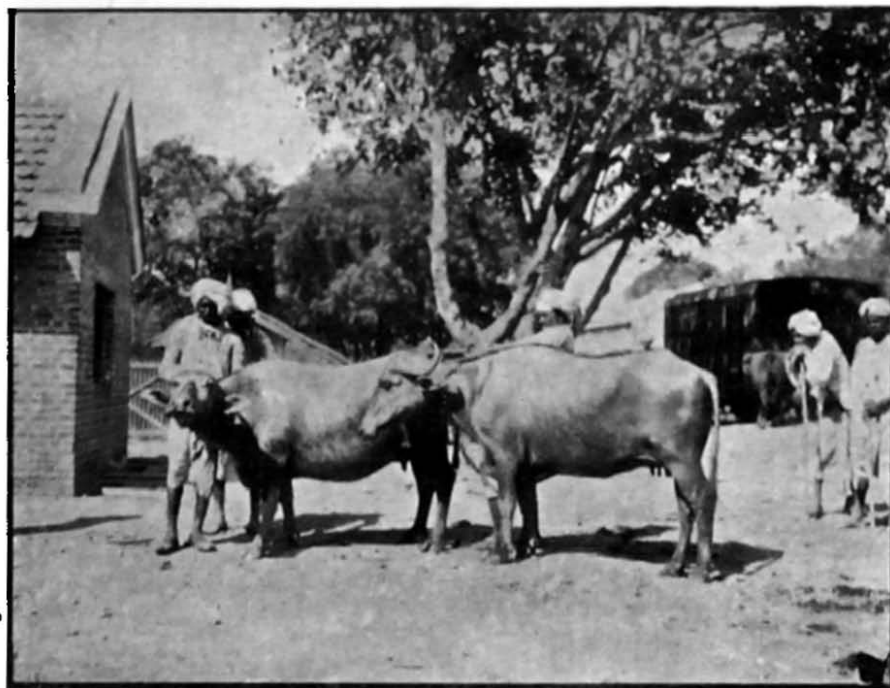


Weights
11 maunds
28 seers.
and
10 maunds
7 seers.

MEASUREMENTS.

Height.		Length of body.		Girth.		Shank.		Length of shank.		Length of horn.		Length of face.		Breadth of forehead.		Length of ear.	
ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
4	4	4	8½	6	1	0	7	0	5	1	8½	1	7½	0	7½	0	9½
4	4	4	1½	6	4	0	7	0	5½	1	1	1	6½	0	8½	0	9½

A pair of medium sized buffalo cows. Ahmedabad.

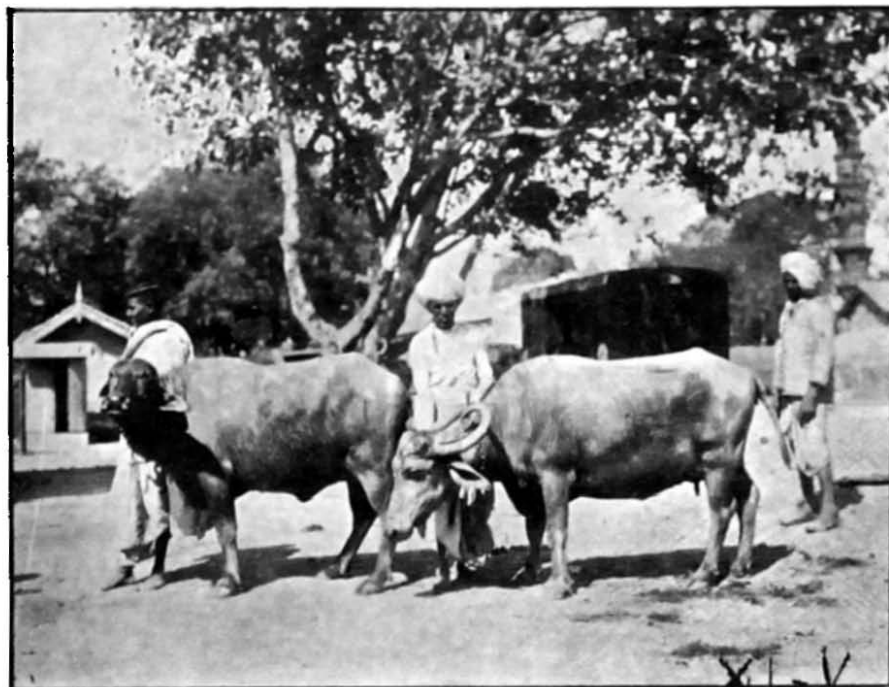


*Weight
9 maunds
39 seers.
and
10 maunds
22 seers.*

MEASUREMENTS.

