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Breeds of Indian Cattle, Punjab.

NOTES

ON

INDIGENOUS BREEDS OF CATTLE
IN THE PUNJAB

BY

MAJOR H. T. PEASE, C.V.D.

WITH ADDITIONAL NOTES AND PHOTOGRAPHS

AND

EDITED BY

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CALCUTTA:

OFFICE OF THE SUPERINTENDENT, GOVERNMENT PRINTING, INDIA.

1903.



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636.2

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CALCUTTA:

GOVERNMENT OF INDIA CENTRAL PRINTING OFFICE,
8, HASTINGS STREET.

-5426

636.28095426

PEA-N

13241



PREFACE.

THE notes by VETERINARY MAJOR PEASE published in this Manual were written by him ten years ago. I have, as far as possible, left them in the original as what applied then is equally applicable now. My own notes were finished two years ago, and it is owing to my transfer and the pressure of other work that so much delay has occurred.

The photographs are by VETERINARY MAJOR PEASE, VETERINARY MAJOR GUNN and myself, and I think their reproduction has been excellently carried out by the Survey of India Department.

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SIMLA,
7th October 1903.

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NOTES

ON

Indigenous Breeds of Cattle in the Punjab by Major Pease, with additional notes and photos., and edited by Captain F. S. H. Baldrey, C.V.D.

CHAPTER I.

The order *Ruminantia*, genus *Bovida*, is represented in three of Order. its groups in the Punjab, viz:—

- (1) The Taurine or ox by the Zebu. | (2) *Poephagus* by the Yak.
(3) Bubaline by the Buffalo.

The representatives of the Taurine and Bubaline groups are to be found in the plains and at moderate elevations; in the Himalayas, the Taurine only is represented; whilst at still greater elevations the *Poephagus* almost entirely replaces the Taurine and Bubaline groups.

The Taurine group is represented by the zebu, or humped species Species of cattle, called *Bos Indicus*, or generally the Brahmini bull. The humped variety of cattle has been domesticated at least since the 12th dynasty or 2,100 years B.C., and as a consequence the signs of domestication in it are strongly developed.

The zebu differs from ordinary cattle in several particulars—in Characters. some anatomical details and in general conformation; the shape and position of the neck, which is below the line of the back and is very markedly dipped in front of the withers; the mode of carrying the head below the line of the back when at rest; the presence of the hump, which rises at the withers to a variable height in different breeds, is always more marked in the male than the female, and holds an intermediate position in the castrated male; in the shape of the ears, more or less oval, large and either carried in a horizontal or a depending position, which is one of the marks of long domestication. They have very different

NOTE.—The hump varies in size according to condition, wasting from starvation and increasing with generous diet.—Ed.

Notes on indigenous breeds of Cattle in the Punjab.

habits—not seeking shade nor being inclined to stand in water like English cattle. The voice is different and resembles a grunt, which is very striking, when compared with the deep, loud and prolonged bellow of European cattle. The croup is invariably very short and sloping, and the tail consequently set on much below the level of the back.

Thighs are mean, but fairly muscular.

The development of the dewlap in most breeds is extraordinary, and it starts from the chin, thus presenting a peculiarity not met with in European cattle.

The sheath of many breeds is enormously large, but is small and ill-defined in mountain breeds.

The colours of the hair are various, mostly grey, but red, black and white are plentiful. With regard to the colours of the skin, there are large numbers of cattle with black skins, many mixed; many white and many chocolate.

Black is considered a bad colour in Hoshiarpur, Gujrat, Amballa, Karnal, Hissar and Rohtak.

I should say that over 90 per cent. of the animals in the plains of the Punjab are white or grey, and the heat here is intense. In the Himalayas, we see scarcely any cattle with light coloured hair, the majority of animals, as the height increases, become black or dark red. The buffalo has a black skin unprotected by hairs and it is notorious, in the Punjab, that the buffalo is unable to work in the sun, and if obliged to do so, dies of the heat.

Crossing.

Until comparatively a recent date, the different indigenous breeds of cattle must have been much more select than they are at present, for owing to the greater facilities for locomotion and to the importation of animals of different breeds from other parts of India and from abroad, much new blood has been infused into most of the indigenous breeds, so that a mongrel or mixed breed has sprung into existence in the Province.

There has always been a certain amount of crossing between neighbouring indigenous strains, and the results have doubtless in some cases given rise to a new breed, such as may be seen in the low hills, a small race of cattle being found there, which are no



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doubt the result of a cross between the small mountain cattle and those of the plains.

The best breeds of cattle in the Punjab are, as a rule, to be found in the southern parts of the Province, in the districts of Hissar, Delhi, Rohtak, Sirsa, Gurgaon, and Karnal, the animals seen to the northward generally becoming smaller and of less quality. Doubtless more care has been given to producing in the southern districts animals of good height and power with fair speed for some very considerable time, as the people used such animals for purposes of draught in their raths and majholis, whilst higher in the Punjab proper the people were not so accustomed nor so inclined to be dragged in these carriages, as to bestride the nobler animal, the horse. Time was, in fact, when almost every Sikh in the country kept a horse or a mare, and reared a colt for his own riding or for sale; so that under these circumstances we should not expect to find cattle especially bred for speed, but rather only for the drudgery of ploughing and water-lifting, and as a matter of fact this is what is generally found to be the case.

To repeat the important part played by Bovines in agriculture is almost unnecessary here. For all agricultural work bulls and bullocks are used throughout the length and breadth of the Province, but cows are seldom used under the yoke, being solely devoted to milking and breeding. Maconachie says in his Punjab agricultural proverbs "real husbandry belongs to those who have their own, or home-bred cattle," and this is a saying from Lahore to Rawal Pindi. In Amballa too it is considered that without having one's own cattle it is not possible to pay one's way.

"Bullocks are the zemindars' eyes and wings" is another, and "what need a man care for wealth, if he has plough oxen in his stable." "He who has two plough oxen has no wants." From these common proverbs of the people may be gleaned the store which is set upon the possession of plough cattle, the evil effects which follow the loss of these animals from disease, and the necessity for preventing losses amongst them from preventable disease. The ordinary village breed of many of the districts, which is called by the people "Punjabi," although doubtless a nondescript beast, lacking in size, breeding, and power, still, with all these deficiencies is a

Notes on indigenous breeds of Cattle in the Punjab.

most useful beast, capable of considerable exertion and easily managed. With regard to cows, as they are not used for work, and more especially as their place as regards the production of milk is to a great extent taken by the buffalo, they are not nearly so well looked after as the bullocks. Still they are much valued, and if properly fed and cared for yield a very fair quantity of milk. Milk and ghee enter largely into the food supply of the people, and are consequently most valuable commodities. Fresh milk is considered to be rather a luxury, skimmed milk is much used to eke out the daily supply of dry food; in the form of 'dahi' or curds it enriches either the morning or evening meal and stored as ghee it is sold as a profitable source of income. If a child is born ghee is given to the mother; if a man is wounded or hurt, the first kind attention in the way of diet is to give him a draught of milk. "No wonder the zemindar loves his cattle, for an animal in milk is an ever ready resource, and a man who has such in his house has the best gift possible."—(Maconachie.)

In those districts where "birs" are situated, and grazing is consequently plentiful, large herds of cattle and buffaloes are kept and the income from ghee realised is very large. In the Rohtak District, for instance, the annual income to the district from ghee sales alone has been estimated to be not less than one and-a-half lakhs of rupees, and so in many other districts. The hides of cattle form an article of commerce, from which large sums are realised. Tallow now-a-days is of increasing value since the introduction of soap manufacture into the neighbouring Province; as is also Neat's foot oil for the same industry. Bones are now systematically collected for shipment out of the country chiefly for use as a manure.

A large trade in cattle has sprung up in the Punjab since the establishing of cattle fairs. Purchasers from all parts of Northern India, Afghanistan, Baluchistan, the North-West Provinces, are found at fairs, like Amritsar, where enormous numbers of animals are brought in for sale, and taken off by purchasers to all parts of India. The annual income from cattle sales to the Rohtak District has been estimated to be not less than eight lakhs of rupees. As a consequence of all this the price of cattle in the Province generally is rising.



Notes on indigenous breeds of Cattle in the Punjab.

Indian cattle come very late to maturity compared with those in England. This is a natural consequence of the neglect to which they are subjected in feeding and rearing, and also no doubt in some measure of heredity. In many parts it is customary to stint the animals of the milk which is their due, allowing them scarcely sufficient to keep them alive. In other cases the milk given by the cow is insufficient to afford proper nourishment to the calf. In England those calves which are reared on the milk of the cow receive during the first week 4 quarts a day at two meals, second to fourth week 5 to 6 quarts a day, fourth to sixth week 6 to 7 quarts a day, and the quantity during the ensuing six weeks exceeds a couple of gallons a day, when fed on new milk only. Towards the end of the fourth week food in the form of bits of oilcake, turnip, etc., is given to the calf, and it is weaned at about twelve weeks. In India, on the other hand, even with good cows this quantity of milk is seldom forthcoming, and the most that can be done is to allow the calf as much as he can get. When he is weaned too, no care is taken to provide him with any food beyond what he can manage to pick up, and hence, provided only poorly with the bare necessities of life it cannot but happen, that he will be backward in development. The teeth are cut at a much later period in India than at home, and in determining the age of an animal this must be taken into account. The dentition as indicative of age in England has been decided by the Smithfield Club to be as follows :—

- | | |
|---|-----------------------|
| 1. Cattle having central permanent incisors | |
| cut | 1 year and 6 months. |
| 2. Central incisors fully up | 1 year and 9 months. |
| 3. Second " " " " | 2 years and 3 months. |
| 4. Third " " " " | 2 years and 8 months. |
| 5. Fourth " " " " | 3 years. |

In India it frequently happens, in fact it is accepted generally by the natives, that no temporary teeth are shed until after the age of two years, the next pair at three years, the outer lateral four years and the corners at after five years, so that a mistake of over a year in an animal's age, as evidenced by the dentition, is possible.

We should do well to consider the following as an approximately correct estimate of the age as denoted by the teeth

Notes on indigenous breeds of Cattle in the Punjab.

in this country :—

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

Although there may be some difference in different breeds, yet, so far as experience has shown at present, it will be but slight.

Cows are seldom used for breeding, or bulls and bullocks for work, until after the age of three years, and castration is not, as a general rule, performed until after this age.

Castration.

Castration is performed in several different ways, which I may as well describe.

First method.—Cast and secure the animal, take some ghee and salt and rub smartly into the cord for some minutes with a view to producing numbness of the part, and when it is considered that the part is practically numbed, place a round piece of wood under the cord, a stone is then beaten on to the upper part, with the result that it is disorganised by the resulting inflammation, and atrophy of the testicle takes place.

The animal is let up, and in some cases receives some gur and barley meal for a few days whilst the swelling and inflammation last. The second method is almost the same as the first, with the exception that the testicle is beaten to a pulp instead of the cord.

Another method is as follows :—

The animal is cast and secured ; a cord with a slip-knot is tied round the testicles. The cord is about six feet long, and has a handle at the free end. The slip-knot is now drawn tight by an assistant, and the testicles pulled in a lateral direction and forward so as to make the scrotum tense. Then with a stick the operator gives a blow in a perpendicular direction and ruptures the testicle ; after this a few more strokes complete the disorganisation of the gland ; the parts are now rubbed under the fingers and the gland thoroughly broken down.



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Another method is to throw and secure the animal, draw the scrotum out, and handle it so as to cause relaxation ; wooden clams are then applied over one cord, the other testicle being pushed up out of the way. A man now sits in front, and pushes the imprisoned testicle against the clam until it bursts ; then he breaks it completely down by kneading between the fingers. When both are done a little cow-dung is applied and the animal let up. No further treatment is necessary, and the patient is well in a week or ten days. All these methods are very successful, and the rate of mortality resulting from the operations is very small indeed.

In Lahoul the operation is conducted on the excision principle.

The animal is cast and secured, a clam applied over the testicles, the scrotum is then incised, and the exposed testicles pulled out the cord being torn. The wounds are simply kept clean, and no further treatment adopted.

Excepting in the case of Government bulls purchased by districts to improve the breed of cattle it is seldom that we find any special bull set apart for this purpose. True, it is customary in many places to turn bulls loose on religious grounds, as an offering for some benefit received or sought for, and if these animals were in all cases well selected, the proceeding would undoubtedly be attended with more success than is at present the case. There can be no doubt that some good does result, as the animals thus turned loose are generally of the indigenous breed, are well fed, and remain uncastrated when they have arrived at maturity. The usual custom, however, is to have four or five nondescript and often immature bulls in a herd, and these bull promiscuously any cows which may happen to be in season. It is noted, however, that the strongest bull becomes master of a village herd generally, and although he tolerates the other males of his own herd, shows fight should a male of a different herd approach. The Government bulls supplied to the districts are in some cases well selected, but are either stall fed and pampered, or turned loose with the herds, and bull any cow which may happen to be fit. In the latter case young bulls often become sterile from overwork, and if pampered, they do so from obesity and lack of healthy exercise, and under these conditions the animals bred are of inferior quality.

Breeding.

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It is evident that very little attention appears to be bestowed on the breeding of cattle in many of the districts, in fact in some parts the people would not care whether an animal bred at all, were it not for the sake of the increased yield of milk which follows parturition.

The reason for this apparent neglect and apathy may be sought in the fact that in these particular districts the rearing of cattle is a very precarious and expensive operation, and is not by any means a profitable one. There is no doubt, that in some districts a farmer could not make it pay to rear his own cattle owing to the scarcity and dearness of forage at certain seasons of the year, and he finds it cheaper to buy adult animals from some neighbouring district where grazing is cheaper and more plentiful, and where cattle breeding flourishes. In those parts of India where the conditions are very favourable, cattle breeding is carried out to a large extent and has been so from early times. Take an outside example "Mysore." Buchanan notes at the commencement of the century, that the inhabitants bred cattle extensively, that they were in the habit of selecting the best bulls available, that they carefully separated their cattle into herds, and in short, that their breeding arrangements were good and that they probably had learnt by experience the best methods of managing their breeding herds. Dr. Shortt remarks regarding Southern India: "Attention is never given by the ryot to the improvement of his cattle so as to bring them to early maturity, so that it takes a heifer from four to five years to produce her first calf, whereas, if the necessary attention were given them in the way of proper food and care, there is no doubt whatever that many would produce at two years, which would prove a great saving in the matter of keep." As, however, in the majority of instances, it costs a native little or nothing to keep his cows, early maturity never troubles him. It must be remembered that all animals are backward in India whether they are fed or not, and also that to produce any beneficial result the cow would require to be more or less highly fed whilst in calf, as would the calf after it had been dropped, and that the extra expenditure thus incurred would render the progeny of greater cost than the market value of another animal bred in the ordinary manner. The ryot who is



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busily engaged in cultivation cannot be looked upon as a breeder of animals even for his own use, unless the circumstances are so favourable as to render it possible for him to produce plough bullocks at a much cheaper rate than they can be purchased from professional breeders. As a matter of fact, there are districts in which plough bullocks are bought yearly just before they are required for use, and are sold off again as soon as their services are no longer necessary, and this is done because they would cost too much to keep.

The class of animal which the zamindar wants as a rule is a tractable, medium-sized, hardy animal, which will not require too much food to eat, and which costs little to feed or to buy. With such animals he can till his land, and go to market, in fact they serve all his purposes. To expect him to trouble to produce or to keep a finer class of animal is out of the question. As a matter of fact, he does not concern himself about breeding a high class animal, which requires much care and attention, and needs expensive feeding and the growing of crops for fodder.

With regard to the better class of bullocks, *i.e.*, those used for fast road work, it is to be borne in mind that these are not of importance to the zamindar. When he wishes to go on a journey he uses his plough bullocks, and as a general rule, unless a rich man, does not keep bullocks especially for fast road work, not only cannot he afford to do so, but these animals are as a rule too spirited and vicious to be of service in other work. It is only the rich people in towns who can afford to keep these splendid animals, and the supply of them seems to be equal to the demand, the breeding establishments being able to supply an almost unlimited number at a reasonable price. There is not much object in trying to cheapen this class of animal, as they are, more or less, a luxury.

In the matter of improving the breed of cattle by bulls purchased by District Boards it may be remarked that the real good which is done is almost infinitesimal under present arrangements, and some amount of alteration in the present system would appear to be advisable. More care is necessary to obtain bulls which will produce cattle suitable to the needs of the zamindar. Much depends on the class of animals which are present in the district in

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selecting the bull to mate with them, and also on the pasturage and feeding which it is probable the improved breed will get. It is a mistaken idea, for instance, to purchase a large heavy bull which has been used to good grazing and feeding, and to transport him to a district where the indigenous race of cattle is small and inferior, and where the available grazing is poor and the amount of food of small quantity and indifferent quality, and to expect any benefit from his use. This is quite contrary to all the principles of breeding. The probabilities are that the stock which he produces will be a mongrel stock, too large, requiring more grazing than can be found, costing more to keep than the smaller stock, and from the disadvantageous conditions under which they will be kept in such a district there will be a very great tendency for them to revert to the indigenous type, for we should bear in mind that it is the natural conditions of the country which have made the indigenous animals in it what they are. It may be stated that in the majority of instances no care has been taken in the special selection of caste bulls, and as we know it to be an accepted fact that the repeated use of a pure breed is necessary in order to get a high grade cross of any particular strain, it is evident that this is not achieved in the districts, but that the resulting stock becomes of a more and more mongrel type, or to use a homely expression 'neither fish, flesh, nor good red herring.' If it be desired to improve the breed of cattle in the various districts we must always keep these objects in view, *viz.*, (1) to produce an animal of the same class which is naturally found in the district, but stronger and better, (2) to produce one which will subsist on the available fodder. In order to attain this end it is necessary to work with the best selected indigenous cattle and by careful selection of the stock endeavour to produce bulls of the same blood as the cattle which they are intended to improve.

Improvement
of breeding.

Castration as
a means.

I am not altogether inclined to agree with the statement, that, in order to produce improvement of the stock, young bulls must be castrated early. If this were carried out, a great deterioration in plough bullocks would result, for there is no doubt that the growth and development is much interfered with by early castration, so that this would not prove an unfailing remedy. The Government bulls, although they do much good, doubtless cannot have



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very much influence on the improvement of the breed of any district, as the strain of blood is so soon lost.

The measures most likely to be practicable would be the castration of badly formed males and the selection of the better specimens of local bred bulls as sires. I am afraid, however, that a very long time will elapse before the zamindars will be induced to trouble about the matter. To them a calf is a calf whatever its form for quality, and is of some little value either as a plough animal or for milking and manure. Practical measures.

Valued only for breeding and the production of milk and manure, they seldom get any care or food beyond what they pick up, supplemented by *bhoosa*. Cows.

The natives, however, recognise the necessity of feeding their cows, as they have a proverb to the effect that "a cow gives milk by being fed and not by simply being petted and fondled."

They are in all breeds invariably smaller than the bulls, have thinner necks, and less massive heads.

The hump is much less developed. The amount of milk produced by most breeds is but small, but they would increase in this respect were some little care exercised in feeding. The quantity will be mentioned under the different breeds noticed.

Calves are not, as a rule, weaned, but allowed to suck part of the milk for at least six months; in some cases indeed they suck as long as the cow will allow them to do so; a little barley meal and salt is given when weaning. It is usually considered by the people that the "*beistyn*" or first milk of the cow after calving which contains the colostrum, is harmful to the calf, and it is consequently deprived of it. When a calf dies, the cow sometimes refuses to give milk, and various devices are resorted to in order to prevent this, one of which is to stuff the skin and place it in sight of the mother. In some parts, however, calves are stinted of milk and hence do not develop. Calves.

The food-stuffs of the Punjab are very numerous and will only require passing notice here. Food-stuffs.

The various grasses valuable for fodder have already been fully described by Messrs. Coldstream and Duthie in their respective works on the subject, and will therefore not be noticed by me.



Notes on indigenous breeds of Cattle in the Punjab.

In many parts of the Punjab, owing to the extension of cultivation and to the encroachment of the Forest Department on the grazing area formerly open, the supply of forage in the form of grass has become very limited, so that little excess remains for a bad season, and the cattle, if no other fodder has been collected for them, starve.

In districts, like Haryana, which are arid, scarcely any fodder springs up before the rains, and it is necessary for the herds to be driven either to the riverian tracts or away into the Dûns of the Siwalik range to graze until the rains set in and grass becomes plentiful in their own districts. This is also done in Karnal. The "bars" or uncultivated lands of doab, afford very excellent grazing to large herds of cattle in those districts where they are situated. The cattle are driven out into them when the rains commence.

Birs or enclosed rukhs are to be found in some districts, and are a very useful institution, affording a stand-by in years of scarcity; not much care is, however, bestowed on them, and the grasses found are consequently generally very coarse and innutritious.

Bhoosa.

Next to grass in importance as a food material comes "bhoosa," or the chaff of various grains and pulses. It is called "ture," and that of wheat, rice and barley is to be found in the largest quantity, wheat bhoosa being better than barley. Rice bhoosa or paddy is excellent.

The "bhus" of various pulses, such as gram, mash, mahri, mung, urud, kangni, impi, and the like are also fed to cattle, and prove very excellent fodder, that of moth, mung, and gram, being considered to be the best.

Bhoosa is stored either in stacks or pits until required for use.

Jowar (*Sorghum vulgare*).

Is very extensively grown in the Punjab, and is given either green or dry. It is called "charri" when green, and proves a very excellent forage.

Indian-corn.

The stocks of Indian-corn are fed to cattle under the name of "karbi"; are good food, but inferior to jowar.

Notes on indigenous breeds of Cattle in the Punjab.

Used in feeding cattle are green wheat and barley called Green-crops. "khasil," also occasionally gram and jowar.

In some places shotal, a kind of lucerne, is extensively grown Shotal (Com- for cattle. Rape and mustard are also very useful forage crops. mon clover).

Methi, a trefoil, is used as green food for cattle, being often Mehti (Tri- sown with sarson and a little gram amongst cotton. Tara mira is gonella Pa grown also largely for cattle, and china is also grown for the same numgacum. purpose; methru is also grown.

Turnips are largely grown in many districts for cattle, and are Root crops very valuable as food for milch cattle and buffaloes.

Carrots are also grown, but not extensively.

Barley is the most generally used grain for feeding cattle, and Grains. is given ground to plough bullocks and milch kine and buffaloes. Peas are much grown and are greatly valued as food for milch buffaloes. Gram (*Cicer arietinum*) is occasionally used as forage, but too expensive to give to cattle.

Is grown in some parts principally for cattle, and is boiled Guar. before given.

Is a very valuable food for cattle, being superior to the ordinary (*Cyamopsis cotton cake used in England. It is much valued as it increases the psoraloides*). quantity of milk and keeps cattle in good condition. It is, however, Cotton seed. considered to be heating, and is hence only given in the cold weather months.

Cakes are very extensively used in the Punjab for cattle, and are of great value, those in general use being linseed cake, mustard Cakes or "khal." cake and tara mira. Linseed is the best, and is given to milch cattle and working bullocks.

Leaves and branches of certain trees and shrubs are eaten by Leaves and cattle; a detailed account of these will be found in Mr. Duthie's trees. work on the subject.

I may mention the leaves of the Ber tree (*Zizyphus vulgaris*) as being specially prized and diligently collected for cattle and being credited with increasing the quantity of milk. Salt, a necessary condiment, is always given to cattle, occasionally in the food.

Guar is much used, especially for milch cattle and those performing hard work.

Notes on indigenous breeds of Cattle in the Punjab.

It may not be out of place here to give the ordinary feed of plough bullocks during the year. It is about as follows :—

From Phagan (February) to Baisakh (April)—bhoosa, stalks of crops, wheat and grass.

Jaith (May) to Kartik (October)—Jowar, rawan, china grass and bhoosa. Or from 15th of November to 1st February—turnips, bhoosa and grass; February on khasil, green wheat; in March—methra and peas, bhoosa and grass; April and May—bhoosa and khul; May to October—jowar; October and November—bhoosa and khul.

The natives say—

Giving china straw at Rabi harvest is feeding your bullocks on ghee, but if you give it them green it is butter in a dish. If you feed bullocks on green wheat in "Phagan" (February) and with Jawar in (October) Kartik they will never come home tired. In "Poh" (December) give turnips and add dry food in Magh (January); feed them on green wheat in Phagan and methi and sengi in Chait (March)—(Maconachie.)

It is necessary to say that the milch cows only get fed on anything besides bhoosa and grass when they are giving milk.

CHAPTER II.—HIMALAYAN BREEDS.—PAHARI.

Breeds.

Under this head it is well to identify those animals found at moderate elevations of the Himalayas in such districts as Simla, Seoraj, Kulu and Lahoul, Hazara, etc. These cattle are admirably adapted to the country they inhabit, a purely mountainous one. They resemble the dexter Kerry cattle of Europe in some degree, but very slightly.

Characteristics.

They are light, compact, and very active, and can climb about hills in search of forage which are difficult for man to negotiate, and which would be inaccessible to the heavier breeds of animals.

These cattle are for the most part small, hardy, and well-bred little creatures despite their somewhat rough coats. The most general colours are black, red, or a rusty black, and odd colours are seldom met with.

Notes on indigenous breeds of Cattle in the Punjab.

They stand from 36 to 39 inches at the withers. The line of the back is straight generally, although occasionally a little dipped from loin to wither, where it is broken by the rise of the hump.

The hump is scarcely developed at all in the female, rising only about half an inch above the level of the spine. In the bull, however, it is well marked, rising sometimes to a height of four inches above the back. At the junction of the lumbar and sacral bones there is a slight elevation.

The croup is not so markedly drooping in this breed as in some others, but the tail is badly set on.

The tail is fairly fine and whip-like, and ends in a tuft of long hair, which reaches as far as the middle of metatarsal region generally, but sometimes below it.

The head is fine, forehead broad, especially in the bull; face longish and fine; muffle small, jaw light.

The breadth of forehead is four inches, and from poll to muffle thirteen inches. The horns are usually coarse at the roots, and terminate in a fine point; they generally take a direction arching upwards and outwards, and vary in length from 4 inches to 12 inches.

The ears are comparatively small, measuring six to seven inches from root to tip, and, as a rule, are carried in a horizontal position.

The head is carried a little below the line of the body.

The neck short and stout in the bull, but light in the cow.

Dewlap well developed in the bull, less so in the cow.

Legs short and well formed, the forearm measuring 12 inches in circumference, and the height from elbow to ground is only 22 or 23 inches.

The chest measurement is good for animals of their stature, being from 50 to 56 inches.

The ribs are strong and broad, and the cattle are very well ribbed up.

The length from scapula to first tail-bone is from 36 to 40 inches.

In the female the udder is very small, as are also the teats, and in the male the scrotum and sheath are small and undeveloped, the latter being terminated by a tuft of hair.



Notes on indigenous breeds of Cattle in the Punjab.

In temperament they are quiet, almost inclined to be sluggish.*

It is not customary to keep bulls for breeding purposes exclusively, and any bull of a herd bulls a cow which comes into season.

The bulls are fit for breeding at the age of four years, at which time they are considered to be in the prime of life, as are also the cows.

The cows are milked thrice a day when in full milk, and as they decrease in yield the number of milkings is reduced to two and one.

The quantity of milk obtained is not large, varying with the time of year and the amount of grazing available. The usual amount of yield is from one to two and-a-half seers per day. The quality depends on the amount and quality of the food. Ghee is made from the milk and sold or consumed.

Bullocks and bulls are worked from the age of five years.

The price is small, varying from Rs 5 to Rs 30, the cows being much less valuable than the bullocks.

The work done by Pahari bullocks is little, ploughing and the preparation of the land being the only work expected.

They are, however, occasionally used by "labanas" or carriers, when they are expected to carry a load of about one and-a-half maunds for a distance of 8 or 9 miles a day. When such work is being done extra ration is given, and this is also the case with cows when in full milk.

Stabling.

The stables in which these cattle are kept vary but little in the various parts of the hills.

The houses are generally double-storeyed, and the lower storeys are the cattle-sheds; there is no ventilation, as a rule, excepting what takes place through the rough boarded floor of the upper storey.

Manure is a very valuable material in the hills, and the stables are kept littered to a depth of a foot or so; the sanitary condition of such dens is of the lowest order.

