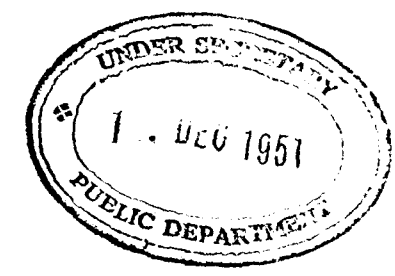
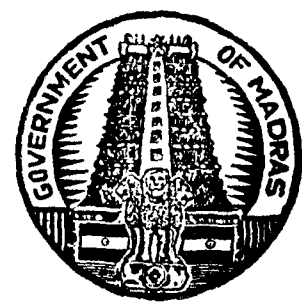


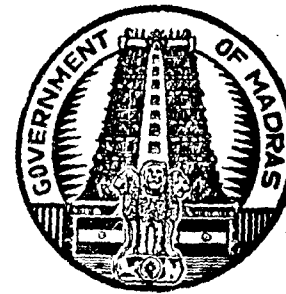
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**REPORT ON THE MARKETING OF CATTLE
IN THE MADRAS STATE**

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REPORT ON THE MARKETING OF CATTLE IN THE MADRAS STATE

BY

Sri. S. N. Venkataramana Iyer, B.A., B.Sc., (Ag.)
State Marketing Officer, Madras



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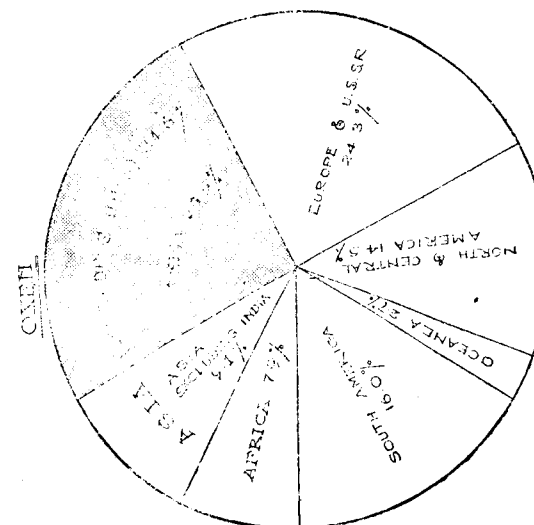
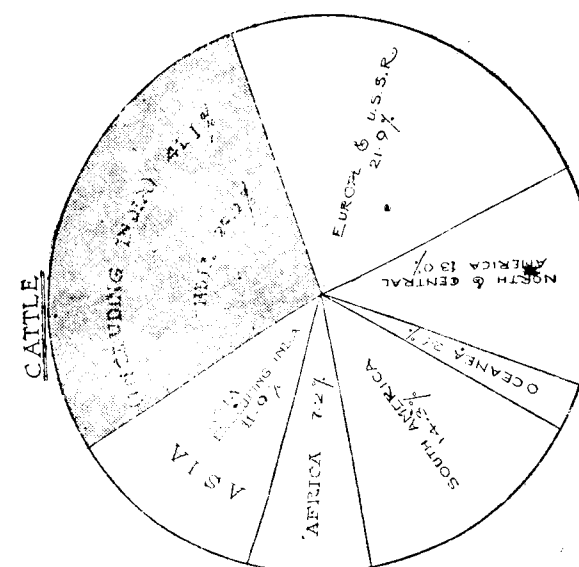
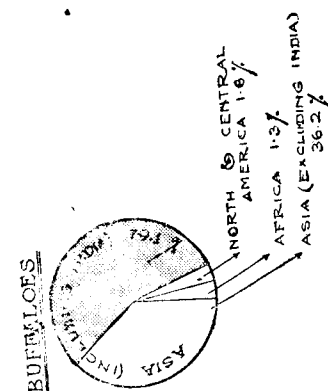
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Report on the Marketing of Cattle in the Madras State

CHAPTER I—POPULATION OF CATTLE AND THEIR DEMAND

A. NOTE ON WORLD PRODUCTION AND INTERNATIONAL TRADE IN CATTLE:

(1) *World Population.*

According to the international year book of Agricultural Statistics 1937-38, supplemented by data for India for 1940, the world population of cattle is roughly estimated at 727 millions. Of this oxen comprised 651 millions or about 90%. The number of oxen and buffaloes in different continents is given in the following table and the diagram facing this page.

Number of cattle in different continents and India (In thousands)

Name of continent.	NUMBER OF CATTLE		
	Oxen	Buffaloes	Total
Africa ...	51,162	996	52,158
Asia :—(excluding India.) ...	59,115	27,625	86,740
India ...	166,166	46,551	212,717
Europe including U. S. S. R. ...	158,129	1,245	159,374
North & Central America ...	94,486	Neg.	94,486
Oceania ...	17,898	4	17,902
South America ...	103,996	Neg.	103,996
Total ...	650,952	76,421	727,373
India's Share (percentage.) ...	25.5	60.9	29.2

The number of oxen in India was 16.6 crores, or about a fourth of the World's total. In the case of buffaloes, India accounted for 4.7 crores or about three-fifths of the recorded World's total. The relatively high population of buffaloes in India, as well as Asia is worthy of note. The proportion of buffaloes to the total cattle was negligible in America, and Oceania, hardly 1 per cent in Europe, nearly 2 per cent in Africa, about 22 per cent in India, and about 25 per cent in Asia.

Taking the total population of cattle, it is seen that the share of India was largest, being 29 per cent of the World's total. The cattle population in India was 33 per cent more than that of Europe, four times that in Africa, and over double the number in either South or North and Central America. In Asia itself, India accounted for 70 per cent of the cattle.

Although the actual number of cattle in India was very high, as compared to other world countries, the density per square mile was higher in Denmark, while the ratio of cattle to human population was comparatively low in India as can be seen below:—

Table showing the density of cattle per square mile and the number per 100 persons in different countries.

Country.	Cattle population in thousands.	Animals per square mile	Animals per 100 persons
Canada	8,511	2	77
Australia	13,078	4	191
U. S. A.	66,821	22	52
Argentina	33,101	31	259
Newzealand	4,506	44	281
France	15,622	73	37
Austria	2,596	80	38
Germany	19,911	110	29
England & Wales	6,849	117	17
India	212,717	135	55
Denmark	3,239	195	86

The lower number of cattle per head (0.55) in India, as compared to Argentina (2.6) or Newzealand, (2.8) is due to the fact, that rearing of cattle in this country is an occupation subsidiary to agriculture and the number of specialised breeders and breeding farms is small.

(2) International trade

The imports and exports of cattle relating to the important countries are given in Appendix I. Annually about 2.9 million cattle or hardly 0.4 per cent of the World's total enter into the international trade. Among the World's largest cattle exporting countries were Ireland (700,000), Denmark (172,000), Argentina (70,000), Uruguay (69,000), Korea (57,000), and Rumania. Among the largest importers were the United Kingdom (712,000), United States (507,000), Germany (201,000), Italy (167,000), and U. S. S. R. (142,000). India's position in the international trade was not significant.

B. POPULATION IN INDIA AND MADRAS

(a) The Census.

A census of cattle is said to have been attempted in the Moghul period, while a regular system was initiated from the eighties of the 19th century, but the method was not uniform or accurate. In order to make the data comparable and more useful, the Government of India ordered a census of cattle all over

British India during December 1919 to April 1920, and this was repeated quinquennially thereafter. During January of 1930, 1935, 1940 and December 1944, the cattle census was taken simultaneously in all places, to avoid any defects due to movements of cattle, as recommended by the Royal Commission on Agriculture.

In the censuses of 1919-20, 1924-25 and 1929-30 oxen and buffaloes were classified into four groups, viz., (1) Bulls, (2) Bullocks (3) Cows and (4) Young stock. During the year 1935, a more detailed classification according to age, and utility (working, in milk, etc.) was adopted as shown below (for oxen and buffaloes):—

(a) Males:—

(1) Breeding, i.e., entire males over three years kept or used for breeding purposes.

(2) Working bullock i.e., bullocks and uncastrated males over three years kept for work only.

(3) Bulls and Bullocks over three years not in use for breeding or work.

(4) Young stock (i) under one year.

(5) „ (ii) one to three years of age.

(b) Females:—

(1) Breeding cows, i.e., cows over three years kept for breeding or milk production.

(2) Cows over three years used for work.

(3) Cows over three years not in use for work or breeding purposes.

(4) Young Stock (i) under one year.

(5) „ (ii) one to three years.

From the quinquennium 1940, the item (2) was further subdivided into (a) working bullocks, i.e., bullocks and uncastrated males over three years, kept for work only, and (b) bulls and bullocks over three years not in use for breeding or work, while the females were classified as follows, viz., (a) in milk, (b) dry and (c) not calved for both rural and urban areas in each district.

Due to the frequent changes in the classification, as well as grouping, the census figures are not comparable. Further some units in India have not participated uniformly, while the collection in many parts was in the hands of village chaukidars, headmen, policemen, etc. The census data on the whole can be taken as approximate only.

(b) Total number

According to the census of 1940, the cattle population in India was estimated at 212.7 millions of which 166 millions (or 78 percent) were oxen. In the Madras Presidency the total population was as below:—

Cattle population in Madras Presidency (ooo)

	1940	1945	Percent
Oxen	15,997	16,355	72.2
Buffaloes	6,122	6,289	27.8
Total	22,119	22,644	100.0

The cattle population in Madras of 22.6 millions was roughly one-tenth of that in India, and consisted of 72 percent oxen and 28 percent buffaloes.

(c) Distribution of cattle according to age, sex and work

The distribution of oxen and buffaloes in India (Census of 1940) and Madras (1944) according to age, sex and work is given in the following table :—

(Statement—Vide Opposite Page)

There is a large preponderance of females among buffaloes being three-fourths in India and about two-thirds in Madras. The proportion of females among oxen was only 47 percent. This is due to the fact that while male oxen are maintained more for work than buffaloes, the buffaloes are preferred more for dairy purposes. The actual proportion was 37 and 40 percent, respectively of working bullocks to total oxen in India and Madras, while working buffaloes comprised 12 and 16 percent of the buffaloes. On the other hand, breeding cows comprised 30 percent only of the total oxen while breeding buffaloes comprised 46 percent of the total buffaloes. There appears also a breeding out of young buffaloes in the whole of India. While male young buffaloes formed 12 percent of the total, young females comprised 25 percent in India. The tendency was not so pronounced in Madras.

Further a greater proportion (2.7 percent) among oxen has been reported as not put to work in India, than buffaloes (1.4 percent) and this was also true of Madras (3.4 and 2.5 percent respectively). This is attributable to the sanctity attached to the ox by Hindus in India.

(d) (i) Regional distribution of oxen in India and Madras (total number.)

Out of 166 million oxen in India, the largest share was contributed by the United Provinces (14 per cent) and Bengal (13.6 per cent). Madras ranked third with a share of 9.6 per cent or 16 millions. The density of oxen per 100 acres of cultivated

Population of Cattle by groups in India—(1940) and Madras—(1944).

	Oxen				Buffaloes			
	Number in thousands		Percentage		Number in thousands		Percentage	
	India 1940	Madras 1944	India 1940	Madras 1944	India 1940	Madras 1944	India 1940	Madras 1944
Males—								
1. Breeding bulls over 3 years	754	91	0.4	0.5	378	52	0.8	0.8
2. Working bullocks and uncastrated males over 3 years	61,397	6,430	36.9	39.7	5,644	1,011	12.1	16.2
3. Bulls and bullocks over 3 years not in use for work or breeding	3,138	361	1.9	2.2	309	117	0.7	1.8
4. Young stock under one year	10,343	880	6.3	5.4	3,453	565	7.6	8.9
5. Young stock 1 to 3 years old	13,170	896	7.9	5.5	2,233	307	4.8	4.9
Total Males	88,822	8,718	53.5	53.3	19,119	2,032	26.0	32.6
Females—								
6. Breeding cows over 3 years old	48,988	5,030	29.5	30.7	21,436	2,920	46.1	46.5
7. Cows over 3 years used for work	3,250	585	2.0	3.6	838	77	1.8	1.2
8. Cows over 3 years not in use for work or breeding	1,365	193	0.8	1.2	345	46	0.7	0.7
9. Young stock under one year	10,464	876	6.3	5.4	5,439	674	11.7	10.7
10. Young stock 1 to 3 years of age	13,277	953	3.0	5.8	6,384	521	13.7	8.2
Total Females	87,344	7,637	49.6	46.7	34,432	4,338	74.0	67.4
Grand Total	1,66,166	16,355	100.0	100.0	46,551	6,299	100.0	100.0

*Number of Oxen and their density in the Districts
(Madras Presidency)*

December 1944 Census (in thousands)

District.	Oxen		Percentage of females to Total oxen in the district.	Density		
	Number (000)	Percentage to Total		Per 100 acres of cultivated area (1945-'46)	Per 100 persons (1941 Census)	Per square mile.
Visakhapatnam ...	965	5.9	42.7	62	25	119
E. Godavari ...	761	4.7	47.2	74	35	134
W. Godavari ...	521	3.2	46.2	59	37	173
Krishna ...	423	2.6	46.5	36	29	122
Guntur ...	420	2.6	40.7	20	18	72
Kurnool ...	333	2.0	37.2	17	29	44
Bellary ...	379	2.3	35.3	16	36	66
Anantapur ...	516	3.1	40.3	27	44	76
Cuddappah ...	592	1.8	39.0	30	27	49
Nellore ...	607	3.7	52.1	49	37	76
Chinglepet ...	677	4.2	42.6	102	37	220
South Arcot ...	1,084	6.7	53.1	83	42	257
Chittoor ...	854	5.2	50.9	118	51	145
North Arcot ...	981	6.0	43.2	92	38	211
Salem ...	1,376	8.4	55.2	83	48	195
Coimbatore ...	1,076	6.6	49.3	61	38	151
Tiruchirappalli ...	864	5.3	44.3	68	39	199
Tanjore ...	975	5.9	44.6	71	38	260
Mathurai ...	749	4.6	46.1	63	30	154
Ramnad ...	542	3.3	39.6	51	27	113
Tirunelveli ...	523	3.2	36.7	46	25	121
Malabar ...	836	5.1	56.5	55	21	144
South Kanara ...	556	3.4	52.1	59	36	138
The Nilgiris ...	34	0.2	64.7	32	16	34
Madras ...	6	...	66.6	...	...	207
Total Madras 1945	16,355	100.0	46.6	53	33	128
Total India 1940...	166,166	...	46.5	43	43	106

area was highest in Kashmir (86), Rajputana (84), Bengal (78), and very low in Bombay (21), Sind (18), and Baroda (32). The average number of oxen in India was 53 and in Madras was 43.0 per 100 acres.

The number of oxen per unit of human population was highest in Central India States (88), Rajputana (81), and Ajmer-Merwara and lowest in North Western Province (25) followed by Baroda and Madras (32). This may be compared to 55 oxen per 100 persons in India and 281 in New Zealand.

Considered in regard to density of oxen per square mile, the highest positions were occupied by Bengal (292) and United Provinces (218), while Madras was sixth with 129 and Kashmir last (27).

The number of oxen in the different districts of the Madras Presidency, with the proportion of females, and density are given below:—

(Statement—Vide Opposite Page)

It will be observed that the largest number of oxen was found in the Salem district, (1,376,000) which was closely followed by South Arcot (1,084,000) and Coimbatore (1,076,000).

The proportion of females to the total is also found to vary from district to district from 35 to 67 per cent. In many districts as Bellary, Kurnool, Tirunelveli, Cuddappah, Ramnad and Anantapur, the males predominated. In a few cases, the number of females was in excess of the males as in Nilgiris and Madras city. The varying proportions of males and females found in different districts depended upon a number of factors such as the rates of birth and mortality in the two sexes, requirements for milk or bullock power for cultivation, import and export demand, etc.