<i>Height.</i>	<i>Length of body</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank of horn</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
3 10½	4 3½	6 0	0 7	0 5½	1 10	1 8	0 10
4 1	4 4	6 1	0 7	0 5	1 4½	1 8½	0 9

A pair of small sized buffalo cows. Ahmedabad.



*Weight
9 Maunds
12 Seers
and
9 maunds
21 seers.
Note the
constricted
base of the
teats.*

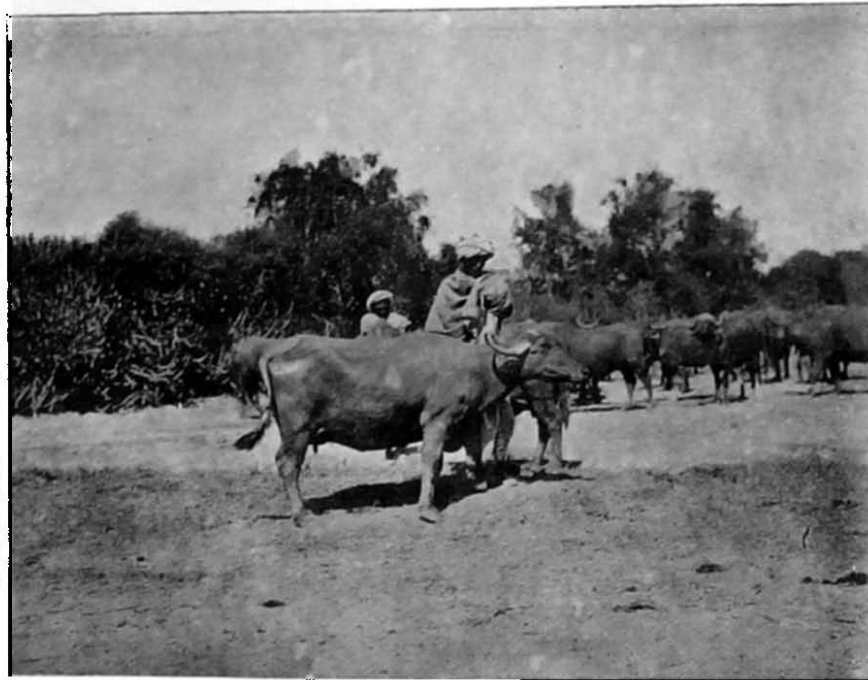
MEASUREMENTS.

Height.	Length of body	Girth.	Shank.	Length of shank	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
4 0	4 3	5 9½	0 7½	0 6	1 2	1 7	0 8	0 8½
3 11	4 1	5 9½	0 7	0 5	2 2	1 7½	0 8½	0 10