* NOTE.—Mr. Walker says that the Pahari cattle in the Kumaon are very wild, and for that reason many of them are unworkable.—*Ed.*

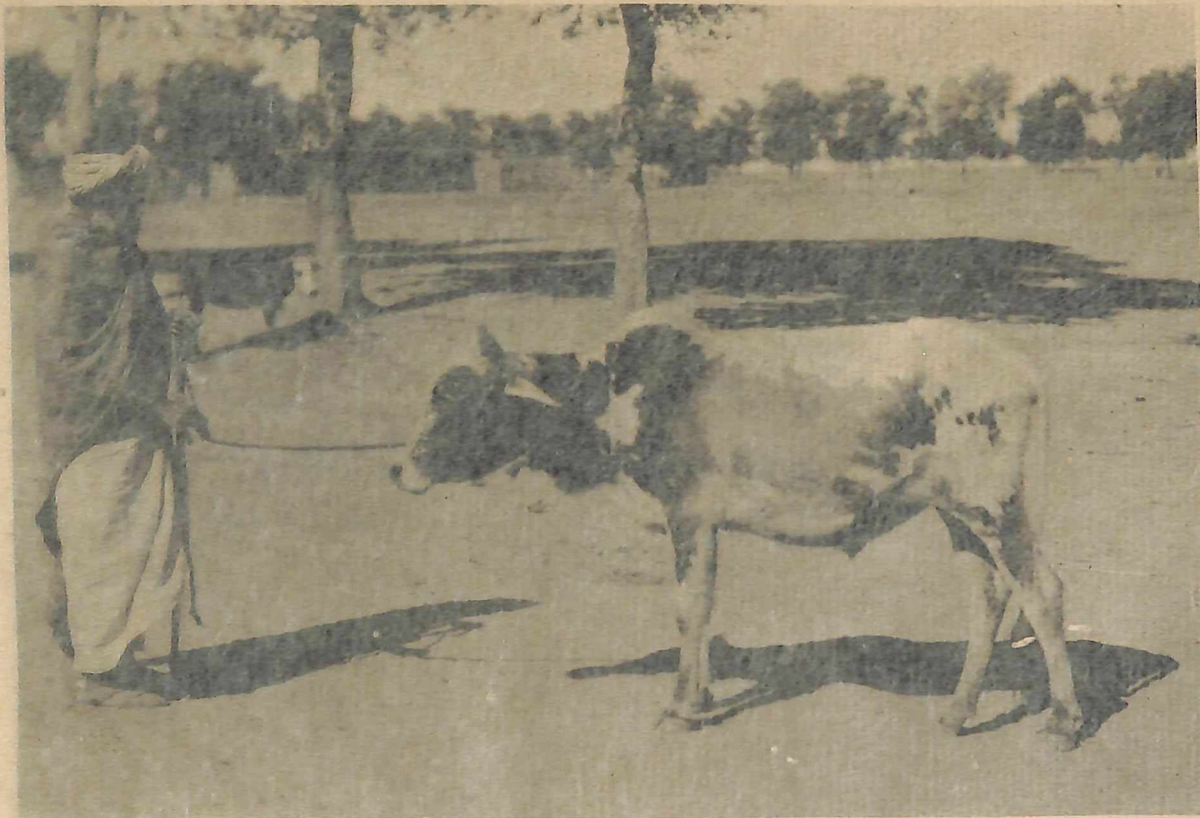


Photo gravure

Survey of India Offices, Calcutta, February, 1903.

A Pahari Bullock, showing the usual mottled colouring and the low method of carrying the head.—*Vide text.*



Notes on indigenous breeds of Cattle in the Punjab.

During the summer months and until the snows commence the Feeding. cattle are grazed on the mountain sides, and get nothing beyond what they pick up.

The grazing at certain times of the year is excellent, and the hill cattle are then seen in splendid condition.

For winter feed, grass is collected as convenient, and dried for hay, on which the animals exist until the ensuing spring. Bhoosa is seldom cut with the crop, but I have occasionally seen stacks in the hills. During the week it is the invariable custom to give a handful or so of salt to the cattle, and after calving, gur, barley meal and milk are boiled together and given for a week or so.

The general treatment of the calves is the same as in most Calves. places; they get at birth and up to about six weeks three teats, from this time to four months two teats, after which till six months one teat, after which no suckling. When the cows are driven out to graze, the young calves are kept outside the village, where they nibble at the grass and get fresh air and exercise.

Pine needles are generally collected for bedding and make good Bedding. manure. Straw and leaves are also used.

CHAPTER III.—KAHLUR BREED.

The State of Kahlur possesses an indigenous breed of cattle which differ very much from those which we have already designated Paharis. They are slightly larger and differ in external conformation; the heads and horns are coarser and the face longer; the ear assumes a more depending position; the hump, although small, is more developed than in the Pahari breed. They are generally lacking in barrel, not so well ribbed up, the quarters short and croup sloping; tail whip-like and finished off with a tuft of black hair.

The height at the withers is about 41 to 48 inches. The line of the back is very straight and well adapted for pack purposes; there is a slight rise at the croup of an inch or two, after which it slopes badly and the tail is set on low down.

The head is coarser and longer; the breadth of the forehead five inches, and length from poll to muffle 16 inches; the horns usually



Notes on indigenous breeds of Cattle in the Punjab.

curve upwards, outwards, then slightly inwards, the tips not being much approximated. The ears drooping and large, measuring 8 inches from root to tip; neck measuring about 15 inches and light in the cows, and heavier in bulls. Eyes surrounded by black skin. The girth 54 to 57 inches at the chest.

Length from 36 to 40 inches. In cows the udder fairly developed and teats better defined than in the Pahari.

Sheath of the male badly developed, and tuft of hair at the orifice. The limbs well developed, measuring from elbow to ground 20 to 24 inches, and the forearm 12 inches in circumference.

The joints large and strong.

Dewlap fairly developed. Colours very variable, white, black, piebald, skewbald, dun, and red, the colours in many cases being broken.

The skin generally black, whatever the colour of the hair may be.

Uses.

They are used for the same purposes as other hill cattle, and are much used for carrying purposes by "labanas" who load salt on them.

Feeding.

As with other hill breeds.

Milk.

The cows give from two to three seers and from it ghee is made.

Price.

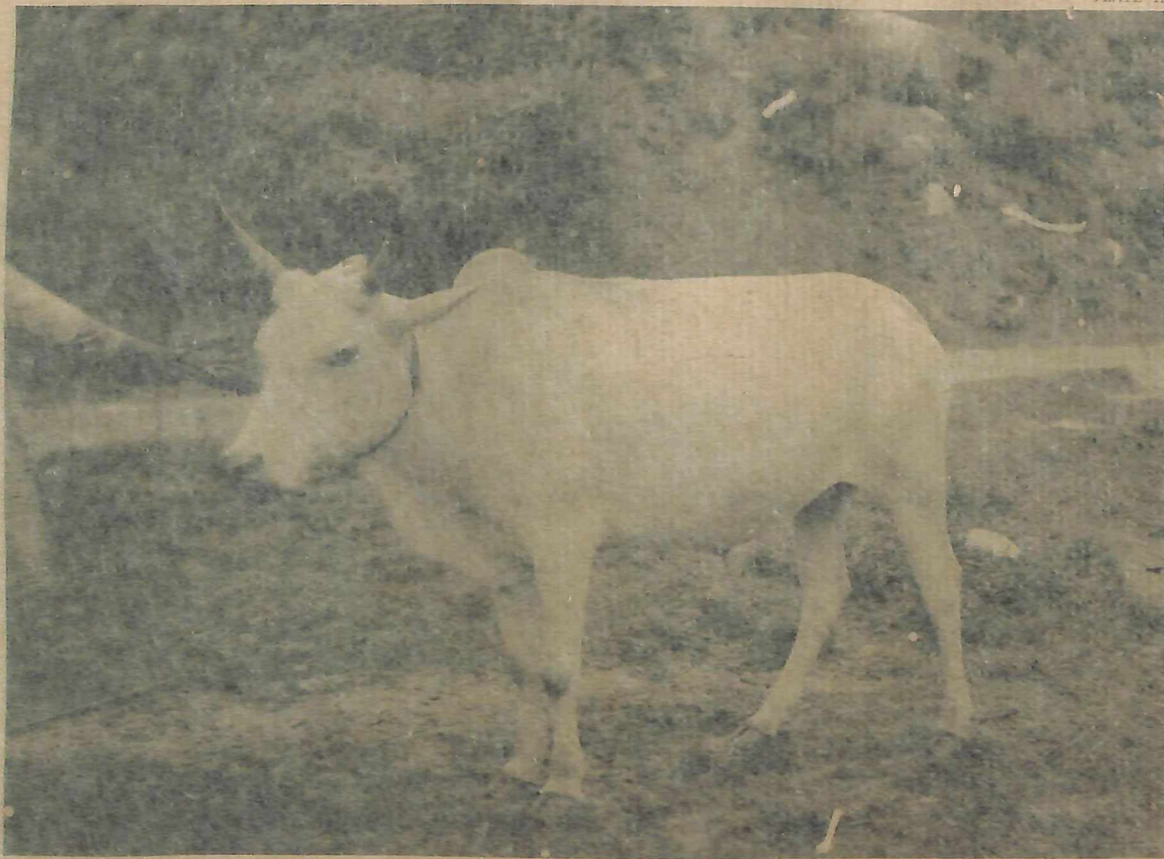
R10 to R25.

KAHLUR BREED.

Sex.	Age.	Height of elbow hump.	* Length.	Horn.	Length of face.	Breadth of Fore-head.	Girth of shank.	Girth of chest.	Colour.
Bullock, inches	10	43	39	12	16	6	6	60	Red.
" "	7	44	40	12	17	6	6	60	"
" "	6	44	40	7	15	5	6	56	Black.
" "	10	49	36	6	16	4	6	57	White.
" "	4	43	40	9	16	5	6	56	Red.

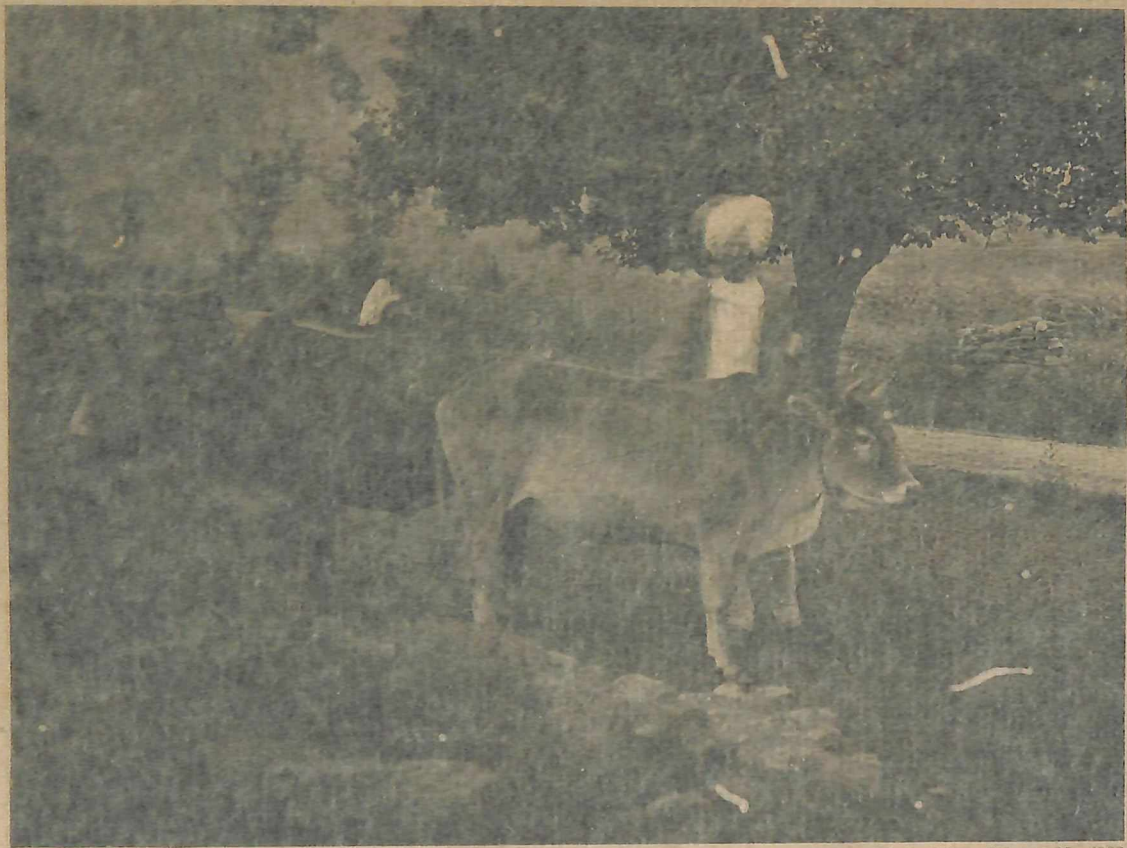
* NOTE.—Length in this and all other measurements is taken from point of shoulder to point of buttock, without curving the tape. Height is taken immediately behind the hump; length of face from poll to commencement of muffle.

—Ed.



Survey of India Offices, Calcutta, May 1962

The Kahluar Bullock. Note the short face and wide forehead with abrupt sharp pointed horns and the peculiar straightness of the back.



Photogravure

Survey of India Offices, Calcutta, May 1902.

A Suket Cow and Bullock. Taken in the hills near Simla.

Notes on indigenous breeds of Cattle in the Punjab.

CHAPTER IV.—MANDI BREED.

Most of the cattle owned by the people in Mandi are of the ordinary Pahari breed, but towards the borders of the Suket a distinct local breed may be found.

The cattle are exceedingly small, but very strongly built wonderfully thick-set little beasts. They are in most particulars like Suket cattle in general outline, but stand very low on the leg. They may in fact be said to be Suket cattle on a small scale.

The quantity of milk is from half to one seer; value about R5 to R12.

Used for pack animals and cows for milking.

Same general management as other hill breeds.

MANDI BREED.

SEX.	Age.	Height.	Length.	Horn.	Length of face.	Breadth of fore-head.	Girth of shank.	Girth of chest.
Cow . . .	6	33	33	11	13	4	5	50
" . . .	10	33	33	8	13	4	5	48
" . . .	6	33	33	12	13	4	5	44
Bullock . .	12	45	43	13	15	4	6	60
" . . .	10	38	36	8	14	4	6	54
Cow . . .	7	36	36	6	14	4	6	61

SUKET BREED.

This is one of the best breeds of cattle met with in the Himalayas. They are found in the State of Suket, and are much prized on account of their superior size and weight, as also for their milking powers in Kulu, where large numbers are to be seen. They differ from the other breeds seen in the Himalayas in general conformation. Some of the cows are really handsome little beasts and very good milkers.

The skins are fine; hair smooth; ears long but finer and more or less horizontal in direction; head fine, well shaped and breezy looking; neck light; hump hardly breaking the line of the back in the female, but more developed in the male; back straight; dewlap

Notes on indigenous breeds of Cattle in the Punjab.

small; quarter not very sloping, but short; loins broad and well formed; tail fine, and having a tuft of black hair at the end reaching to mid-metatarsal region. The head in this breed is very characteristic, the face unusually long and small, straight from poll to muffle, measuring generally about 16 inches, the orbital arches rise above the level of frontal bone considerably, thus giving the forehead a depressed appearance, the breadth between the orbits is four to five inches. The horns usually arch upwards and measure from a few inches to about a foot in length. The colours are generally even: many red, some black and a few white and dun. The mammary gland is fairly developed, teats small.

Sheath of male badly developed and finished off with a few long hairs.

Milk. The cows are milked twice daily and give three to five seers of milk, which is of good quality, and it is said that the yield of ghee per seer is $1\frac{1}{2}$ ounce.*

Feeding. They are grazed during the summer as is the case with other hill cattle, but get, as a rule, salt every three days. When in milk the cows get of barley a couple of seers daily and after calving lugree 4lb, ghee $\frac{1}{2}$ lb, goor 1lb for eight days.

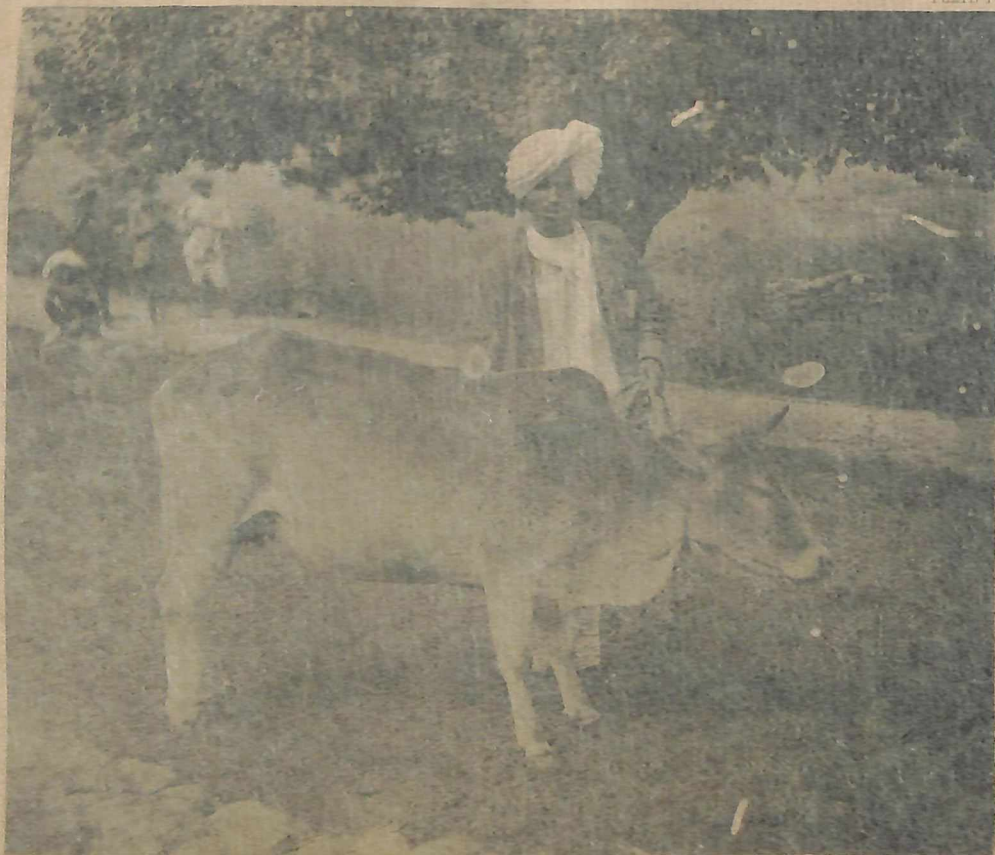
The calf is generally given mustard oil for three days, otherwise it is believed that worms appear in the abdomen.

Price. R10 to R25.

SUKET BREED.

SEX.	Age.	Height of shoulders.	Length scapula to coccygeal.	Girth of chest.	Face.	Horn.	Breadth of forehead.	Colour.
Cow . . .	9	43	39	58	16	6 $\frac{1}{2}$	5	Red.
" . . .	4	41	37	56	14	2	4	"
Bullock . . .	8	45	41	60	17	12	4	"
" . . .	9	48	42	64	17	9	5	"
Cow . . .	6	40	37 $\frac{1}{2}$	54	18	8	4	Very good cow, dun.

* NOTE.—This corresponds with the milking powers of Kumaon cattle where the supply of milk is poor, but the proportionate yield of butter is good.—Ed.



Photogravure.

Survey of India Office, Calcutta, May 1902

Suket Cow. Typical of the kind.

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Notes on indigenous breeds of Cattle in the Punjab.

CHAPTER V.—THE YAK OR CHOWRY BULL.

In the cantons of Lahoul and Spiti we find these animals and the cross between them and the hill cows almost entirely taking the place of ordinary cattle, more especially in Spiti and the higher villages of Lahoul.

Marco Polo observes: "There are found many white cattle that in point of size may be compared to elephants. Their colour is a mixture of white and black, and they are beautiful to the sight. The hair upon every part of their body lies down smooth, excepting upon the shoulder, where it stands up to the height of about three palms (presumably hand breadths). This hair or rather wool is soft and more delicate than silk. Many of these cattle taken wild will become domesticated and the breed produced between them and the common cow are noble animals and better qualified to undergo fatigue than any other kind. They are accustomed to carry heavier burdens and to perform twice the labour in husbandry that could be derived from the ordinary sort, being both active and powerful."

This fine species was described by Turner in the Asiatic Researches, Volume IV. He observes: "Over the shoulder rises a thick muscle covered with a profusion of soft hair which in general is longer and more copious than that along the back. The tail is composed of a prodigious quantity of long flowing glossy hair." The shoulders, ramp, and upper part of the body are clothed with a sort of soft thick wool, but the inferior parts with straight pendant hair that descends below the knee.

Yak.—*Bos Poephagus*, *B. Grunniens*, or *Poephagus Grunniens*, is still to be found in a wild state, but has been largely domesticated. The general aspect of the yak is distinctly Bisontine, and it carries the head low like the rest of the sub group. In the Western Himalayas the wild yak is named Brong or Dong Hbrongbri, which is generally pronounced Dongdi. Amongst all the quadrupeds the Yak is found at the greatest elevation; it best stands the cold of the snowy mountains.

But at the same time the range of temperature in which a yak can live is very limited: the real yak can scarcely live in the summer at an elevation of 8,000 feet. Hermann and Robert Schlagentweit

Notes on indigenous breeds of Cattle in the Punjab.

frequently found wild Yak on both sides of the range which separates the Indus from the Sutlej, near the origin of the Indus and near the environs of Gaarto, but the greatest number of them was at the foot of the Karakorum range. It is when wild, horribly fierce, falling on the hunter with horns and chest. The wild Yak does not come so far South as Rupshu but a few are met with in winter in the Nubra ranges; they migrate, however, before the end of April. The Yak wanders about singly or in small herds, preferring secluded valleys to open hill sides, passing the day among the snow where it may be often seen at midday stretched at full length asleep. The prevailing colour of the wild Yak is black with a greyish tint on head. In the winter herds graze below 8,000 feet on account of the great quantity of snow above that height, but in the summer they find pasturage as high as 17,000 feet, consisting of grass and small tufted carices on which they browse with avidity.

The size of the Dong is four times that of the domesticated Yak; it is black all over having occasionally a white streak on the forehead. The horns of a full grown bull are said to be three feet long.

The domesticated Yak is common in Rupshu; it can travel twenty miles a day. The ears are generally pierced and ornamented with a tuft of scarlet worsted; the eyes are large and beautiful; red, dun, particolored and white are commonly met with.

Much of the wealth of the people of East Nepal consists in its rich milk curd eaten either fresh or dried, or powdered into a kind of meal. The hair is spun into ropes and woven into a covering for tents which is quite impervious to the wind or rain. The hair of the tail is greatly esteemed by the women of the plains to add to their back hair. The female drops one calf in April and the calves are very lively. The flesh is delicious, much richer and more juicy than common meat; that of the older Yak is sliced and dried in the sun to form jerked meat called "schat-t-chew" which is eaten raw and is a palatable food. The Yak loves steep places, delighting to scramble amongst rocks.

The average value is Rs22 to Rs30.

Yaks are bred in Bashahir whence they are sent for sale. In Spiti the people plough with it and it carries loads; it furnishes

Notes on indigenous breeds of Cattle in the Punjab.

them milk and hair to make ropes. In the severest weather the animal appears to enjoy itself in the snows and is often to be seen with icicles of several inches in length hanging from its nose and a foot or more of ice to the hair of its neck and shoulders. Long hair hangs down and protects the eyes. The Thibetan Dzo, Zho, or Zo, is a hybrid from the bull Yak and the Indian Zebu.

There is a great variety of colours amongst them, but black or white are the most prevalent.

In the higher parts of the Himalayas the Yak itself is in most use, but in the less elevated tracts several breeds crossed with the common Indian cattle are most used.

The common Yaks used in the plough are ugly enough, and have more the appearance of large shaggy bears than oxen, but "the Yaks used for riding purposes," says Hoffmeister, "are infinitely handsomer animals." Cunningham says that "the Dso or Zho is a very handsome animal with long shaggy hair, generally black and white."

The Yak was mentioned by Oelian in the third century, who quaintly remarks that "they are black cattle with white tails from which fly-flappers are made for Indian kings."

Hedgson fully describes the Yak as follows :—

"The Yak or chowry bull of Thibet has 14 pairs of ribs, a strong dorsal ridge, though limited in extent to the withers, and which is therefore justly considered to belong to the Bisontine group, though, perhaps, it is an aberrant or occultant species, more connected by the characters of its skull with the Bubalines than the Taurines. The distinguishing characters of this skull are its moderate size and weight, dimension of length more preponderant from increase in the facial region over those of breadth than in the common ox, the frontal bones are distinctly, though trivially convex in the upper part whence they pass with a somewhat obtuse angle into a trigonal occipital plane of very moderate size. The excess of the facial over the frontal region of the skull is as 11 to 7."

The occipital plane in the ox is square, whereas owing to the boldly defined and pointed parietal ridge and to the rounding off of the frontals on either side of it, the same plane in the Yak is trigonal.

The muffle is small.

Notes on indigenous breeds of Cattle in the Punjab.

Upon the whole the skull of the Yak, as compared with that of the common ox, is larger in proportion of the size of the animal and exceeds the bovine skull as much in breadth as it falls short of it in depth. The horns of the Yak are of moderate size, jet black, rounded and smooth and occupy the ends of the frontal apex, having the frontal arched between them as well transversely as lengthwise. The horns are directed at first outwards, then reverted upwards and backwards with a bold curve.

The body is covered with long hair, excepting over the perinæum inside of the thighs and hypogastric region from anus to prepuce, which is nude, the hair along the superior of the above nudity forming a long fringe with definite margin; the nudity is carried partially forward to sternum; armpits bare.

The head is long, facial line straight, muffle vague and small, nares oblique, ears small and oval, horizontal; limbs very short and fine; barrel deep and compressed; tail very short and tapered reaching only to mid buttock; tail terminates in large quantity of bushy hair. Dewlap only slightly developed. Mammary gland small, four teats narrowing wedgewise. Hoofs much hollowed." The Yak does not thrive below 10,000 feet, and experiments to acclimatise it at lower elevations, have been unsuccessful, but the cross breeds may be brought down much lower.

Use.

The Yak is used for carrying packs, especially over glaciers or other difficult roads, for ploughing and for riding in the snow; he carries a load of two or three maunds; he cannot, however, travel for many consecutive days without getting knocked up. He is wonderfully surefooted. He is impatient under the yoke, and two men are usually required to plough, one to hold and one to drive. He is a very timid animal with strangers, but quiet enough with the people.

Feeding.

They are grazed on the mountain sides, in fact turned loose to forage for themselves, which they manage to do, even when a considerable quantity of snow covers the ground, by scooping it away with their hoofs. They are left to roam about by themselves during the summer and are only reclaimed when the ploughing season or the winter comes round. During the winter they get dried grass and are stabled in the villages.



Photograph.

Survey of India, Office, Calcutta, January 1903

A Zhomb from Lahoul. The Yak is seen to predominate in this specimen. Note the bushy tail and long curving horns.



Notes on indigenous breeds of Cattle in the Punjab.

The male is called Yakcha and the female Breemo.

The quantity of milk given is but small, one to two seers.

R25 to R50.

Milk.
Price.

YAK.

Sex.	Height.	Length.	Poll to nose.	Horn.	Girth.
Yak bullock	50	66	20	14	70

In Spiti and Lahoul the cross breeds are much used for agricultural work and also for carrying. They do more work than ordinary hill cattle, being much heavier and stronger; the females also are said to be superior as milkers, giving up to four seers when good ones. All the crosses breed freely together and with the pure stock; in the former case the race degenerates. Names and varieties.

In Spiti the mule between the Yakcha and the "Ratcha," as they designate the hill cows, is called "Zho" if a male, and "Zhomo" if a female, and from these and the Yakcha or Breemo the "Strool" male and "Stroole" female.

Both these cross breeds are somewhat similar in form to the Yak, but want hair and are less strongly made.

From the Breemo and the hill bull proceeds another hybrid, viz., the "Garra" and "Garri," but this cross is of rare occurrence, the pure strain being generally kept with the Breemo as the produce is much inferior to the Zho.

All the cross breeds are employed in husbandry. In Lahoul there is also found a large number of these cross-bred animals, which are collectively called "Churus." Individual names as follows: a hill cow is called "Ratcha" and a bull "Bangth," the Yak, and its female Breemo.

Ratcha and Yak=Zhomo female, Zhopo male.

Bangth and Zhomo=Talmo female, Talpo male.

Zhomo and Yak=Garmo and Garpo.

Breemo and Bangth=Garru and Garri.

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Notes on indigenous breeds of Cattle in the Punjab.

Pure Yak.

The pure Yak is only met with in small numbers in the lower villages, where it is kept as a bull for breeding purposes, and the Breemo not below Darcha in Lahoul.

The Zhomo and Zhopo are consequently the most frequent cross seen.

Zhomo and Zhopo.

These take more after the Yak than the cow, and are in their general characters stamped with his peculiarities. They somewhat resemble Highland cattle.

Description.

The body is massive, on short legs covered as in the Yak with longish hair which is, however, in much smaller quantity than in the Yak. The line of the back from behind the hump is straight, the quarter long, and tail fairly well set on.

The dorsal ridge, larger in the male than the female, extend some distance in front of the withers.

The neck, short and light in the cow, heavier in the bull.

The dewlap small and commencing very far back.

Head very long, especially the face; the muffle small, horns round, long, black, fine and very sharp, and generally arched upwards; ears small and horizontal.

The height at the withers is about 39 inches in Zhomo to 41 in the Zhopo. The girth is good, 54 to 58, length is about 40 inches.

The limbs are very short and stout, the elbow 21 inches from ground, girth of forearm 12 inches, and shank six inches.