The density of oxen was highest in Chittoor district which possessed as many as 118 oxen per 100 acres of cultivated area. This was closely followed by Chinglepet, South Kanara, North Arcot, Salem and South Arcot where 102, 99, 92, 83 and 83 heads were found per 100 acres of cultivated land respectively. Other districts of concentration were East Godavari, and Tanjore with 74 and 71 heads, respectively. Of all the districts, Kurnool and Bellary showed low density having only 17 and 16 oxen per 100 acres respectively.

As regards the number of oxen per unit of population Chittoor was highest with 52 oxen per 100 persons followed by Salem, Anantapur, South Arcot, Tiruchirappalli, Coimbatore, Tanjore, and North Arcot with densities of 48, 44, 42, 39, 38, 38 and 38 respectively. The sparse areas of distribution in this respect were The Nilgiris, Malabar, and Tirunelveli with 16, 21, and 23 heads of oxen respectively.

The position is somewhat different when the *density per square mile* is taken into account. Tanjore which possessed the same number of oxen as Coimbatore and North Arcot was far more densely populated in this respect and had 260 animals per square mile as compared to 151 and 211 for the other districts respectively. South Arcot had the next highest density of 257 oxen per square mile. The lowest density—34 per square mile—occurred in the mountainous district of the Nilgiris.

For the province as a whole, the density of oxen works out to 128 per square mile, 53 per 100 acres of cultivated land, and 33 per 100 persons. The corresponding figures for India were 106, 43 and 43 respectively.

(ii) *Serviceable stock:*

Under this head come the breeding bulls, working bullocks, breeding cows and cows used for work. Their distribution in the districts is given in Appendix II and discussed below.

Breeding bulls:—Service bulls number 91,144 or about 0.5 per cent of the total oxen in the presidency. Chittoor possessed the largest number viz. 11,005 or 12.1 of the total bulls in the province. Next came Salem district with 9,789 bulls. Owing to the difficulty of distinguishing between bulls kept for breeding and uncastrated oxen kept for work, the figures for breeding bulls are, perhaps, not quite accurate. It is therefore not possible to work out correctly the average number of cows per bull in the different districts.

Working bullocks.—The Madras Presidency had, as per 1944 (December) Census 5,648,336 working bullocks. Their largest number was found in Tanjore district followed by North Arcot, Salem, Tiruchirappalli and Coimbatore. The proportion of working bullocks to the total oxen population in any area depends upon the agricultural requirements of that area, the type of bullocks available, and the nature of the crops generally grown. On the whole working bullocks formed 34.5 per cent of the total oxen population in the province.

Breeding Cows.—There were in the province 5,029,513 breeding cows or 30.7 per cent of the total oxen population. The largest number of breeding cows were in South Arcot. Next in order came Salem, Coimbatore, Malabar, Tanjore and Chittoor districts respectively.

Compared with other districts, Kurnool, Cuddappah, Bellary and the Nilgiris had less breeding cows.

Working Cows.—The number of cows used for work only in the province was 584,540, i.e. 3.5 per cent of the total oxen population. Cows are generally not put under yoke, but for reasons of economy, this is done in several parts, particularly where the milk yield is poor. The largest number of working cows was found in Salem (210,198). Next came Mathurai, North Arcot, Coimbatore and Tiruchirappalli.

Number of Buffaloes and their density in the Districts
(Madras Province)

December 1944 Census (in thousands)

Districts.	Buffaloes		Percentage of females to total buffaloes in the district	Density		
	Number (000)	Percentage to Total		Per 100 acres of cultivated area (1945-46)	Per 100 persons (1941 Census)	Per square mile
Visakhapatnam ...	555	8.8	45.5	35.6	14.4	60.9
East Godavari ...	331	5.3	64.0	32.1	15.3	52.3
West Godavari ...	354	5.6	65.8	40.3	25.6	145.4
Krishna ...	516	8.2	75.2	44.3	35.7	148.7
Guntur ...	752	11.9	73.7	35.5	33.0	129.7
Kurnool ...	294	4.8	79.3	14.8	25.6	38.5
Bellary ...	142	2.3	80.3	6.2	18.5	24.8
Anantapur ...	175	2.8	74.0	9.3	14.9	25.8
Cuddappah ...	270	4.3	75.8	28.1	25.6	46.5
Nellore ...	537	8.6	70.3	43.2	33.2	67.6
Chinglepet ...	187	3.0	63.3	28.1	10.2	60.8
South Arcot ...	145	2.3	63.3	11.0	5.5	34.5
Chittoor ...	171	2.7	72.9	23.5	10.4	28.7
North Arcot ...	137	2.2	67.3	12.8	5.3	29.3
Salem ...	171	2.7	80.3	10.3	5.9	24.1
Coimbatore ...	196	3.1	82.8	11.1	6.9	27.5
Tiruchirappalli ...	202	3.2	79.4	15.8	9.2	46.6
Tanjore ...	247	3.9	69.8	18.0	9.6	66.1
Mathurai ...	145	2.3	77.5	12.1	5.9	29.6
Ramnad ...	115	1.8	73.3	10.8	5.8	23.7
Tirunelveli ...	170	2.7	74.2	14.9	7.5	39.1
Malabar ...	225	3.6	29.0	14.7	5.7	38.8
South Kanara ...	229	3.6	28.4	40.7	15.0	56.6
The Nilgiris ...	18	0.2	75.4	16.7	8.6	18.2
Madras ...	6	0.1	90.5	...	0.8	200.0
Total ...	6,250	100.0	67.4	20.5	12.7	49.8

(iii) Young Stock.

As will be seen from Appendix II the total young stock population of the province was 3,605,286 or 22.0 per cent of the total oxen. In the province as a whole the number of males and females (young stock) are almost equal, being 10.8 and 11.2 % respectively of the total oxen population. Of the 25 districts, only in 10, the males were slightly more than the females.

(iv) Unserviceable stock

These comprise the old and emaciated animals which are permanently unfit for work or breeding, but nevertheless kept by their owners mainly on religious or sentimental grounds. The total number of such animals during 1944 was 553,785 or 3.4 per cent, of the total oxen in the province. Of these 360,759 were males and 193,026 females. This indicates that the cultivator has a greater regard for his old bullocks than for the cow. The former is kept both on sentimental as well as religious grounds, but the cow mainly for the latter reason. The largest number of unserviceable stock was found in Salem district which had the highest oxen population in the province and the largest number of working cows.

(e) Regional distribution of buffaloes.

(i) Total number.—The total number of buffaloes in the Madras Presidency, according to sex and other details in respect of serviceable, young and unserviceable stock is given in Appendix III. Their density in the various districts is shown in the table given on page 9.

The total number of buffaloes in the province during 1944 was about 63 lakhs. Of them about 7.5 lakhs were in Guntur district and about 5.5 lakhs each in Visakhapatnam, Nellore, and Krishna districts, respectively. Other districts of importance for buffaloes in respect of population were East and West Godavari, Kurnool, Cuddappah, Tanjore, Malabar, South Kanara and Tiruchirappalli. The population in the other districts ranged from 1.25 to 1.75 lakhs. In Malabar and South Kanara the percentage of females was very low (29%), as males were maintained to a greater extent for draught purposes, viz., ploughing rice-fields (mostly sandy or loamy) and cart work on the hills. The largest percentage of females was found in Coimbatore, Salem and Bellary (over 80%) the average being 67.4% or roughly two-thirds for the whole province.

The density of buffaloes per 100 acres of cultivated land was highest in Krishna district (44.3) closely followed by Nellore, South Kanara, West Godavari and Guntur districts with a density of 43.2, 40.7, 40.3, 35.5 respectively.

The distribution of buffaloes per unit of human population was the highest again in Krishna district, which had 35.7 buffaloes for every 100 persons. Nellore and Guntur had 33.2 and 33.0 heads respectively. It was very low in many Tamil districts ranging from 5 to 9 per 100 persons.

The highest density of buffaloes per square mile was also in Krishna district (148.7). Next in order were West Godavari and Guntur with 145.4 and 129.7 respectively. It was generally low in the Tamil districts.

The presidency average of density works out to 20.5 buffaloes per 100 acres of cultivated land, 12.7 per 100 persons and 49.8 buffaloes per square mile.

(ii) Serviceable stock—As in the case of oxen, serviceable stock of buffaloes includes breeding bulls, working he-buffaloes, breeding she-buffaloes and working she-buffaloes. Their number in the various districts is given in Appendix III and described below.

Breeding Buffalo-bulls.—There were 51,008 breeding buffalo-bulls in the province of which 8776 were in Visakhapatnam district and 3,992, 3,324 and 3,139 in Chittoor, Guntur and Nellore districts respectively. As against 0.5%, in the case of oxen, the proportion of breeding buffalo bulls to the total buffalo population, in the province was 0.8%. It may be stated here that male buffaloes used for work are usually not castrated and sometimes they are used for covering buffalo cows. It is therefore not possible to work out correctly the average number of she-buffaloes per buffalo bull in the different districts.

Working he-buffaloes.—Working he-buffaloes comprised only 16.1 per cent of the total buffaloes in the country and numbered about 10 lakhs. Generally speaking, the number of buffalo bullocks is high in tracts where paddy is the chief crop.

Breeding she-buffaloes.—Breeding she-buffaloes numbered about 29 lakhs and comprised 46.4 per cent of the total buffalo population, in the province. The she-buffalo is generally a superior milk animal compared with the cow and is therefore in great demand by producers of dairy products. The largest number of breeding she-buffaloes was found in Guntur district (354,500) followed by Krishna (261,184) and Nellore (255,850) districts.

Working she-buffaloes.—These comprised only 1.2 per cent of the total buffaloes and numbered 77,160 heads. Generally, cows which are infertile or dry are used for the plough or the cart. Their largest number was found in West Godavari (7,268), Ramnad, Madurai, Visakhapatnam and Malabar districts came next with 6,510, 6,372, 6,337 and 6,018 heads respectively.

(iii) Young stock.—The number of male and female buffalo young stock under three years of age in the various districts is given in Appendix III.

Their total number was about 20.7 lakhs or 32% of the total buffaloes in the province. Of these 7 lakhs are males and 11.9 lakhs are females. The female calves are generally better fed and looked after than the male calves, because they grow up into useful milk animals, while the latter are used mainly as

beasts of burden. In Malabar the male calves were about 50 percent more than the females, in South Kanara they were almost equal in numbers, while in all the other districts, the female population was more than the males. The variation was due to the demand and utility of the two sexes.

(iv) *Unserviceable stock*.—Unserviceable buffalo stock which includes animals permanently unfit for work or breeding formed only 2.6 per cent of the total buffalo population as compared with 3.1 per cent in the case of oxen. Their number was 162,782 of which 116,720 were males and 46,053 females. Unserviceable stock are maintained mainly for sentimental reasons.

(2) *Trend of cattle population.—Factors affecting*.—There are certain factors which considerably deplete the number of cattle in the effected tracts. The most important of these are (1) famines (2) floods and (3) epizootics. In a reverse way, colonisation may result in increasing the cattle number.

(1) *Famines and floods*.—Failure of rains occurring over a wide area, affects the production of crops, and when this is continued for a long period, famine results. Fodder supply also gets exhausted, and a number of cattles die or are driven away. It is reported that during the famine in the Hissar district of the Punjab, about 50 per cent. of the buffaloes and oxen were reduced. No records are available of the number of cattle deaths in Madras, but generally great mortality occurred in the frequent famines that occurred in the dry districts as Anantapur, Bellary and parts of Kurnool and Cuddappah.

It is also reported that during the cyclones in the circars particularly in Guatpur district many cattle were affected.

(2) *Epizootics*.—Mortality due to contagious diseases is recorded both in India and Madras. During the year 1938-39, it was reported that 236,055 cattle or roughly one in a thousand, died of contagious diseases in India, of which rinderpest accounted for 52 per cent and haemorrhagic Septicemia 24 per cent. In Madras, such mortality was greatest during 1928-29 (170,936) and 1929-30 (158,023), over 70 per cent of which was due to rinderpest. Deaths due to contagious diseases since the year 1940-41 were as follows:—

Year	Total deaths.	Percentage deaths due to rinderpest.
1940-41	55,384	32
1941-42	41,126	34
1942-43	52,425	25
1943-44	76,280	57
1944-45	54,803	53
1945-46	26,196	49
1946-47	28,474	20
Average	47,813	39

The average mortality from contagious diseases was 47,813 or about 2 per thousand. It would be seen that when an outbreak of rinderpest occurred the effect usually lasted two to three years, but there was a continuous outbreak from 1926 to 1932.

Total number.—The total number of oxen and buffaloes in India and Madras, in the different censuses was as follows:—

Trend of Cattle Population (Thousands).

Year.	Buffaloes.		Oxen.	
	India.	Madras.	India.	Madras.
1919-20	2,344	5,758	69,529	16,536
1924-25	21,186	5,858	70,428	16,252
1929-30	22,885	5,994	74,928	16,447
1934-35	24,929	6,812	77,801	17,790
1939-40	24,145	6,122	72,940	15,997
1943-44	na	6,290	na	16,355

In India, the buffalo population increased from 20.3 million during 1919-20 to 24.9 millions during 1935 but fell to 24.1 millions during 1940. The oxen population similarly increased from 69.5 millions during 1920 to 77.8 millions during 1935, but fell to 72.9 millions during 1939-40. The Madras Presidency also recorded an increase of population from 1920 to 1935, for both buffaloes (5.8 to 6.8 million-) and oxen (16.5 to 17.8 millions), and there was a big fall during 1940 and a slight rise during 1945. On the whole, the oxen population was practically the same as it was 25 years ago (16.4 millions), while the buffalo total had increased from 5.8 to 6.3 millions or an increase of only 5 per cent.

Different Classes.—Due to changes in the classification adopted since 1935, it is not possible to compare the population of earlier years, with the recent trends. The numbers of animals in the different classes, are given in Appendices II & III and the percentage change as compared to 1935 is given below:—

Percentage change over 1935 (= 100) of different Classes of cattle population during 1940 and 1945.

	Oxen.		Buffaloes.	
	1940.	1945.	1940.	1945.
Males—				
(1) Breeding bulls, etc. ...	— 34	— 46	— 65	— 64
(2) Working bullocks ...	— 8	— 5	— 14	— 9
(3) Bulls and bullocks not used for work.	8	— 45	— 21	11
(4) Youngstock—				
(a) Under 1 year ...	— 3	— 9	9	14
(b) 1 to 3 years ...	— 28	— 30	— 32	— 25
Total Males ...	— 9	— 6	— 16	— 11
Females—				
(1) Breeding cows ...	17	17	24	22
(2) Working cows ...	— 56	— 49	— 76	— 72
(3) Cows not used for work.	— 71	— 66	— 80	— 80
(4) Youngstock—				
(a) Under 1 year ...	— 21	— 28	— 18	— 21
(b) 1 to 3 years ...	— 26	— 28	— 33	— 33
Total Females ...	— 11	— 11	— 7	— 6
Grand Total ...	— 10	— 8	— 10	— 8

It is seen that the recent changes in population have been very variable when considered in respect of different classes. Thus during 1944, total oxen declined by 8 per cent. from the year 1935, but the decline was more among females (11 per cent.) than among males (6 per cent.) Breeding cows increased significantly in number (17 per cent.) while there was a large decline in the number of cows used for work (49 per cent.) and a greater decline in those unfit for work or breeding (66 per cent.). Even breeding bulls showed a decline (46 per cent.) and the tendency was an increase in the number of breeding cows at the expense of all other classes, young and old.

In the case of buffaloes, the decline from 1935 to 1945 was 8 per cent. and unlike in oxen more among males (11 per cent.) than females (6 per cent.). The only class that showed increase in the past decade were breeding she-buffaloes (22 per cent.) and male young stock under one year (14 per cent.) while there was a decline in all other classes, the most noticeable being she-buffaloes

unfit for breeding (80 per cent.), she-buffaloes fit for work only (72 per cent.) and breeding buffalo-bulls (64 per cent.). Evidently there has been slaughter or death of unserviceables in the past decade, probably due to high cost of maintenance, as well as the need for slaughter animals. Breeding cows have however increased.