55

*Buffalo cow with white poll and white tufted tail.
Wasna.*

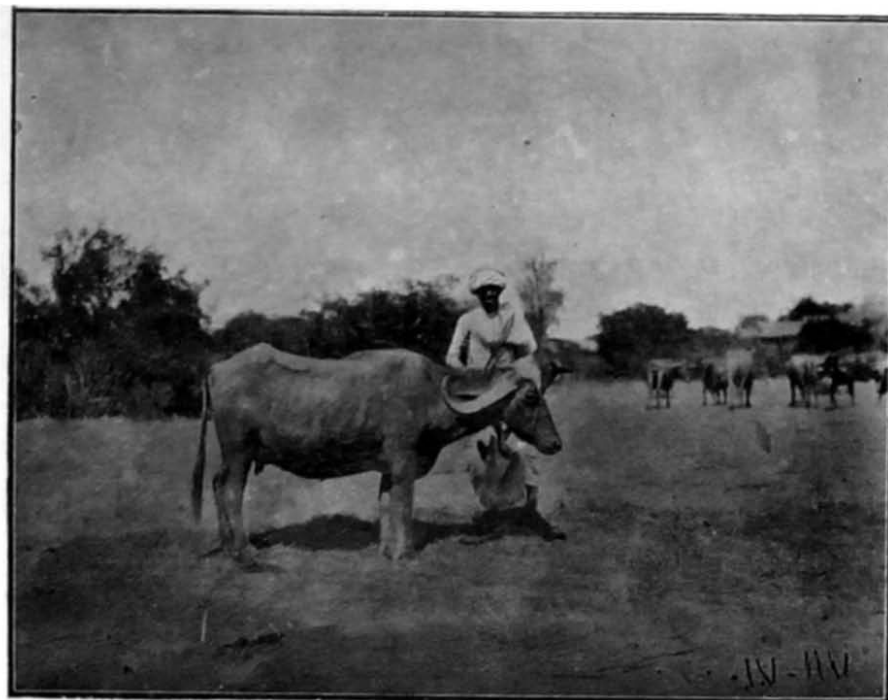
Gujrat buffaloes are frequently seen with a white poll varying from a small spot to a patch covering the top of the head (see buffalo in the distance) and a white tufted tail. The two always go together. The tail was dirty in this case and therefore does not show white.



MEASUREMENTS

<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
3 11	4 5½	6 6	0 7½	0 5½	1 5	1 9	0 7½	0 10

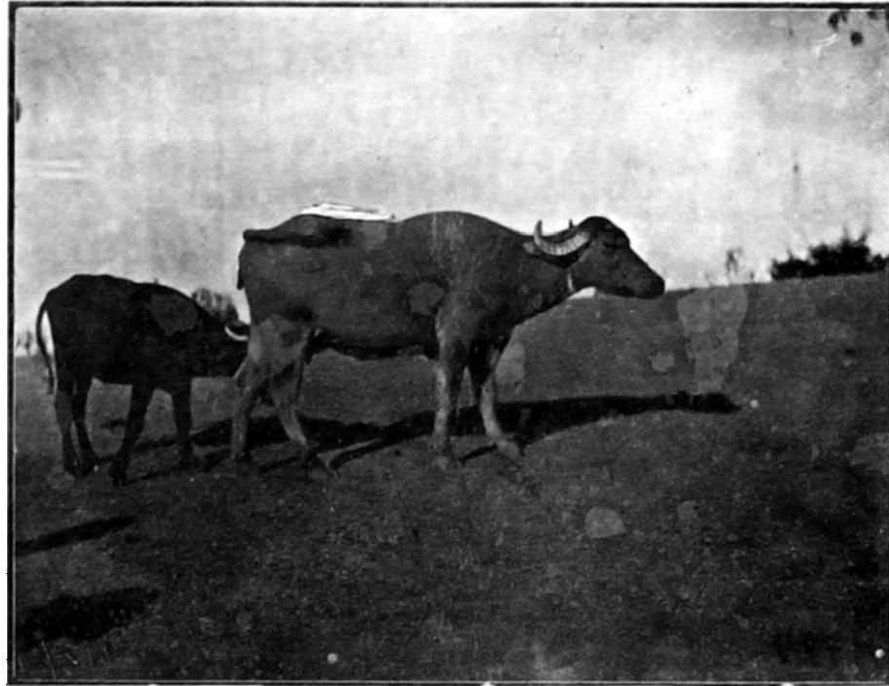
Buffalo cow with white poll and white tufted tail. Wasna.



MEASUREMENTS

Height.	Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
4 4	4 4½	6 10½	0 8	0 6½	2 5½	1 7	0 9½	0 8½

Note a white mark on the neck like a rope gall. This is a natural mark which is occasionally seen but not always in the same position. It may be situated as low down as the base of the neck. Sometimes there are two of them.