The head is carried very low; as a rule the tail is hairy from the root, and resembles a thick mule's tail, the hair being long, but the tail short.

The mammary gland but slightly developed; teats regular but small.

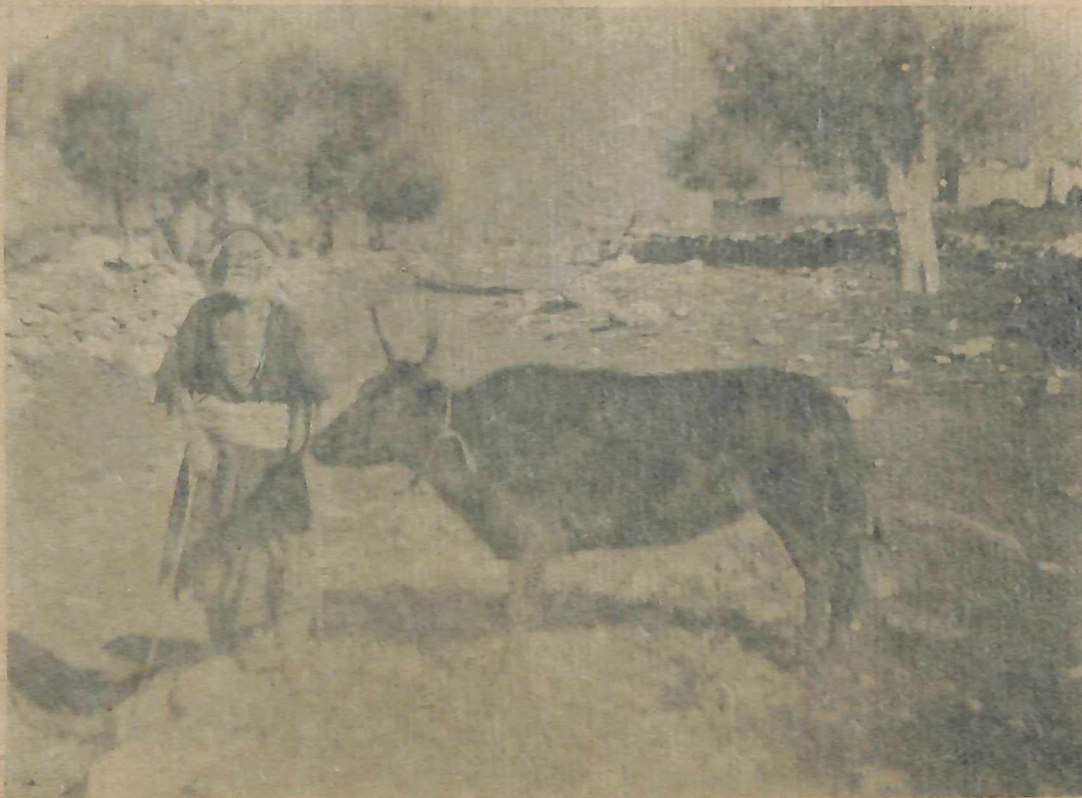
Colours.

The colours are black, or black and white, the tail being frequently white. Red colours are sometimes seen.

Feeding.

Cows and Zhomo, Zhopos, etc., are all grazed during the summer and stall-fed in the winter time on hay. After calving the cows receive some gur and suttoo.

They also get salt occasionally.



Photogravure

Survey of India Office, Calcutta, May 1902.

A Garpo showing much less of the Yak than in Plate No. 5.

Notes on indigenous breeds of Cattle in the Punjab.

One to three seers ; butter about a chittack from each seer.

Milk.

Zhomo, R10 to R25 ; Zhopo, R20 to R25.

Price.

• ZHOMO — ZHOPPO.

Sex.	Age.	Height.	Length.	Horn.	Face.	Forehead.	Shank.	Girth chest.
Zhomo	6	38	39	11	16	5	6	55
"	5	39	40	12	15	6	6	58
"	9	38	40	14	15	6	6	54
Zhopo	6	39	40	9	16	5	6	58

HAZARA DISTRICT.

Mr. Nunn, in his report on this district under the heading oxen, says: "There is the greatest difference in the cows and bullocks of the Haripur and Mansehra or Kagan, the latter of which are small hardy animals, able to climb the steep sides of the hills in search of grazing like goats. They vary in height from 50 to 55 inches, and are red or black in colour with rough hair partaking more of the nature of Welsh or Kerry cattle than anything I have elsewhere seen in the country. In Kagan a large number of bullocks are used for pack purposes, but in Abbottabad and Haripur most are used for ploughing. The marked feature in these hill cattle is the very small size of the hump compared with those of the plains."

The cattle above alluded to seem to be those of the Pahari breed.

Mr. Nunn goes on to say: "The cattle of Haripur appear to be a very mixed breed owing to the facilities for importing from the Punjab and the Government bulls that have been present in the district for some years past."

Heifers are occasionally used for ploughing, but milch cows seldom, if ever.

The small country cows are worth from R15 and oxen about R50, if good. Some of these in Haripur by Government bulls have, however, been sold for R180 to R200 per pair.

In Mansehra Tahsil animals, as a rule, get nothing but grazing and "bhoosa" either white or "misa," generally the former, except

BREEDS OF INDIAN CATTLE, PUNJAB

Notes on indigenous breeds of Cattle in the Punjab.

in Balakote, Bhogurmung, and Kagan, where there is none available; in the "ilakas" of Mansehra, Pakhli and Tanaul, about half to one seer of some sort of grain, whatever is cheapest, is given, except in the months of July, August and September, during the rains, when grass is springing up and is exceptionally good. Grass is cut and made into hay all over the district for winter consumption, in September or October, and in Northern Hazara, up to the time the snow falls, the animals are left out to graze. Plough bullocks from the middle of May to the middle of June, when doing the hardest work, are given one to two seers of ardawah at noon, and pack bullocks get the same ration when working. In Abbottabad the method of feeding is the same except that cotton seeds are used. In Haripur the mixture of mustard cake and ardawah is continued up to the middle of October, and white bhoosa is often added, when the mixture is called ghotu.

From October to May kirby and green moth are given.

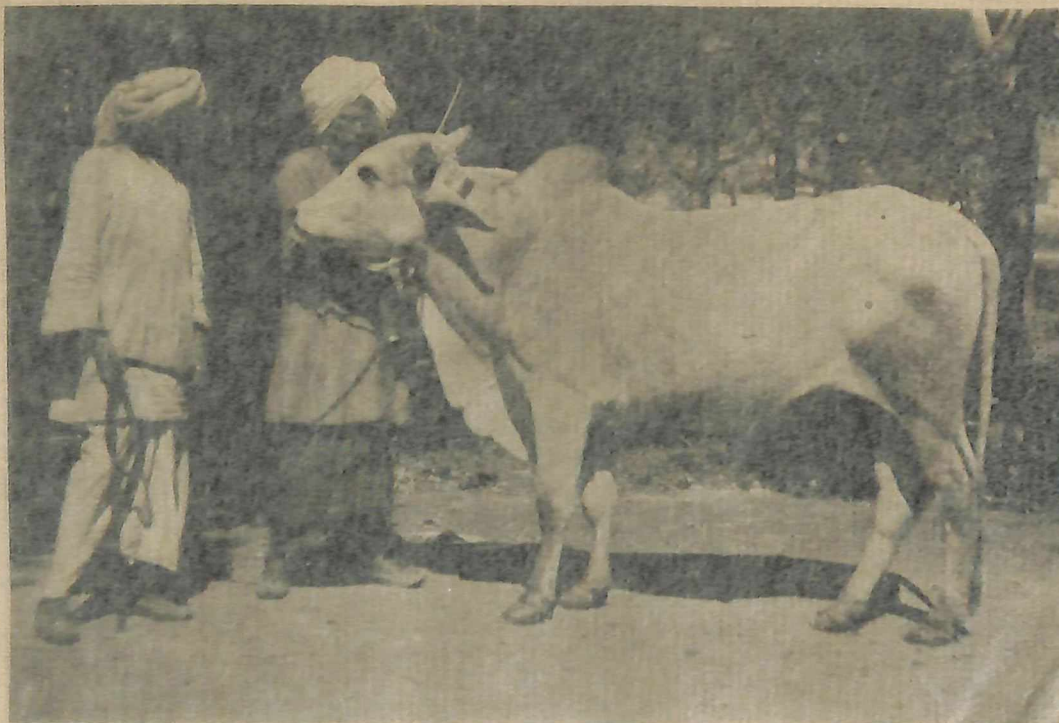
BRITTANY CATTLE.*

With a view to improving the milking powers of the Pahari breed of cattle, some Brittany cattle were sent into the Kulu subdivision to Mr. Donald and to Mr. Mackay of Manali. It was found that the change in climate and fodder influenced them very much, and that the yield of milk fell off.

Mr. Donald of Dhobie says that the cow sent to him aborted on the way up and again afterwards.

The bull was used a little by the zemindars, and some 15 head of half-bred stock were born, nearly all bull calves, which were practically useless for ploughing, owing not only to the absence of the hump, but also to the increased straightness of the neck. It must be remembered that, however small the hump may be in Indian cattle, the shape of the neck renders it possible to carry the yoke, owing to the dip which is present before the withers or dorsal ridge commences, whilst in European cattle, as a rule, the neck is

* NOTE.—The introduction of any breed of European cattle is harmful, as has been demonstrated in Bengal, where the importation of English cattle did great damage in forming a hybrid stock which was very much addicted to contracting, in a virulent form, all the diseases of the country. They were also harmful, in that the hump which is so necessary an adjunct in draught cattle became extinct.—*Ed.*



Photogravure.

Survey of India Offices, Calcutta, May 1902.

A Sahiwal Bull, Montgomery District. This animal is young and not fully developed, but the length and well ribbed up condition will show what power the animal possesses. Note the prominent forehead and short horns.

Notes on indigenous breeds of Cattle in the Punjab.

short and straight, and the head carried in a more erect position, so that the adapting of a yoke becomes a difficult matter. All the young stock, excepting one very young calf, died from rinderpest, as did also the Brittany cattle themselves.

Mr. Mackay of Manali was more fortunate, but told me that he had to take the most elaborate precautions against rinderpest. He received a bull and a cow some years ago, and I saw the produce—a well grown bull and a cow, pure-bred Brittany cattle, four very young half-bred cow calves, and one half-bred bull calf. The pure-bred bull was a well grown animal but not fit for ploughing owing to the defects already pointed out. The half-bred stock was too young to form any opinion of, but there was evidently a much more symmetrical outline, total absence of the hump and a longer straighter croup. The ears were in all cases erect. The colours of the half-bred stock, in all cases but one, which was of a mottled colour, were red and black. I was informed that the cow did not yield any more milk than the good Pahari cows in the possession of Mr. Mackay, that is a little over two seers. Under these circumstances I do not think that the experiment can be considered to have so far been a successful one, and when we consider the frightful prevalence of rinderpest in these Himalayan districts, it must be evident that risks of infection and death of improved animals from this disease are enormous, and that the prospects of benefiting the breed by the importation of foreign animals amongst them very poor indeed. It appears to me before expending money and energy in this direction to be necessary to teach the people to take proper care of the animals which are at present in their possession, and then to endeavour to give them a better class of animal to care for.

CHAPTER VI.—BREEDS OF THE PUNJAB PLAINS.—THE MONTGOMERY BREED.

Called Lambi Bar, Sahiwal, and spoken of by Mr. Nunn as being called "Than" or "Lola."* This breed comes from the neighbourhood of the Ravi from the Bar. The cows are the best milkers of any breed in the Punjab. The peculiarities are the

* NOTE.—Lola simply means dewlap, and refers to the high development of it in this breed.—Ed.

Notes on indigenous breeds of Cattle in the Punjab.

length of the tail, which should reach to the ground. The horns should be short, not exceeding four or five inches in length; the skin thin and the coat fine. In the cow the udder is very large and capacious, and the teats long and regular.

Description.

The head is long; forehead rather narrow; ears small-sized; the face long and fine; the head is large; neck short and light. There is present, and well developed, the peculiar fold of skin under the abdomen in a position corresponding to the sheath of the male which is called by the natives "Lela," but which is not by any means peculiar to this breed alone. The dewlap is not very large, but is well developed; the limbs are light. The milk escutcheon is very good. The back is slightly dipped and longish, and rises generally an inch or so at the croup; tail sweeping the ground and not very thick. Sheath in the male well developed and tufted with hair. The limbs are symmetrical, and the general outline is good. The bullocks are active and good workers, the cows are good milkers, yielding from 7 to 12 seers per diem, or even more in some instances. They are usually milked twice during the day.

Feeding.

As in other places, cows are fed well when in milk, but are turned on to the bar to graze when dry.

Price.

A good milch cow fetches from R40 to R60, depending on the quantity of milk she gives the rate being usually R5, sometimes R6, per seer of milk she yields; an ordinary cow fetches R25 to R35, and a pair of oxen R60 to R100.

Castration.

Bullocks are generally castrated at between two and-a-half to three and-a-half years of age, in the months of March or April, by the process of mulling, which has been already described. They are put to work at four years, and if well taken care of will last till they are twelve or fourteen years of age. The good points of a bullock are large mild eyes, small ears, broad chest, broad shortish neck, good arm and shank measurement, broad hoofs, short stout pasterns, soft fine skin, and a long thin tail, a thick tail being considered to be a very objectionable point, denoting laziness. Grey and white are the best colours, brown is good, but red is considered to be very bad, and black worst of all. A white or parti-coloured mouth or tongue is also much disliked, black being thought the best.

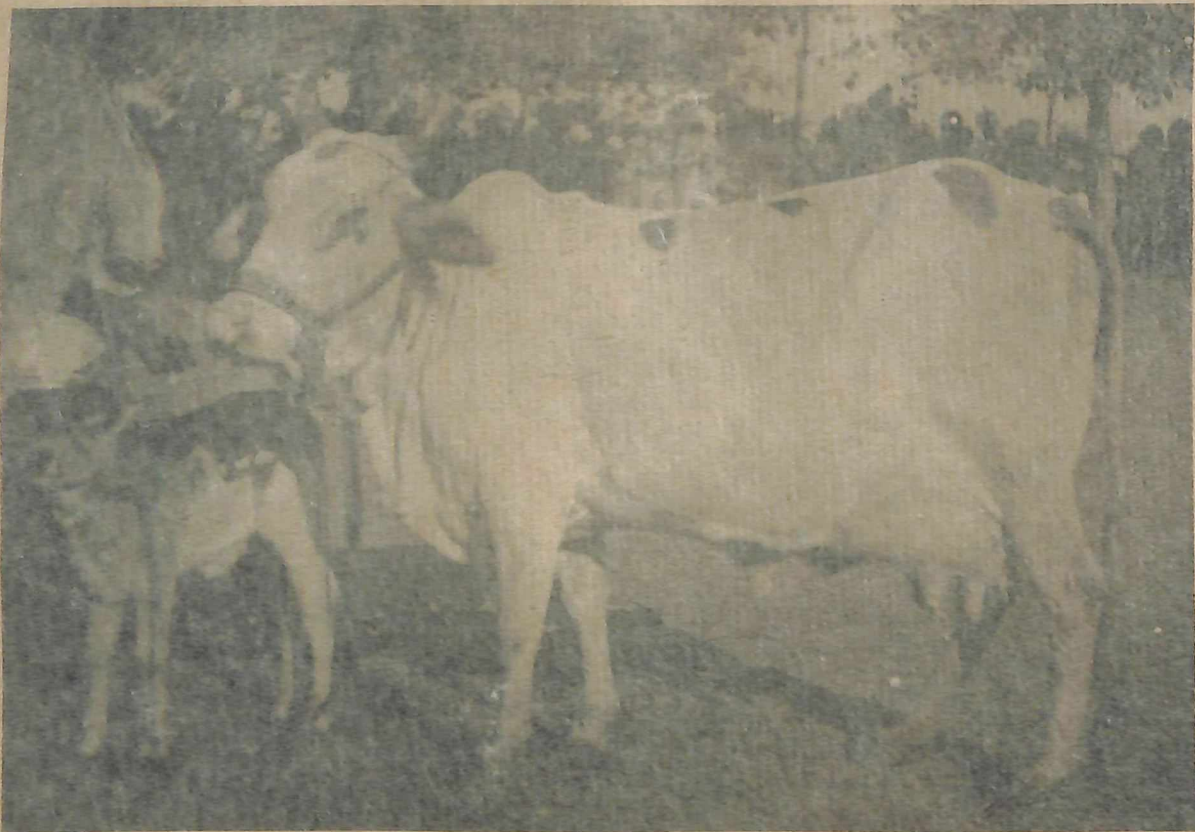
Work.

Natives ideas
of colours.



PLATE VI

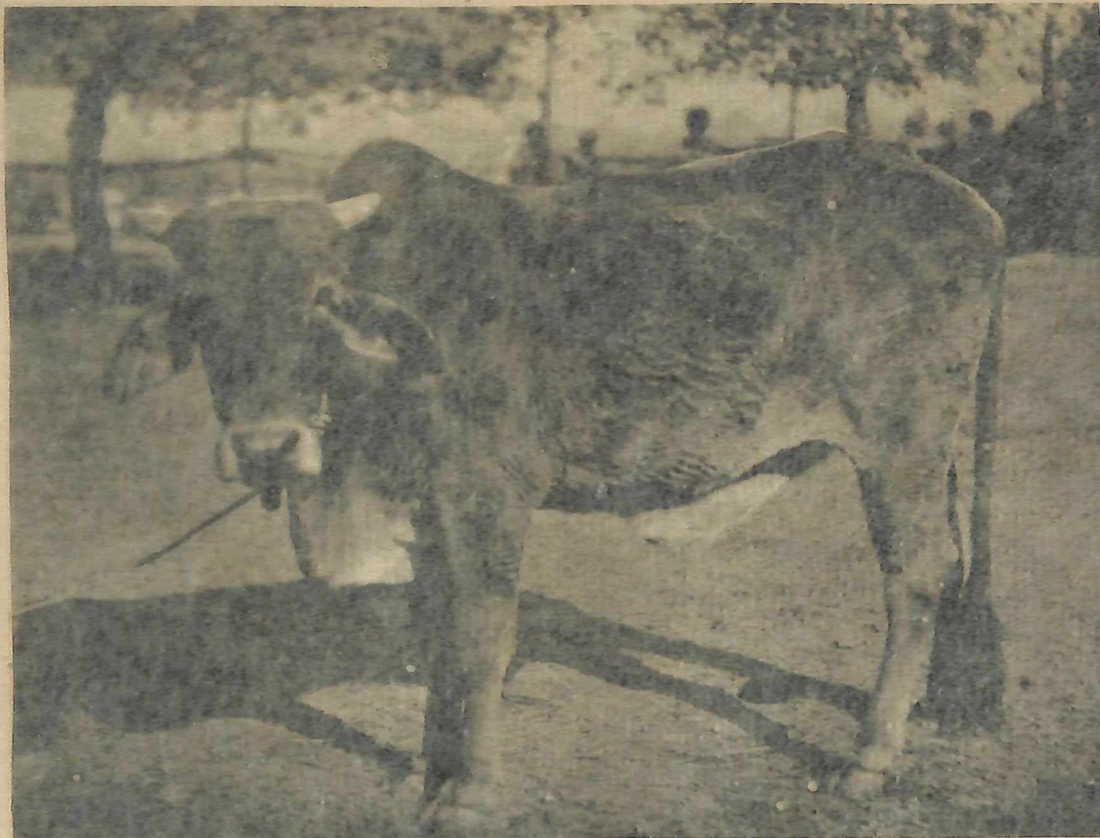
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Survey of India Office, Calcutta, May 1902

Sahiwal, (Montgomery) Cow and Calf, typical.

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Photograph

Survey of India Office, Calcutta, January, 1903.

Sahiwal, Montgomery. A very typical bullock.

Notes on indigenous breeds of Cattle in the Punjab.

MONTGOMERY BREED.

Breed.	Length of horn.	Length of ear.	Poll to muffle.	Forehead.	Length of body.	Height at shoulder.	Height at elbow.	Height at croup.	Chest girth.	Girth of forearm.	Shank girth.
Montgomery bullocks	6	9½	20	8	46	49	28	51	60	12	6½
"	5	10	19	7½	43	48	27	50	65	12	7
"	3	9½	17	8½	40	48	27	50	62	12	6
"	4	10	18	6	45	48	27	50	60	13	7
"	2	10	20	9	43	48	24	51	65	12	6
"	5½	9	19	10	47	40	27	50	63	12	7
Montgomery cow	8	10	20	9	43	47	27	45	60	14	8
"	10	12	21	8	50	48	28	60	67	14	7
"	7	12	19	9	43	43	24	49	63	15	8
"	7	12	20	9	42	47	23	40	66	14	8

CHAPTER VII.—MALWA BREED.

A very fine breed of cattle exists in Malwa, in the district known as Malwa, on the southern side of the river Sutlej. They are very superior animals, showing a great deal of blood, very handsome and active, of great height, fast trotters, and in great demand on account of their weight for moving heavy weights. A typical Malwa bullock stands from 56 to 60 inches in height at the shoulder. The head is characteristic, small and light, the horns curving upwards, more or less in the form of an arc, rather inclined to be thick in the male, but fine enough in the cow, usually black in colour, and of medium length; the forehead is broad and flat; the skin above the orbits is wrinkled in arcs; the space between the horns being great. There is a decided dip below the frontal bones, which is more marked in the males than the cows, and gives to the forehead somewhat of a convex appearance; the nasal bones are very small, fine and short, and the face looks dipped in both male and female. It is short, the muffle small and cleanly cut; the ears are medium-sized; the jaw light; the ears well set back from the horn; neck short and strong in the male, light in the female; the hump large in the male, smaller very much in the female. In the bull its superior border often hangs over to one side. The dewlap large, commencing from the chin and hanging in folds, causing wrinkling of the skin of the neck; it is larger in

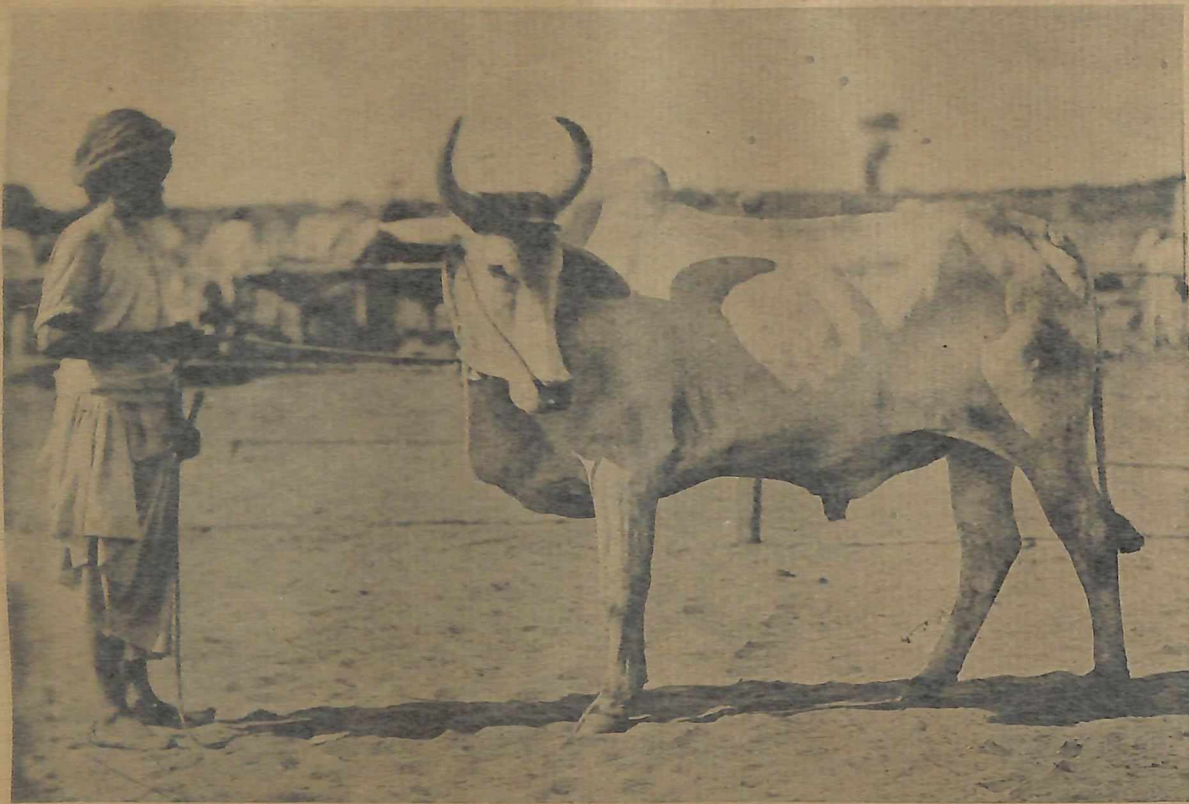
Description.

Notes on indigenous breeds of Cattle in the Punjab.

the male than the female, extending to the ensiform cartilage of the sternum, and a fold of skin commencing from its termination backwards to the sheath of the male, so that it appears to be continuous with that structure. The shoulder very good, very free from the body and nicely defined; the chest broad, not particularly deep-looking, but of very good girth, being well rounded. The back, dipping slightly from behind the hump and rising again gradually to the croup in both male and female, broad and strong, the angles of the croup presenting a rounded appearance, after which it slopes slightly downwards; but this part is decidedly good as compared with most other breeds, the tail being well set on and fine and whip-like, extending to the point of the hock and being finished off with a tuft of black hair which reaches to almost the fetlock; the quarter good and well dropped; the barrel very good, ribs extending well back to the ilium; the sheath of the male large and triangular, the skin being folded from just behind the termination of the dewlap and terminating in a more or less pointed apex, which is hairless. The mammary gland of the cow is not large; the teats of moderate size, very well formed; there is an extraordinary fold of skin running forward from the udder some inches in depth and looking like a veritable sheath. Altogether the male is much stronger and larger than the female in every way; the skin is very fine and thin and the coat light. The prevailing colour is white or grey, the horns and hoofs being black; the shoulders are often almost black in the bulls. The bullocks, many of them, are too much on the leg.

Uses. Many of this breed if well bought make good ordnance bullocks. The majority are useful transport animals.

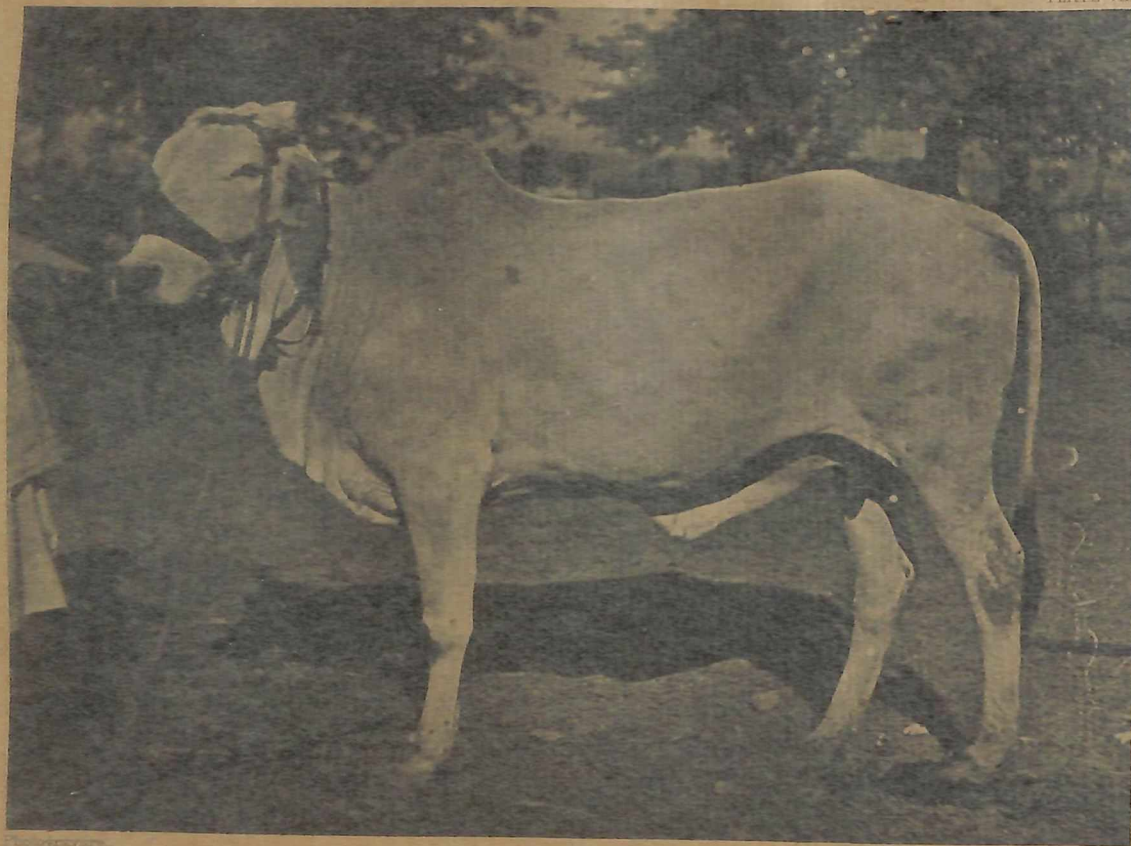
Milk. The bullocks of this breed are much sought after for draught work, especially in "majholis" and "raths," for which they are admirably suited and command a good price when well matched. The cows are fair milkers, but not out of the common, yielding on an average five or six seers of milk. Large numbers of them are Fairs. brought every year to all the large cattle fairs of the southern parts of the province for sale, and take many prizes which are offered for draught cattle, the bullocks being especially good as compared with other breeds met with in the province.