C. FOREIGN TRADE.

Exports.

(1) *By Sea.*—Exports of cattle from India which averaged 13,823 in the quinquennium ending 1927-28 declined to 2,915 by 1938, and still further to only 780 in the period ending 1937-38 as can be seen below:—

Foreign Exports by sea of cattle from India and Madras.

	India.	Madras.
Quinquennium ending—1927-28 ...	13,823	12,755
Do. —1932-33 ...	2,915	2,479
Do. —1937-38 ...	780	532
Year —1938-39 ...	1,436	583
Year —1939-40 ...	2,244	597

Although Madras accounted for the largest share, the quantity was relatively unimportant, and has practically stopped recently.

Foreign exports by sea of cattle from Madras.

	Madras.
1940-41 ...	585
1941-42 ...	999
1942-43 ...	2,509
1943-44 ...	8
1944-45 ...	6

Prewar exports were mainly to Ceylon and next the Straits Settlements.

(2) *By rail.*—The exports of cattle were estimated as below:—

To	Prewar.			Remarks.
	Road.	Rail.	Total.	
Orissa ...	1,000	...	1,000	Restrictions were imposed on exports of cattle during the war period.
Mysore ...	3,000	210	3,210	
Central Provinces...	2,000	...	2,000	
Travancore ...	6,000	...	6,000	
Cochin ...	3,500	...	3,500	
Nizam's State ...	7,000	50	7,050	
Bombay ...	1,000	60	1,060	
Total ...	23,500	320	23,820	

The figures are approximate only, as most of the movements take place by road.

Imports

Imports of cattle into Madras (a) Oxen—Most of the imports into the Madras Presidency took place by road from Mysore (57,000) and the prewar imports were as below as compared to 1943-44:—

Imports of cattle by Rail and Road into Madras.

From	Prewar average.			1943-44.		Remarks.
	By rail.	By road.	Total.	By rail.		
Mysore ...	650	57,000	57,650	450		*Movements restricted—Mostly working animals.
Nizam's State ...	70	12,000	12,070	215		
Central Provinces...	...	2,000	2,000	...		
Bombay ...	160	1,000	1,160	170		
Others ...	60	...	60	...		
Total ...	940	72,000	72,940	*835		

While the total imports amounted to nearly 73,000 animals, imports during war time were restricted by conditions imposed by the Governments of the States and Provinces. Imports were mostly of work cattle.

(b) *Buffaloes.*—Imports of buffaloes into Madras, totalled about 15,000 in prewar years but were negligible in the war period.

Imports of Buffaloes into Madras.

From	Prewar.	1943-45.	Remarks.
Mysore ...	3,000	...	She-buffaloes. Males Kumidi breed. Murra breed buffaloes, mainly females.
Nizam's State ...	2,000	Nil	
Orissa ...	10,000	...	
Punjab ...	400	...	
Total ...	15,400	Nil	

D. DEMAND FOR CATTLE

(1) *General*—Working bullocks form the backbone of agricultural operations. They are used for all kinds of preparatory cultivation and ploughing, carting manure, Drill sowing, lifting water, threshing and finally transport or marketing. The cow is held sacred in India and is valued for her milk as well as progeny. Apart from the milk products like ghee, butter, curd, etc., which form valuable supplements to food, there are also other products from cattle like hides, skins, horns, and hooves, which enter largely into commerce; while dung and urine form very good manures. It has been estimated that cattle contribute annually Rs. 1,900 crores to the wealth of India. (Colonel Sir Arthur Oliver).

(2) *Utilization of cattle in India*—(a) *Draught cattle*:—

(i) *for Agriculture.*—During 1940, the number of ploughs in India was estimated at 34.9 millions and in Madras 4.2 millions. Taking two as the number of working cattle required per plough, the number of working cattle required for cultivation of land is estimated as follows:—

Number of cattle used for Cultivating Land 1940—(In thousands).

	Number of working cattle present.*	Number of ploughs.	Number of working animals required.	Net area of cultivated land per pair of bullocks.
				ACRES.
India ...	71,040	34,923	69,846	11.0
Madras-1940 ...	7,235	4,225	8,450	9.8
" 1945 ...	8,163	3,930	7,860	7.4

*Includes working oxen, buffaloes, cows and she-buffaloes used for work.

On the same basis, the number of acres cultivated by a pair of bullocks during 1940 was 11 acres in India and 9.8 acres

in Madras. During 1945, this area fell in Madras to only 7½ acres. Among the different districts, the largest area cultivated during 1945, by a pair of bullocks was highest in Bellary (22·7 acres), Kurnool (21·5 acres), Guntur (16 acres) and Krishna (11 acres). This area was very low in South Kanara (3·4 acres) Chinglepet (4·0), North Arcot (4·0), Chittoor (4·1), and fairly low in Visakhapatnam, East Godavari, West Godavari, South Arcot, Salem, Tiruchirappalli, Tanjore and Mathurai (5 to 6 acres).

Of the total estimated number of working cattle required for ploughing in Madras during 1945 (7·83 millions), the largest number was required in Salem (658,000), South Kanara (570,000), South Arcot (570,000) Tiruchirappalli and Tanjore (534,000 each). In all these districts, the number of work cattle is smaller than the number required for operating ploughs and the deficiency is made good by using dry cows, young bullocks, etc.,

(ii) *for Transport*.—It is estimated that there were 94 lakhs of bullock carts in India during 1940, of which 94% were located in the villages, while a few better class of cultivators use bullocks solely for transport purposes, most ryots often use the same animals for cart, as well as, field work, while some carts are also maintained by professional cart men. The number of carts in the Madras was as follows:—

1930	...	1,165,294 (omitting Ganjam).
1935	...	1,128,286 do.
1940	...	1,241,424
1945	...	1,179,013

Of the 11·8 lakhs of carts in Madras during 1945, the largest numbers were reported from Coimbatore (101,970), Guntur (100,400), Tanjore (74,100), Salem (66,650) Krishna (65,600) and East Godavari (60,500). Most of the carts are double bullock carts. The same animals are used both for ploughing as well as cart work, in rural areas. In Madras City, cattle are not used generally for transport of produce in carts, but men are employed. In other urban areas, the number of work animals maintained was roughly 400,000 or about 2½ per cent. of the oxen population. This may be taken as the number employed for transport in urban areas.

Pack animals.—In the hilly tracts like the Kodaikanal and Nilgiris cattle are used as pack animals for transport of agricultural produce on a small scale. The number in Kodaikanal was estimated at 4,000 and about the same number in the Nilgiris and other areas.

(iii) *for other Purposes*.—Bullocks and occasionally buffaloes are used for driving sugarcane crushers in India. During the year 1940, there were in India 600,000 sugarcane crushers, worked by bullocks. In Madras the number rose from 23,496 in 1940 to 25,506 during 1945. A pair of bullocks are required for



AN ONGOLE WORK PAIR

each crusher, but the same cattle used for the agricultural operations are mainly used for this purpose.

The number of country *chekkus* (or *ghanis*) was estimated at 294,000 in India during 1940. The number in Madras rose from about 25,000 during 1940 to 31,000 during 1945. Mostly bullocks are employed for this purpose, and the demand for this purpose was roughly 62,000 animals.

(iv) *Summary*.—The demand for work animals in India and Madras is summarized below:—

	Madras.	India.
Animals available ...	8,163,000	71,040,000
Required for cultivation in villages ...	7,860,000	69,846,000
Used for carting in urban areas ...	400,000	1,120,000
Used for pack animals ...	8,000	71,000
Used in oil crushers ...	62,000	374,000
Total Demand ...	8,330,000	71,411,000

There appears to be a deficiency of 167,000 animals in the number required for work in Madras, and this is probably made up by using young stock, dry cows, etc., for such purposes, and also by reduction in the number of working days in the year.

(b) *Dairy Cows*.—The number of breeding cows in India was 4,99,88,000 during 1940 of which Bengal accounted for the largest share (7,475,000) next United Provinces (5,726,000) and next Madras (4,999,000). Of the Indian total of breeding she-buffaloes namely 21,136,000 the largest numbers were accounted for by the United Provinces (4,001,000), Punjab (2,890,000) and next Madras (2,869,000). During 1945, the number of cows actually in use for breeding or milk was 5,030,000 in Madras and the corresponding number for she-buffaloes was 2,920,000.

Most of the breeding cows and she-buffaloes in India were situated in rural areas, the percentage being 96 and 94 respectively. In the Madras Presidency, 91 per cent and 89 per cent of the cows and she-buffaloes, respectively were in the villages.

Although only about 10 per cent of the breeding she-buffaloes and cows are present in urban areas, they cater to the daily effective demand for milk. The best milch cows are in demand in large cities, as for instance in Madras where Nellore, Sindhi and half-bred cows, and Punjab she-buffaloes, are imported.

Slaughter stock.—In general only old animals which are unserviceable or uneconomic were slaughtered in normal times as

the price of beef was low. In a few cases, cows when they went dry in cities were slaughtered in places like Madras City. This was sought to be remedied to a certain extent, by 'salvaging' dry cows and sending them to grazing areas in Guntur and Nellore districts. Special reduced rates for cattle were granted for this purpose by the M.S.M. Railway on representations of the Marketing Section. A Scheme for salvaging of dry cows through co-operative society was also introduced in Madras City. During war time, the Government prohibited the Slaughter of the following categories of cattle (including buffaloes) (1) Bulls, bullocks and buffaloes below the age of ten years in a good state of health and suitable for work, (2) Cows or buffaloes in milk (3) Pregnant cows or buffaloes, (4) Dry cows or buffaloes and heifers suitable for breeding purposes.

It is roughly estimated during a survey of hides and skins in India that annually 850,000 animals of the oxen group and 330,000 buffaloes were annually killed or die a natural death in the Madras Presidency, as compared to 5,270,000 oxen in India and 1,330,000 buffaloes. It will be seen that the number of buffaloes slaughtered was only 20 per cent of the Indian total, and of oxen 80 per cent. This is because buffalo flesh is coarse and less tasty and therefore has a smaller demand.

The different classes of animals slaughtered in urban areas of Madras Presidency during 1943-44 was as follows:—

Number of Cattle Slaughtered in Urban area.

	Number,	Per cent.
Cows	47,980	34.2
Bulls and bullocks	48,500	34.4
Calves	1,680	1.2
Buffaloes	42,330	30.2
Total	140,490	100.0

Buffaloes accounted for only 30 per cent of the slaughters and others 70 per cent. In Madras City, however, a greater proportion of buffaloes (57 per cent) was slaughtered, as can be seen below:—

Number of Cattle Slaughtered in Madras City 1943-44.

	Number,	Per cent.
Cows	1,520	5.8
Bulls and bullocks	9,780	37.4
Calves	...	...
Buffaloes	14,860	56.8
Total	26,160	100.0



AN ONGOLE COW

(3) *Trend of demand*—(a) *Draught cattle*.—The number of oxen and buffaloes used for work are recorded separately only from the year 1935. The number during the past three quinquennis were as follows:—

Number of working animals (000) in the Quinquennium ending.

	1935.	1940.	1945.
Bulls and bullocks over 3 years work.	6,176	5,450	5,648
Cows over 3 years used for work.	1,129	502	585
Total ...	7,305	5,952	6,233
Male-buffaloes over 3 years used for work.	1,117	880	1,010
She-buffaloes used for work ...	371	65	77
Total ...	1,488	945	1,087

There has been a considerable shrinkage from the year 1935 in the number of animals maintained for work. Part of this is attributable to the introduction of mechanical transport as lorries, and part to introduction of electricity in agriculture for such purposes as irrigation, etc.

(b) *Dairy cows*.—It has been noted that the population of cows and she-buffaloes in India has not kept pace with the increase in human population, as can be seen below:—

Trend of Human Population and the number of female cattle (Millions) in India.

	1920.	1930.	1940.	Percentage increase over previous period.	
				1930.	1940.
Cows ...	33.16	34.86	33.88	5.15	— 2.81
She-buffaloes ...	11.02	11.98	12.64	8.72	5.51
Total milch cattle ...	44.18	46.84	46.52	6.03	— 0.89
Human population ...	205.25	225.92	261.13	10.07	15.59

While the population increased by 10 per cent from 1930 to 1940, the cattle population increased by 6 per cent only. In the next decade, while the population increased by 15.6 per cent, the

number of cows actually declined by 2 per cent, while the number of she-buffaloes increased by 5.5 per cent only. As buffaloes are better milkers, the increase in production of milk from 1920 to 1940 is estimated at 8 per cent as compared to an increase of 27.2 per cent in the human population in the same period of two decades.

The position in Madras was as follows:—

Trend of cattle and Human Population in Madras
(Millions.)

	1920.	1930.	1940.	1943.	Increase over 1920 per cent. 1940.
Cows	5.700	5.623	4.999	5.030	— 12.3
She-buffaloes	2.561	2.601	2.869	2.920	12.0
Total milch cattle.	8.261	8.224	7.868	7.950	— 4.7
Human population.	42.319	46.740	49.341	...	16.6

In the 20 years 1920 to 1940, the population increased by 16.6 per cent while cows declined by 12 per cent, and she buffaloes increased by 12 per cent. As in India, milk production is not keeping pace with the increasing population.

(c) As already stated, Government imposed restrictions during war-time on the slaughter of certain classes of animals as working bullocks, cows fit for breeding, etc., To a certain extent this reduced unnecessary cattle slaughter. No figures are available regarding the trend in the number slaughtered, for the whole presidency; but figures in Madras city show that the number of animals slaughtered increased from 16,750 during 1934-35 to 28,160 during 1943-44 and 28,190 during 1946-47. This is attributable to increasing urban demand.

(4) *Periodicity*—(a) *Draught cattle*.—The demand for working cattle is seasonal. They are most required at the time of preparatory cultivation as ploughing or tillage. This happens in the southern districts after the onset of rains from June to October, when ploughing is largely carried on in most districts, and working with blade-harrow (gantaka) in the ceded districts, where they are also required for drill sowing in the *Mungari* season (June-July) and *Hingari* season (September-October). In the garden lands of the districts of Coimbatore, Salem, Tiruchirappalli, Mathurur, Tiruvelveli, etc., they are required for lifting water practically throughout the year, except in the rainy

months. Next to the peak period of tillage, there occur another period of high demand after the harvests of paddy and other crops from December to February, when cattle are required for threshing grains, as well as transport of produce.

In the hot period between March to May, very little agricultural operations are carried on. After this period ryots make the bulk of their purchases, in fairs which usually synchronise with the post harvest period, prior to sowing, i.e., May-June. While the demand for cattle in the rural areas is seasonal and dependent on agricultural operations, the urban demand remains more or less uniform. But large movements of carts from rural to urban areas occur in the period December to April, when the produce is taken to the market.

(b) *Dairy cows*.—Dairy animals are usually marketed when they are in milk. The main calving season is from October to January, and the demand is highest after October.

(c) *Slaughter stock*.—It is reported that the demand for beef increases when fish catches are low. In Madras city periods of increased demand occurred from April to August and again in the cold months December and January. The number of animals slaughtered in different months during 1946-47 is given below:—

Number of Animals Slaughtered in Madras City, 1946-47.