MEASUREMENTS

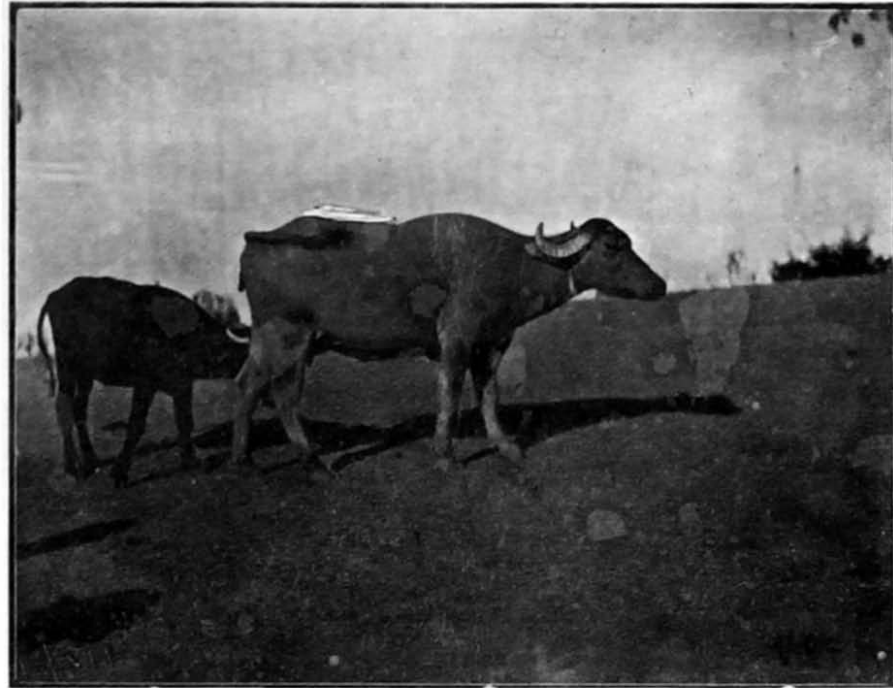
Height.	Length of body.	Girth.	Shank.	Length of shank.	Length of horn.*	Length of face.	Breadth of forehead.	Length of ear.
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
4 1½	4 0	6 0	0 8	0 6½	1 4½	1. 6½	0 10½	4 8½



MEASUREMENTS

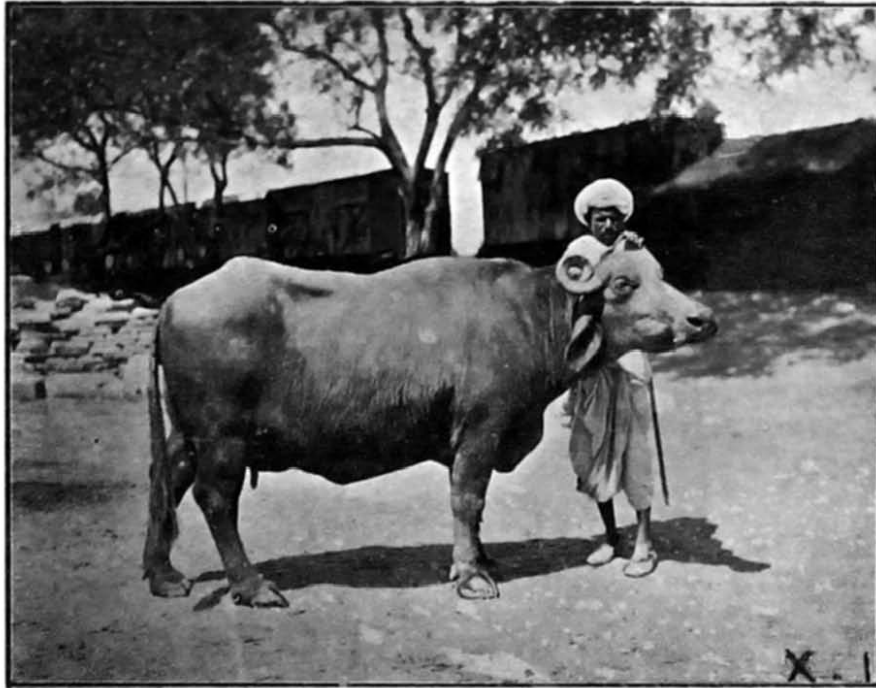
<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 4	4 4½	6 10½	0 8	0 6½	2 5½	1 7	0 9½	0 8½

Note a white mark on the neck like a rope gall. This is a natural mark which is occasionally seen but not always in the same position. It may be situated as low down as the base of the neck. Sometimes there are two of them.



MEASUREMENTS

<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 1½	4 0	6 0	0 8	0 6½	1 4½	1. 6½	0 10½	4 8½

A Delhi buffalo cow. Viramgaum.

Weight
14 cwt.