Photograph

Survey of India Office, Calcutta, January, 1903.

Type of Hariam Bullock, bred near Hissar and south of it. The horns are too long and curved, showing Wadyal or Guzerati strain. Note the long straight face and well shaped legs.



Photograph.

Survey of India Offices, Calcutta, May 1902.

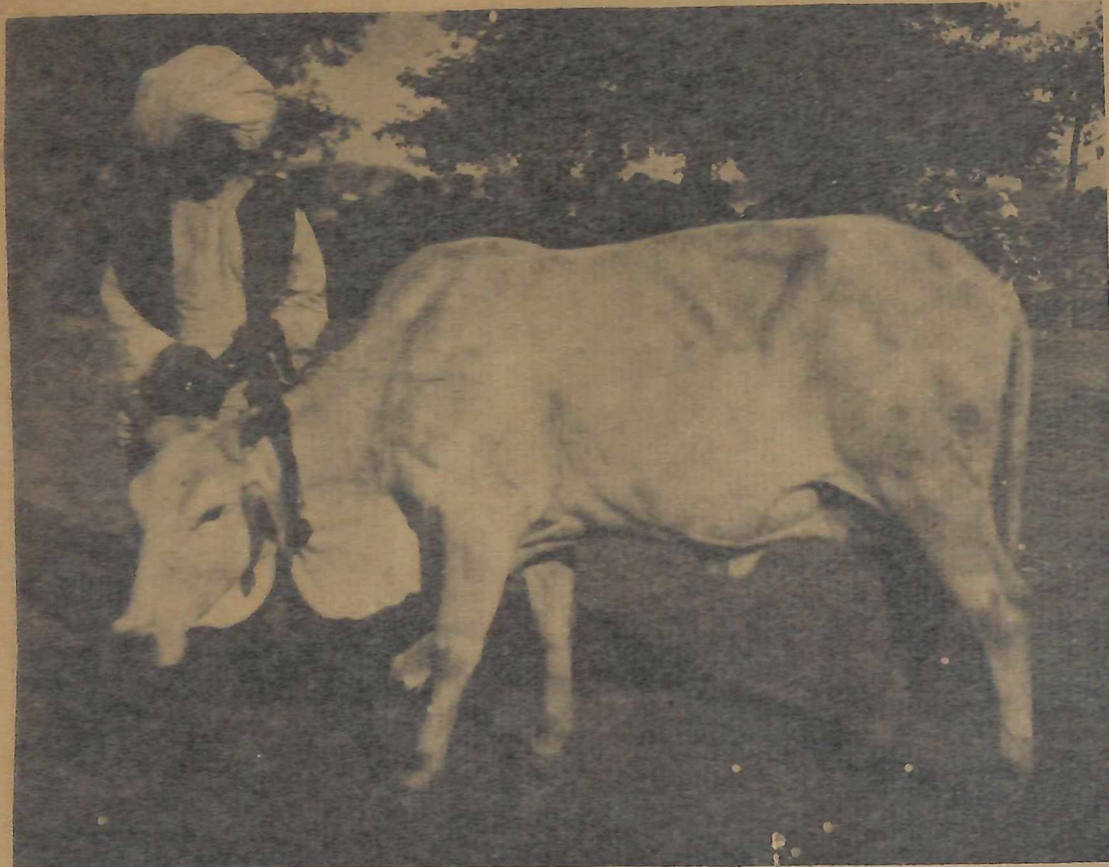
A Malwa Bullock, district south of Sutlej. A typical specimen of a good bullock.

324112



PLATE IX

CSL



Photographic.

Survey of India Offices, Calcutta, January 1903.

Manjha Bullock (Lahore District). A fair specimen of the ploughing type.



Notes on indigenous breeds of Cattle in the Punjab.

A good pair of bullocks will fetch from R100 to R150, and Price. if especially good, R200 per pair.

MALWA BREED.

Breed.	Length of horn.	Poll to muffle.	Fore-head.	Length.	Height at shoulder.	Girth of chest.	Shank.
Malwa bullock . . .	6	21	8½	52	56	80	7
" . . .	7	22	8	53	56	74	8
" . . .	4	22	10	51	56	72	8
" . . .	15	20	9½	51	53	82	10
" . . .	16	22	9	51	60	78	10
" . . .	14	21	9	50	62	79	10
Malwa cow . . .	7	20	8	48	53	72	8
" . . .	8	20	9	50	55	72	8
" . . .	10	19	9	49	52	73	8
" . . .	8	18	10	52	51	70	8
" . . .	4	21	8	51	56	74	8

THE MANJA CATTLE.

Between the Sutlej and the Ravi lies a high upland, broad Topography. and fairly cultivated towards the north, but contracting towards the south, and becoming as it contracts more and more desert, until at last it assumes the appearance of a barren steppe covered with low bushes and in favourable seasons covered with long grass much prized as pasturage for cattle. This tract is the celebrated Manja, the home of the Jat; cattle are kept in large numbers in the pastoral parts of the district, in the Manja of Chunian, Kasur and Lahore. The Manja cattle are a superior breed presenting some peculiarities. The oxen are more or less compact and sturdy, very active and willing workers. They are in many respects similar in most points to the common Punjabi oxen, but are superior in outline; the formation of the sheath will serve to distinguish them, however, for whereas it is very small and close in the Punjabi, it is large and there is a distinct fold of loose skin hanging down for some inches in the Manja breed of bullock. The cows are very good, well-shaped animals, having somewhat of the characters of the Montgomery cattle to which, however, they are inferior. They are much lighter generally about the head and neck. They have the

Description.

Notes on indigenous breeds of Cattle in the Punjab.

"lola" or fold of skin before noticed as being present under the abdomen of many breeds. In colour they are generally black mixed with white or, in other words, grey. These are quite up to standard as transport cattle, but not heavy enough for Siege train or ordnance.

Prices—Are about the same as the good ordinary Punjabi village bred animals. A bullock fetches from R20 to R80, and cows fetch from R10 to R60. The zemindars do not care to sell them.

MANJA BREED.

No.	Breed.	Age.	Poll to muffle.	Breadth of forehead.	Horn.	Length.	Girth.	Height of shoulder.	Shank.
1	Manja	6	16	6	7	41	69	56	7
2	Bullock	5	17	6	10	23	66	52	7
3	"	8	17	7	8	43	75	56	8
4	Cow	7	40	7	7½	42	62	50	7

COMMON VILLAGE BREED OF CATTLE. —DESI, PUNJABI.

These, as may be expected, offer very great variations as to size and quality. Naturally the best specimens are to be found where grazing is good. I may say that some districts are unsuitable for the breeding of cattle, fodder scarce and water impregnated with saline matters, which act injuriously on the animal. Scarcity of forage brings about a condition in which the system becomes weakened, the growth checked and the animal stunted and undeveloped, and the stock of such animals inclines to be puny. The stock of old debilitated animals also is generally found to be undersized and, as a consequence of these conditions, we find some very small and inferior cattle in every herd, and in some places the whole of the animals are undersized and inferior. Many of the bullocks are very good compact beasts, standing on short legs, active and good workers. The head is peculiar, bulging considerably at the orbital processes, having a convex aspect when viewed from the side of the

Food and water.

Description.

**Notes on indigenous breeds of Cattle in the Punjab.**

head, the forehead afterwards running sharply backwards. The heads are coarse, necks longish, hump fairly developed, line of the back straight, loins wide, croup bad in shape but fairly muscular, tail of medium length, sheath very small and close. In the cow there is no fold of skin ("lola") under the abdomen. The cows give but a small amount of milk.

Management as before mentioned.

Price, variable.

Colours, mostly grey or red.

PUNJABI.

Breed.	Ear.	Horn.	Fore-head.	Muzzle to poll.	Length.	Height of shoulder.	Girth of shank.	Girth of chest.
Punjabi cow	11	7½	8	19	40	50	7	64
"	8	9	7½	18	39	42	5	54
"	10	8½	8	19	41	48	6½	63
Bullock	10	16	8	20	47	53	7	73
"	11	12	9	20	40	52	8	72
"	10½	17	9	21	42	53	8	67

CHAPTER VIII.—CATTLE OF HARIANA AND SIRSA.

(EDITOR.)

Wells are at a great depth, and in a year in which the rainfall is small, quickly become brackish and undrinkable. In such a country it follows that large tracts of land are required for the grazing of very few animals, but from this fact it also follows that the cattle are of a very hardy and useful kind. They have to wander far to get enough food for their daily requirements. This fact of extensive but somewhat meagre pasturage has proved itself the ideal breeding country for all kinds of stock, the plains of the Punjab, Gujrat, Sindh and Beluchistan rear the best stock in both horses and cattle, and the same is seen in the western prairies of America, the Argentine, and the horse runs in the back blocks

Water and Fodder.
Comparisons of Breeding grounds.

NOTE.—The soil is a loam or sandy loam, and the fodder entirely dependant on the rainfall which is confined to the rainy season only. If the rain fails then the water which is dependant on the ponds also fails, and water famine is the result.—*Ed.*

Notes on indigenous breeds of Cattle in the Punjab.

of Queensland, and other colonies in Australia. The dry sandy soil contains lime which is essential to the rapidly growing bony formation of the young stock. The scarcity of the fodder ensures a plentiful amount of exercise on the part of the stock in seeking sufficient for their wants, and the fodder growing on such open sandy plains, although small in quantity, is always rich in nitrogenous principles, as distinct from the watery, fleshy grasses growing in marshy places which, although bulky, are poor in their comparative percentage of feeding properties.

Ireland may be quoted as a damp but still rich country in pasturage, but there, young stock are more or less stall-fed from the time of their birth, they have a free run, and grazing in plenty, but they never have to subsist on what they glean, grain is always given and hay that is made with the natural juices in it is given, quite of a different nature to the hay that is made in India, in which all the natural juices and seeds are allowed to dry or drop out before the grass is cut. The Zemindar only stall-feeds his young stock during scarcity, and in the winter months, if they are in work.

It is very painfully evident in India, in all places where cultivation is extending, that stock raising is declining, and the extension of irrigation canals and the consequent development of cultivation, has driven away the breeding industries. This is very marked in districts like Karnal. The extensive enclosing of forest lands, and the large areas that they shut off from the grazing capabilities of the land, have also had a great deal to do with the decline in the quality, size, and the soundness of the stock raised in districts where forest reservation is most marked. It is a pity that forest cultivation cannot be carried on and at the same time give free access to the reserves for grazing, at any rate for certain times of the year. It is certainly necessary that tracts of land be kept for the raising of trees, and the growing of grass, for stacking in the event of famine, but I cannot help thinking that this is carried too far. Captain Pease, in his report on Haryana and Sirsa, says as follows :—

“Of late years, owing to increase of the population and the consequent extension of cultivation the extensive breaking up



Notes on indigenous breeds of Cattle in the Punjab.

of even the *Shamilât* lands originally designed for grazing grounds, and cattle breeding, has suffered very greatly, and is decidedly on the decline, so that we find less attention given to the subject than formerly was the case. This is the opinion of every agriculturist and other native I have spoken to on the subject. To show the effect, which retention of waste as grazing land has on cattle-breeding the effects of Munshi Aminchand's revenue rates on 28 villages made in 1863 in eastern Haryana may be noted. In this settlement $\frac{1}{4}$ of the area of each estate was excluded from assessment for pasturage and cattle increased 92 per cent. under the settlement. The extension of cultivation must drive out cattle breeding as an occupation, as it is necessary in order to breed cattle, according to the method adopted by the natives of this country, to be able to move the herds about when pasture fails in any one part. This is out of the question almost at present, in fact in many parts the so-called grazing ground is as bare as a billiard table for many months of the year and the cattle have to be stall-fed."

The whole of the tract produces a number of cattle greatly in excess of requirements and must be looked upon as a store from which are supplied many of those districts in the Punjab and North-Western Provinces, in which cattle-breeding has been completely pushed out by extensive cultivation. Those in which the physical characters of the country, the soil and climate, do not permit of good cattle being raised, and in consequence the production of cattle does not meet the requirements of the cultivators. Very great numbers of cattle annually leave the tract, many as calves being taken by Banjaras and Baioparies, who purchase throughout the districts and attend in considerable numbers the fairs held at Jahazgarh, Hissar, Bhiwani and Sirsa. The young stock are taken off to districts where Jungle is to be found, reared there, and then disposed of to the zemindars. The income to the tract from this trade is many lakhs of rupees annually. In addition to this we have a pretty constant drain by ordinary purchasers from various parts of the country. The cattle, it is said, go as far as Calcutta, especially milch cows, which are purchased by Banjaras and taken to the Kosi market in Muthra, whence they are taken by purchasers from this part.

Production
cattle.

Notes on indigenous breeds of Cattle in the Punjab.

The divisions of the district in which Hariani Cattle are bred is as follows :—

- (1) *Hariana Bangar or Des.*—Means the tract to the east of the Hissar district and a great part of the Rohtak district.
- (2) *The Nali, Sotar and Sot.*—Includes all the Ghaghar Valley and the country immediately adjoining it.
- (3) *The Bagar.*—Or sandy country stretching south of the Nali or Ghaghar Valley to Bikaner where it meets Marwar. It stretches east nearly to Hissar and west nearly to Bhawalpur.
- (4) *The Rohi or Jungle.*—Is the great dry tract between the Ghaghar and the Satlej Valleys. Sometimes the Malwa is considered to include that part of the Jungle or Rohi, which is now inhabited by Sikhs of the Malwa proper.
- (5) *The Nai Nani (up-country) or Hither.*—Is the tract lying below the Danda all along the river Satlej.

CATTLE OF HARIANA.

(PEASE.)

Distribution. Cattle from the above mentioned tracts are purchased by three different classes of purchasers, namely, Banjaras, Beoparies and agriculturists. The former are chiefly "Chohan Rajputs," the latter "Roras." The following are the receiving districts: Gurgaon, Delhi, Hissar, Umballa, Meerut, Saharanpur, Muzaffarnagar, Balandshahr, Aligarh, Nabha, Patiala, Jeypur, Dujana, Alwar, Dera Ismail Khan, Dera Ghazi Khan, Shahpur, Feerozpur, Amritsar, Agra, Etawah, Cawnpur, Mainpuri, Etah and Rampur.

Large cattle fairs are held in the tract twice a year at Jahazgarh, in the Jhajjar tehsil, of the Rohtak district, and at Bhiwani and Hissar in the Hissar District.

The Jahazgarh fair is a very old established one and dates back from the time of Jhajjar Nawab. It was originally held at Beri but was moved to Jahazgarh some 80 years ago.



Notes on indigenous breeds of Cattle in the Punjab.

ROHTAK DISTRICT.

CATTLE OF HARIANA.

Haryana cattle vary somewhat in the different parts of the tract. Description.
Those of Jhajjar, Rohtak, Mahim and Hansi are of the best size and quality, the heavier animals being found to the north of Rohtak (Mahim) and in Hansi. The cattle in Sampla are smaller, as may be seen by the measurements, and those of the eastern parts of Gohana are also small compared with others. Those of Rohtak are perhaps rather smaller as a rule, more active looking, have smaller ears than those seen at Hansi and Hissar. Altogether I consider the good Rohtak and Hansi cattle perhaps more suitable for agricultural purposes than those of Hissar proper. These latter have large ears which hang very loosely and give one the idea of the animal being less active. In general characteristics, however, they are the same. I refer to the ordinary indigenous breed, and not to the doglas or mixed breeds seen in the neighbourhood of the Government Cattle Farm which I look upon as simply mongrel stock.

The indigenous breed is by no means uniform in size or quality, as has been already noted. It is astonishing to note the differences even in neighbouring villages. In some the cattle are a good level lot with but few inferior animals amongst them, whilst in others the herds show great variation containing numbers of indifferent animals. This is most marked in the eastern parts of the Sampla and Gohan tehsils, and is due greatly to the damage done by bad bulls which are driven from other districts and turned loose here. This is the result chiefly of carelessness in management and in the provision of suitable bulls, and it proves how very necessary it is to gain a precise knowledge of the conditions which exist in the various villages before taking any steps which might seem to be indicated from a general view of a tract of country for supplying bulls, or taking other measures for the improvement of the cattle. Neglect in obtaining accurate information has doubtless given rise to errors, and unsatisfactory results from the supply of Hissar bulls.



Notes on indigenous breeds of Cattle in the Punjab.

Uniformity.

The herds, as has been said, lack uniformity but not in all cases. In most herds the cows vary considerably in size, power and milking qualities, thus we find cows varying in height at the shoulder from 46 to 57 inches in the same herd so that it is difficult to strike an average. It is better perhaps to deal with the good animals to be seen. These are excellent brood stock capable of producing as good agricultural cattle as can be desired. Selecting a typical animal of 56 inches we find the chest measurement 69, girth 31 inches, girth of forearm 16 inches, shank $7\frac{1}{2}$ inches.* The head is fairly light but coarser than in many other breeds, face long, horn fine and fairly short and carried more or less horizontally, the neck of medium length, light body, longish limbs, clean and strong, feet small, hard and well shaped, tail fairly short and fine. The skin is rather coarse, thick, altogether the cows look well-bred and active. The udder is fairly capacious, teats regular and well formed. The milk yield varies from 6 to 12 seers daily. There is a small fold of skin in front of the udder. A series of measurements are appended.

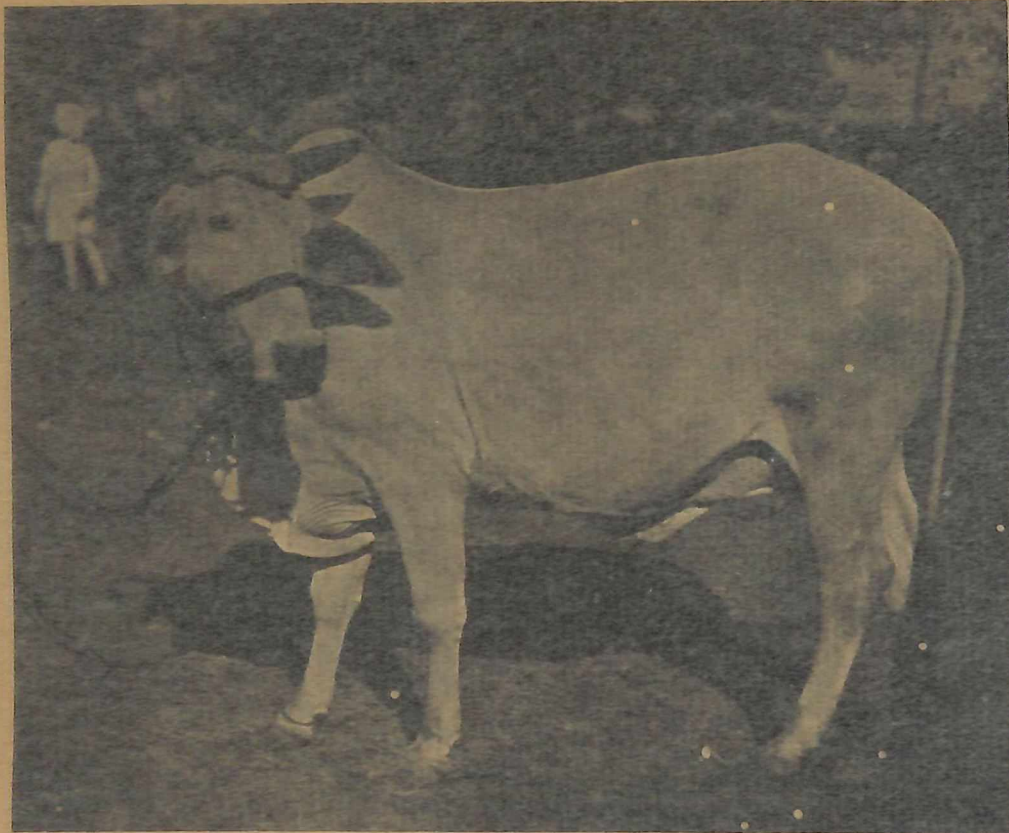
Bullocks.

The bullocks are the best draught cattle in the Punjab. These may be divided into ordinary plough or draught bullock, and those good enough for Majhaurie, the difference being only in size and quality. They are compact, active, and capable of great endurance. The points chiefly considered by the people are, skin fairly thick, eyes large and intelligent. Sheath should be small and close, horns short and curving upwards, a span in length, short fine tail, and good shank measurement. The feet hard, well shaped and small. All the bullocks, I am sorry to say, do not come up to this standard, but a considerable number do so.

Bulls.

The better class of indigenous bulls are splendid specimens, and it would indeed be a difficult matter to provide more suitable animals for the production of draught cattle such as are required for agricultural purposes. They vary in height but the general thing is about 56 to 60 inches at the shoulder. I consider the most suitable height to be 56 or 57 in the Rohtak district. The head is small and light, comparatively, in the lower parts of the

*NOTE.—In a well proportioned animal the girth should be roughly nine times the girth of the cannon bone.—Ed.



Photographed

Survey of India Offices, Calcutta, May 1903.

Haryana (Rohtak District). A very good cow.



Notes on indigenous breeds of Cattle in the Punjab.

district, but inclined to be coarse towards the north. The horns curving upwards more or less in the form of an arc, generally black in colour and comparatively short. The forehead broad, the horns well apart. The skin about the orbits and face often wrinkled, there is a considerable dip in the frontal bones giving the forehead a markedly convex shape when viewed in profile. The face is comparatively fine and short, the muffle cleanly cut. Altogether the head presents a compact appearance.

The hump is of considerable size. Dewlap large and hanging in folds. Chest broad, not very deep, but of good girth, the barrel well rounded and not too heavy. Back broad and flat, loins broad and powerful. Tail light, short and fairly well set on. Sheath small and close, but larger than in European cattle, occasionally triangular, especially in northern districts, arm shapely and of good girth. Feet small, black and hoofs hard. General appearance active. The points looked for by the people are the same as in the bullock.

In disposition these bulls are extremely quiet as a rule and one sees the cow-herd lads, little more than children, driving them about in the herds. I approached and handled them pretty freely in company with the cow-herds and they evinced no disposition to show fight. Unfortunately all the bulls are not of the same excellence and many inferior animals are to be met with.

The colour of the whole of the cattle is pretty uniform, broken Colour colours are seldom if ever met with. The skin is usually black or chocolate coloured, the hair grey, darker at the shoulder and neck, and on the flanks sometimes almost black or blue. The bulls are usually black over the neck, shoulders and flanks and are occasionally dark all over.

In the Rohtak district the cattle are generally kept in open Management. kraals, named gawara, formed of the dried thorny bushes of the jhar-ber (*zizphus nummularia*) situated either immediately outside the village or more frequently close to the house. The cows are driven out to graze on the waste, cultivated fields, or into the jungle, where available, and brought up again at night. In most parts all the cattle receive some jwar stalks when they are brought in and bullocks and cows in milk get, besides, binoula or cotton-

Notes on indigenous breeds of Cattle in the Punjab.

- Water.** seed and khal or cake. They rely for water on the rain water collected in tanks called johar, being seldom given well water except
- Calves.** at such times as the johars dry up. They are not given brackish water and get no salt as a rule. The cows usually have their first calf at about 4 years and many of them calve in January, February or March. The calves usually are allowed half the milk for four months and they are then gradually weaned, after which
- Castration.** they go out with the herd to graze. Bull calves get boiled guar for some time. They are emasculated by the ordinary native method of pulping the testicle at between two or three years of age. The bullocks are generally kept up, and stall fed.
- Local names.** Names given to bulls are Bijhar in Jhajjar, ankar and khagar in Rohtak and Sampla and often angya by the Ranghars. Oxen up to two years are called baichra, then Bahira, after which baladh, until they get old when they are named dhanda; cows up to two years bahri, then bachi and gae. Cattle are spoken of collectively as dangar.
- Grazing.** The breaking up of jungle land and the consequent curtailment of the grazing area coming under the head of waste or jungle has already been alluded to. Still in some villages of Rohtak the area is fairly extensive. In other parts, however, the village waste is nothing more than an exercise ground, as Dr. Voelcker puts it, there being not a blade of grass excepting for a short time during and after the rains. Given good seasonable rain, however, there is no lack of grazing excepting from April to June, when the grasses are always scanty. On the Barani lands where the crops are dependent on the rains and which form perhaps sixty per cent. of the cultivated area in the Rohtak district a good deal of grass chiefly dhup is produced on which the cattle can graze. The owner of a field is entitled by custom to graze his own cattle for two or three weeks after the crops are cut, but after this the village cattle graze over it without distinction. The line of sand hills which runs down the eastern side of the Rohtak tahsil and crosses the Jhajjar sub-division obliquely in a south easterly direction, is covered in parts by a sparse growth of dhup and other grasses which afford a considerable amount of grazing for countless



Notes on indigenous breeds of Cattle in the Punjab.

herds of cattle especially in the southern parts. There are three grass reserves, "birs," belonging to Government in the Jhajjar tehsil, one at Sonar-wala, near Jhajjar, another at Dadri, and a third at Chhuchakwas of about 6,000 bigas. Great numbers of cattle are driven to these in the rains. These reserves are a valuable resource in times of dearth and I was pleased to see a good deal of hay stacked in them as a provision against a year of scarcity. Cattle-breeding naturally flourishes in their vicinity as may be gathered from the fact that the small village of Islamgarh which is on the edge of the bir and contains only about sixty houses has about a thousand head of cattle in it. The cattle of twenty villages in the neighbourhood are sent to graze in the bir during the rain, and in ordinary times the cattle of the villages near the bir graze there. In addition to this some villages still have fair stretches of jungle which provide some grazing in their vicinity. I was sorry to see the considerable stretch of jungle at Chandi being broken up. In times of scarcity cattle are driven to other districts to graze such as the jungles of Karnal, the lower part of Amballa, etc.

All cattle receive some stall feeding to supplement the grazing Stall feeding. all over the tract. The chief fodders used are juar pala (rice straw) bhusa, gram, cake and binoula (cotton seed). Cows in milk are better fed than dry cows or bullocks. They get about 12 to 15 seers of kutti or chopped juar stalks or bhusa of gram and wheat or barley mixed with pala. A pound or two of cake, khal and about a seer of cotton seed, (binoula.) The favourite mixture all over the country seems to be that named sani, it consists of kutti (jowar stalks) in small pieces and guar boiled in water mashed and mixed with it. If guar be not used khal may be soaked in water and mixed with the kutti or cotton seed boiled and mixed with it or even ground gram. The amount given differs in towns and villages. In towns perhaps milch cows receive more attention than in the villages; cows not in milk get three or four poolas or small bundles of juar stalks thrown down to them when they are tied up for the night.

Bullocks get sani or kutti and gram and bhush with pala regularly.

Notes on indigenous breeds of Cattle in the Punjab.

Cotton seed is considered to be heating and is only given during the cold weather, khal being substituted in the hot season. The cattle are entirely stall-fed during the rains and require less when grass has sprung up, after then I should estimate that the cost of feeding to the zemindar would be two annas a day average.

Price.

I gather from the people that cattle have risen considerably in value during the last 20 years, and there appears to be every probability of a farther rise as decrease in cattle-breeding in other districts continues. The rise may be attributed to (1) the increased cost of production owing to curtailment of the grazing area due to the grazing grounds and jungle having been brought under cultivation, (2) to increased demand in districts where the production has fallen much below the requirements, (3) to money having become cheaper.

There are now few places where cattle have not to be stall-fed during some part of the year, and in most places they receive food in addition to what they can pick up grazing all the year round with the exception perhaps of the two months when grass springs up after the rains.

Local or
 "Brahmini"
 Bulls.

Local bred bulls are those which have already been described. They are turned loose when about a year or more old by Hindus on religious grounds at the death of a relative: they are branded usually with Mahadev's trisul, shaped like a trident, on one quarter and Vishnu's chakar on the other, and from the time they are released remain loose, being usually fed by the family who have offered them. They accompany the cows when they go out to graze, and are allowed by the Hindus to feed on the crops in the cultivated fields; as a general rule, the utmost a man does is to drive them off his lands if they are eating too much of his crops. They generally come up to the village at night, and when fodder is scarce receive some fodder from the people. They give little trouble and are usually very docile; many of these bulls are splendid animals, and being good specimens of the indigenous breed are in every respect the most suitable animals which could be found to keep up the excellence of the cattle of the tract. In villages where Hindus predominate, especially on Barani lands, there is generally no lack of good bulls, especially where there are a few wealthy families,



Notes on indigenous breeds of Cattle in the Punjab.

but in Rangarh villages there are few ; these people relying more on getting their cows covered by the bulls belonging to the neighbouring Hindu or Jat villages. These animals are none too plentiful, as it appears that the custom of turning them loose on religious grounds is falling somewhat into disuse, and it was said that occasionally a village has to subscribe to turn one loose. As cultivation extends and the population increases and becomes more mixed, the liberties allowed to these animals in the way of grazing on cultivated fields naturally become restricted and the people, especially Mahomedans, do not content themselves with simply driving them off their fields, but occasionally use a lathi or a kulhri by way of a persuader. I think that anything which interferes with the provision and maintenance of these animals is to be deprecated, and that any one who voluntarily causes them an injury should be severely punished. It is very evident that if the practice of releasing them ceases, cattle-breeding must suffer severely, for the provision and maintenance of two or three thousand bulls in a district like this if it had to be managed by purchase and stall feeding would represent a considerable amount of capital. The practice which is the best possible for securing to the villagers a good sire for the village cattle has been allowed so long by custom that it almost amounts to a law, and considering that it is for the general good, and that by means of it alone the country has been provided with cattle and the indigenous cattle been raised to the standard of excellence they have reached, it is a pity that measures should be taken which tend to bring it into disuse.