	Cows.	Bulls and bullocks.	She- buffaloes.	Male buffaloes.	Total.
1946—					
April	80	986	1,103	145	2,314
May	99	1,003	1,184	149	2,435
June	83	1,218	1,066	126	2,493
July	98	1,440	890	130	2,558
August	95	1,561	840	114	2,610
September	79	1,285	797	111	2,272
October	91	1,304	823	110	2,328
November	96	1,220	773	96	2,185
December	99	1,391	826	165	2,481
1947—					
January	107	1,225	850	172	2,354
February	97	1,158	782	151	2,188
March	89	1,041	705	134	1,969
Total	1,113	14,832	10,639	1,603	28,187

Prewar Prices Per Bullock-1937

Age—6—8 years

Province.	Breed.	Average live-weight (lbs.)			Height (..)	Remarks Hauling.
		500/300	800/1000	over 1000		
Punjab	...	65	80	110	45/55	15, 20 & 25 mds.
Bengal	Mixed up-country	75	100	150	51/57	Ploughing $\frac{1}{2}$, $\frac{1}{3}$, and 1 acre respectively.
	Mixed-country	35	50	...	45/50	Ploughing $\frac{1}{2}$ and $\frac{1}{3}$ acre respectively.
Madras	Ongole	...	...	150	53	Ploughing $\frac{1}{2}$ acre.
	Kangayam	...	140	...	53	Ploughing $\frac{1}{2}$ acre.

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CHAPTER II—PRICES.

A. GENERAL.

It is difficult to accurately record the prices of cattle. Apart from the variations from breed to breed and tract to tract there are also recognisable differences from individual to individual which complicate the question. Standards of judging the value of animals vary from one person to another and there are also characteristic features and good points or inauspicious marks. Price differences are also associated with age, sex, utility and type. Further, records are not maintained by most breeders, and even in cases, where such records exist, the quality factors cannot be correlated to real values. During the war, the keen demand for all types of cattle, inflated the prices, and quality factors, were not always the chief criterion. On account of these causes, the prices quoted for cattle can only be broadly indicative.

B. FACTORS AFFECTING PRICES.

(1) *Draught animals*:—

(a) *Disposition and colour*—Animals required for draught purposes should have a smart appearance and active temperament. Although docile animals are preferred to ill-tempered or vicious ones, a spirited animal is liked especially for quick transport. For heavy work on the fields, powerful animals with good body weights, strong bones and good muscular development are chiefly valued. In certain areas where fodder difficulties exist, animals which can be maintained on smaller rations as the small country bullocks or Alambadi breed, are preferred.

In India, as well as Madras, each breed has got some special features for which it is valued, and the prewar prices according to weight and height are compared below:—

(Statement—Vide Opposite Page).

In regard to colour, animals true to their breeds are generally preferred, as this indicates purity. In the Ongole breed for example a brown or red colour is not considered desirable as it is supposed to indicate sluggishness. In the nondescript types of cattles, many undesirable variations in colour occur and the prices offered are low, in such cases.

(b) *Age*.—The prices of young draught animals up to four years are comparatively low. Prices are usually highest for

animals 4 to 8 years old, and when they grow older, prices decline.

The highest prices are paid when animals are in the prime of youth and are capable of rendering the best service.

(c) *Breed*.—In India certain breeds of cattle are famous for draught work and used to fetch comparatively high prices, e.g., Hissar in the Punjab, Dhanni in the United Provinces and Central Provinces, Amritamahar or Ongole in Madras, and Kenkry in Bombay. In Madras, the Kangayam breed is considered best for agricultural operations and cart work. The Amritamahar and Alambadi are required for speedy work and Ongole bullocks for heavy work. In pre-war and recent years, the price of an average bullock, 3 to 4 years old, of different breeds in the breeding localities ranged approximately as follows :—

		Prewar price per average bullock (Rupees).	
		Prewar	1947-48.
Breed—			
Amritamahar	...	100 to 120	450 to 500
Ongole	...	100 to 110	450 to 500
Kangayam	...	90 to 100	400 to 500
Alambadi	...	70 to 80	350 to 400
Mixed	...	50 to 60	250 to 300

(d) *Pair*.—For yoking together in a cart or plough two animals having similar size, body, speed and capacity for work, fetch a good price. In South India, it is considered good luck to combine an uncle and nephew to make a pair and this combination used to fetch a premium of Rs. 20 to Rs. 30 per pair pre-war. In order to compensate for ordinary or defective animals, some stockmen offer them for sale with a good animal in pair, to get a better price.

(e) *Locality*.—As can be expected, cattle prices are comparatively cheaper in the home districts, and prices increase when they are moved to more distant or urban markets. Thus for a good Amritamahar bullock five years old which was quoted at about Rs. 250 to Rs. 300 in Mysore, during 1947, the prices were quoted from Rs. 450 to Rs. 500 in Tirunelveli.

(2) Dairy cows

(a) *Performance*.—The price of a milch cow or buffalo is decided by the following factors, namely, the daily milk yield, the stage of lactation and the presence or absence of the calf. Usually a slightly higher price is paid for a milch cow or buffalo in the first and second calving, than in the third and fourth calving as can be seen on Page 28.

It is seen that for a difference of 4 lbs. daily of milk the average increase realised was about Rs. 67 more in the past seven years for a milch cow, and about Rs. 54 per milch buffalo.

The percentage increase in price of milker giving daily about 14 lb. over that of 10 lb. capacity was as follows :—

		Percentage—Difference in price of an animal of 12 to 16 lbs. milking capacity over one with 8 to 12 lbs. (per cent.)	
		Milch cows.	Milch buffaloes.
1941-42	...	28	30
1942-43	...	33	26
1943-44	...	25	22
1944-45	...	32	28
1945-46	...	41	48
1946-47	...	45	58
1947-48	...	45	51

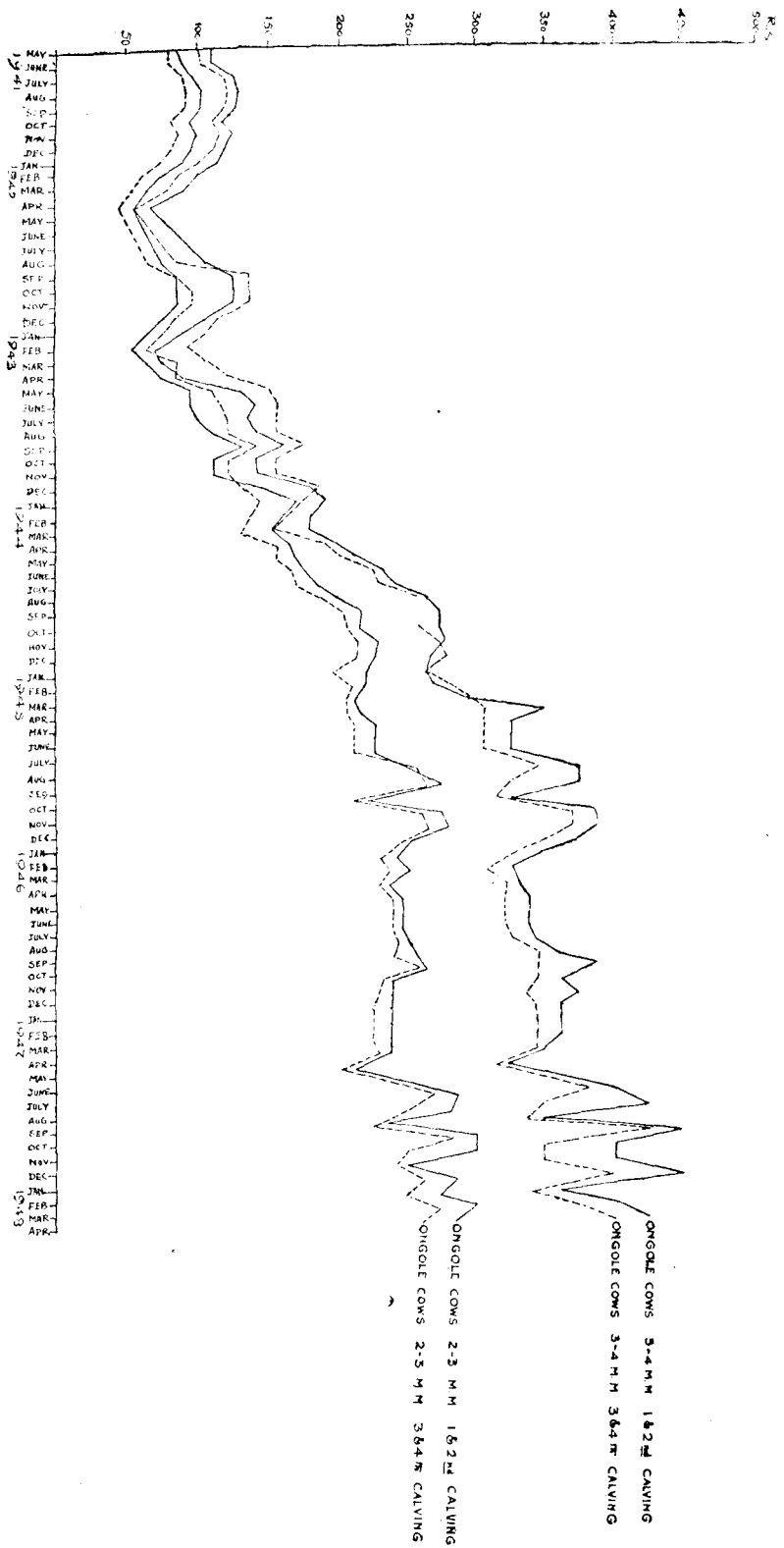
Average Prices Per Milch Cow and Buffalo in the Tiruvottiyur Market—(Rs.)

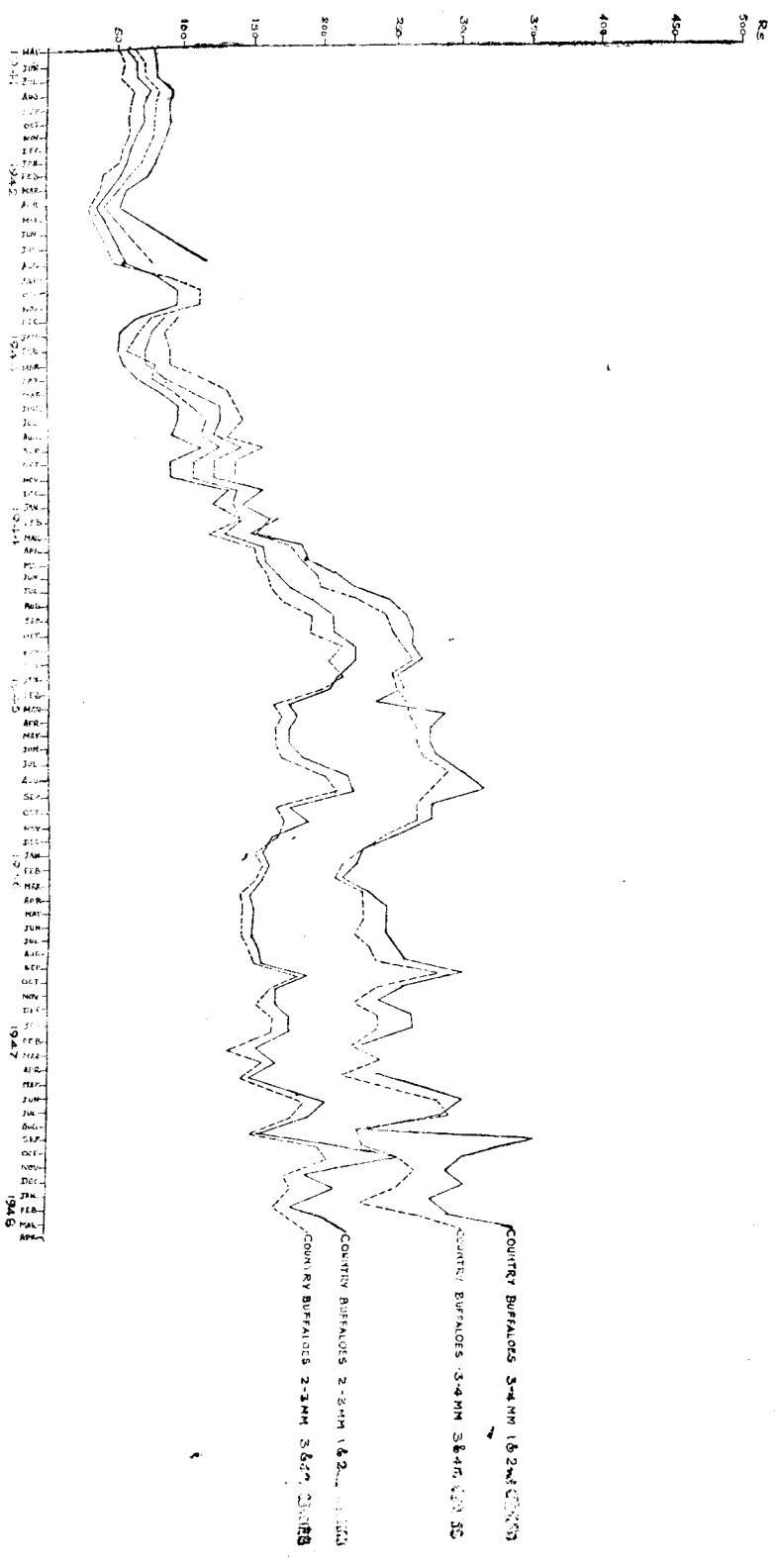
(Milk yield per day— lbs.)

Year.	ONGOLE COW				BUFFALO COUNTRY			
	1st & 2nd calving		3rd & 4th calving		1st & 2nd calving		3rd & 4th calving	
	8 to 12	12 to 16	8 to 12	12 to 16	8 to 12	12 to 16	8 to 12	12 to 16
1941—42	88	110	77	101	60	77	51	67
1942—43	73	101	79	102	65	83	73	91
1943—44	127	153	130	163	111	137	120	145
1944—45	205	267	195	260	192	245	182	235
1945—46	246	350	235	329	181	261	164	250
1946—47	244	356	235	338	161	252	147	235
1947—48	274	399	252	366	192	291	174	261
Average ...	179	249	172	237	137	192	130	183



A PAIR OF KANGAYAM BULLOCKS





A feature to note is that increased milk yields gave a proportionately much higher price in the past three years, and this difference has been somewhat more pronounced in the case of buffaloes than in the cows; while the premium paid for increased milking capacity was usually under 30 per cent. upto 1945, for both milch cows and milch buffaloes, it rose to about 45 per cent. for milch cows and over 50 per cent. for milch buffaloes.

(b) *Age*.—Variations in prices due to the stage of lactation have been already discussed in a previous section under performance. It is reported that a cow reaches full milking capacity somewhere about the second lactation and a she-buffalo about the third lactation, when they are fully mature. Afterwards the milk yield declines, and low prices are offered.

(c) *Breed*.—In India certain breeds of cattle have a high reputation for milk yield as the Sahiwal, Red Sindhi, Murrah, and therefore fetch high prices. In Madras high prices are offered for the high yielding Sindhi cows, next for Nellore, and Kangayam breed. The price of a Murrah buffalo from the Punjab ranged about Rs. 500 to 700 during 1947-8, while for an average country buffalo it was only Rs. 150 to Rs. 250 usually.

(d) *Other factors*.—The calf at heel also influences the price of the cow. Breeders of draught animals pay a premium for the male calf, while, dairy men in city areas pay a premium for female calves. As the age of the calf increases, the price of the mother cow also increases.

Pregnancy also increases the price of the cow, particularly in the later parts of the lactation. In milch animals, a sluggish habit or docile temperament is preferred while vicious animals are paid a lower price.

Locality.—Prices of milch cattle are usually cheaper in the villages and appreciate when sold in urban or distant markets. Thus for a Murrah buffalo of average milking capacity, the pre-war price in pre-war years was quoted Rs. 80 in the Punjab, Rs. 115 to Rs. 150 in the Central Provinces and Rs. 140 in Bombay and Madras. In recent years, the price of a Murrah buffalo which was Rs. 400 in the Punjab was quoted at Rs. 600 at Madras.

(3) *Slaughter Stock*

(a) *Age*.—Up to one year, cattle do not attain full development and yield a superior quality meat called veal, which is sold at a high price. From the 3rd up to the 7th, cattle give the maximum weight of beef and later on they decline. Usually poor and old animals come for slaughter.