Note the
curved
horn.

MEASUREMENTS

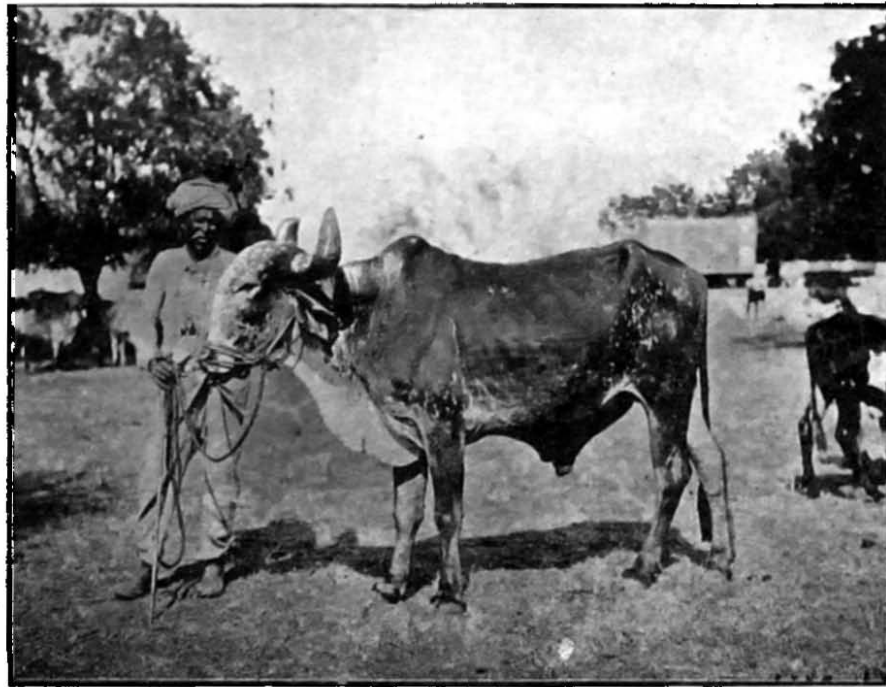
<i>Height.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 7½	4 9	7 2	0 10	0 .6	1 11½	1 10	0 9	0 11½

- *Kathiawar bull (Gir breed) Ranpur. Colour reddish black.
Neck and hump black.*



Height.		MEASUREMENTS.									
Top of hump.	Behind hump.	Length of body.	Girth.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	Length of ear.		
ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
5 0	4 3½	4 7	5 11	0 7½	0 6	0 8½	1 11	1 0	0 10½		

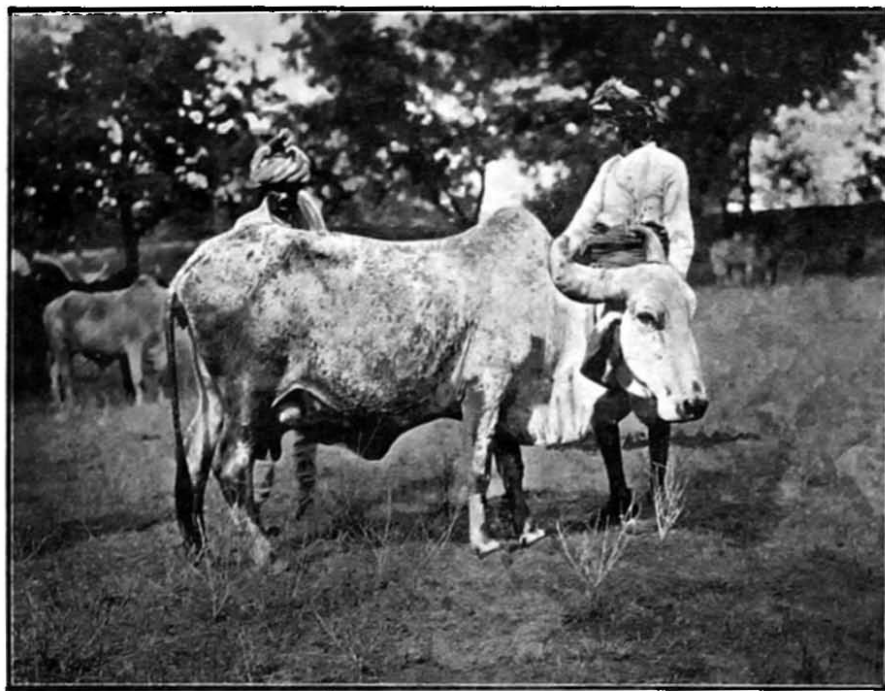
Kathiawar Bullock (ir breed Ranpur. Colour red and white.