Unfortunately all the Brahmini bulls do not come up to the same standard of excellence ; many small animals are found, especially in the villages in the eastern part of the district. The reason, or one reason, for this probably is that the people of the villages in which these animals have been turned loose, generally in the neighbouring districts, if they have good cows do not approve of these small bulls. When therefore they get an opportunity on a dark night, they tie them behind a cart and deport them eastward, then turn them loose. I have seen men in the Delhi district taking off three or four bulls at a time to let them loose in the eastern villages

Notes on indigenous breeds of Cattle in the Punjab.

of the Rohtak district. This is a very pernicious practice, as the bulls do much harm in the herds and to the cultivation. This is also a common practice in the case of bad bulls and there is quite a collection of them at places like Bahadargarh, Kharkhauda, etc. The people would be very glad to be relieved of these animals, and I believe quite a number would be forthcoming. There are some good specimens amongst them which would be suitable for cows, about 44 at the shoulder, and of the same type. The following measurements give an idea of the better class of animals alluded to. He stands 50 inches at the shoulder, 51 at the croup, 27 at the elbow, is 40 inches in length, is 71 at the chest, 81 abdomen, girth of forearm 17 and girth of shank 8 inches, is 10 years old. A sturdy well-built little bull.

This system of providing bulls is no doubt open to some objections. In the first place they commence work when they are too young, probably a year before they are fit; (2) unsuitable animals are often turned loose, and are a nuisance; (3) there is no way of getting rid of them when they are old and past work; (4) the supply is uncertain, and if it fails there is some trouble in obtaining a suitable bull; (5) they are soon worn out and purely on account of the amount of work they do as one bull is considered to be sufficient for 150 cows.

The people get rid of unsuitable animals by deporting them; as has been stated they can also drive them away from the herds as a rule, and they do so where cattle breeding flourishes. In some parts bulls are found in excess of the requirements, whilst in others there are not sufficient. The excess is generally found in towns where wealthy sahlukars live and the deficiency in parts where the Hindus are poor and cannot afford to release bulls. It is a great pity that there is no more give and take about the people, but certainly assistance is given by neighbouring villages very often. It would be a very good thing if the district authorities could in any way manage to regulate the distribution of these animals, and I think it could be managed. But before anything of the kind can be attempted, a more correct knowledge of the distribution of bulls is an absolute necessity, and this is one of the points in which the Veterinary



Photomontage

Survey of India Offices, Calcutta, May 1902

Type of young Hariana Bull at Hissar. A cross of Wadyal is demonstrated in the horns, which should be short and fine. A good Hariana should also show more bone and not this tendency to back in the knee.



Notes on indigenous breeds of Cattle in the Punjab.

subordinates of the Civil Veterinary Department are of great use in obtaining information; these men note on the following points when they visit a village:—(1) class of stock present, good, medium or inferior. Whether more or less uniform in height. (2) Height of the average cows seen. (3) Number of bulls and their class whether sufficient or not. (4) What grazing is available. (5) Whether the people take interest in cattle breeding and feed their cattle well.

In case of the failure in supply of Brahmini bulls, arrangement will have to be made to ensure the provision of others if cattle-breeding is to be carried on. It will become necessary to either supply the animals or to collect sufficient money for the purchase of bulls from the village and impose a small tax for the feeding of bulls. This, it is hoped, however, will not become necessary in the tract with which we are at present dealing. I think it is highly advisable, however, to see that every village in the tract has a good herd bull or two if necessary and few selected bulls to be introduced if found desirable.

As has already been stated, some bulls bred at the Government Cattle Farm at Hissar have been distributed in the district with a view to improving the breed of cattle in it. The practice of using them has, however, fallen into disuse. It has been stated by the district authorities that the people do not appreciate them. I have made numerous enquiries into the matter and find that my own opinion coincides with theirs. The Hissar Farm, established for the purpose of providing heavy draught bullocks for artillery and commissariat, works on the system of producing them by cross-breeding, and twelve or more herds of cross-bred stock are maintained. No efforts have been made at the Farm, so far as I am aware, to establish and perpetuate a separate breed so as to bring it under the claims of being a "special improved breed" suitable for ordnance or transport, and the consequence is the cattle seen are almost without exception crosses of various descriptions. The Hissar Farm bred animal, even the so-called pure bred Haryana supplied to the districts, is not more suitable than the ordinary local one, and the people of Haryana district excepting in certain parts of the Hissar tehsil dislike them very much, as they have all the faults they consider worst. These are large loosely hanging ears, large

Government
Bulls.

Notes on indigenous breeds of Cattle in the Punjab.

sheath, carcase large, heavy and loosely put together, sprawling feet, besides the appearance of being soft and sluggish. They are also in addition to all this "doglas" or cross-bred. Bulls of all the various crosses seem to be obtained indiscriminately from the Hissar Farm. We have the following crossed of all degrees to select from (1) Nagore Hariana, (2) Nagore Angole, (3) Nagore Sindh, (4) Nagore Gujrat, (5) Mysur Gujrat, (6) Mysur Nagore, (7) Mysur Angole, (8) Gujrat Hariana, (9) Gujrat Nagore, (10) Gujrat Angole, (11) Gujrat Mysur, (12) Nimar Mysur. Doubtless these animals may be useful for the service they are bred to render, but the distribution of such animals in a really good cattle breeding district is a measure which is open to a good deal of criticism.

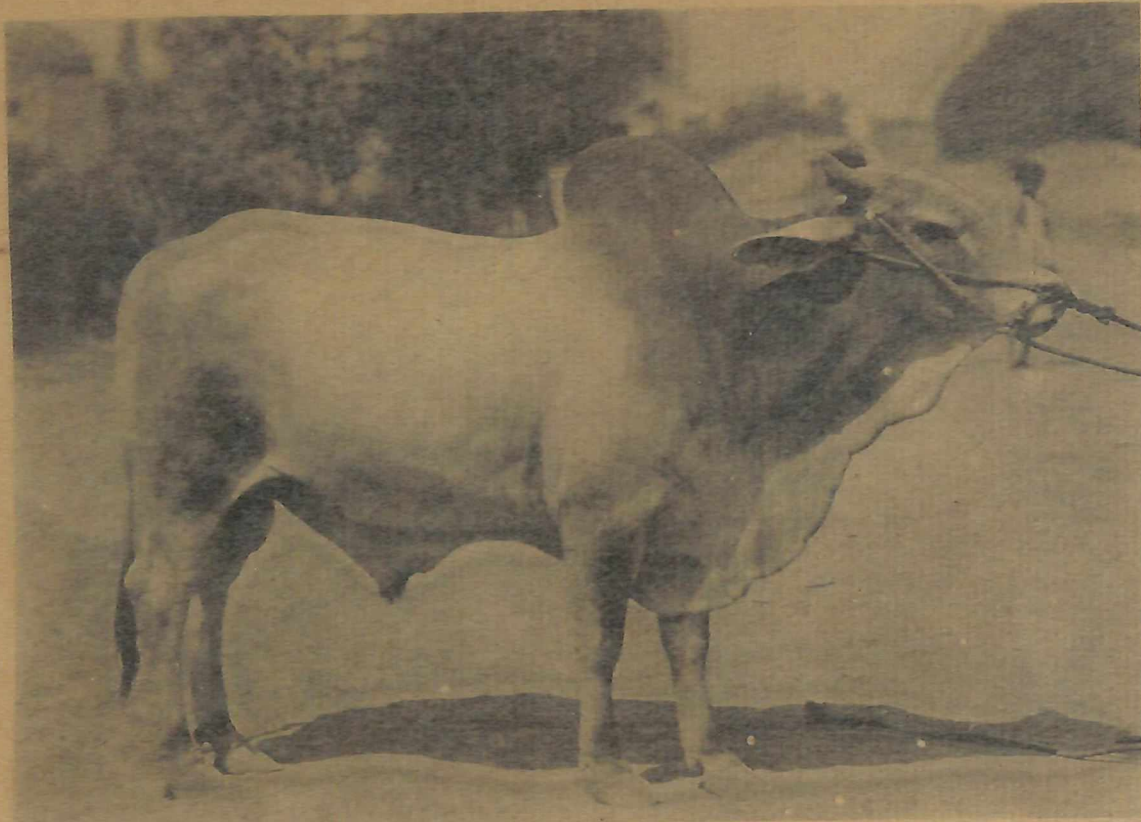
NOTE.—The above remarks by Captain Pease on Hissar quite agree with my own. The system of breeding there has for years been wrong, but from observations made during a recent visit, Major Gunn, who was then in charge, appears to have appreciated this. He is endeavouring to correct the errors made by restoring the pure bred Hariani; at present the breeds most distinctive are—Hariani, Guzerati and Mysore, and, in a lesser degree, Angole.

By a careful selection of cows showing a well marked strain of Hariani a herd could be formed which in the course of a few years by mating with pure Hariani bulls would become a typical Hariani herd. A second herd of Guzerati could be formed in the same way. I think these two distinct breeds might be kept and this would be quite enough to attempt. It would be almost impossible to keep distinct herds of Angole, Mysore, etc.

For the production of transport cattle if it were found necessary one or two cross-bred herds containing a strain of Mysore could also be maintained, and in the same way a cross-bred herd containing a strain of Seinde or Aden could be kept for milking purposes.

I think, however, that if the Farm could produce pure bred bulls of the Hariani and Guzerati or Wadyal type it would be fulfilling a very creditable duty.—*Ed.*

Work done by Agricultural Bullocks.—Ploughing and preparing the soil is the chief work which falls to the lot of the agricultural stock in this district with the exception of carting. The roads are chiefly unmade and all the produce destined for export has to be conveyed to the railways either to the east and west of the district. The carts are exceptionally large and strongly built, and, as a rule, carry about 40 maunds. Four bullocks are employed. They march chiefly at night and in the early morning, resting during the heat of the day. The main road between Bhiwani and Dehli shows at



Photogravure

Survey of India Offices, Calcutta, May 1902.

Type of Hariani Bull bred at Hissar. Horns are right, but face not long enough, nor forehead prominent enough. Bone is also lacking under the knee.

Notes on indigenous breeds of Cattle in the Punjab.

times a constant stream of carts going and returning, well irrigation is scarcely ever seen, so the bullocks escape this most trying form of labour. In some parts bullocks are sold off when ploughing, etc., are over, and fresh ones bought to avoid the expense of stall-feeding necessary owing to lack of grazing, but this is not commonly the case. The bullocks work in the sugar mills during the pressing season. They are always well fed when working and indeed at other times.

Cattle-breeding in Sirsa.—As in Rohtak so in the lower parts of the Hissar district and especially in the Hariana tract, cattle breeding is decidedly being steadily pushed out by the extension of cultivation. The people in many parts of the southern districts are now becoming more dealers than breeders, buying bullocks largely in March at the fair for agricultural purposes and selling them off as soon as they are no longer required. This is especially the case in parts of the Hissar district near the sadr, and I visited several villages where it was the custom. I have mentioned on many occasions that the reason for this custom is that it is cheaper to buy and sell than to breed and rear, and when such a custom prevails the breeding of cattle is, as an industry, doomed.

The general management of cattle in this district differs but Management little from that adopted in the Rohtak district. It seems, however, to be more customary if there is a good rainfall in the west to drive great numbers of cattle into the prairies of Bikaner, where extensive and good grazing is obtained.

There is a considerable amount of cattle trade in the district Fairs, which will always act as a healthy stimulus to breeding and will tend more to keep it alive than anything else. The fairs at Hissar and Biwani as well as those of Sirsa and Jahazgarh and many in the adjoining ryasat of Jhind are well attended by Baiparies and Banjaras, so that the people have little difficulty in getting rid of any class of cattle. They find a ready market for calves of all ages and for adult stock, both large and small.

When cattle plagues have been especially prevalent there the demand for adult stock is much greater to replace the losses which have occurred at the fairs in Phagun and Chait (February and

BREEDS OF INDIAN CATTLE, PUNJAB.

Notes on indigenous breeds of Cattle in the Punjab.

March), there is a greater local demand than at those in Bhadon and Asauj (August and September), as cattle have to be bought at the former for the kharief and rabi ploughings and, as has been already stated, many of the bullocks purchased are resold at the later fairs. In addition to the local supply available for sale at these fairs many cattle are brought from neighbouring Rajputana States and sold. The Hariana bred cattle are bought for the North-Western Provinces and Punjab districts.

It is estimated that about 15 thousand animals change hand, at each fair at Hissar representing an exchange of about four lakhs of rupees.

MANAGEMENT OF CATTLE IN EASTERN PUNJAB.

Almost every village in this district has still a considerable area of pasture land, and it is usual to send out all the unemployed cattle of the village daily under the charge of a cow-herd to graze in the village common, and, when there is no crop on the ground, into the cultivated fields also. The bullocks and the more valuable milch animals are sometimes but rarely kept by their owner apart from the rest of the herd; but usually all the cows and buffaloes and all the calves with the village bull are driven out into the common in the morning after milking time and brought back again in the evening. There is sometimes great difficulty in supplying them with water. So long as there is water in the village pond, they are allowed to drink and wade in it, but when the pond dries up, water has to be drawn for them, from the well with great trouble; but, as is the case in many villages, the water of the well is too saltish to drink, the cattle have to be driven to some neighbouring village to drink from the well there, and a considerable sum has often to be paid for this privilege ("pilu"). In many villages a grazing fee "bhunga" is paid for the cattle of the village, and usually a higher fee is charged for cattle of other villages. There are still vast tracts of unenclosed prairie in Bikaner, there the same system still prevails that was prevalent in Sirsa before the spread of cultivation. In the rainy season, after the annual growth of grass has sprung up, large herds of cattle are driven south into the prairie from Sirsa, Patiala, and even

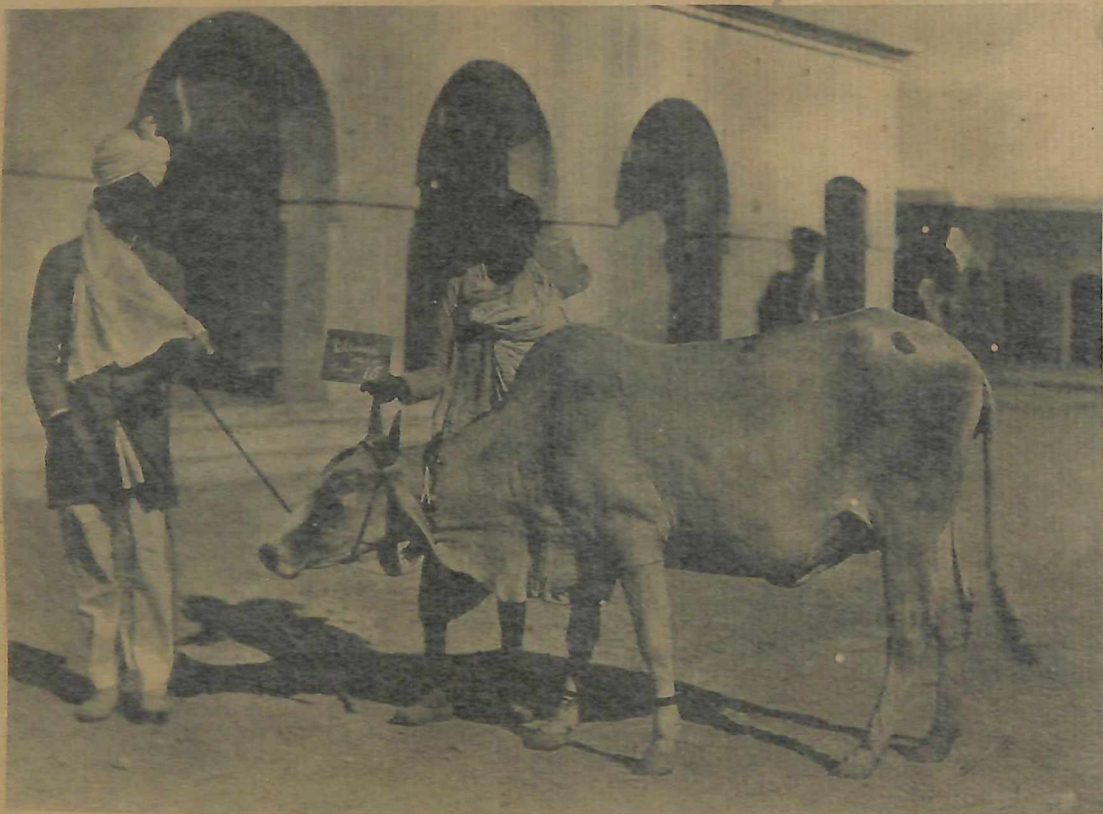


Photo: Savitri

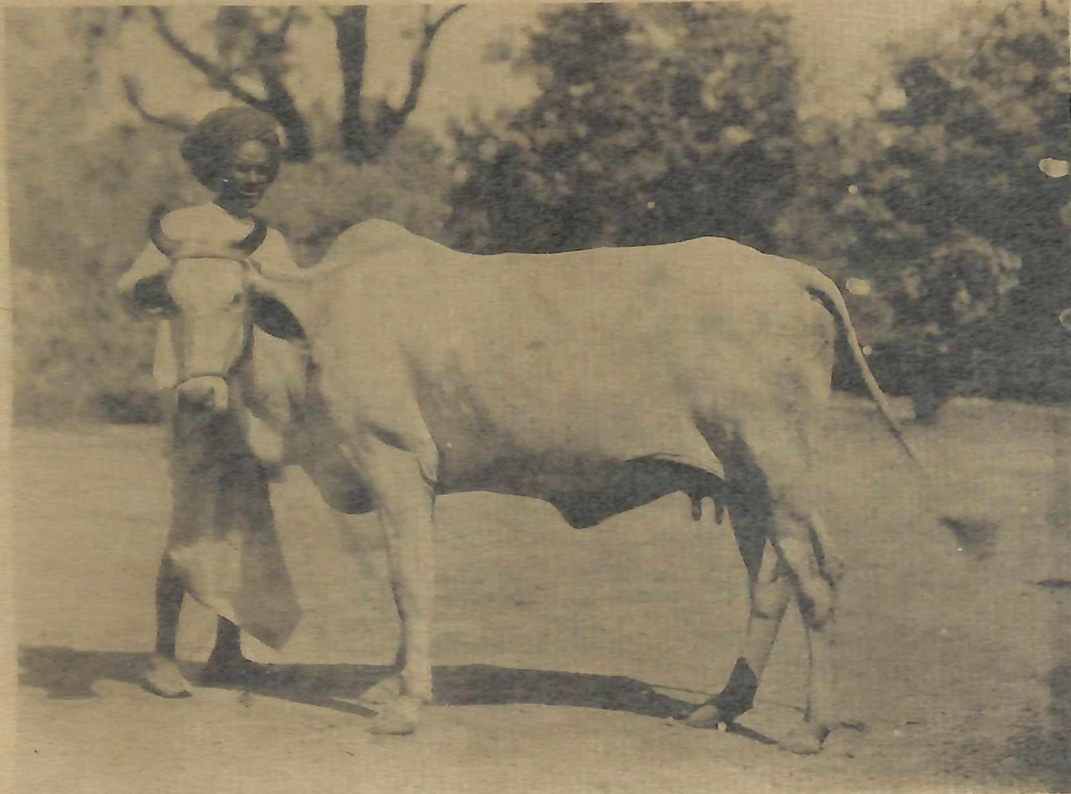
Survey of India Offices, Calcutta, May 1902.

Type of Hariana Cow bred south of Hissar. This is a poor specimen and of the kind usually found in the villages near Bhiwani.



PLATE XV.

CSL



Photogravure.

Survey of India Offices, Calcutta, June 1902.

A small but shapely Hariana Cow from Hansi. The horns are too curved. No. 10 vide measurements.

Notes on indigenous breeds of Cattle in the Punjab.

as far north as Ludhiana, are kept grazing there until the grass dries up, when they are driven northward home again. Fees are paid to the Bikaner State and to the local authorities for permission to pasture and water the herds (" gol ") sometimes as much as Rs. 2 a head for grazing and Re. 1 for watering, but more often 8 annas for grazing and 4 annas for watering. The growth on the Bikaner prairies is wholly dependent on the rain fall, and when, as in 1880, rain fails, no grass is produced and no cattle are driven southward. In some years of drought little or no grass grows on the village commons, and the cattle are allowed on the cultivated land. Mr. Oliver is of opinion that the prairie is being brought under cultivation too rapidly, and urged that in the interests of cattle, steps should be taken to check the spread of cultivation in the more advanced parts of the district, and to reserve a large area in each village as a grazing ground for the cattle ; and similar proposals have again been made. But, however desirable such arrangements may be to keep up a supply, in ordinary times they would have little effect in protecting the cattle from starvation in times of drought. In such years the uncultivated land produces almost nothing. In Sirsa, cultivation actually increases the produce of fodder, and especially of storable fodder, and thus renders the district better able to support its cattle in years of drought.

Prices :—

Good bullocks fetch	Rs. 125,	Ordinary	Rs. 50,	lowest	Rs. 20
Cows	" 60	"	40	"	15
Buffaloes	" 120.	"	50	"	35
Male	" 30	"	15	"	5

Production.—The production of cattle is greatly in excess of requirements, as the country is for the most part Bagar, where camels are used for all purposes of burden and draught cattle but seldom employed. Whatever cattle are bred, therefore, in this part are mostly in excess of requirements and the people make a very fair profit on them. They are sold at the cattle fairs which are held twice yearly at Sirsa, the best adult stock to " Baiparies " chiefly Roras from Shahpur, Dera Ismail Khan, Ferozepur, Ambala, Banu, who sell them in their own districts and also in those of

Notes on indigenous breeds of Cattle in the Punjab.

Gurdaspur and Amritsar. They sell on the udhar system, taking payment in two instalments called *do kist*, the first payable in January and the second in July. The second class of purchasers are "Banjaras" chiefly Chauhan Rajputs from the districts of Aligarh, Mainpuri, Agra, Etawah, Etah, and Farrukhabad. These take chiefly young stock or small Bikaner bullocks which they sell for work in sugar mills. The young stock are disposed of in their own districts as far as Cawnpur. They are purchased by cultivators in parts where grazing is available, who rear them by grazing them on the fields after the harvest has been got, and in usar lands and jungle which is plentiful in Aligarh and Etah. The majority of the small adult stock is taken by men who go to the sugar growing districts. Young stock chiefly to Aligarh and Farrukhabad.

Bulls and
 bullocks.
 Colour.
 Height.
 Description.

The colour of Haryana bulls and bullocks is generally a slate colour, lighter on the ribs and darker on the neck, shoulder and flanks; pure white is sometimes met with. The height of the bulls measured behind the hump is from 56 to 64 inches, back wide and straight from behind the hump to setting on of tail. The tail is fine and of moderate length terminating in a tuft of black hair. They have good barrel and are well ribbed up. Tail fairly well put on, but as a rule there is a tendency to droop at the quarters. The thighs are well let down and the legs well shaped with good bone measurement which is generally 15 to 21 inches round the elbow, and between 7 to 9 inches round the "cannon" bone. The dewlap in the bull is fairly well developed, extending from the chin to the sternum.

Chest is round and deep; the girth measurement just behind the hump ranges from 70 to 72 inches. The head is coarse.

The ears are of moderate size and drooping.

Horns of moderate thickness, well shaped, springing in a graceful curve from the forehead, and of about 12 to 16 inches in length.

In some cases the horns are very much thrown back and lie almost flat, while in others again the horns are quite loose at the socket, and shake with the movement of the head.

The eyes are bright and intelligent. The feet are generally black and well shaped.

Notes on indigenous breeds of Cattle in the Punjab.

The dry sandy soil upon which the cattle are raised is very favourable to their healthy development.

The bulls are generally free from vice.

The description of the oxen given above applies generally to Cows. the cows, but they are of course lighter in build.

The cows generally have their first calf at three years old, and, as a rule, make good mothers, having plenty of milk.

The udder is capacious and well formed and extends well forward with the milk-veins well developed; teats from one-and-a-half to two inches in length, equal in thickness, and hanging perpendicularly; a good milch cow gives from 8 to 12 seers daily.

Nearly all the male calves are castrated at about two years old, few, if any, being kept as breeders; the people depend for these either on the Government bulls supplied from the farm, or upon sacred bulls which have been turned loose; castration is performed by crushing the testicles as being easier and more speedy in healing than cutting. As soon as the operation is performed, the animal is turned loose and, as a rule, requires no further care or attention.

These depend chiefly on the season and the quantity of grazing Prices, available, but, as a rule, young good plough bullocks average from R120 to R140 per pair.

Cows known to give from 8 to 12 seers of milk sell from R50 to R70 each when in milk.

The people of this part of the country thoroughly appreciate the value of feeding and caring for their cattle. The village cattle are daily driven out to graze, and, as a rule, a piece of village land is kept as a common grazing ground. In the evening the cattle return to the villages, and are then provided for either in open thorn fence, known as "baitocks," or in the different houses of their owners.

Feeding and
management.

When there is a failure of the annual rains, which is not an unfrequent occurrence, the plough cattle are, as far as possible, stall-fed with kurbi, joar (*Sorghum vulgare*), bajra stalks (*Pennisetum typhoidea*), or wheat and barley bhoosa.

Notes on indigenous breeds of Cattle in the Punjab.

The cows, on the other hand, unless they happen to be in milk, have, as a rule, to take their chance of what they can pick up.

Weaning.

The calves are weaned at about four months old, and are generally reared in a state of semi-starvation.

The cows are put to the bull again at the first opportunity, but most cows come in season during July and August, or just after the commencement of the rains, dropping their calves at the beginning of the hot weather, which is unfortunate, with the exception of the rainy months from July to September. The grazing is very scanty, while for water the cattle are dependent, as a rule, on the rain water that collects in pools or on the canal. The water in the wells, being from 100 to 120 feet from the surface and often brackish, is seldom or never given to the cattle. The supply in the rain pools is very uncertain, and in a season of drought the cattle suffer considerably.

Disease.

Amongst the most prevalent diseases to which the cattle of the Haryana district are subject, foot and mouth (vernacular name Borah) claims the first place; in fact, it is seldom absent, though more prevalent during the cold weather months. Fortunately the disease is, as a rule, of a very mild type, or otherwise the utter disregard of all precautions against infection by cattle owners would be attended with far more serious results than it is; in fact the natives hardly look upon it as a disease.

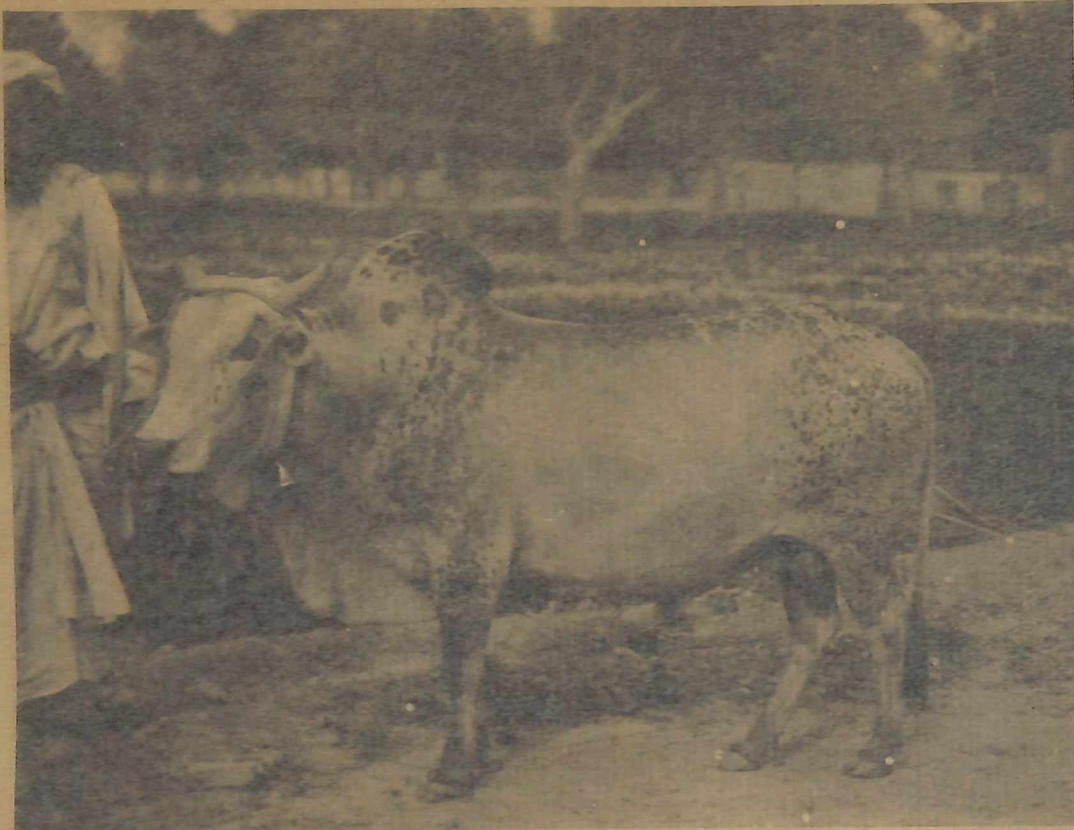
Rinderpest :
 vernacular
 name
 Saruk.