(b) *Species and class*.—Buffaloes yield comparatively coarse and tough meat of inferior quality. Unlike in other countries, beef is not usually graded in India.

(c) *Locality*.—The average price paid for 100 lb. of live-weight of cattle and buffaloes, given for slaughter ranged as follows in different localities.

Price per 100 lb. Live-weight of Slaughter Cattle. —(Rs./As.)

District	Oxen.		Buffaloes.	
	Prewar.	1945.	Prewar.	1945.
Visakhapatnam	4-8	15	5-4	14
Godavari	6-4	17-8	7-8	17-8
Krishna	6-8	13	6-8	13
Bellary	3-8	10	3	10
Coimbatore	4-4	12	4	10
Tiruchirappalli	4-0	11-8	4	10
Mathurai	3-8	11-8	4	10
Madras City	6-10	15	6-4	14-8

Prices are usually higher at urban centres.

(4) *Incidental factors affecting prices of cattle.*

(a) *Famine and floods*.—In times of famine, cultivators are obliged to sell cattle at cheap rates, due to scarcity of fodder and lack of facilities for maintaining them. Many of them are then offered for slaughter. With the end of famine, there is a marked rise again due to poor supplies and increased demand.

(b) *Epizootics*.—Following such diseases as Anthrax, Black quarter, Rinderpest, etc., there is a shortage of supply, and prices rise. In the case of foot and mouth disease, animals become temporarily unserviceable, and are sold at low prices.

(c) *Good points*.—Good points of cattle as well as buffaloes, fetch increased prices. The following are the good points usually taken into consideration:—

(1) *Chief points of a dairy cow or buffalo*.—head—erect; neck—slender; eyes—prominent, alert and placid; back—straight and strong; hips—wide apart and level; rump—long, wide and level; tail—setting level; legs—straight; bone—fine; appearance feminine with absence of tendency to lay fat; shoulders, withers, hips and hip bone, prominent and free from fleshiness; loin—wide; ribs—long and wide apart; disposition—active with good nerve control; chest—broad and deep with well sprung ribs; nostrils—large and open; condition—thrifty and vigorous in good flesh but not beefy; muzzle—large; mouth—broad; skin—mellow loose, of medium thickness, showing good circulations and secretion; hair—soft; barrel—deep, wide, long and well supported; udder—large in size; pliable and free from lumps, extending well forward and well up behind, level on floor, not pendulous; quarters—full and symmetrical; milk veins—large, long, crooked and branching; milk wells—large and numerous; teeth—convenient size, uniform; and body wedge shaped and well placed.

(2) *Chief points of good draught bullocks*.—Body compact with well developed forequarters and neck; hair and skin fine; bone clean cut and firm indicating sufficient substance; muzzle fine; nostrils large; tips thin; head lean and straight; forehead broad; face broad; eyes large and bright; neck medium and muscular; horns symmetrical; shoulders long and extending into back; arms short, strong and muscular; legs straight; tendons well detached; bones fine; pastern short and upright; feet strong and horn dark coloured; chest wide and well developed; girth large; breast broad and muscular; ribs well sprung up; barrel long and round; back short, straight and muscular; rump wide, long and muscular; tail according to breed but well set; thigh short and muscular; buttocks muscular; cannons straight and hock joints well developed.

(3) *Chief points of good beef cattle*.—Deep broad chest; well sprung fore ribs giving large heart girth; nostrils large and open; forequarters broad and full; neck blending smoothly; shoulders well laid in, smooth over top, thickly and smoothly fleshed; legs wide apart; body long, broad and deep; top straight and level from the hump to tail head; loins short, broad and thickly fleshed; side and bottom lines straight and parallel; hind quarters broad; square and blocky; thighs deep and thickly fleshed, twisted deep and full; hind legs well apart; legs short, straight, strong and placed squarely under the body; pasterns short, strong and upright; feet of proportionate size and straight to the front, head clean cut; feet smooth and hard to the feel; joints large and clean cut; hair soft and silky; body evenly and smoothly covered; flesh firm but mellow; skin thin and pliable; animal should be in good condition not over fat, should have a clear wide open eye and present a vigorous, healthy appearance.

(d) *Auspicious and inauspicious marks*.—There are some auspicious or inauspicious marks, which are believed to be associated with cattle by cattlemen in many areas. In South India, such lucky and unlucky marks are often associated with the twist of the hair (*Suli*) and the most important are given below:—

LUCKY MARKS

Thamani Suli.—A ridge of hair on the middle line of the animal's back.

Irattai Kavam.—Two ridges of hair are on each side of the brisket.

Gopuram Suli.—A crown upon, or in front of the hump or immediately behind.

Erupuran.—A ridge of hair on the hind quarters curving to the back.

Lakshmi Suli.—A rare hair mark on one side of the neck situated at some distance from the dewlap.

UNLUCKY MARKS

Mukhan or Agni Suli—Three crowns on the forehead.

Othai Kivam—A single hair mark on the side of brisket.

Vilangu Suli—Hair marks on either of the fetlocks.

Kodai mel kodai—Two crowns one above the other on the forehead.

There are also other superstitious marks associated with the tail, colour of animals, spots, and horns. The lucky marks are offered higher prices and *vice versa*.

C. SEASONAL VARIATIONS IN PRICES

(1) Draught animals

Bullocks.—The season of the year and the stage of agricultural operations influence considerably the prices of cattle. Working bullocks are in great demand just prior to or at the time of the sowing season for crops. Consequently prices rise with the approach of the cultivating seasons. In the months of January to March, i.e., after harvest time, prices have a tendency to fall.

The monthly price of work bullocks from April 1941, upto March 1948 as reported in the *Fort St. George Gazette* are given in Appendix IV for the markets at Vizianagaram, Hindupur, Ranipet, Manapparai, Pollachi and Draksharam. Taking the average price for the two markets at Vizianagaram and Manapparai for all classes of working animals the average monthly price for the six years 1942 to 1947 was as below:—

Monthly average price per working bullock—(Rs.)
(1942 to 1947.)

Month.	At Vizianagaram.	At Manapparai.
January	166	173
February	161	196
March	173	207
April	176	221
May	185	209
June	209	232
July	207	232
August	216	234
September	210	259
October	208	210
November	204	216
December	193	216

At Vizianagaram, prices were usually low from January to May, and kept at a higher level from June to November. This corresponded with the season of commencement of agricultural operations once in June and again in September. At Manapparai prices were comparatively low from January to March and rose in June-July reaching a peak in September. This later period corresponds to the period of commencement of agricultural operations for main season.

(2) Dairy cows.

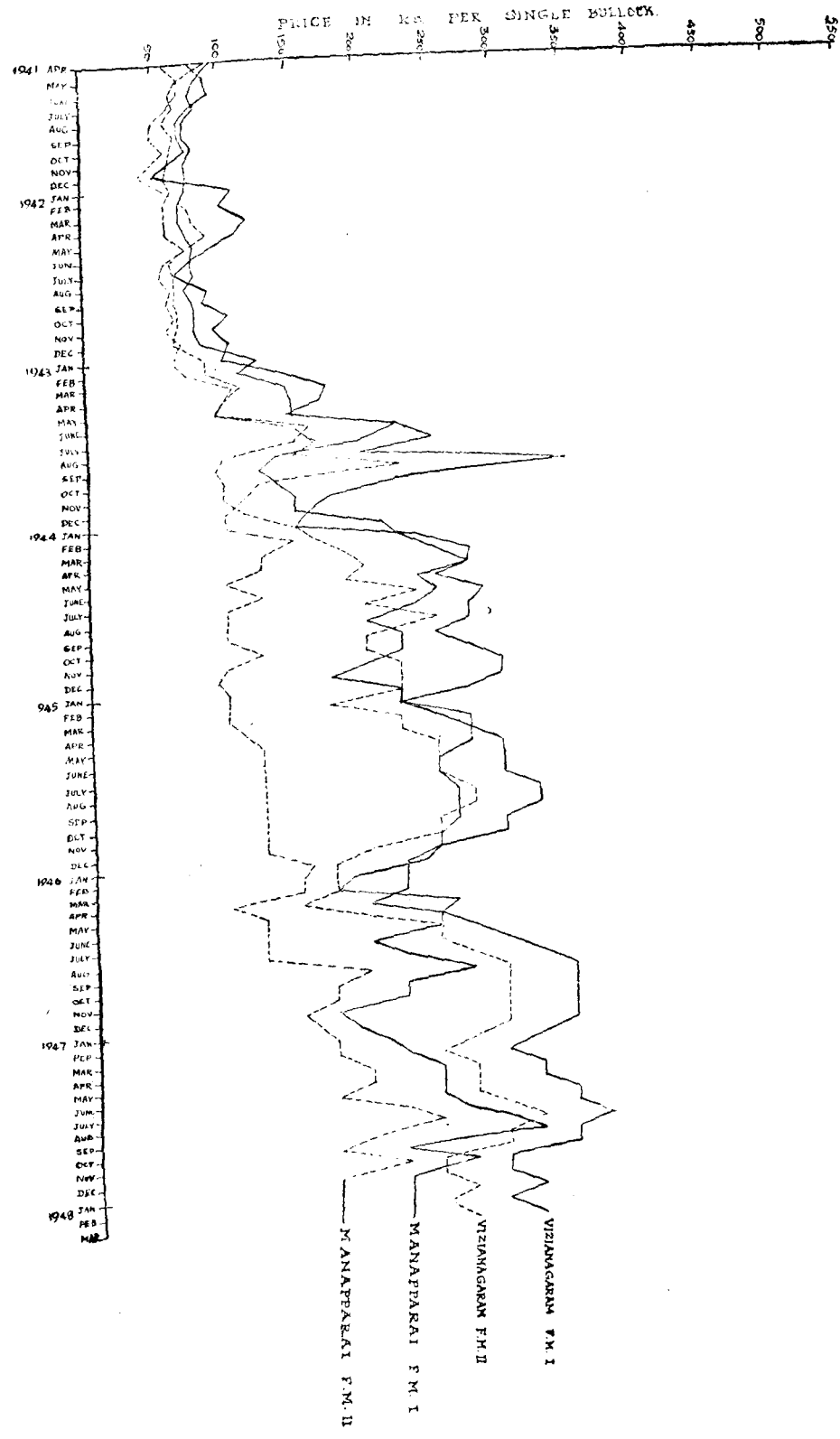
Cows.—In Appendix V are given the monthly prices of Ongole Milch cows and she-buffaloes (country) in the Tiruvottiyur market near Madras City. The average monthly prices for the years 1942 to 1947 ranged as follows, for Ongole cows:—

Average monthly prices of Ongole cow at Tiruvottiyur—(Rs.)
(1942 to 1947)
(Milk yield — lb.)

	First and Second calving.		Third and Fourth calving.		Average.
	8 to 12.	12 to 16.	8 to 12.	12 to 16.	
January	164	221	155	216	189
February	163	223	157	213	189
March	163	231	159	223	194
April	168	232	162	223	197
May	183	247	171	237	216
June	185	254	179	244	216
July	194	275	188	253	228
August	200	274	193	263	233
September	197	284	196	276	238
October	206	282	195	271	239
November	202	286	194	273	239
December	205	288	192	273	240

Average price per working adult animal—(Rs).

Year	Breed :—	Selected Kangayam	Country	Ongole	Alambadi
1934	District :—	Coimbatore	Coimbatore	E. Godavari	Madras City
1935	Place :—	Coimbatore	Pollachi	Draksharam	Madras City
1936	Class :—	...	I	I	Average
1937		210	60	130	80
1938		175	50	110	75
1939		180	50	125	70
1940		175	50	100	70
1941		230	45	100	80
1942		225	45	100	75
1943		225	45	100	100
1944		225	45	115	100
1945		275	70	110	100
1946		500	90	130	190
1947		500	170	235	266
1948		560	200	450	300
		700	145	355	350
		700	290	355	280
		700	245	600	N.A.



Unlike in work bullocks, where prices were seen to rise during certain periods of agricultural operations, the price of milch cows at Madras shows a uniform increase from January, reaching the highest level from September to December. Prices are comparatively low from January to April.

(3) *She-buffaloes.*

The average monthly prices of she-buffaloes in the Tiruvottiyur market near Madras City for the years 1942 to 1947 were as follows—

*Average monthly prices of country she-buffaloes
at Tiruvottiyur—(Rs.)
(Milk yield in lb.)*

		First and Second calving.		Third and Fourth calving.		Average.
		8 to 12	12 to 16	8 to 12	12 to 16	
January	...	130	173	124	169	149
February	...	118	164	112	161	139
March	...	124	180	136	175	154
April	...	125	183	121	177	151
May	...	134	196	128	187	161
June	...	142	205	135	195	169
July	...	149	219	140	206	179
August	...	153	216	151	207	182
September	...	159	237	157	214	192
October	...	168	221	158	212	190
November	...	155	214	149	209	182
December	...	152	209	148	202	178

As in Ongole cows prices rise from January to September but there is a slight decline to December. Prices are usually comparatively low from January to April.

D. TREND OF PRICES

(1) *Draught animals.*

Due to the large variations that occur in the prices of work cattle due to age, type and other factors it is possible to give only an approximate indication of the trend of prices. The following gives a rough position of the prices from 1934 to 1948 in some centres

(Statement—Vide Opposite Page).

Annual variations in prices during prewar years were on a small scale. During the war, prices shot up during 1944, and continued high thereafter. An Ongole pair which was quoted at Rs. 250 prewar, could fetch Rs. 1200 during 1948, while in the same period a Kangayam pair rose in value from Rs. 300 to Rs. 1400.

(2) *Milch cows.*

The average annual prices of Ongole cows at Tiruvotliyur Cattle Market were as follows:—

*Average price of Ongole cows at Madras City.**Average Milk yield (lb.)*

		First and Second calving.		Third and Fourth calving.	
		(10)	(14)	(10)	(14)
1936-37	...	75	105	70	100
1937-38	...	75	105	70	100
1938-39	...	75	105	70	100
1939-40	...	80	100	75	105
1940-41	...	90	120	80	110
1941-42	...	70	100	70	100
1942-43	...	110	140	120	150
1943-44	...	190	240	180	230
1944-45	...	240	345	230	320
1945-46	...	245	350	235	330
1946-47	...	260	390	240	360
1947-48	...	290	400	265	375

Prices of cows at Madras city rose rapidly during the years 1944-45 and kept at a high level thereafter. The price of a milker quoted at Rs 100 prewar rose to nearly Rs 400 during 1948.

(3) *Milch buffaloes.*

The trend of prices of country she-buffaloes at Tiruvotliyur Market near Madras city, was as follows:—

*Average price per she-buffaloe (country) at Tiruvotliyur market.**(Milk yield — lb.)*

		First and Second calving.		Third and Fourth calving.	
		(10)	(14)	(10)	(14)
1936-40	...	65	95	55	80
1941	...	65	85	55	70
1942	...	60	80	55	70
1943	...	100	120	110	135
1944	...	185	220	175	210
1945	...	185	270	175	260
1946	...	160	245	145	230
1947	...	185	250	165	245
1948	...	203	300	185	260

Prices of she-buffaloes in Tiruvotliyur rose markedly during 1944 and kept at a high level till 1947, prices rose still further during 1948. A she-buffaloe costing Rs. 80 to Rs. 95 during prewar years was valued at Rs. 260 to Rs. 300 during 1948.

E. PRICE CORRELATION

The index numbers of annual prices of ghee, milk and cows shows a high degree of correlation in the north Indian markets as the Punjab and United Provinces. Taking the index number for 1934 as 100, the index number of milk and ghee was 270, and of cows 245, during 1943. Part of this association is due to the general rise in prices of all commodities during the war. It may however be noted that in the same year, milk prices remained stationary during all the months, while the prices of ghee, as well as cattle used to show monthly seasonal fluctuations. Studies made by the Central Marketing staff showed that while there is close relationship between prices of oxen and hides, the prices of beef remained independent. To a certain extent, there is relationship between the prices of bullocks, staple grains and fodders, from year to year, although such relationship are not perceptible from month to month.