*Ear bent
back*

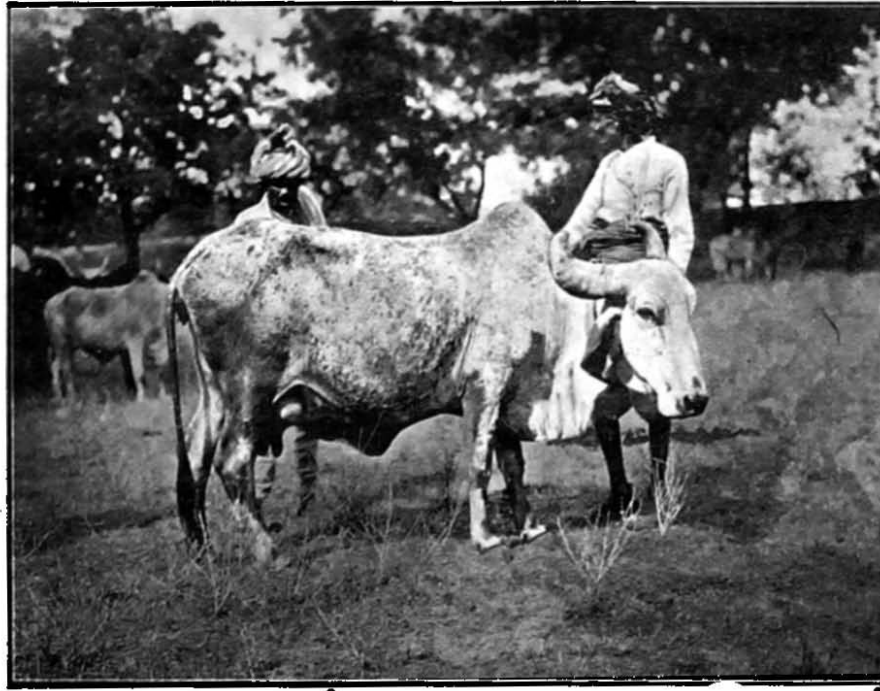
<i>Height.</i>		MEASUREMENTS.								
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
4 9	4 4	4 4	5 8	0 6½	0 7	1 8	1 10	0 11	1 0	

A Gir cow. Ranpur. Colour speckled red and white.

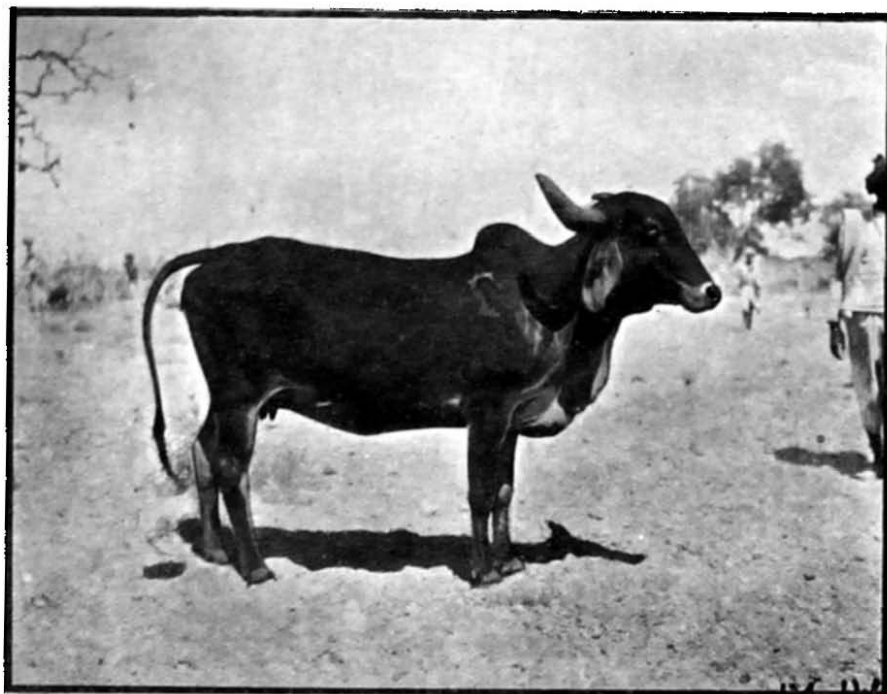


<i>Height.</i>		MEASUREMENTS.								
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
4 4	4 0	4 4	5 7	0 6½	0 5½	1 5	2 0	0 11	1 2	