Rinderpest is a scourge that, probably owing to the great heat and dryness of the atmosphere, is happily rare, but when, in a season of great scarcity, it does break out, it claims its thousands. Treatment being of no avail, and the means of proper isolation and segregation out of the power of the owner, it is only by breaking up their herds into small lots and scattering them all over the country that the disease eventually disappears.*

Anthrax:
 vernacular
 name Goli.

Just after the rains commence, often carries off large numbers of cattle, and the misfortune is that owners, as a rule, knowing that the disease must prove fatal, take no more trouble about them, but turn out the unfortunate animal into some secluded spot to die.

* NOTE.—This was written before the introduction of the Seropathio treatment.—Ed.



Photograph

Survey of India Office, Calcutta May 1902.

A Kutchi Bull (Jhauz District). A very good specimen showing the not uncommon mottled colouring.



BREEDS OF INDIAN CATTLE, PUNJAB.

Notes on indigenous breeds of Cattle in the Punjab.

Malignant sorethroat (vernacular name Gala phula) and red water (vernacular name Lal peshab) are also prevalent at certain seasons.

This is the vernacular name given in this district to a disease Bilws which cattle are particularly liable to during the months of September and October; it is not dangerous, nor does it leave any bad after effects, but while it lasts, the animal shows signs of having lost the use of one or more of its limbs, it refuses to graze, rumination ceases, and the beast rapidly loses condition; the duration of the attack is generally from three to four days.

It is believed to be caused by the cattle being allowed to graze while the dew is on the grass in the early morning, at which time a small parasite is found adhering to the stems of certain grasses, which, if swallowed, causes the symptoms above described.

	Breadth of forehead.	Age, years.	Height.	Length of body.	Girth of chest.	Shank.	Length of shank.	Length of horn.	Length of face.	*
Haryana Cow No. 10	4	54	52	70	64	6	6	19	7	Hansi.
Haryana Cow	5	measurements could not be taken.								"

CHAPTER IX.—NOTE ON THE KUTCHI CATTLE OF THE JHANG DISTRICT.

By MR. BROADWAY, *Zemindar of Jhang District.*

In this district there are two distinct breeds of bovine cattle, viz., Kutchi and Bar cattle. Kutchi is the name of the country lying between the river Chenab and Thall.

Following is a description of the average Kutchi ox :

Height measured behind the hump 12 hands, the line of the back is usually straight from the loins to the shoulder, where in some animals there is a rise of an inch or two. This line is abruptly broken by the hump which is well developed in the bull, but less than half the size in a castrated male.

The croup has a very slight droop and the tail is well put on. The tail usually is fine and long and terminates in a tuft of long

* NOTE.—Other measurements of Hariani cattle will be found in the text.—Ed.

Notes on indigenous breeds of Cattle in the Punjab.

hair commonly black. The zemindars here consider a fine long tail both in the cow and ox good, a coarse or thick tail bad, as an animal possessing it has generally a craven heart and sluggish in his movements.

The loins and back are wide and level, the hind-quarters are muscular, and the legs strong and shapely. The head is small and well shaped. Ears small and slightly drooping. Eyes large, bright and intelligent. Horns in some grow upwards, and in others horizontally; they are very seldom more than three inches in length. The neck is not short neither unusually heavy, but castration when young has the effect of fining it down considerably. Head well put on, dewlap of a medium size. The shoulders are sloping and supported on well-shaped legs with a forearm ranging from 13 to 15 inches in circumference, large joints with a measurement of from 6 to 7 inches below the knee. The chest is round and deep with good girth, measurements usually from 60 to 65 inches at the heart. Sheath small and close, not supplied with long hair at the orifice. Temper and disposition good. Very willing at work and quick in his movements. Castration is only resorted to when an animal is inclined to be fierce, and is done at three or four years old.

Castration.

Bulls are never kept exclusively for breeding purposes.

Bulls.

Cows.

The cows are very nearly the same size in every way as the oxen, only a little lighter in limbs. The zemindar takes quite as much, if not more, care of his cows than he does of his oxen. As the cow is not only the producer of milk and butter for the family, but also the source from which he is steadily supplied with oxen for his farm, it is not easy to get him to part with them.

The milk production is from three to four seers a day.

Milk.

Colour.

Grey, white, red and black, of which the two former prevail; mixed colours are rare.

Prices.

The average price of a pair of bullocks is Rs50, and that of a cow Rs18.

The zemindar is naturally fond of his cattle, as they are his all in this world. Should one die, the family mourn as much for it as they would for a dear relation or child. He takes as much care as possible of them, and, as a rule, has a shed adjoining his own hut for them, if not they share his hut with him. There is very poor



Notes on indigenous breeds of Cattle in the Punjab.

grazing in this part of the district, and the zemindar has to grow fodder crops such as jowar, turnips, etc., for his cattle, which he cuts and mixes up with wheat straw for them. Cows giving milk get a little cotton-seed and oilcake as well, with their straw, to improve the quantity and quality of their milk.

In this district buffaloes are chiefly kept and bred by zemindars who have land between and on the banks of the rivers. They are prized on account of their milk which is very rich. Every zemindar that can afford it keeps a few. Buffaloes in the Jhang District.

Bulls are picked out and only kept by the well-to-do zemindars, and the poorer men are allowed to bring their female buffaloes to them. Breeding.

Calves are generally dropped in September and October. As a rule, male calves are killed and eaten as soon as born as the zemindar grudges it the milk of its mother; female calves are taken care of and well nourished. The female buffaloes begin to breed at four years old and continue breeding for about ten or twelve years.

They calve every other year, and give from six to twelve seers of milk.

The male buffalo stands measured at the shoulder about 13 hands. Male buffaloes.

In appearance he is ungainly and very slow and awkward in his movements. His head is not too large in proportion to his size. The horns are from two to two-and-a-half feet in length and generally curved. Ears are small. Eyes comparatively small but intelligent. The back is not straight and rises considerably as it approaches the shoulder. The croup droops very much and the tail is badly put on. The body is massive, chest measurement about $7\frac{1}{2}$ feet. Legs short and thick, measuring a good 10 inches below the knee, large joints and broad powerful feet. Skin is black with hardly any hair on it. Colour black or brown, the former prevails. Scrotum and sheath small and always black except in albinos. Docile in temperament. They are very little used for agricultural purposes. Tenants who have farms on the river banks sometimes use them for ploughing, but not if they can afford to keep bullocks.

The male calves that have been allowed to grow up are sold to dealers.

Notes on indigenous breeds of Cattle in the Punjab.

The average price of a good full-grown male buffalo is R25, the female buffalo fetches from R60 to R100.

Feeding and Management.

The buffalo is generally kept on the islands or banks of the river and feeds on the coarse grass which is commonly seen growing by the river. They are very seldom stall-fed. When they are, they get just what is usually given to a cow, in which case their milk is very rich.

Diseases.

Rinderpest rare, anthrax common, foot and mouth disease very common, cow-pox every other year or so ; buffaloes chiefly suffer from it ; dysentery and diarrhoea are scarcely heard of in these parts.

KUCHI CATTLE BREED.

No.	Breed.	Horn.	Fore-head.	Poll to muffle.	Length.	Height at shoulder.	Shank.	Girth of chest.
1	Kutchi . .	3	8½	20	48	51	8	72
2	Bullock . .	4	8	22	49	51	8	71
3	" . .	4	7½	20	48	48	8	72
4	" . .	7	8	19	48	45	9	58
5	" . .	5½	8	20	49	48	7½	68

KARNAL DISTRICT.

(PEASE.)

The Karnal district is divided into three parts, called, respectively, Bangar, Khadir and Nardak.

The *Khadir* is the low-lying riverain tract lying towards the east of the watershed. It is much cultivated and produces good crops. The cattle found in this part of the district differ but little, if at all, from those which we call Panjabi cattle found in other districts of the Panjab, a description of which has been already given.

NARDAK CATTLE.

Description of countries.

The *Nardak*.—This tract lies to the west of the *Khadir*, consisting of the table-land of the Karnal Tahsil, is high and arid, the water lying at great depths, and but little cultivation being carried on. The *Nardak* is essentially a grazing country, consisting of



Notes on indigenous breeds of Cattle in the Punjab.

large grassy plains separated by dhak jungle. Depressions collect water, and jheels, locally known as "dubar," are formed. In the Nardak, which possesses such natural advantages and where a large majority of the people are Rajputs, cattle farming is very extensively carried out, and every village is rich in herds. Many of the Rajput villages have no other industry but ghee and cattle dealing, and what little cultivation is carried on is simply with the object of supplying a sufficiency of fodder for the cattle.

The cattle found in the Nardak present at least one distinct- Character of breed, a description of which will be given. The crosses are numerous and bewildering, but any animal having Nardak blood in him will be readily distinguished. The photograph attached furnishes an excellent illustration of the main characteristics of the breed. Pure Nardak cattle are not common, but the specimen given here is said to be an absolutely pure bred one. cattle.

They are small inferior animals. The most striking point is the formation of the head and, more especially, of the face which is very small, narrowing abruptly below the orbits and from thence to the muffle, remaining almost uniform. The muffle is well-defined, the jaw very light and lean. The forehead is fairly broad, the horns are small and fine, more especially in the male, whilst in the cow they are longer generally. The ears are medium-sized or smallish; the neck very short; head carried below the line of back. The dewlap is well developed, the body very short and compact, covered with roughish hair, croup sloping, tail short, reaching to mid-tarsal region. Sheath large and pendant, triangular and pointed more or less. Legs short and strong. Udder of the cows fairly well developed; teats small and regular. Cows.

The cows give from 3 to 8 seers of milk per diem. Price of Milk. bullocks, plough, about R60 per pair; cow R10 to R25 or more Price. according to milking power.

BANGAR CATTLE.

The *Bangar* is the intermediate country below the Nardak Country, together with the small area of highland included in tahsil Description Panipat. It is for the most part a sheet of cultivation interspersed of cattle

Notes on indigenous breeds of Cattle in the Punjab.

with great swamps and large barren plains covered with saline efflorescence. The Bangar cattle are the best found in the Karnal district, and probably correspond to the Bagar or Haryana breed. They are of large size, rather leggy in appearance, generally white or grey colour. Have large thick horns, arching upwards and outwards and blunt at the tip. The head is very long and narrow, especially the forehead which is also slightly convex; the eyes are consequently near together; the jaw is heavy, ears large and depending. The neck is light in both bullock and cow, and the head carried more erect than usual. The hump is of average size, the back straight, loins broad and strong; croup sloping, tail short, reaching only to point of hook, thick at its origin, but tapering rapidly and bearing a tuft of black hair. The sheath varies in size, but usually of moderate development and inclined to be triangular; the chest is broad and deep; the abdomen light as is also the flank, and the animal has a fairly lengthy appearance. These bullocks are valuable for draught, especially for fast work in majholis and raths, which are in general use amongst the people of this district. They are also very good plough animals.

Milk.

The cows are fair milkers, giving from 7 to 12 seers of milk per diem.

Price.

Prices.—They vary very much in price, a good pair of trotting bullocks being worth from R150 to R250. Plough bullocks R80 to R120 or more, and cows R15 to R40.

General management.

Cattle are kept in the jungle villages for the most part in small yards made by fencing round a small piece of land in the villages or near it. The feeding is much the same as in other places. Jowar is much grown as fodder.

Grazing.

Grazing is not by any means so plentiful as might be expected, and most villages have land preserved for the growth of grass and hay-making (birs). The cattle are grazed in herds (gol) by herds men (pali), usually boys, excepting in the Nardak where cattle lifting is by no means uncommon and where men are consequently employed as herdsmen. Grass is cut and stacked for use. During the rains and cold weather, if the season has been a good one, large herds are driven from the Bangar tract into the jungles of

Notes on indigenous breeds of Cattle in the Punjab.

the Nardak and leased land for grazing taken, or else a capitation fee is paid. The cattle are driven out to graze as soon as the dew is off the grass in the cold weather and return to the villages at sunset. In the hot weather they graze from dawn till 11 A.M., and again from 2 till evening, returning to the village to drink in the middle of the day. In the rains they also graze for three hours before dawn, returning to the village to be milked. This last is called "Pasar," and has a great effect in increasing the quantity of milk, as the cattle graze so much more freely before the sun sets up, not being tormented by flies and heat. The plough cattle are also driven to Pasar in the rains both in the morning before dawn and after sunset. By the end of the cold weather the grass is all eaten and the ponds dry, and the cattle have to leave the Nardak for the canal and riverian tracts or the villages of the Siwaliks. On the other hand, the cattle of the canal and Khadir tracts are in many parts driven out of their villages by the floods in the rainy season and have to take refuge in the higher tracts of the country.

As before stated the yield of milk is variable in the different breeds. It is made mostly into ghee, which is sold. The yield of ghee is small, only half a chittack per seer of milk. The milk is boiled at night in a vessel called karhauni and a little sour curd (dahi) put into it, next morning the milk is churned in a churn, (thauli) with a churn stick (raji) made of kair wood with four arms at the bottom. A string is wound round the stick, and pulled alternately each way by pulling the ends of the string.

Milk and butter.

Receive here the same treatment as in other places.

Calves,

The cow is used after four years of age, and is generally made to calve about Cheit or Baisakh.

Breeding.

The steers are castrated in the usual native way and kept for ploughing or other work, or else sold off at the age of about 3 years at an average of R15 to R30. The heifers are seldom sold. There are numbers of Hissar bulls in the district, and much of the stock is doglā or cross-bred. Not much care is given to the selection of native cattle.

Castration.

Price.

The cattle dealers of the tract are Banjaras, the Commissariat Agents of the old Emperors since the time of the Lodis. These

BREEDS OF INDIAN CATTLE, PUNJAB.

Notes on indigenous breeds of Cattle in the Punjab.

men come up from the east in the cold weather, buy up young steers, and take them away.

BANGAR BREED.

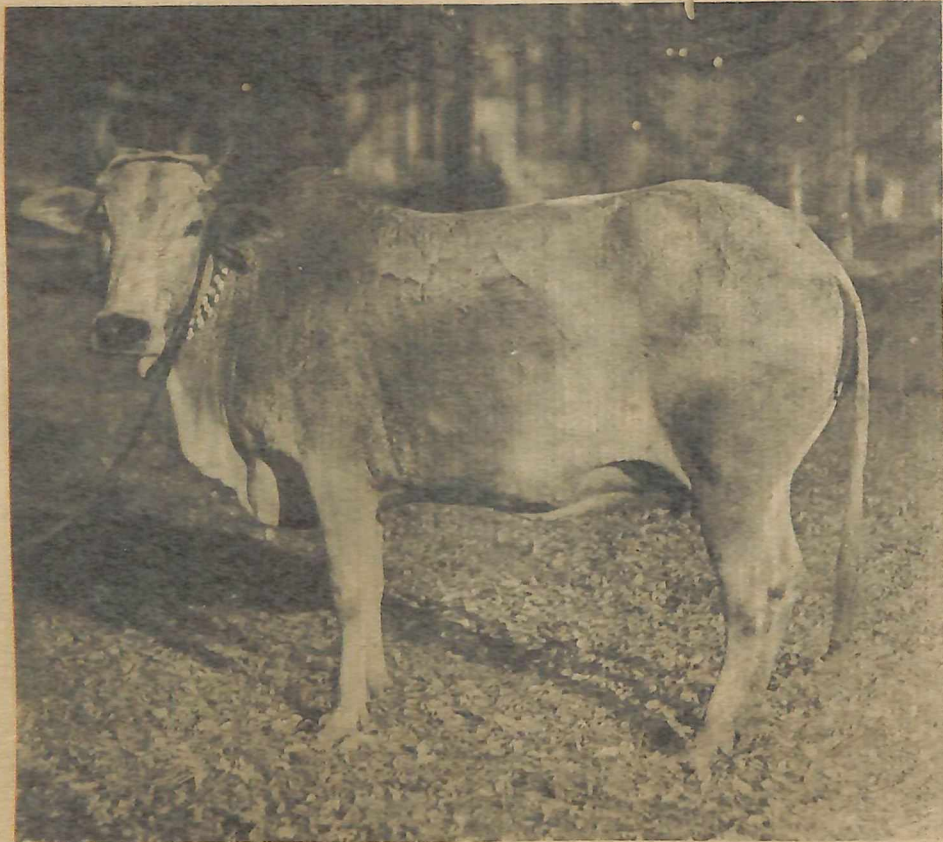
Bangar Breed.	Length of horn.	Length of face.	Breadth of forehead.	Height at shoulder.	Length of shank.	Girth of metacarp.	Length shoulder to coe.	Chest girth.
Cow	12"	21"	7"	56"	9"	7"	55"	66"
Bullock	13	24	7	60	9	8	46	72
"	12	26	7	61	8	7 $\frac{1}{2}$	49	71
"	17	27	7 $\frac{1}{2}$	62	8	7	50	72
"	19	28	8	63	8	8	51	78
"	18	27	7	62	8	7	50	68

MEASUREMENT OF (KARNAL) NARDAK BULLOCKS.

No.	DESCRIPTION.	Length of the horns.	Length between muzzle to pole.	Breadth of forehead.	Height of shoulder.	Length of shank.	Girth of shank.	Girth of chest.
1	Nardak bullocks	4	21"	7"	49"	6 $\frac{1}{2}$ "	6"	64
2	"	4	22	7	50	5	6	48
3	"	5	22	8	50	6	5	49
4	Nardak cow	5	20	6 $\frac{1}{2}$	53	9	7	72
5	"	4	18	6	46	8	7	58
6	Nardak bullock	7	20	6	50	9	7	60
7	Khadir cow	9	19	6 $\frac{1}{2}$	48	9	7	60
8	"	8	20	6	48	9	7	65
9	Khadir bullock	9	19	6 $\frac{1}{2}$	48	9	7	60

CHAPTER X.—DERA GHAZI KHAN.

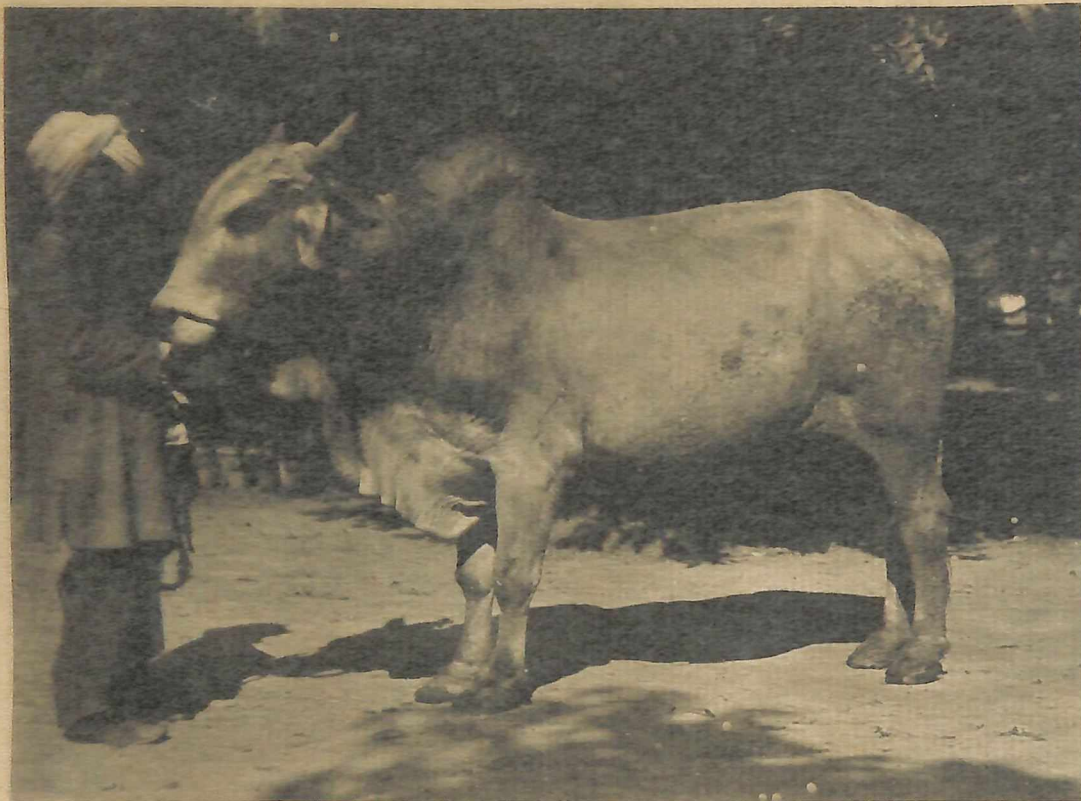
The breeds of cattle found in the Dera Ghazi Khan district are very superior indeed, showing great quality and above ordinary



Photogravure

Survey of India Offices, Calcutta, May 1902.

Dem Ghazi Khan Cow (Bhagnari). This is a very good specimen, but not to be compared to the true bred Bhagnari which are only found in the Naree tract of Baluchistan.



Photogravure.

Survey of India Offices, Calcutta, May 1902.

A Dera Ghazi Khan Bull (Bhagnari). This specimen is very like the Sibi cattle. Note the short horns and protuberant forehead. It is not however so massive.

Notes on indigenous breeds of Cattle in the Punjab.

power. They are all exceedingly well-shaped symmetrical animals, showing very high quality. They appear to be closely allied to the Sindi breed, and are very good draught animals. There are at least three breeds recognised here, and I will endeavour to describe these.

BHAGNARI BREED.*

The best breed is the Bhagnari breed, which comes from the Bhagnari district, between Jacobabad and the Bolan pass. The people in this part of the country breed very large numbers of cattle for sale and have a large trade in them. They sell large numbers to the Mazari tribe, and these are the Mazari cattle for which the tribe is noted. There is also a large trade in such cattle with the Lahoris, a tribe, in the Indus valley.

These cattle are by far the best bred for draught purposes I have yet seen in the Panjab. They are above medium stature, about 14 hands at the shoulder, very handsome, possessing fine silky coats and thin skins, the colour of the skins invariably black and of the hair covering them white or grey, generally black about the shoulders and neck, the rest of the body being white. Some are much darker than others in colour, but generally white predominates. They are easy to distinguish from other Panjab breeds, possessing well marked differences. The first point which strikes us is the head, which is very bovine in appearance, that is to say, the frontal and parietal region is very broad and massive, the frontals especially are broad and the horn cores are set on very wide apart; the horns themselves being short, stumpy, of great girth, and terminating in a broadish point. Their direction is in almost all cases outwards and upwards. The forehead arches very considerably, and is broad, dipping again at a level with the superior commissure of the eyes. It again curves slightly forwards just above the muffle. The muffle is small, the jaw light; the eye large and mild, the ear of medium size. The head is carried fairly erect, but in some cases is slightly below the line of the back. The neck is very short comparatively. The dewlap well

* NOTE.—These cattle are bred entirely in a comparatively small area in the Naroc tract near Sibi and in that part of Kalat territory bordering in the Thal Chotiali district. Animals found in Dera Ghazi are mostly imported or from imported stock.—Ed.

BREEDS OF INDIAN CATTLE, PUNJAB.

Notes on indigenous breeds of Cattle in the Punjab.

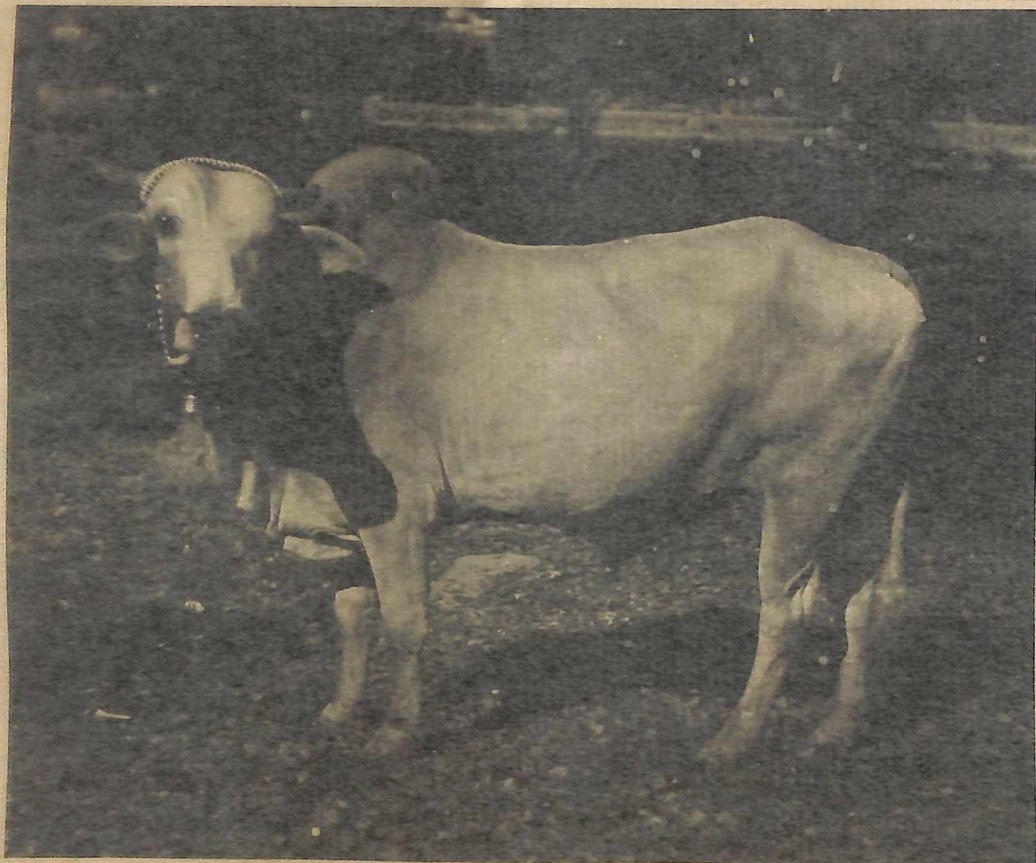
developed as is the hump. The chest is good, broad and deep the shoulder good, sloping and fairly light; the limbs strong and of medium length. The line of the back is fairly straight, dipping very slightly immediately behind the hump and rising again very slightly to the croup, which is of good conformation in these animals. The girth and belly measurements are good, and the loins broad and powerful. These animals, although appearing to be rather long in barrel, are exceedingly well ribbed up. The tail is long and very tapering. The sheath large and more or less triangular.

Feeding.—The feeding usually comprises grazing, whilst grass can be obtained; at other times jowar, which is grown here in very large quantity and affords forage, not only to cattle but also to horses, both in the green state and as grain; oil-cake of *tàrà mîrá* is also used with bhoosa. The people are very fond of jowar as a grain for feeding animals, and consider that it possesses great fattening properties, which is easily understood, as it contains large quantities of starch. In season of scarcity the cattle are sent to the riverian tracts.

Uses.—Chiefly as draught cattle for dragging the instrument with which the people bank up their hill torrents. They are very good workers and are quick at their work. Of the cows I can say but little, but their milking powers are said not to be out of the common, the usual yield of milk being small for such a good breed, about five or six seers being the average reputed yield. Prices of the bullocks are high, R50 is paid for the most inferior and R150 for really first class animals. One man informed me that he had a bullock for which he had refused R180.

THE DAJAL BREED.

This is another which deserves notice. Dajal is a town in the Jampur tahsil of the Dera Ghazi Khan district, which was founded by a grazier, where the breeding of cattle is carried out to a very large extent—so much so, indeed, that the cattle bred here have received the name of the Dajal breed and are highly valued. It appears to me that there are but few, if any, points of difference between the Dajal cattle as regards their points and those previously described, and it would seem to be most probable that these are the same breed of animals as the Bhagnari which have been



Photogravure.

Survey of India Offices, Calcutta, May 1902.

Dera Ghazi Khan Bullock (Bhagnari). A fair specimen. Quarters are poor.