F. COST OF REARING CALVES UPTO 3 YEARS

In the Hosur Cattle farm, the average cost of rearing a male calf for three years worked to Rs. 412/- (1940-43) while in the village it was reported as Rs 122. In Guntur town the average cost of rearing was reported at Rs. 145 as compared to Rs. 125 in nearby villages. The cost of rearing a calf for breeding purposes is higher than that for draught or milch animals. During the same period, the costs of rearing a calf upto 3 years ranged from Rs. 130 for draught purposes, Rs. 200 for milch purposes and Rs 275 for breeding purposes in the Punjab (Montgomery).

G. MARKET INTELLIGENCE

In India, there are no organised agencies for disseminating market news regarding prices, stocks, demand, etc., of cattle in important markets. A few cattle breeders collect market news from itinerant traders, while a majority of them assess market value of animals on the basis of prevailing conditions, animal mortality and famine. Petty dealers and nomadic graziers keep in touch with local market conditions in the areas they move about. Merchants and *beoparis* to keep in touch with distant markets through correspondence with their agents at the other end.

During 1938, the Central Marketing Department organised on an experimental basis a cattle Market News Service between Rehtak, the feeding area in the Punjab, and Bombay, the consuming centre. In this arrangement the prevailing prices of milch cows in Bombay were shown on a board in the market at

Rohtak, and the ruling rate at Rohtak was given similar publicity at Bombay. Later the service was extended to other places as well, viz., Delhi, Bhahadurgarh (Punjab), Mehsana (Baroda) and Calcutta. Since its start, the service was running satisfactorily and has been appreciated by the trade. For the benefit of breeders in rural areas, the Central Marketing department, broadcasts from the All India Stations, Delhi and Calcutta, the maximum and minimum prices of milch cows and buffaloes at different centres. Information received through broadcasts was published in a local Bombay newspaper.

In Madras, the prices of milch cattle at Tiruvottiyur are published every fortnight in the *Fort St. George Gazette* and also broadcast every week. The prices of work cattle at Vizianagaram, Draksharam, Manaparai, Pollachi, Ranipet and Hindupur are also similarly published. Although weekly prices of milch cattle were also sent by the marketing section to the daily papers, only a few of them used to publish them.

H. A NOTE ON BARTER TRANSACTIONS

In many parts of India, exchange of one or more animals with others is practised, without payment of cash. Buffaloes are exchanged for cows in North Gujarat and uncastrated young bulls for bullocks in Rajputana. In Madras, barter transactions are only on a limited scale, and sometimes the difference between the values of the exchanged animals is paid in cash. Butchers barter calves, young bullocks, milch cattle, etc., for old and unserviceable stock including dry cows, which they take away to cities and towns for human consumption.

CHAPTER III—ASSEMBLING AND DISTRIBUTION.

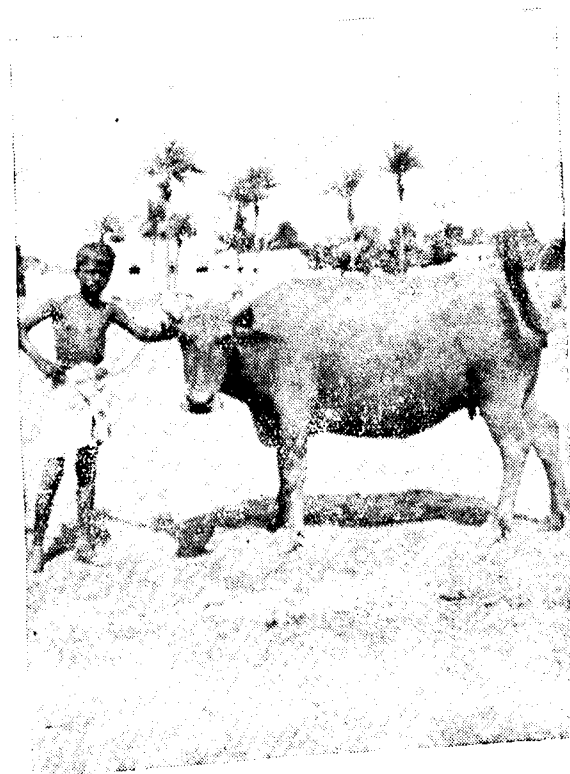
A. PREPARATION FOR MARKET PRIOR TO SALE.

(1) Draught Cattle.

In India, draught cattle are sold generally after they are castrated. A rope is often put round their nose and occasionally a ring. Except young calves, the animals are given some training for draught purposes, before sale. Attention is also devoted to choose the proper type of animals to make up a pair keeping in view the breed, colour, features, size weight, etc.

Owners give complete rest to the animal and plenty of fodder a month or so before they are presented for sale. Animals that are weak are given *masalas* which work as stomachics, tonics or alteratives and improve their appetite and general health. Among constituents used in India for such *masalas* may be mentioned ghee, milk, butter milk, sweet oil, gur, Sattu, turmeric, alum, lemon, senna leaves, ginger, pepper, black salt, aniseed, etc.

In cattle fairs and *hats* (shandies) bullocks are usually groomed and hand massaged and their horns and hoofs polished with oil before sale. Many animals are decorated with head ornaments,



A BUFFALO HEIFER

halters, necklaces of coloured glass beads, fancy ropes, coverings against cold (*jhools*) and bells. In a few cases, metallic tops are fixed on horns. Red lines (of *henna*), dots or circular spots may also be marked on the body of white and light-grey animals for decoration. In Madras, the preparation of draught cattle for the market is elaborate. In addition to liberal feeding with fodder and concentrates a month before sale, the horns of animals are rasped and provided with brass tips. A string of tiny bells is tied round the neck or horns and decorations like glass beads, coloured cotton ropes etc., are also used.

(2) Dairy Cows.

Although milch cows and buffaloes are fed properly only when in milk, animals get additional rations even when dry for a month or two before sale. In Madras, cows for sale are fed with plenty of fodder and concentrates like oil cake, cotton seed, rice bran, grains or pulses. In some parts of India, certain supposed galactagogues are used as gram, milk, caraway, gur, molasses, aniseed, fennel and *ber* leaves (*Zizyphus jujuba*). On the market day cows are thoroughly washed and groomed and, this is done regularly in Madras even earlier. She-buffaloes are often shorn and oil rubbed over the body to have a shining appearance. As in the case of draught cattle, horns and hoofs of dairy cows are polished with oil and the animals decorated with glass beads, brass bells, etc.

(3) Slaughter stock.

Slaughter of well fed cattle is very rare in India. Only old and useless animals are utilised for beef and usually no special preparation for the market is done. On rare occasions butchers in large towns and cantonments of Madras are reported to feed them well a week or two before sale.

B. MALPRACTICES.

Certain malpractices or tricks are used by sellers to bring up, and buyers to bring down, the value of animals.

(1) *By sellers*.—Sellers often conceal yoke galls, contusions, bruises or scars by colouring them with dyes, charcoal or tar or by branding or firing the affected parts. Inauspicious marks are removed with sharp instruments. In order to conceal the age of animals through examination of teeth, clever sellers rasp the teeth and file the ring round the horns. In order to make sluggish animals appear spirited, palm today is given as a stimulant in Cochin, while a pinch of red chillies is placed in the rectum of animals to make them restless and lift their tails and appear active. Goads with sharp instruments is also practised to make animals appear fast trotters. Vicious animals are made to look docile by starving or by giving sedatives like *bharg*. In Madras a peculiar practice exists in the southern districts where animals are allowed to inhale the smoke produced by burning the seeds of *Cherankotta* (*Holigarna Arnotiana*). Cattle so treated get

thirsty drink a large amount of water and look well fed. Some owners keep their cows unmilked for half a day or even a full day before being taken to market so that they appear as heavy milkers with wellfilled udders. In other cases, dry or non-pregnant cows are falsely reported to be in calf to increase the value. In Calcutta, professional milkmen used to insert a hollow bamboo in the Vagina, to force the last drop of milk and this practice is called "*phooka*".

(2) *By buyers.*—The malpractices practised by buyers are in the nature of clever tricks to bring down the prices. Professional buyers or brokers may be engaged to pass sarcastic remarks on the poor quality of animals or on inauspicious or bad marks. In other cases, they or their associates start with very low bids or offers, thus inducing the seller to put down the price, but a similar trick is also played by sellers to put up the value by high bids through their associates. A buyer may also give a small amount as earnest money on the promise of a good price, thus tying the seller to a bargain. Later he will disappear and the seller being disappointed will have to sell at a very low price for want of a demand.

C. AGENCIES AND METHODS OF ASSEMBLING AND DISTRIBUTION

Most cattle dealers who undertake the assembling of cattle are also engaged in the distribution and the two functions are therefore more or less inter-linked in the case of cattle. The functions performed by different agencies are given below:—

(1) *Breeders.*—The owners of cattle may be (1) professional breeders, whose principal occupation is breeding and rearing of cattle or (2) cultivators who keep cattle primarily for agricultural operations and breed them as a side industry. The vast majority belong to the latter class. It is reported that a large proportion of cattle owners bring their cattle themselves for sale. In Madras the percentage was estimated to be so high as 90 per cent and in Mysore 95 per cent. At the end of the agricultural operations cultivators usually dispose of animals that have been rendered either unfit or cannot be maintained in the slack season when their feeding is unproductive. The animals are usually sold in the local annual fairs associated with local religious festivals once a year in different parts of the country. Animals are sold in the periodical weekly markets (*hats* or *shandies*). In places of the Ongole tract, where no fairs or weekly market exist, animals are assembled in a tope under the shade of trees or on the road side and villagers informed by *tom tom*. Animals are sold to other cultivators by direct negotiation or through middlemen. Some cultivators and middlemen also roam about from village to village and purchase cattle directly from the breeders.

One famous cattle breeder, the Pattadar of Palaykottai in the Coimbatore district, sends a batch of his men in advance for erecting a tent and temporary sheds, while the fodder and other requirements are sent by carts to the fair. The cattle remain

tied to wooden pegs in rows in the open in charge of one attendant for 5 to 10 animals, for grooming, washing, feeding, etc. The animals, are trotted when required by buyers and prices settled by direct negotiation.

(2) *Itinerant traders.*—Itinerant traders may be nomadic cattle dealers who buy and sell animals in their march from village to village, or agents of city wholesale merchants making purchases on their behalf. The cattle when purchased in sufficient numbers are collected in a central place in the village, usually an open waste land for the approval of buyers. Unsold animals are then taken from fair to fair or *shandies* till disposed of. Another method is to move the animals in a specified route where they are required from place to place, as in the Ceded districts. The nomadic dealers belong to several classes in India; but generally slaughter cattle are dealt with by Muslims. In Madras, the most important areas of operation of the itinerant cattle dealers is given below:—

Important classes of itinerant dealers and the areas of their operation.

Class of traders.	Area of purchase.	Area of sale.	Type of animals.
Reddis ...	Mysore State ...	Ceded districts, Salem, Coimbatore upto Tinnevely.	Young draught animals.
Reddis ...	Nellore, Guntur and Krishna district. Nellore, Guntur ...	Ceded districts ...	Young bulls.
Cochin traders. Tanappa Chettis.	Pollachi, Coimbatore and Malabar. Salem, Coimbatore, parts of Mysore.	Chingleput, Madras City. Cochin, Travancore ...	Milch cattle.
		Coimbatore, Madura, Ramnad and Tinnevely.	Draught and milch cattle. Draught cattle.

(3) *Wholesale merchants.*—In India, the number of wholesale merchants is small as the majority are marketed by itinerant traders and breeders. The merchants in certain cities employ agents to purchase in the villages or occasionally get supplies from itinerant dealers. The merchants sell to butchers, milk men, and cart drivers, in cities, and very rarely to cultivators. At Tiruvottiyur, in Madras City, a few merchants join together, erect semi-permanent sheds and bring animals in wagon-loads from the Ongole tract, and sales are held throughout the year.

(4) *Butchers, milkmen, brokers and cartmen.*—Butchers are invariably Muslims but milkmen, brokers and cartmen are drawn from many communities. Butchers mostly buy from itinerant dealers, cartmen or milkmen or wholesale merchants, but not from the breeders or cultivators. Occasionally purchases are made

from local weekly shandies or fairs. Brokers only act as intermediaries for settling the price but never purchase outright.

D. MARKET FUNCTIONARIES.

Brokers are the only important functionaries in the cattle trade and may be drawn from various classes of people as cultivators, cartmen, itinerant breeders, butchers, milkmen and cart drivers. In the markets in the Punjab, Central Provinces, brokers are licenced by local bodies, but in private markets, such a system is not in force. Brokers operate at every stage of cattle marketing and negotiate sales and settle prices without actually taking part in the distribution. In Delhi, transactions in slaughter cattle often take place in the premises owned by brokers, who advance the money to sellers and recover in instalments from butchers. In some places of Madras, brokers settle the prices with sellers under cloth, and the buyer knows the price only from the broker.

E. METHODS OF BUSINESS

(1) *Units of sale.*—The unit of sale most commonly adopted is sale 'per head'. In the case of draught cattle, meant for double-bullock traffic, the unit of sale is a pair. In some parts of India and very rarely, the unit per group is reported to be employed, the number per group usually being 5 to 10, sometimes up to 25.

(2) *Hours of sale.*—Although no regular hours are prescribed in markets and fairs, the greatest activity in buying is usually in the afternoon. At the closing time of the market, there is also brisk sale, because at that time sellers are expected to give away their animals at low prices for returning home with cash. Milkmen make purchases in the afternoon between milking hours when they are free.

(3) *Methods of sale.*—In most markets where brokers operate, both buyers and sellers are accosted by him with promise of a good bargain and sometimes the share of the broker is very high. In one case, the brokerage was Rs. 50 half each from seller and buyer at Pushkar fair from an animal that was sold at Rs. 300. Whether a broker intervenes or not, the buyer subjects the animal to a critical examination. This is first done by a general examination for age, breed, colour, good points, etc., described in Chapter II (prices). The next step is the test for actual performance by trotting of the work bullocks or milch the cows. Draught cattle are trotted singly or in pairs and their gait and stamina watched both from the front and behind. The teeth are also examined for age. In the Patiala State, the cattle fair authorities arrange for test ploughing with the animal on payment of a small fee, and this practice exists also in the Central Provinces, where the load carrying capacity is also tested. In the West Coast of Madras, a day is fixed after the paddy harvest for cattle racing tests. Bullocks are yoked in pairs and raced in

water logged fields with planks of wood on which drivers stand. During the race, open bids are made for purchase of animals.

In the case of milch cows, the hair marks are not considered of much consequence, but the age, number and period of lactation are determined by observation and enquiry. The cow is then actually milked 2 or 3 times to find out the yield as well as the temper of the animal. The sex of the calf also influences the choice.

In the case of slaughter animals, a general survey is made to estimate its weight by feeling the fleshy parts. The age is next determined, while the thickness and texture of the hide is also tested at certain parts as the neck, chest, etc.,. In some places as Madras City, beef stock are examined simultaneously by both butcher and the hide merchant. Cattle arriving in Madras City from distant places are approached by the dealer or his agent at a distance of a mile or two from the slaughter house, and a price fixed after examination on the way. The hide merchant inspects the herd at the slaughter house and settles his price with the dealer. Flaying is to be done by the hide merchant. Cash is paid in full settlement by the dealer on the same day, while he sells the animals to the butcher the next day.

After the examination of the animals, prices of animals are determined by one of two ways, namely, (a) private treaty, or (b) negotiations under cover. The former method is more common. Sale by auction is rare.