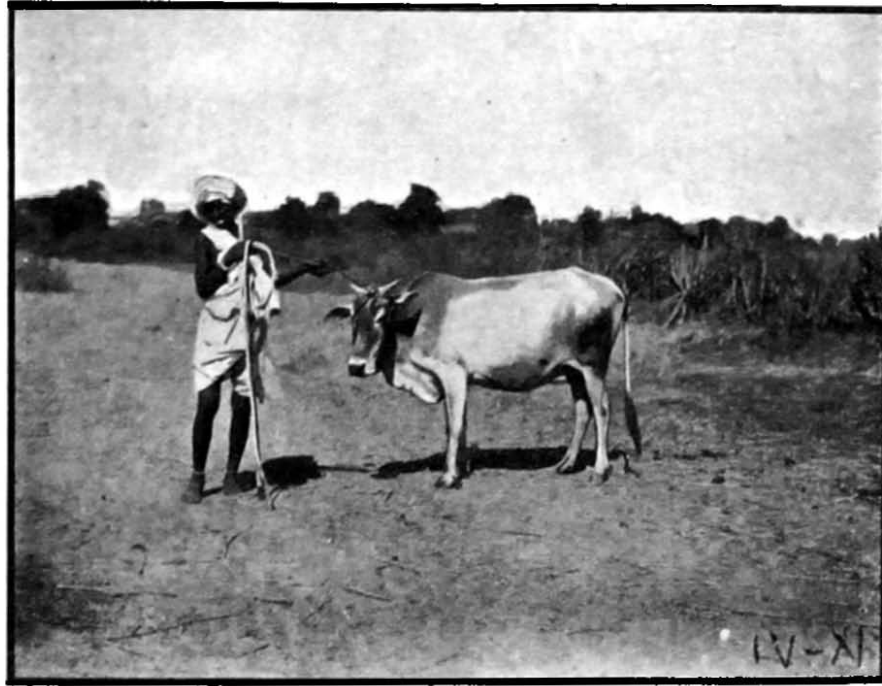
A Gir cow. Ranpur. Colour speckled red and white.



<i>Height.</i>		MEASUREMENTS.							
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 4	4 0	4 4	5 7	0 6½	0 5½	1 5	2 0	0 11	1 2