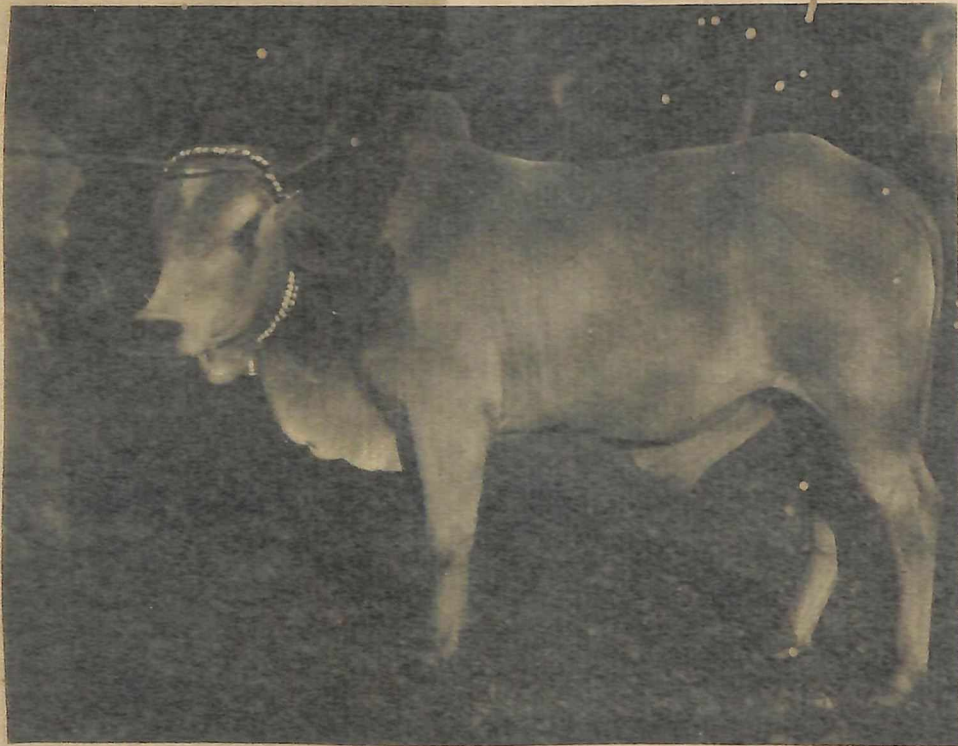


Photo Gravure.

Survey of India Offices, Calcutta, May 1902.

A Dajal Bullock (Dera Ghazi Khan District). *Vide text.*

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BREEDS OF INDIAN CATTLE, PUNJAB.

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Notes on indigenous breeds of Cattle in the Punjab.

imported to Dajal and formed the basis of the present breed ; or else the Bhagnari cattle have been crossed with an animal having nearly the same general characteristics. The Dajal cattle are said to be even better workers than the Bhagnari, but this may be only local prejudice. I attach a photograph of a bull of this breed, which will show the great similarity if not the identity of the breeds. The management and prices, etc., are much the same and require no special notice here.

DESI BREED.

The third breed to be mentioned is that called the Desi. These are altogether inferior animals to the abovementioned breeds, much smaller and slighter, standing about 12 hands at the shoulder. The head is much like the other breeds before mentioned, the forehead broad, horn short, and the nasal considerably dipped, neck very short, hump average size, colours black about head, neck and shoulders and grey or white over the rest of the body. They are worth but little and are not strong enough to plough or perform any other agricultural work. They are chiefly used for light work and pack purposes. As milkers they are inferior ; management, etc , the same.

MEASUREMENT OF BHAGNARI BULLOCKS.

Breed.	Length of face.	Breadth of forehead.	Length of horn.	Length.	Height of shoulder.	Girth of chest.	Length of shank.	Girth of shank.	Girth of horn.	Height of hump.
Bhagnari bullock	22	7	4	41	60	72	7	7	6	6
" " " " "	21	6	4	40	55	66	7	7	7	6
" " " " "	21	6	4	43	57	77	7	7	7	5½
" " " " "	21	5	4	40	55	66	7	7	6½	6
" " " " "	20	6	5	44	57	76	7	6½	7	6
" " " " "	20	6	6	43	53	70	7	7	7	5
" " " " "	20	6	7	43	53	70	7	6½	6	5
" " " " "	20	6	7	38	53	72	7	7	6	5
" " " " "	22	5	4	42	55	65	7	7	6	5
" " " " "	21	7	4	42	58	64	7	6½	7	6
" " " " "	23	6	4	43	44	67	7	7	7	6

BREEDS OF INDIAN CATTLE, PUNJAB.

65

Notes on indigenous breeds of Cattle in the Punjab.

imported to Dajal and formed the basis of the present breed ; or else the Bhagnari cattle have been crossed with an animal having nearly the same general characteristics. The Dajal cattle are said to be even better workers than the Bhagnari, but this may be only local prejudice. I attach a photograph of a bull of this breed, which will show the great similarity if not the identity of the breeds. The management and prices, etc., are much the same and require no special notice here.

DESI BREED.

The third breed to be mentioned is that called the Desi. These are altogether inferior animals to the abovementioned breeds, much smaller and slighter, standing about 12 hands at the shoulder. The head is much like the other breeds before mentioned, the forehead broad, horn short, and the nasal considerably dipped, neck very short, hump average size, colours black about head, neck and shoulders and grey or white over the rest of the body. They are worth but little and are not strong enough to plough or perform any other agricultural work. They are chiefly used for light work and pack purposes. As milkers they are inferior ; management, etc, the same.

MEASUREMENT OF BHAGNARI BULLOCKS.

Breed.	Length of face.	Breadth of forehead.	Length of horn.	Length.	Height of shoulder.	Girth of chest.	Length of shank.	Girth of shank.	Girth of horn.	Height of hump.
Bhagnari bullock . . .	22	7	4	41	60	72	7	7	6	6
" . . .	21	6	4	40	55	66	7	7	7	6
" . . .	21	6	4	43	57	77	7	7	7	5
" . . .	21	5	4	40	55	66	7	7	6	6
" . . .	20	6	5	44	57	76	7	7	6	6
" . . .	20	6	4	43	53	70	7	6	7	5
" . . .	20	6	7	43	53	70	7	6	6	5
" . . .	20	6	7	38	53	72	7	7	6	5
" . . .	22	5	4	42	55	65	7	7	6	5
" . . .	21	6	4	42	53	64	7	6	7	6
" . . .	23	6	4	43	44	67	7	7	7	6

Notes on indigenous breeds of Cattle in the Punjab.

MEASUREMENT OF DAJAL BREED.

Breed.	Length of face.	Forehead.	Length of horn.	Length.	Girth of chest.	Length of shank.	Girth of horn.	Height of shoulder.
Dajal cow .	28	6	4	40	72	7	7	54
" bullock .	20	6	4	42	75	7	7	54
" " .	20	8	8	45	77	7	7	60
" " .	22	9	6	46	76	8	6	55
" cow .	18	5	5	42	66	7	6	46
" bullock .	20	7	5	43	76	7	7	54

MEASUREMENT OF DESHI (DERA GHAZI KHAN) BREED.

Breed.	Length of face.	Forehead.	Length of horn.	Height of shoulder.	Girth of chest.	Length of shank.	Girth of shank.	Girth of horn.	Length.
Deshi bullock, Dera Khan	19	7	5	50	64	7	7	7	41
Deshi bullock .	18	5	2	48	68	7	7	5	36
" .	19	6	4	48	60	6	6	6	36
" .	19	6	6	44	60	6	6	7	40
" .	18	5	9	48	60	6	6	5	39
" .	17	4	7	45	55	6	6	6	42

CHAPTER XI.—DIMINUTIVE CATTLE (GAINIES).

The numbers of diminutive cattle met with in the Punjab are but few, but specimens may be occasionally seen. They are kept as curiosities sometimes by the people. They vary in size considerably,



Notes on indigenous breeds of Cattle in the Punjab.

but are all very small. In appearance they are often handsome little beasts as is the specimen which the photograph represents. They are more or less useless, but make very excellent beef if well fed and fattened.

Diminutive bullock—(Gaine) Punjab.
Cattle in the Pind Dadan Khan Sub-division.

NOTE BY MR. SYKES.

The animals in the Pind Dadan Khan tahsil are of mixed breeds; and those of pure descent have degenerated considerably from the breed still to be found in Tallagang; partly, I believe, from the difference in climate, and from the fact that they are treated with much less care and subjected to far harder work than is the case in Tallagang.

During my short tour in Tallagang I endeavoured to form some estimate of the character of the breed of cattle in that plateau by holding two cattle fairs at Tallagang and Taman respectively. I was thus able to compare about 200 different animals. It may be remarked here that, although there are several Government bulls in the tahsil, they have as yet had an almost inappreciable effect on the character of the original stock.*

A typical ox in this tahsil stands from 51 to 54 inches, Description. measured behind the hump.

The line of the back in most cases slopes slightly downwards from the loins to the hump but in many cases it is straight, and in some the slope is the other way.

The hump is large and well developed; its height is from 6 to 7 inches; in the cow it is much smaller; castration does not greatly decrease its size. The length of the back from the tail to the hump is usually from 44 to 50 inches, and from the nose to the tail the whole length of the animal is from 84 to 90 inches.

The croup droops somewhat; the pelvis is narrow.

* NOTE.—This is exactly what is natural, a small foreign element is quickly lost in the prepotency of the original and well established stock, and it is fortunate that it is so—vide note on Patwari cattle.—Ed.

Notes on indigenous breeds of Cattle in the Punjab.

- Gaini, Punjab.** The back is wide and strong. The tail is long and fairly fine, ending in a long tuft of hair. The hind legs are strong and well proportioned.
- The ears are larger and are generally held back horizontally or extended onwards ; they are from 8 to 9 inches in length.
- The horns when well developed take an upward and forward direction, curving slightly inwards ; their length is about 14 inches. In many oxen the horns have been pared down, and in no case are they of full length till the animal is fully six years old.
- The neck is very thick and powerful. The dewlap large and pendulous, extending from the chin down below the legs, making it rather difficult to take exact measurements of the breadth of the sternum.
- The front legs are very thick, with large joints and measuring 12 inches below the knee.
- The chest is round and deep, the barrel measurement is from 74 to 78 inches.
- The ox stands well ; he is large-jointed but well proportioned.
- Colour.** In colour there is a great difference between different animals. The most prevalent colour is perhaps grey and white underneath. The colouring does not pass gradually from one shade to another, but the distinctions are abrupt ; thus many oxen are black and grey or red and grey ; some very handsome animals are pure black, others almost entirely red. The ox is well cared for and not allowed to work in extreme heat.
- Food.** The food generally consists of *chára bhúsá* or the oil-cake of the sarson or *tára mirá puss*.
- Disposition.** The ox is generally of a mild disposition. About 1 in 20 may be kickers ; all showed some restiveness when I approached them.
- Castration.** Castration is performed when the animal is about four or five years old ; before that the young bull is allowed to mingle freely with the cows in the village pasture. The operation is never performed with a knife, the testicles are crushed with a stone and atrophy follows.
- Breeding.** No bulls are kept for breeding purposes, but the strong development of the ox is no doubt due to the late period at which



*Notes on indigenous breeds of Cattle in the Punjab.

castration is performed.* Cows are smaller in all their proportions, their udders also are very small. Cows are not allowed to breed till two years old; the supply of milk then varies from 1 to 5 seers of milk a day.

The most approved colour of cattle is black and white, the red colour being less thought of.

The excellence of the breed is preserved by the careful attention which is always given to cattle stock, and by the comparative maturity of the cows when allowed to breed. The ordinary price of an ox varies from R60 to R100 and of a cow from R20 to R30. Price. Immense numbers are sent to the Amritsar fair for sale. In times of scarcity stock has to be sold at a loss in order to provide for immediate expenses.

Cattle diseases are of rare occurrence; they are known under Disease. the name of Arba, probably anthrax, and muh khúr or foot-and-mouth disease.

SEMI-DIMINUTIVE CATTLE.

(PEASE).

There is a small breed of cattle which is found all over the Punjab, but more especially in the northern districts in very large numbers. The animals of this breed vary somewhat in size, but are for the most part semi-diminutive, averaging about 42 inches at the shoulder. They are not by any means badly shaped little beasts, and generally compact and very active. The horns, in the majority, are rudimentary, two or three inches in length, broad at the base, and set on wide apart. Description. Horns.

In the male the head is comparatively massive but shapely; the forehead broad and arched; orbits prominent, eyes large and mild; face narrowing rapidly below orbits, between which the skin is thrown into wrinkles; face fine; muffle well defined, jaw light. The neck short, stout, and sloping upwards towards the hump; the head being carried below the line of the back. The hump fairly developed, back rising slightly to the croup, which is good in these animals; chest girth is fair, varying between 50 and 60 inches,

* NOTE.—This facilitates the covering of cows by young immature bulls, the deleterious effects of which have already been remarked upon.—Ed.

BREEDS OF INDIAN CATTLE, PUNJAB.

Notes on indigenous breeds of Cattle in the Punjab.

and the belly from 50 to 64 average. The tail coarse, tufted with black, reaching to fetlock; limbs strong and long (too much on the leg) and sheath small, and close in some, but larger and folded in others; probably the result of crossing, dewlaps small.

In the cow the head is smaller and finer, the neck lighter and longer, the forehead narrower and the quarter deeper. The udder small, and teats ill-developed.

Photographs show enough to distinguish these animals with ease.

Colours are various, all kinds being met with; but probably grey, dun, and roan, are the most common.

The cows give but little milk, up to a seer and a half generally. The bullocks are but little used, but occasionally they are, it is said, used for light work by the peasants. I have seen them pulling in the lead of a team, but mostly carrying packs. Dhobie's bullocks are almost invariably of this breed.

Many thousands are sold to butchers, more especially the cows and heifers for beef, at prices varying from R4 or R5 to R10.

SMALL COMMON PUNJABI.

BREED AND SEX.	Length of the horn.	Length of the face or head.	Breadth of the forehead.	Height at shoulder.	Girth of shank.	Length.	Height at croup.	Girth at chest.	REMARKS
Common Panjab cow .	3	14	6 $\frac{1}{2}$	36	5	36	37	51	
" " " "	4	15	6	44	5 $\frac{1}{2}$	39	43	50	
" " " "	4	15	6 $\frac{3}{4}$	41	5	39	44	51	
" " " "	3	15	6 $\frac{1}{4}$	40	5	36	39	45	
" " " "	4	16	6	40	5 $\frac{1}{2}$	34	41	46	
" " " "	4	15	6	44	5	39	45	50	
" " " "	4	16	7 $\frac{1}{2}$	45	5	40	44	54	
Bullock " " " "	3	17	7	47	6	42	42	56	
" " " "	3	16	6 $\frac{1}{2}$	42	6 $\frac{1}{2}$	39	44	55	
" " " "	3	15	6 $\frac{3}{4}$	44	6	39	44	51	
" " " "	2 $\frac{2}{3}$	17	7	44	6	40	44	51	
" " " "	3	15	7	47	6	42	44	50	

Notes on indigenous breeds of Cattle in the Punjab.

CHAPTER XII.—NOTE ON THE BUFFALOES OF THE PUNJAB.

(PEASE).

The Bubaline group is represented in the Punjab by the buffalo (*Bos bubalus*), generally called the water buffalo on account of its semi-aquatic habits and its love for bathing in muddy pools of water.

The wild buffalo (*Bubalus arni*) is not to be found in the Punjab at the present day, but it would appear from Moorcroft's journey in Ladakh to have been present during his time near Patiala or Goraknath.

The distinctive features of Bubalines are as follows: With regard to the skull there are some points which characterise the skull of bubalines from that of oxen. The skull is much elongated in comparison with its depth and width, and the face is especially long; the forehead very convex, wide and massive. The horns not round as in the ox and yak, but triangular and thicker, more or less deeply ribbed on one face. The forehead is markedly convex in all directions; the face below the orbit suddenly narrows and grows narrower towards the muzzle which is obscure and fine; the face presents a narrow long appearance. The head is carried straight, nose to the front, and much below the line of the back. The neck broad, strong, short, and massive. Dorsal ridge well marked; dewlap small, ill-defined. Carcass compact, very massive, supported on exceedingly short, strong limbs. The sheath fairly developed in some breeds, but destitute of hair. The loins wide and strong. Angles of the croup more or less equal in height, croup sloping. Tail of variable length, tufted with long hair.

The skin thick, generally black, and covered sparsely with stiff hair, which is most plentiful on the head, neck, and shoulders and on the knees. The colours are mostly black, brown and a few albinos are met with. There is often a white star on the forehead and a white tip to the tail, and in some cases white legs have been met with.

In the milch buffalo we find a very well-developed udder with four long, soft and well-shaped teats.

Notes on indigenous breeds of Cattle in the Punjab.

Buffaloes are much more weighty and powerful animals than bullocks ; they are, however, slower in their movements, and are considered by some to be ugly, unwieldy brutes. They work well enough at slow work, requiring weight and strength, and draw loads and water where it lies deep, which is beyond the power of a small-sized bullock of the Punjab, but they are unable to work in the sun or great heat, and if made to do so, quickly succumb.

Habit. Being semi-aquatic animals, the buffalo thrives best in those situations where water or marshes are abundant, and along the riverian tracts of the Punjab, a daily bath in a cool pool being requisite to keep the animal in good health. In such situations the buffalo is in its element and may be seen lying in the water ruminating, with only his head showing above the surface protected from the biting rays of the sun and attacks of insects.

Milk. The buffalo is considered to be a most valuable animal by the people of the Province generally as a milk producer, and in former times it was used almost solely for this purpose, it being considered a disgrace to use the males for work. It was formerly, and is still at the present time, considered to be a mark of wealth in some places when a man keeps a buffalo or two. In those districts where these animals are kept solely for milking, it used to be the custom to kill and generally to eat all male calves as soon as they were born, in order to save the milk of the mother.

To show how much a buffalo is valued, I may say that, as a general rule, when a zemindar loses a bullock he only grumbles a little harder than usual, but if a buffalo died he would sit down and cry and mourn for it.

Work. Things have changed very considerably of late years with regard to the employment of buffaloes for agricultural purposes. It was formerly considered to be a disgrace to work them and a mark of poverty, but at the present day no sight is more common than buffaloes yoked in carts, ploughs and wells, and in fact a considerable share of agricultural work now falls to their share. In some places where the water lies deep, as, for instance, in the Charkhari mahal of the Sialkot district, buffaloes are preferred to

Notes on indigenous breeds of Cattle in the Punjab.

bullocks and are used in large numbers, and so in many other places where the indigenous breed of cattle is small and inferior.

They are also much used for ploughing in land destined for the growing of rice and in which, on account of much of the ploughing having to be done under water, the work is very heavy.

On account of the slow movements of the buffalo it is generally considered to be advisable to yoke him with a bullock in order to keep him going, and this is frequently done.

The destruction of young male calves is now carried out to a much less extent than formerly on account of the good market there is for young males at the various fairs.

The cow buffaloes used for breeding are splendid animals, of Cows.

enormous weight, and they are endowed with great milk-producing powers, on which account they are highly valued by the people. The amount of milk given varies very greatly in different breeds and also in different animals of the same breed. It averages from four to six seers in the inferior animals, from 12 to 13 in medium animals, and from 15 to 30 seers in the best. As a milch animal, therefore, it is not difficult to understand that the buffalo cow takes precedence of other cattle, and that they are better fed and cared for than other cows, and they are more carefully bred with a view to improving the yield of milk. I may here quote some very excellent remarks from the Gazetteer of the Dera Ghazi Khan district which will show what the approximate profit to be obtained from a herd of inferior buffaloes may be considered to be. In an ordinary herd of forty on an average $\frac{1}{3}$ rd or $\frac{1}{4}$ th will be in milk at once, an equal number will be in calf, and the remainder will be made up of young beasts under four years old, of animals that have not held, or are barren, or past bearing. Take the amount of milk at the lowest computation to be four seers per diem. The yield of ghee is about one seer to every 16 seers of milk, which would give about $2\frac{1}{2}$ maunds for the whole year, but allowing for the amount of milk consumed by the calf, the real yield of ghee is $1\frac{1}{2}$ maunds. Ghee sells at the rate of about $1\frac{1}{2}$ seers per rupee, and the annual income, therefore, from one buffalo is Rs35, and if 12 buffaloes in 40 are in milk, the annual income of the owner from

Profits accruing to the keep of buffaloes.

Notes on indigenous breeds of Cattle in the Punjab.

the ghee should be R420, and this is very probably near the mark. The expense of keeping a herd when the man has sufficient grazing is little more than the pay of the herdsman, and, besides the ghee, the owner must make a little out of the young males, which sell at the rate of from R20 to R30 between two and three years of age, so that the average realisation from a herd of 40 strong with 12 in milk would be about R500.

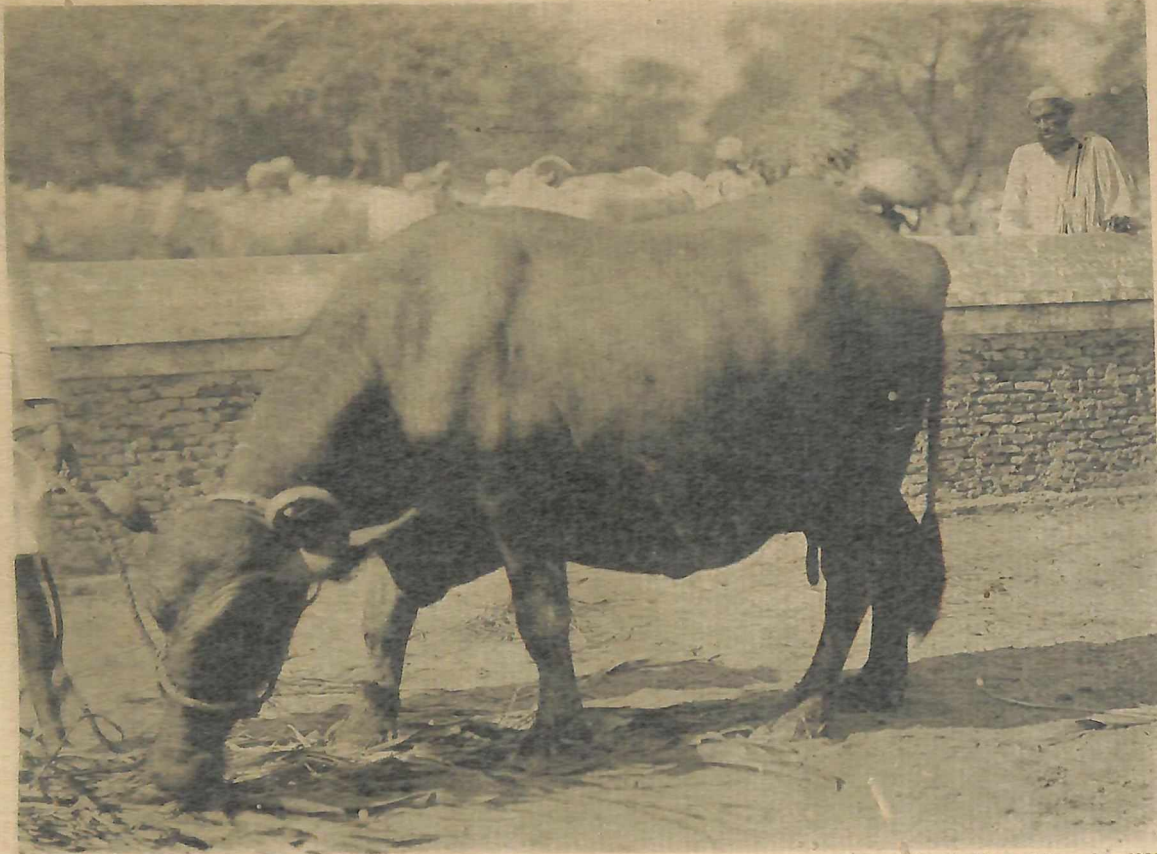
Breeding.

Seeing that the zamindar of the present day has such a high opinion of these animals, it would be a matter for wonder were he not very particular in the selection of bulls as sires for improving or keeping up the standard of excellence, and I think that I may safely say that more care is exercised in the selection of a buffalo bull for breeding purposes than in any other animal in the Punjab. It is by no means customary to allow any brute to sire the stock, but, as a general rule, a bull is selected by a committee of zamindars who best understand the points to be desired, and who after due deliberation select an animal which will best meet their requirements, and the bull is then taken charge of by some wealthy zamindar who allows the use of it for the cows when necessary. These stud bulls are well fed and cared for and are magnificent animals. Care is taken in the majority of cases to mate the animals with the more esteemed strains with a view to obtaining an improved cross. I have seen many very fine animals which have been selected as bulls, and they certainly show that much trouble has been taken to select useful animals, and there seems to be a generally prevalent opinion that an improvement in this direction is taking place.

The female buffalo begins to breed usually at about the age of six years and carries the calf for about ten months; she will, under favourable circumstances, breed at intervals of two years up to the age of 16 to 18 years, and will continue in milk for about a year after calving.

Milk.

The milk of the buffalo differs from that of the cow in its chemical composition as well as its appearance, taste, colour, and in the butter which it contains. It has a very white colour and a peculiar insipid taste, and the butter made from it is very white.



Photogravure.

Survey of India Offices, Calcutta, May 1902.

Kundi Buffalo Cow, Hariana District.

Notes on indigenous breeds of Cattle in the Punjab.

The amount of fat it contains is a good deal larger than that found in cow's milk, and hence the larger amount of ghee yield. The sugar it contains is of a variety differing from that of ordinary cow's milk or Lactose, and is present in larger amount than that in cow's milk. The fact, too, differs from that found in cow's milk in containing minute quantities of sulphur and phosphorus, and in yielding four times as much caproic acid. It also contains a small quantity of citric acid. These chemical differences will account for its difference in physical characters. The quantity of milk given varies of course with the season and the length of time since calving and with the character and quality of the food. I believe it is not uncommon for a very good cow to give as much as twenty seers during the day, and in some cases even as much as twenty-five or thirty seers is given—a quantity which, so far as my memory serves me, comes up to that given by a good short horn under the most favourable conditions of housing and feeding in Europe.

In the country villages removed from large towns the people Ghee. do not sell their milk ; it is a point of honour with them not to do so. Ghee is prepared from the milk as soon as convenient. It is customary for a shop-keeper or his agent to attach himself to a large herd of animals ; he advances money to the graziers, who in return let him have every third day the butter from their herds. The butter is quickly run or clarified, and thus converted into ghee, which is sent into the large markets for sale.

• Milch buffaloes are, as a general rule, milked once during the Times of day, but sometimes twice, especially after calving. milking.

It has been customary, until lately, as has already been stated, Calves. to cut the throats of all male calves as soon as they were born in order to save the milk, and they were, when thus slaughtered, eaten by the people. This custom doubtless prevails to a very considerable extent, but it seems to me, however, to be gradually falling into disuse, if one may judge from the enormous numbers of male buffaloes which are to be seen at the large fairs, and there appears to me to be a great and growing inclination to use these animals for agricultural draught. The cow calves are always of course kept and well cared for. It seems to be customary to get the



Notes on indigenous breeds of Cattle in the Punjab.

calves dropped in the rains when grass is plentiful. The calf is allowed to suckle, at first it is given three teats, later two, and then at about three months old is taught to eat the ordinary food, and is weaned, occasionally being allowed one teat up till five or six months. The calves are delicate creatures and are difficult to rear, being much subject to intestinal disorders, specially vertigo. They are covered at birth with a woolly hair. For the first three days after a calf is born, it is allowed to suck only a small quantity of milk, as the zamindars have a great prejudice against "beistya" crediting it with causing abdominal affections, especially diarrhoea. When the calf has been killed the cow will often, as is well known, become fretful and withhold her milk, and in such cases the calf skin is stuffed with straw and placed in sight of the animal.

Other practices of a horrible description are also practised under the name of "phooka,"* which are of course useless and are most cruel and reprehensible. I may mention that when a buffalo is being milked, the calf is always kept near the cow to encourage the flow of milk. Should the milk of a newly-calved cow be deficient in quantity, it is usual to give milk mixed with gur to her, and also a mixture which is known by the name of "runji" and is composed of wheat, barley, pulses and gur boiled together for some little time.

Milch buffaloes, as a rule, get well fed, and the more especially so during the time they are in milk. During the dry season before the rains, mustard oil-cakes, grain and bhusa form the chief ration. Cotton seed about one seer per diem is also mixed with the bhoosa and given with the object of increasing the fat-forming properties of the milk.

When the rains break, the cattle are driven out into the waste lands to graze and the buffaloes accompany them, and during this time when grass is very plentiful they get but little beyond it to eat excepting in exceptional cases where a compound made up of gram, parched and raw, thin stalks of "dal," bran, gram husks, of each one seer, which suffices with from six to eight seers of bhoosa for one day's feed at any time. After the rains and during

* NOTE.—Vide note by Major Mills—Ed.

Notes on indigenous breeds of Cattle in the Punjab.

the cold season green grass and charri are added, and the gram or other mixture is slightly decreased. Turnips and carrots are also given in the winter as is also "khal." "Khasil" or green wheat and barley is generally given in the spring all in addition to grazing. The leaves of the Ber tree or jungle plum (*Zizyphus vulgaris*) are very much esteemed when dried and are given with a view to increasing the yield of milk. With regard to other foods these have been mentioned under the heading "cattle," and do not again require enumeration. Grazing is carried out in the same way as with Grazing. cattle, and I mentioned the custom of driving out the herds to graze early in the morning in the hot weather before the sun gets up and the flies get very troublesome, this is called "passar." Buffaloes will eat much coarser grasses than bullocks and will thrive on such as would not keep a bullock. The numerous rivers and canals form the summer grazing grounds before the rains and afterwards the "bars," swamps, and kadir lands. Horse-dung is often given to buffaloes and is supposed to increase the quantity of milk.