(a) *Private treaty.*—Buyers announce their offers publicly or only to sellers secretly by whisper. Where a broker is employed, there is no contact between buyer and seller who have no knowledge of the other's price and transactions take a long time after a good deal of haggling.

(b) *Negotiations under cover.*—Where there are a number of buyers and offers are kept secret, buyers or brokers convey their offers to sellers secretly by clasping the latter's fingers under a piece of cloth. In Madras, such transactions take place only between brokers and sellers the buyer knowing the price only from the broker. There is chance in this system for the broker to favour either party or get a large margin.

(c) *Auction.*—Auction sales of cattle have been reported in certain areas of Malabar and Government farms. The sale is to the highest bidder by open ascending bids, and its adoption is usually beneficial to buyers and sellers alike. It will be useful if an auction system is developed in the large important cattle markets by arranging the animals into classes and groups. Suitable markets for such auctions are Tiruvottiyur near Madras and Tunguturu (Guntur district).

After the sale price is decided on, buyers pay cash to sellers on the spot or pay advances ranging from Re. 1 to Rs. 5 per

transaction as earnest money. In case the full payment is not made, the earnest money is forfeited to the seller. In the Tiruvottiyur cattle market the purchaser can take the cow to his premises for testing the milk yield after payment of 2 to 5 rupees and can return back the animal if not satisfied, the advance being forfeited.

F. SALE CENTRES.

(1) *Nature of centres*—Although cattle may be sold at various as farms, open fields, road sides, private premises, village commons etc., large numbers are sold in appreciable quantities in three types of centres, namely (1) fairs, (2) *hats* or *shandies* and (3) daily markets.

Cattle fairs are held usually in conjunction with religious festivals or separately in the post harvest period when cultivators have spare cash and are free from work. Many of the fairs are held only once a year in Madras, and the duration is usually a week or two. Most of the fairs are held in the period January to May associated with such festivals of Thaipusam (January), Masimaham (February), Vaikasi festival (May), but a few occur in Karthigai (November).

Periodical markets called *hats* or *shandies* are usually weekly or bi-weekly markets held for a day, but sometimes only in the morning or afternoon. Some of the weekly markets are important for cattle as Pollachi, Nainamalai, Puliamatti, etc.,

Daily markets are found in certain towns and cities, particularly for milch cattle. One of the largest markets for milch cattle in the Madras presidency is the Tiruvottiyur milch cattle market, where over 15,000 animals are brought for sale annually.

In Madras, an annual cattle show is held about the month of May in Tirupur and some good types of Kangayam breed are sold.

(2) *Number and location of cattle markets.*

It has been estimated in 1940 that there were in India 1021 livestock and produce fairs, distributed as follows:—

United Provinces	...	190	Bombay	...	36
Bihar	...	135	Others (small)	...	273
Punjab	...	127			
Madras	...	113	Total	...	1021
Mysore	...	86			
Bengal	...	61			

Of the fairs in Madras, the largest numbers were in Chittoor district (32), Madura and Tinnevely (10 each), Coimbatore (9), Salem (8), Bellary and Anantpur (7 each) and Kurnool (6).

It is found that there are no cattle fairs in some famous cattle areas as the Ongole tract in Madras or Kathiawar, Gujarat or Tharparkar in northern India, although these tracts are important

for certain breeds of cattle. In Madras, particularly, the cattle fairs are more important in the purchasing areas rather than the producing ones.

During 1940, it was reported that there were 22,080 weekly markets or *hats* in India, distributed as follows:—

Number of hats (or shandies in India) (1940).

Name of Province or State.		Number.
Bengal	...	5,862
United Provinces	...	5,375
Bihar	...	2,535
Central Provinces	...	2,307
Assam	...	1,217
Bombay	...	961
Madras	...	906
Other Provinces	...	579
Total, Provinces		19,739
<i>States—</i>		
Hyderabad	...	1,000
Gwalior	...	300
Travancore	...	259
Mysore	...	225
Bhopal	...	200
Others	...	357
Total, States		2,341
Grand total; Provinces and States		22,080

Not all the weekly markets are important for cattle. In Madras, the total number of shandies (906) was distributed mainly in the districts of Coimbatore (155) Malabar (140), Salem (110), Tiruchinappalle (71), Madura (63) Ramnad (56), Chittoor (48), South Arcot (46), Tinnevely (39) and Kurnool (27). The Tamil districts generally had more weekly markets.

Daily markets for cattle are more particularly popular in northern India and confined to big cities like Bombay, Calcutta and Madras (Tiruvottiyur).

(3) *Number and types of breeds of animals assembled in cattle markets.*—In Appendices VI and VII are given the important cattle fairs and *hats* (shandies) in the Madras Presidency with the approximate number of types and breeds of cattle assembled. In the fairs of Madras, the number of work cattle predominate and this is also true of India. The larger fairs, where over 20,000 cattle were reported to be assembled, were Sivalpuri and Muthalapuram in Tinnevely, Kunivathi in Bellary, Kannapuram in

Coimbatore and Kalgunda in South Kanara. In the Coimbatore district, mostly Kangayam breeds are assembled, and the Anantapur, Mysore breeds as Hallikar and Amritamahar, while in Bellary district, the Ongole and Mysore breeds are available. In the districts of Madura, Ramnad, Tinnevely, both Mysore and Kangayam breeds appear on their march locally and upto Travancore. The details are given in Appendix VI. Some of the important cattle fairs in other parts of India were as follows:—

Name of Province or State.	Name of fair.	Number assembled.	Breed.	Period.
Bharatpur. Bihar ...	Bharatpur Champarrah (Betian). Wun ...	35,500 68,000	Mewati and Rath ... Bachour ...	September. September-October.
Central Provinces. Gwalior ...	Meghpura ...	34,000 22,000	Local ... Murrah ...	February. December-January.
Jodhpur ...	Parhatsar ...	37,000	Nagaur and San-chore.	August.
Mysore ...	Sivagange ...	30,000	Hallikar and Amritamahar.	January.
Do. ...	Melinajugamahalli (Bangalore).	90,000	Do.	December.
Do. ...	Thornahalli ...	40,000	Hallikar	January.
Punjab ...	Amritsar ...	40,000	Haryana, Hissar and Murrah.	April-November.
Do. ...	Tarantaran ...	43,000	Do.	Monthly.
United Provinces.	Bateswar (Agra).	50,000	Haryana Mewati and Murrah.	November.

The festivals associated with the fairs attract thousands of pilgrims from various parts of the presidency and a brisk sale of cattle is expected at each place. Those desirous of buying good draught cattle usually visit such fairs.

The number of cattle assembled in the shandies of India varies from 20 upto 5,000. The breeds of animals sold are the same as those in the local fairs. The most important weekly shandies in Madras were Poliachi and Nainamalai (5,000 cattle each) and Vaniamkulam in Malabar (3,000). A list of the more important shandies in Madras is given in Appendix VII with details of arrivals and the day of the week. In the whole of India, the largest number of cattle per week day were assembled at Pollachi. In the shandies held in urban areas, slaughter animals appear in large numbers. In other markets, work cattle predominate. A comparatively large number of buffaloes appear in Undi (West Godavari), Vaniamkulam (Malabar), Agraaharam (East Godavari) and certain shandies of the Visakhapatnam district as Narayanavalasa, Ungarada and Godikomma.

The type of cattle brought to daily market consist mostly of slaughter stock and for this purpose, all descriptions are assembled

and sold. There are special markets like Tiruvottiyur in Madras, where milch cows and she-buffaloes are sold. The number of Ongole milch cows and country she-buffaloes, which arrived in the Tiruvottiyur market during the past five years was as below:—

Cattle arrivals in Tiruvottiyur Market (Nos.)

Year.	Ongole. Cows.	She-buffaloes (Country).
1943-44 ...	3,702	5,789
1944-45 ...	4,617	10,286
1945-46 ...	3,823	9,355
1946-47 ...	4,520	9,184
1947-48 ...	4,137	10,465

Occasionally Murrah buffaloes from the Punjab and Sind cows from supplying centres used to be imported as also some half breeds.

(4) *Ownership and control*:—The control and managements of the live-stock markets are under the District Board, Panchayat, Municipality or private people or temple trustees who own the market. In India, most of the fairs are organised by the District boards and private agencies, while most markets are usually maintained by municipalities. If the market is located in a municipality, the provisions of the Madras District Municipalities Act V of 1920 are applied and in the case of other local bodies, the provisions of the Madras Local Boards Act XIV of 1920. In all fairs irrespective of the ownership, offences under the Nuisance Act and the Indian Penal Code are watched by the police and the sanitary arrangements are looked after by the public health staff in co-operation with the local sanitary staff. The veterinary officers also attend these fairs and inspect the animals with regard to disease etc. The provisions of the Cattle Diseases Act are enforced by the Collector of the district and cattle fairs are withheld if epidemics like rinderpest, anthrax, etc., break out in the locality.

(5) *Facilities for cattle and their owners*:—Only very little attention is paid by the owners of fairs for accommodation of cattle or convenience of owners. Where shady trees are available these are used as shelter but generally cattle are allowed to remain in the open. Even in the weekly shandies similar conditions prevail but arrangements are sometimes made for watering the animals, through common troughs. In some fairs fodder is arranged to be sold at reasonable rates, while in the shandies, it is generally sold by villagers or local dealers. In the Tiruvottiyur cattle market, cattle owners are allowed to erect semi-permanent thatched sheds but arrangements for water are limited, while fodder difficulties also exist. In general, the arrangements for water and accommodation in most fairs and shandies are not

adequate. Cattle are also tethered haphazardly without proper shelter or arrangement.

(6) *Income and expenditure of cattle markets*:—From information collected from 38 important cattle fairs in different parts of India during 1940, it was found that against an income of Rs. 3,22,568 only a third (or Rs. 1,09,277) was utilized actually in the management. The expenditure on general arrangement of the fairs averaged roughly 12.4 per cent of the total income, on provision of facilities 6.0 per cent, on sanitation 4.8 per cent and on prizes 3.4 per cent.

In the case of weekly shandies owned or run by municipalities and local boards, the right of collecting fees is auctioned to contractors who are allowed to collect charges per animal according to a schedule fixed by the authorities. Records of 40 weekly markets in selected centres of India showed that against a total income of Rs. 1,12,988, the expenditure on the markets was only Rs. 23,056 or 20.4 per cent, comprising general management 5.2 per cent, sanitation 3.3 per cent, cattle improvement 0.2 per cent, cattle disease control 1.4 per cent and miscellaneous 9.2 per cent.

The details of income and expenditure in some important districts on fairs and shandies is given below:—

Income and expenditure of fairs and shandies (1947-48).

District.	Income.	Expenditure.
<i>Fairs.</i>		
Mathurai	Rs. 5,200	Rs. ...
Ramnad	1,350	...
South Kanara	3,256	3,244
Tiruchirappalli	300	352
Tirunelveli	44,384	9,518
Tanjore	10,966	7,195
South Arcot	2,996	4,392
Total	68,452	24,701
<i>Weekly Shandies.</i>		
Mathurai	Rs. 15,900	Rs. ...
Ramnad	5,333	...
Tiruchirappalli	41,372	1,448
Tirunelveli	58,618	3,901
Tanjore	9,653	387
Coimbatore	5,97,385	19,293
Total	7,26,261	25,029

Figures for some individual fairs and markets are given in Appendix VIII.

Although the expenditure incurred on fairs and weekly shandies varied considerably in different districts it can be said on the whole that more proportion of the total income is spent on the management of fairs than the shandies, and that in either case, the proportion spent actually for market improvement is small. For cattle especially, very little is done for meeting the requirements of either the animals or the persons engaged in the purchase or sale.

(7) *Market charges*:—During the year 1940, the following market charges were levied in some of the important fairs in Madras.

Market charges per head (Fairs).

Payable Name of fair.	Admission fee.		Brokerage.		Sale registration.	
	By seller.	By buyer.	By seller.	By buyer.	By seller.	By buyer.
Kannappuram	AS. 2	...	AS. ...	...	AS. ...	...
Kunivathi	2	...	...	...	...	...
Muthialapuram	4	...	4 to 5	...	...	...
Salaipatheor	4	...	2	...	2	...

No octroi is levied in any part of the province and generally the market charges are borne by the seller in fairs. In India, however, there are some fairs where some charges, as sale-registration, were borne by the buyer also as in Gwalior, Jodhpur, Assam, Central Provinces and Bharatpur.

In the case of *hats* (or shandies), the following gives instances of the charges collected in some weekly markets.

Market charges per head (Shandies).

Name of market.	Admission fee.		Brokerage.		Sale registration.	
	By seller.	By buyer.	By seller.	By buyer.	By seller.	By buyer.
Tadepallegudem	AS. P. 0 6	...	...	...	...	...
Punjai Pulianpatti	1 0	...	1 0 0	...	...	...
			to 2 0 0			
Melur	2 0	...	variable	...	...	2 0
Pollachi—						
Cow or bullock laden	2 0	...	0 8 0	0 8 0	...	...
			to 1 0 0	1 0 0		
Cow or bullock unladen.	1 0	...	...	...	...	...
Sheep or goat	0 6	...	...	...	...	...

Daily Markets.

	AS. P.		RS. A. P.	RS. A. P.		
Milch Cows	4 0	...	2 0 0	2 0 0	...	...

The brokerage paid is however variable. Where transactions are done under cover, the broker may get from Rs. 20 to 50 per animal valued at about Rs. 300 from the buyers secretly on occasions.

G. COST OF DISTRIBUTION

The costs of distribution of cattle includes the expenses of buyers in the assembling market and costs of transport and other incidental charges in the terminal market. When sold in the village or farm, the seller gets the full price from the buyer, but when cattle are moved over long distance by rail or road, various charges are incurred including feeding and maintenance. Where transactions occur under cover or previous understanding the brokers get fairly appreciable margins from the sellers without the knowledge of the buyer. In the case of selected animals with a good pedigree, the margins of intermediaries are relatively high (10 to 20 per cent) while in the case of slaughter stock, the dealer's margin is comparatively low ranging from 1 to 2 per cent only. Sometimes cattle dealers purchase animals on their way selling them through fairs and shandies *en route* and in such cases, the ownership will change hands more than once. On account of these, it is possible to give only an approximate indication of price spreads in cattle marketing.

Thus for cows brought from the Ongole tract, to the Tiruvottiyur market, near Madras city, the distribution of costs was roughly as follows:—

*Approximate price spread from producer to buyer.
Cows from Ongole to Madras (Average).*

		Prewar.	1948.
		Rs.	Rs.
Breeder's price		50	250
Market and incidental charges	...	5	10
assembling centres	...	7	14
Transport and incidentals	...	1	2
Market fee, brokerage and other charges	...	5	14
Feeding and incidental charges	...	7	30
at Tiruvottiyur	...		
Intermediary gross margin	...		
Average price	...	75	(Range 300 to 500) 320

Variations however occur from sale to sale, and the above data can be considered only approximate and indicative.

H. FINANCE OF CATTLE MARKETING

As the amounts involved by sale of cattle annually in India may run to crores of rupees, facilities for finance have to be met from various sources, and vary with different agencies, as given below:—

(1) *Cultivators* depend for their financial requirements mostly on the village sowcar or money lender, or occasionally on rich landlords, for purchase of cattle as for other requirements. In the report on rural indebtedness in Madras, Mr. Sathianathan estimated that 93 per cent of the rural credit was met by village money lenders. Under the Agriculturists' Loans Act of 1884 loans can be granted by Government among other things for purchase of cattle. Although the interest on these loans has been reduced from 6½ per cent to 5½ per cent, the total amount of loans given by Government was small, as ryots did not find it popular owing to delays and irksome enquiries. The rate of interest charged by sowcars ranged from 9 to 15 per cent in Madras, and in India up to 37 per cent in a few cases. The conditions of repayment of the loan are also variable, but usually payment is made at the time of the succeeding harvest. In the co-operative land colonisation schemes in Madras, provision has been made for a half grant towards the cost of bullocks purchased by the member up to a maximum of Rs. 125 and an interest-free loan repayable in five years for the other half. Co-operative credit societies, milk supply and ghee societies in India also advance loan to members for purchase of cattle, but care should be taken that the money is actually utilized for purchase of cattle. Such a system exists in the Bharatpur State, where the executive committee purchases the cattle on approval of the applicant, and hands over the animal to him.