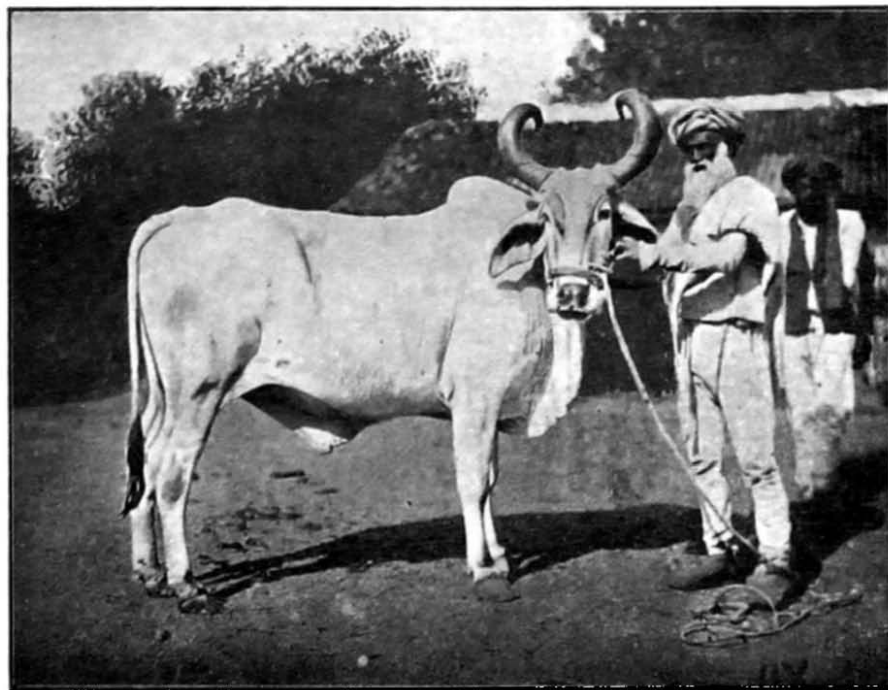
Kathiawar cow. Colour red. Patri

<i>Height.</i>		MEASUREMENTS.							
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>	<i>Length of shank.</i>
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
4 2	3 10½	4 4	5 3½	0 5½	1 3	1 8½	0 10	0 11½	0 5½

Gannia cow. Wasna.

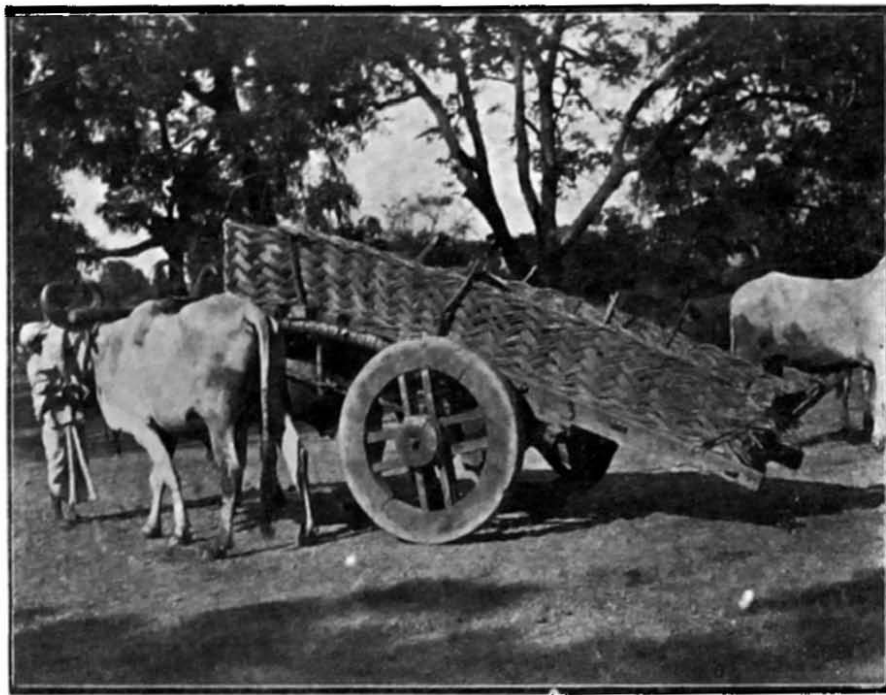
<i>Height</i>		<i>MEASUREMENTS.</i>								
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>	
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	
3 7	3 5	3 4	7 7½	0 4½	0 5½	0 4½	1 5½	0 5½	0 9	

Wagad bullock. Dhandhuka. Wagad is situated near the Run of Kutch.



<i>Height.</i>		MEASUREMENTS.									
<i>Top of hump.</i>	<i>Behind hump.</i>	<i>Length of body.</i>	<i>Girth.</i>	<i>Shank.</i>	<i>Length of shank.</i>	<i>Length of horn.</i>	<i>Length of face.</i>	<i>Breadth of forehead.</i>	<i>Length of ear.</i>		
<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>ft. in.</i>
5 0	4 7½	4 11	6 3½	0 7½	0 6	2 2	2 0	0 8½	1 1		

A specimen of a bullock cart such as is in use all through the districts of Ahmedabad and Kaira.



*Specimen of a plough such as is used throughout
Ahmedabad and Varia*



*Ehhel (pole) 10 ft. 5 in. Hal (plough) 4 ft. 1 in. Halsundi
(wooden handle of the plough) 8 in. Chardoo (a wooden wedge driven
in behind to fix the iron point which runs through the plough and
down the front to its point) Los (iron bar) 2 ft. 3 in. Dhoosri.
(yoke) 5 ft. 9 in.*