A great deal of confusion seems to prevail with regard to the Breed. breeds of buffaloes to be met with in the Punjab, and it is impossible for me to enumerate them all satisfactorily. I will, however, endeavour to distinguish the better marked breeds I have met with.

BUFFALOES.—(HARIANI).

The Haryana buffaloes are almost as celebrated for excellence as are the cattle. They are fine massive animals, the chief characteristic about them being the shape of the horns which are in the better bred ones spirally twisted and small; this shape is known generally in the Punjab as Kundi. A very great proportion of the animals, however, have the horns of the shape known as Katcha kundi in which the twist is imperfectly developed. In the better bred animal the horns are small black and spirally twisted. They are considered to be the best breed of buffaloes in the Punjab for milking and are consequently valuable. They are massive heavy beasts standing on short powerful legs. The best of them in the Rohtak district are to be seen in the villages about Nidanah and Butanah where they are kept in great numbers.

Notes on indigenous breeds of Cattle in the Punjab.

Butanah itself contains nearly a thousand buffalo cows, the neighbouring villages of Baroda 668, Biehpari 417, Ahulana 441, Jaysi 690, etc. These animals are more numerous in the northern villages of Gohana and to the eastward, Chikanwas in Hissar is also said to be a good place for them. The people bestow a good deal of care on the breeding of these animals. Good bulls are employed generally turned loose with the herds as are Brahmini bulls. The people feed them well and value them highly. The young male calves are sold off as soon as possible, the people do not use them for any kind of work and they are reared in a state of semi-starvation, being looked upon as a nuisance. They are sold off to Baperi dealers, who come round purchasing in the district and who take them northwards where they are employed as draught animals.

The cows have their first calf at between four and five years and go on breeding for nine or ten years.

Milk. This varies from 7 to 14 seers a day in ordinary animals, but as much as 20 seers is given by a few buffalo cows.

Price. Young males are sold for a few rupees and at four years they seldom fetch more than R30 ; cows, good, R60 to R150 according to quality and yield of milk.

BUFFALOES IN SIRSA.

Buffaloes cannot stand heat well and are seldom made to work in this district, but sometimes a buffalo may be seen in a cart or plough, or working at a well, yoked along with a bullock. Male buffaloes are usually sold to dealers from the districts farther north, where they are used in cultivation, while buffalo cows are kept for milk and breeding purposes.

Thus, three-fourths of the buffaloes in the district are cows and almost all the buffaloes sold at the Sirsa fair, where sometimes nearly a thousand change hands, are males. The average price of a buffalo male at Sirsa fair is about R12, but sometimes R15 to R20 can be got. Buffalo cows are highly valued for their milk. A buffalo calves, when five years of age in the eleventh month, usually about July ; she ordinarily gives six or seven calves at intervals of two years. The calf is allowed to take all the milk for the first

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BUFFALOES IN SIRSA.

Buffaloes cannot stand heat well and are seldom made to work in this district, but sometimes a buffalo may be seen in a cart or plough, or working at a well, yoked along with a bullock. Male buffaloes are usually sold to dealers from the districts farther north, where they are used in cultivation, while buffalo cows are kept for milk and breeding purposes.

Thus, three-fourths of the buffaloes in the district are cows and almost all the buffaloes sold at the Sirsa fair, where sometimes nearly a thousand change hands, are males. The average price of a buffalo male at Sirsa fair is about R12, but sometimes R15 to R20 can be got. Buffalo cows are highly valued for their milk. A buffalo calves, when five years of age in the eleventh month, usually about July ; she ordinarily gives six or seven calves at intervals of two years. The calf is allowed to take all the milk for the first

Notes on indigenous breeds of Cattle in the Punjab.

ribs large, flat, and extensive, reaching well back, the animal being what a horseman would call "well ribbed up." The back from end of dorsal ridge, straight and broad; loins very wide and powerful; haunch bones more or less prominent, and level at all the angles of the croup sloping but wide, deep, and massive; quarter good, skin not very black nor hairy; the hair smooth; skin fine; tail of moderate length and finely tufted, extending to mid-metatarsal region. The udder is well developed and capacious; teats long and soft. In the bull of this breed the following points are noticeable. Forehead broad, massive, and convex; horns much spirally twisted; face broader than in the female; eye large, watchful, and prominent; face covered with hair, especially about the forehead; neck exceedingly thick, broad and strong, and rising from the poll to the commencement of the dorsal ridge which is well marked; shoulders heavy; great depth of chest; legs very short and powerful, metacarpals sometimes measuring ten inches in circumference, and but five in length; back and loins broad and flat, immensely powerful; tail fine of medium length and only moderately tufted.

Bulls.

Bulls of this breed are always preferred as sires by the zemindars and breeders as they are the best strain for milking powers. The quantities of milk yielded vary of course, but it is generally large in these animals, averaging, perhaps, about 10 or 12 seers during the day, but as much as 25 or 30 seers is not uncommon.

Price of cows.

The price for a good milker is about R100 to R150, for an ordinary cow R40 to R60, and males from R15 to R40.

RAVI BREED.

Description.

The Ravi breed of buffaloes is a very much inferior animal to that just noticed. It is to be found in the Sandal Bar and sometimes spoken of as the Sandal Bar buffalo. These are very coarse animals, of a very black colour covered with a coarse hair which is more plentiful about the head, neck and shoulders, the knees have long coarse tufts of hair on them which extend some distance down the shank and point in a downward direction. The head is very ugly indeed; forehead very convex; the horns coarse and thick and projecting outwards, backwards, upwards for

Notes on indigenous breeds of Cattle in the Punjab.

some distance and then sharply curved forwards and downwards at the tips; the face is very coarse and hairy, and seems depressed below the orbits, giving the head somewhat of a bull dog appearance; the mouth and jaws are coarse. The ears large depending and hairy; the skin is thick and generally intensely black; the general outline of the body not so symmetrical as in the preceding breed; the tail of medium length and thickness and tufted. The udder of moderate size. As milkers these animals are nothing out of the common, they yield a fair amount of milk probably averaging six seers per diem.

The males are used for well work in the Sandal Bar, where the water lies at a considerable distance from the surface, and also for ploughing rice fields along the banks of the rivers. The prices are lower, a good milch cow buffalo fetching from R60 to R80, ordinary R40 to R50 and males from R15 to R35.

RAVI BREED.

Breed.	Length of horn.	Height at elbow.	Shank.	Forehead.	Poll to muffle.	Height at shoulder.	Length.	Girth of chest.
Ravi	19	25	8	8	21	38	48	77
"	21	26	8	9	22	51	46	76
"	19	26	8	10	22	52	48	72
"	15	27	9	10	21	52	48	81
"	19	25	8	8	21	50	48	76
"	20	24	8	10	20	52	48	77

The *Pahari breed of buffaloes* differs from any other breeds very markedly. They come from the outer or lower Himalayas, more especially from Mandi, where they are kept in large numbers by the hill Gujars, who lease grazing runs from His Highness the Raja called "Soanas" where the pasturage is very luxuriant. This is an inferior breed, being small in size, coarse, and giving little milk.

The body is covered, more or less, with hair, more especially at the forehead, neck, and shoulders; the head is massive for the size of the animal; the horns very broad at the base where they

BREEDS OF INDIAN CATTLE, PUNJAB.

Notes on indigenous breeds of Cattle in the Punjab

sometimes measure as much as 16 inches in circumference, they take a direction downwards, backwards, upwards, outwards, and forwards; the forehead is very convex and massive in the male, flatter in the female; the face is coarse, not nicely shaped, and the head looks short from poll to muffle; neck short and strong; dorsal ridge not very defined; tails very short, not reaching to the point of the hock; the sheath in the male short and close; the mammary gland of the female small. These animals come in large numbers every year to the Sialkot cattle fair for sale, but only the young males are seen as a rule. They are usually purchased by the zemindars for well work on the "Charkhari mahal," where the water lies deep and the indigenous breed of cattle is inferior and not of sufficient weight and power to raise the water.

They give but a small quantity of milk, five or six seers being a fair yield from them.

PAHARI BREED.

Pahari breeds.						Length of horn.	Girth of horn.	Ear.	Forehead.	Poll to muffle.	Height at shoulder.	Height at croup.	Height at elbow.	Forearm girth.	Shank.	Length.	Girth at chest.	Girth at abdomen.
Pahari	.	.	.	.	.	15	15	14	10	18	41	43	24	14	8	37	67	77
"	.	.	.	.	.	12	14	9	10	17	46	48	25	12	8	40	69	81
"	.	.	.	.	.	16	15	11	8	20	45	47	27	14	8	40	68	73
"	.	.	.	.	.	15	14	10	9	23	48	47	26	14	9	40	72	78
"	.	.	.	.	.	12	12	10	9	24	49	48	24	15	8	43	72	78
"	.	.	.	.	.	16	13	10	10	21	48	47	27	12	9	42	70	79

The common village or Punjab breeds may be found all over the Punjab. These animals are, as a rule, inferior, lighter in carcass and average as milkers. They may be divided into two classes: the long-horned and the short-horned. The long-horned variety is larger and more weighty than the short-horned; the shape of the horns is what is known as "Raipheli" or sickle-shaped or "katcha khundi," or twisted something after the fashion of a khundi but very imperfectly. I quote from Mr. Broadway's report a description of these animals. The head not too large in proportion to size; the horns from two to two and-a-half feet in length and generally curved; ears are small; eyes comparatively small but intelli-

Notes on indigenous breeds of Cattle in the Punjab.

gent; the back is not straight but rises considerably as it approaches the shoulder; the croup droops very much and the tail is badly put on; the body is massive; chest measurement about $7\frac{1}{2}$ feet; legs short and thick, measuring a good ten inches below the knee, large joints and broad, powerful feet; skin is black with hardly any hair on it, colour black or brown, the former prevailing; scrotum and sheath small and always black except in albinos; docile in temperament.

The short-horned variety have small horns slightly curved backwards and pointing towards the shoulder and measuring some seven to ten inches. In length the head is smaller and very lean, face fine and no depth of jaw. The carcasses light and tail short. They are inferior to the long-horned variety. They are used for all agricultural purposes and for milking.

Prices.—The average price of a male buffalo may be taken at Rs30, whilst a cow fetches more or less money according to the quantity of milk she will give. For milking purposes the brown coloured or "kali buri" animal is preferred to the "kali boli" or black coloured animal. The buffaloes found in the Manja country are very good animals indeed, and possess a few characteristics of their own. They are good milkers and very good workers. They are powerful beasts with a good outline, very convex forehead, finer horns, and broadish face. The body outline good, and the mammary gland shapely; ears medium sized; tail fine and long. They are preferred by the people as working animals.

MANJA BREED.

Breed.	Length of horn.	Poll to muffle.	Forehead.	Length.	Height at shoulder.	Girth of chest.	Shank.
Manja	22	20	10	55	57	84	10
"	15	20	10	51	53	82	10
"	16	20	11	52	54	80	9
"	19	20	10	49	53	87	11
"	21	19	10	57	51	84	9

Notes on indigenous breeds of Cattle in the Punjab.

Malwa buffaloes come from the Malwa country on the southern side of the Sutlej river. They are fairly large sized animals and are good milkers ; as draught animals they are slow. The heads are finer than in most other breeds and are more shapely ; the foreheads flatter and the faces fine. The ears small and the horns fine, often twisted. They are heavy and compact, the skin but slightly covered with hair ; tail long and fine and well tufted ; horns are usually twisted slightly downwards, backwards, upwards and inwards in the form called katchi khundi.

They are good milkers, averaging about eight seers. Buffalo cow of good quality fetches about R100 ; ordinary R50 to R60. Male, good, R35 to R40 ; ordinary R25 to R30.

MALWA BREED.

Breed.	Length of horn.	Girth of horn.	Forehead.	Poll to muffle.	Length.	Height at shoulder.	Shank.	Girth of chest.	
Malwa	19	9	9	22	45	52	8½	84	Female.
"	17	9	9½	23	44	50	8	83	"
"	16	12	0	22	48	53	9	69	Male.
"	19	13	9	21	50	54	9	70	"
"	18	9	9½	23	50	54	9	86	Female.
"	20	9	9	20	43	52	9	80	Male.

There is a very good breed of large sized buffaloes in the valley of Rajaur, but I have never had an opportunity of seeing them, Moorcroft remarks : "The valley is celebrated for its breed of buffaloes." None of the peculiarities of this breed are known to me.

CHAPTER XIII.—POTWAR BREED.

EDITOR.

Description
of country.

The breeding district of the Potwar breed extends from Jhelum in a northerly direction for some 120 miles on the banks of the river and the centre in which the best cattle are found is at Teligung and Chakmal, some 60 to 70 miles from Jhelum in a westerly



Photography.

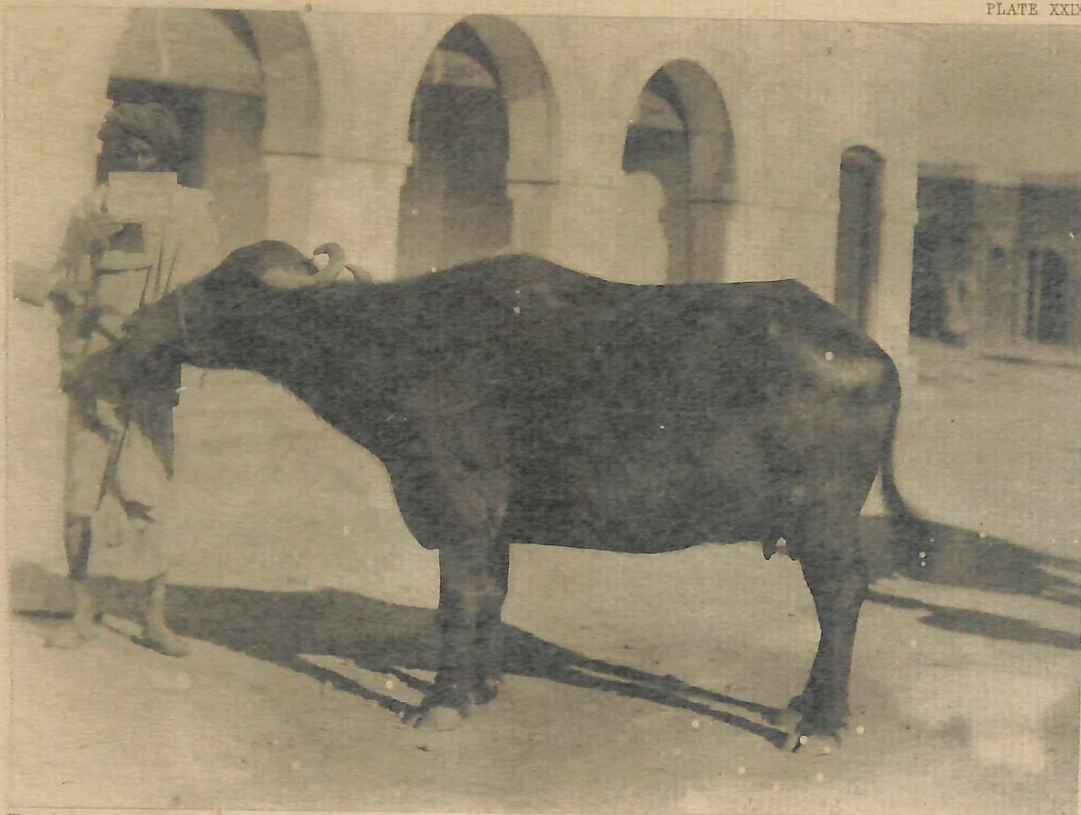
Survey of India Offices, Calcutta, May 1902.

Malwa Buffalo Cow and Calf. Sutlej District.



CSL

PLATE XXIX.



Photogravure.

Survey of India Offices, Calcutta, June 1902.

Small village Buffalo Cow, southern Punjab. The males are used greatly for work.

Notes on indigenous breeds of Cattle in the Punjab.

direction. The country away from the river in the direction of the above named places becomes hilly and rocky and intersected with ravines, hence the small size somewhat resembling Pahari cattle which is a noticeable feature of the Potwar or Mikhra breeds. The breed has been in existence and quite distinct as long as we have any record. Anywhere outside or on the borders of the district named, the cross with outside breeds becomes apparent and the ordinary village cattle (Deshi) are in evidence. Even in and around Jhelum itself the intermixture with other breeds is very apparent.

The grazing grounds along the banks of the Jhelum are very good, giving large quantities of grass during the majority of the year. From June to September the grounds are flooded by the rising of the river, and this sufficiently waters the ground for the remainder of the year.

Reserves are maintained from which Zemindars are allowed to take grass at a nominal rental, *viz.*, for 13 annas a month a man may take as much as he can carry once a day. This grass is usually stacked for use in case of scarcity.

Colour white, muffle black, head short; forehead wide; face short, eyes small, thick overhanging eyebrows, muzzle wide, upper lip thick, overhanging, ears short, pendulous, pointing obliquely backwards and downwards, neck short and thick, dewlap well developed, well developed hump, long deep shoulder, short sturdy legs, straight on feet, no tendency to calf knee; back long and straight; well developed loins, girth, deep and well rounded ribs; croup short; quarters sloping; tail well set on, long and thin with tuft of hair reaching to the heels; strong thighs, with well developed strong hocks; walks perfectly straight. Very small sheath.

Description of bull.

Skin white, mottled brown or black, face short and narrow, forehead wide and flat, horns fairly long and fine, curving outwards and upwards, ears small, pointing downwards and backwards, shoulder deep. Well rounded chest and ribs, back short and strong, well developed loins, croup short, tail well set on, quarters sloping downwards longer and straighter than in many classes of Indian

Description of cow.



Notes on indigenous breeds of Cattle in the Punjab.

cattle, legs short and strong, occasionally calf kneed, hocks strong, and well developed, feet small and well shaped.

This is a typical cow of the breed, and is what is seen in Photo No. II and III.

**Description
of bullock.**

Small compact bullocks, short face, wide forehead, slightly convex, eyelids heavy, upper lip thick and overhanging, nostrils wide, horns in the majority of cases short and thick, ears sloping backwards and downwards, neck long and strong, well developed hump, dewlap small, and sheath barely perceptible, back short, strong and straight, quarters sloping, tail well set on, big girth, short, powerful legs, straight hocks and little tendency to calf knee.

The horns are not uniform in either of the sexes in some cases being short and curved or straight, and in other cases being moderately long; they are, however, never very thick or course.

Uses.

They are not big enough for transport and ordnance, but for the ordinary agricultural purposes of the district they are distinctly useful, being small but sturdy and active, especially useful in places where it is hilly, split up with ravines, stony, and sandy ground in which only small active cattle can work.

Work.

They usually work about six hours a day.

They are used in plough and well work. The work of pulling carts is done by bullocks obtained from Hissar and other districts bought usually at Amritsar.

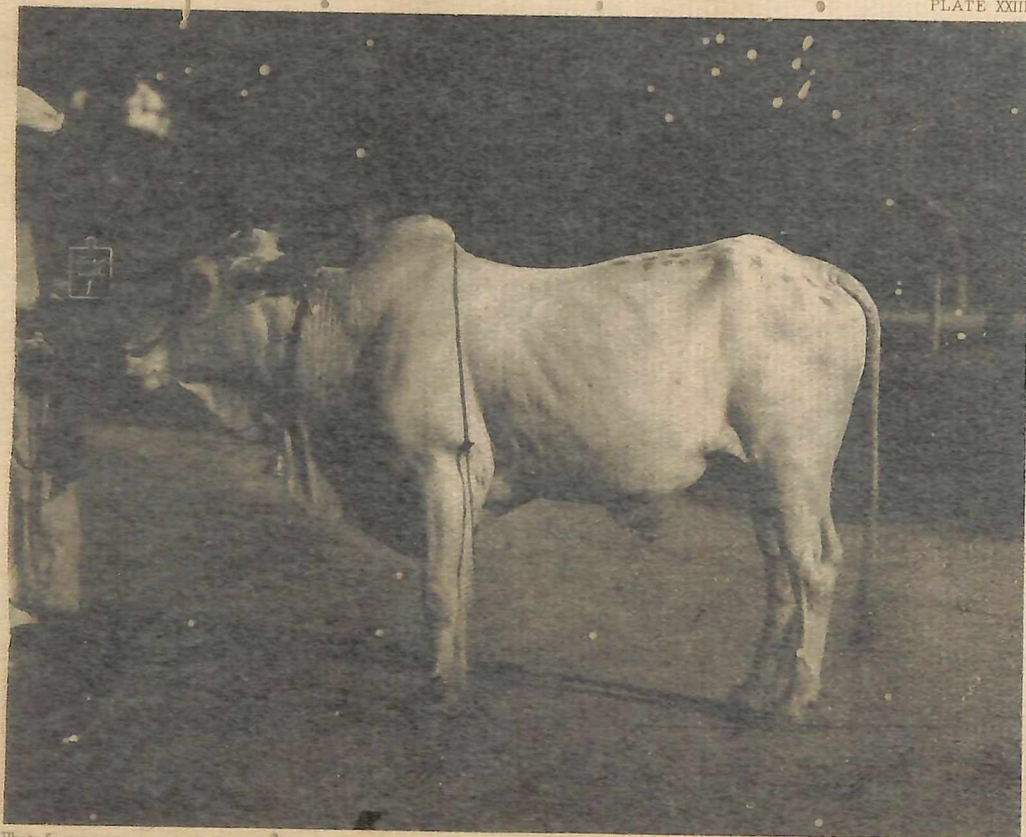
Cows.

For two months, *viz.*, from the 15th July to the 15th of September, the cows are entirely grazing, in the rest of the year they get bhusa, oil-cake and ardawa; they are given this additional food when they are in milk but only grass or bhusa is given when they are dry. The extra feeding depends on the season, churru, moth, green barley and turnips, etc., are also given in their time of harvest, but when no other food is available bhusa is given.

Bulls.

The Zemindars consider that one bull is enough for 60 to 70 cows; they do not like the bulls to be tied up; they prefer them to be running loose in the old fashioned way; they think the breed is getting small and they consider that a larger bull would be preferable to improve the strain.

Young stock. Young stock run with their mothers till nine or ten months old.



Photogravure.

Survey of India Offices, Calcutta, May 1902.

Potwar Bull. Vide measurements No. 1 of Jhelum District. This is a fair specimen of a Potwar Bull.

PLATE XXIV.



Photogravure.

Survey of India Office, Calcutta, May 1902.

Polwar Bull, Front view of Bull No. 1. *Vide* plate No. 28 and measurements.

Notes on indigenous breeds of Cattle in the Punjab.

The period as to how long a calf is allowed to suck its mother's milk, and how much milk is given depends as to whether the owner likes his calf. If the calf is a good one, he gives the whole of the milk to the calf for the whole period the cow is in milk, some give the calf half the quantity of the cow's milk for three or four months, then one fourth.

A good cow gives from four to eight seers of milk daily. Some Milk. Zemindars give their cows milk and ghee a short time before parturition.

Castration is performed at the age of three years, it is done by Castration. the method of mulling.

No bulls are selected, the immature calves are allowed to cover Breeding. cows, and sometimes bulls are obtained from Talagong tehsil, which is considered the best breeding centre.

A cow giving eight seers of milk is worth R50.

Price.

Price of an ordinary cow giving four or five seers of milk is about R25 to R30.

Price of a good working and well bred pair of bullocks is about R200; the price of bulls vary according to their breeding.

Diseases—Gloss anthrax, foot and mouth, and rinderpest.

There are no cattle fairs in the district. One should be held Fairs. at Pind Dadan Khan to give prizes for the best bulls of three years old at which time they could be selected for breeding purposes. I would only give prizes to animals of the Potwar or Mekra breeds.

The district I am sorry to say has suffered considerably from the importation of Hissar bulls, these mongrels have left their stamp very markedly in some cases and it is rather common to see a Potwari with Guzrati horns and the long narrow face of the Hariani. This is regrettable and its ill effects in the way of stag knee, crooked backs and weak loins are now apparent in a breed that is noticeable for its freedom from the above defects. I hope this invasion of ill bred coarse animals will stop.

The breed in this district has up to now been kept fairly pure on account of its isolated position, but with increased facility of transport, cross breeding is becoming prevalent.



Notes on indigenous breeds of Cattle in the Punjab.

General
Remarks.

It is acknowledged that amongst Indian Zemindars that cattle breeding is mainly left to chance, no arrangements are made for the efficient selection of bulls, no arrangements for the storage of fodder, the grazing is often inefficient and unsupplemented by artificial food, calves are seldom allowed the full quantity of milk and are weaned too early.

The fact, however, remains, as is seen in the Potwar breed and others. That certain typical breeds of cattle have been evolved in the course of some thousands of years, that these types are confined to certain districts, that there has been undoubtedly the introduction of outside strains, but they have become absorbed or swamped in the prepotency of the existing breed of that district.

The survival, then, of any distinct breed, is mainly the result of Nature's unassisted efforts, and points out to us that the type found in any one particular district should on no account be transplanted from that part, and that we should not attempt to graft that type upon any other type existing in another place, with the supposed intention of improving the breed of that part.

Cattle breeding having been so left to Nature, she has demonstrated the districts in which good types may be bred; and equally so in districts where the cattle are poor and inefficient, we may safely conclude that the conditions, both climatic and otherwise, do not provide a suitable habitat for the breeding and rearing of cattle.

From this I would conclude that attention to cattle breeding be confined to those districts in which Nature has already shown us that cattle may be bred with satisfactory results. The deficiency in other districts to be met by the *importation* of suitable draught cattle, when fully grown, from those districts where they may be obtained.

The facts to be gleaned (1) from the natural conditions of a district, (2) the existing breeds, as they are, *plus* man's intervention, (3) the survival of the fittest and (4) natural selection, should be taken every advantage of. Nature, in the majority of instances, will have demonstrated what is possible and what is not. In such a country as India, where everything is the result of thousands of years of domestication and natural selection, the places in which to carry out cattle operations or not, are so palpably demonstrated,

HOB



Photogravure.

Survey of India Office, Calcutta, February, 1903.

A pair of Nukra or Potwar Bullocks. They are each typical specimens of good working bullocks.

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Photogravure.

Survey of India Offices, Calcutta, May 1902.

Potwar Cow. *Vide* No. 2 in Jhelum measurements. A fair specimen, showing well developed teats and udder.

Notes on indigenous breeds of Cattle in the Punjab.

that we should not make the mistake of endeavouring to force conditions in any place where from reasons stated above, we are unlikely to expect any satisfactory result.

From this it will be seen that the methods to be employed in either resuscitating, or improving a breed, are to breed bulls in that locality in which the breed already exists. These bulls to be got from selected cows and not to be used for stud purposes until three years old.

In order to improve conditions in the Jhelum cattle, I would suggest that fairs be held and that prizes be given for one, two and three year old bulls, and from this class suitable animals could be selected and reared for stud purposes. I would also give prizes to young heifers, as it is this class of animal that the zemindar does not do well, and it is impossible to expect good results, in breeding, from poorly developed cows. These classes to be in addition to the ordinary classes for bullocks in singles and pairs.

JHELUM DISTRICT.

POTWAR BREED.	Age, years.	Height.	Length of body.	Girth of chest.	Shank.	Length of shank.	Length of horn.	Length of face.	Breadth of forehead.	
Bull No. 1 . . .	3	49	56	65	7	6	5 $\frac{3}{4}$	19 $\frac{1}{2}$	7	Jhelum.
Cow No. 2 . . .	5	43 $\frac{1}{2}$	50	61	6	6 $\frac{1}{2}$	11 $\frac{1}{2}$	19	6	"
Cow No. 3 . . .	4	46 $\frac{1}{2}$	46	61	6 $\frac{1}{2}$	6 $\frac{1}{2}$	9 $\frac{1}{2}$	18	6	"
Nukra Bullock No. 4	5	50	54	69	6 $\frac{1}{2}$	6 $\frac{1}{2}$	12	19 $\frac{1}{2}$	7	Chak Jamal.
" No. 5	4	51 $\frac{1}{2}$	50 $\frac{1}{2}$	66	7 $\frac{1}{2}$	6 $\frac{1}{2}$	8 $\frac{1}{2}$	19 $\frac{1}{2}$	8	"
" No. 6	...	52	...	...	...	...	...	...	...	"
" No. 7	...	...	...	...	...	...	...	...	...	Measurements could not be taken.
" No. 8	7	52	55	69	7 $\frac{1}{2}$	6 $\frac{1}{2}$	8	19	7	Kala.
" No. 9	5	49	54	62	6 $\frac{1}{2}$	5 $\frac{1}{2}$	8	18	6 $\frac{1}{2}$	"



Photogravure.

Survey of India Offices, Calcutta, May 1902.

A group of Cattle near Bhiwani, Punjab.

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