(2) *Gowalas, cart drivers and butchers*:—Some dairies, and sweetmeat shops (halwais) advance money to *Gowalas*, who supply them with milk and in such cases, regular supplies of milk and the sale price are previously agreed to, either orally or in writing. In Madras city milkmen have a running account with known cattle dealers at the Tiruvottiyur market, and credit sales or part payments are freely allowed to known customers, and also exchange of animals occasionally. Cart drivers operating in cities also get loans and advances from carting contractors or transport agencies, but in such cases, a lower rate is fixed for their services.

Butchers buy cattle from slaughter-house brokers or wholesale merchants. In known cases, credit is allowed for a week or fortnight. Hide merchants also pay advances to butchers and enter into contract for supply of hides at stipulated rates.

(3) *Petty dealers*:—Petty cattle dealers purchase cattle partly with their own capital and partly from advances received from merchants, brokers or butchers at the purchasing end. They

also borrow from money-lenders. In the case of advances, running accounts are usually maintained with their creditors. In Madras, some of the petty dealers purchase animals on credit from known breeders or cultivators, as in the Ongole area, only a part of the money is advanced and the dealer settles the final account later after sale, at the stipulated price. In case a higher price is got, the dealer agrees to pay half the profits to the ryot. Credit sale is, however, rare and cash payment is the rule.

(4) *Wholesale merchants, exporters and brokers*:—Wholesale merchants usually operate with their own capital, but in cases they also borrow from local *banias* or banks. Brokers generally act as mediators for sale, and do not generally take part in the actual finance of cattle marketing.

CHAPTER IV—MOVEMENTS OF CATTLE

In India it was estimated that nearly 82 per cent. of the cattle movements took place by road, about 18 per cent. by rail, and a negligible fraction by river or sea. The reason, why the large bulk of the cattle moves by road is the comparatively low cost of transport and the opportunities for marketing and the convenience of grazing the animals *en route*.

A. INTER-PROVINCIAL MOVEMENTS

(1) By Rail

In Appendix IX are given the average number of cattle moved by rail between the different provinces and States for the five years 1933 to 1939. The total inter-provincial trade by rail of cattle was only 223,621 animals. The largest exporting areas were the Punjab (117,244), Bihar (34,386) and Orissa (24,842). The largest importing provinces were Bengal (87,810), Bombay (45,503) and the United Provinces (41,392). Imports or exports relating to Madras were very small.

In the rail trade between provinces, the largest number of cattle were moved from Bihar to Bengal (32,365), from Orissa to Bengal (24,874) and from the Punjab to the United Provinces (36,724), Bombay (33,794) and Bengal (27,157). In other cases inter-provincial movements were only on a small or negligible scale.

During the war years, there was a shrinkage in the volume of cattle traffic, due to shortage of wagons and also restrictions imposed by Provincial and State Governments on exports. The decline during 1941-42 was 11·3 per cent. as compared to 1937-48, and in later years some provinces and States banned exports, subject to inter-provincial quotas on permits. Usually largest movements occurred between the months September to November and relatively low movements from April to July.

Imports of cattle by rail into the Madras and Southern Mahratta Railway stations of the Madras Presidency in recent years were as below :—

Imports of cattle into Madras Province (by rail) Madras and Southern Mahratta Stations only.

From.	1940-41.	1946-47.	1947-48.
Bombay ...	101	66	59
Mysore ...	911	1,502	1,016
Punjab ...	536	80	26
H.E.H. the Nizam's State.	61	19	17
Others ...	96	...	...
Total ...	1,705	1,667	1,118

(2) By Road.

There is an extensive movement of cattle between provinces by road, but as no records are kept of such movements, it is possible to get only rough estimates of inter-provincial movements. As compared to only about 223,000 cattle moved by rail it is estimated by the Central Marketing Department that the movements by road totalled roughly 1,000,000 animals pre-war. The largest movements occurred from the Punjab (232,000 cattle), Rajputana (170,000), Bihar (102,000) and Central India (100,000). The provinces receiving cattle by road in large numbers were the United Provinces (154,000), Bombay (117,000), Bengal (116,000), Central India (105,000) and Madras (72,000).

The largest movements were from the Punjab to the North West Frontier Province (116,000), and Delhi (89,000), from Central India to Bombay (63,000), from Bihar to Bengal (75,000), Mysore to Madras (57,000) from Delhi to United Provinces (53,000) and from Rajputana to United Provinces (50,000).

Recent trends in the inter-provincial trade of Madras and the neighbouring States of Cochin, Mysore and Travancore are discussed in Chapter I.

(3) By River

Except for a small movement (1000 cattle) from Bihar to Bengal by boats during the Sonepur fair, inter-provincial trade in cattle by river is negligible.

(4) By Sea.

Sea borne trade between provinces was also small, the total during 1938-39 being 500 heads only.

B. TRANSPORT BY DIFFERENT MEANS

(1) By Rail.

Internal trade:—The number of cattle transported by rail in the recorded inter-provincial trade into Madras City, Madras other ports and the interior stations of the province were as follows:—

Movements of cattle by rail (inter-provincial trade).

	1939-40.	1940-41.
<i>Imported into:</i> —		
Madras Chief Port	1,802	1,674
Madras Other Ports	3,020	3,067
Other Madras stations	2,524	2,886
Total	7,346	7,607

Of the total of 7607 animals moved by rail during 194-41, imports from other provinces amounted to 1705 animals, while the rest were accounted by movements between the ports and the interior. Movements of cattle by rail in India, as well as Madras are usually confined to long distance transport or to animals which will lose condition, if transported by road. On the whole the number transported by rail is very small compared to the total cattle population. Some important stations booking cattle by rail were as below:—

Imports of cattle by rail (Pre-war)—(Number).

Tiruvottiyur	10,000 to 15,000
Gummidipundi	1,000
Calicut	1,000 to 1,100
Cochin	1,000 to 1,100

Imports by rail of cattle to Tiruvottiyur were as follows during 1947-48.

Imports of cattle Tiruvottiyur (1947-48) (Wagons of about 8 animals each).

From Exporting centre.	Wagons (Number).
<i>Guntur District.</i>	
Ongole	649
Tunguturu	303
Tenali	87
Ammanabrolu	19
Nidubrolu	52
Chinnaganjam	25
Vetapalem	17
Chirala	53
Total	1,205

From Exporting centre.	Wagons (Number).
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Nellore District.

Bitragunta	41
Nellore	75
Olavapod	70
Singarayakonda	281
Padugupadu	13
Kavali	33
Surareddipalem	12
Others	8
Total	533

East Godavari District.

Rajahmundry	75
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Krishna District.

Vijayawada	50
Grand Total including others	1,970

or roughly 15,760 cattle.

Conditions of carriage.—Generally in all railways the consignor is required to give 24 hours notice to the stationmaster of the despatching stations for booking his animals. In peace time, wagons used to be placed in time at the disposal of consignors and were expected to be loaded within nine hours of daylight from the time they are placed in position, failing which a demurrage of one-anna per ton or part thereof, on the market capacity of the wagon was charged for every hour or part of an hour, in excess of the free time allowed. Similar conditions applied to unloading. Loading and unloading are done at the risk of consignors and consignees. In recent years, due to shortage of wagons, consignors have to wait some days, before wagons could be secured, and sometimes transport is not available. Livestock is not accepted for conveyance over the Nilgiris Railways.

During transit, cattle are to be fed and watered by attendants at the cost of the owners, and no consignment is accepted unless each wagon load is accompanied by an attendant or attendants, with water and fodder to feed the animals. Usually one attendant is allowed free for each four or six wheeled wagon and two attendants for broad gauge wagons or bogie load, but in the South Indian Railway attendants with small consignments may travel by the same train as the cattle, if they hold a third-class ticket for the journey. Cattle can also be allowed to break journey in a junction on first class station for 24 hours at the request of the consignors after every 200 miles of journey.

Freight has to be prepaid in cash at the destination, except in some State railways under certain conditions. The responsibility of the railways as carriers is limited to Rs. 50 per head of cattle, but consignors can insure them to their declared value, by payment of one rupee for every hundred rupees or part thereof, in excess of Rs. 50.

The number of animals allowed per wagon depends on the size as follows:—

Carrying capacity of wagons for cattle.

(Number of animals).

	Broad gauge.	Metro gauge.	Narrow gauge.
Horned cattle ...	10	8	6
Horned cattle with calves and sucklings.	8	6	4
Calves and sucklings ...	20	10	10

Should the load exceed the above limits, charges for the excess numbers of animals loaded will be levied at one anna per head per mile.

(c) Costs of transport—(1) General freight rates.—Subject to certain exceptions in some railways the general freight rate

charged on cattle at owner's risk and at railway risk were as follows:—

General rate for cattle (Per wagon per mile).

Particulars.	At owner's risk (under risk note from B or Z).	At railway risk.
For through booking broad lines ...	A. P. 4 0	} 20 per cent over the owner's risk rates.
For through booking between metre and narrow gauge line.	3 6	
For through booking from broad gauge to a metre or narrow gauge line.	4 0	
For through booking from a metre or narrow gauge to a broad gauge railway.	3 6	

For six wheelers, the charge is $1\frac{1}{2}$ times that of four wheelers.

During the war and later, an increased charge of two annas per rupee is being collected. In the Madras and Southern Maharatta Railway small consignments of cattle are charged at the same rates as for wagon loads. In the South Indian Railway small consignments carried at owner's risk are charged at one anna per animal per mile, subject to a minimum charge of one rupee per animal. Usually animals above $2\frac{1}{2}$ feet in height are classed as cows, and those below as calves, and four calves (or part thereof) are reckoned equivalent to a full grown animal as below:—

2 cows	2 calves	equivalent to	3
3 "	3 "	"	4
4 "	4 "	"	5
5 "	5 "	"	7
6 "	6 "	"	8
7 "	7 "	"	9
8 "	8 "	"	10
9 "	9 "	"	12

Except where otherwise stated, the rate for cattle is subject to a minimum charge of Rs. 5, Rs. 7-0-8 Rs. 10 respectively per four-wheeled, six-wheeled and bogie wagon in all cases. Besides terminal charges are levied, the rate being Rs. 4 per broad gauge wagon, and Rs. 2 per metre-gauge wagon in the Madras and Southern Maharatta and South Indian Railways.

(ii) *Concessional freight rates.*—With a view to encourage the movements of dry cows to grazing areas in the Guntur and Nellore districts, and also to prevent their being sold for slaughter in the city, the Madras and Southern Maharatta Railway, on representations of the Provincial Marketing Officer quoted the following reduced rates for cattle during 1936, and special rates were also notified for the return of milch cattle and calves with effect from 1st March 1939.

Special rates for Milch cattle (Rs.)

December 1936.

Description.	Stations.		Rate per four wheeled vehicle.	Condi- tions.
	From	To		
Cattle not exceeding 8 with 8 calves or 10 cattle without calves per four wheeled vehicle.	Ammanbrolu	Madras	Rs. A. P.	O.R.: L.P.
	Appikatla	Madras	48 0 0	
	Bapatla	Madras	57 0 0	
	Chinnaganjam	Madras	56 0 0	
	Chirala	Madras	50 0 0	
	Duggirala	Madras	53 0 0	
	Kadavakoduru	Madras	64 0 0	
	Karavadi	Madras	51 0 0	
	Nidubrolu	Madras	47 0 0	
	Ongole	Madras	59 0 0	
	Singarayakonda	Madras	46 0 0	
	Stewartpuram	Madras	41 0 0	
	Surareddipalem	Madras	55 0 0	
	Tunguturu	Madras	44 0 0	
	Tenali	Madras	43 0 0	
	Tsundururu	Madras	62 0 0	
	Ulavapad	Madras	60 0 0	
	Uppugundur	Madras	40 0 0	
	Vetapalem	Madras	49 0 0	
			52 0 0	
Do.	Madras	Return journey.	Per four wheeled wagon per mile. 0 2 0	O.R.: L.P.

The above rates gave an exemption of terminal tax of Rs. 4 per wagon for the journey to Madras and half the ordinary rates for the return journey, i.e., two annas per wagon per mile. These rates were cancelled as the concessions were not fully availed with effect from 1st April 1946 but efforts are being made to revive them.

Special reduced rates were also given by other railways in specified routes as for instance Great Indian Peninsula Railway (3 annas per four-wheeled wagon in specified routes), East India (2 annas per four-wheeler from Howrah to any station in Great Indian Peninsula or North West Railway) and North West (2 annas per wheeler from Karachi to any station in North West Railway).

(iii) *Miscellaneous expenses.*—These include loading and unloading, feeding, watering, wages of attendants, etc. The rates for casual labour which ranged from 6 to 10 annas prewar have now increased to a range of Re. 1 to Re. 1-4-0. Fodder expenses have also increased 3 to 4 times.

(iv) *Total costs.*—The cost of transporting 8 animals with calves from Ongole to Tiruvottiyur were roughly as follows:—

Costs for transport of 10 adult animals 176 miles from Ongole to Madras.

	Prewar.	Before 1st October 1948.	After 15th October 1948.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Railway freight	56 0 0	63 0 0	113 0 0
Railway fare for one extra attendant.	3 11 0	3 15 0	3 15 0
Feeding charges in journey and incidentals.	3 0 0	15 0 0	15 0 0
Wages of attendants	3 0 0	7 8 0	7 8 0
Loading charges	4 0 0	6 0 0	6 0 0
Miscellaneous expenses	5 0 0	10 0 0	10 0 0
Cost of return journey	7 6 0	7 14 0	7 14 0
Total	82 1 0	82 1 0	163 5 0
Costs per cow per mile (pies)	9-0	12-4	17-8

Estimates made by the Central Marketing Department showed that the total transport costs including incidentals ranged from 6 to 9½ pies per animal per mile prewar.

(d) *Facilities.*—Although rail transport is quick and reduces loss of cattle by theft, disease or deterioration, which are associated with tiresome long marches by road, there are certain defects which require rectification. For example feeding and watering troughs can be provided for animals and some lighting arrangements. At night animals are liable to get restive when in motion and may cause injury to themselves. It is also necessary that properly-ventilated wagons are supplied for movements of cattle. Generally all cattle tracks have steel walls, roofs and floors, resulting in very high temperatures in summer and very low temperatures in winter. More sheds should also be provided at important stations for shelter of the animals. The cattle wagons should also be disinfected before loading, and veterinary aid provided in important cattle-transit stations.

(2) *By Road.*

(i) *Costs.*—It has already been stated that practically the entire movements of cattle for the trade in rural areas and the vast majority meant for towns, is by road.

The cost of transport by road comprises the feeding of animals, wages of attendants, lodging and other expenses. Enquiries made by the marketing department show that that the prewar costs of transport by road including maintenance, worked only from 2 to 6 pies per mile per animal, as compared to 6 to 9½ pies by rail. Thus road transport is very much cheaper. It has also got the convenience that a number of markets can be touched on the way and free-grazing is also available.

(3) *By sea and river.*

The extent of cattle traffic by sea and river is very small.

D. MAIN ROAD AND TRACK ROUTES.

(1) *General.*—Cattle may travel even up to 1,000 miles by road in certain cases before sale. In each province as well as in inter-provincial, certain well-defined cattle routes exist from producing to sale areas which are touched by cattle dealers in their march from shandy to shandy, or through cattle fairs. Some of the routes in India are described below:—

(1) *Cattle routes.*—(1) *India.*—The following are some of the important cattle routes in India between the Provinces and States.—

Provinces.	Route.
Baluchistan—Sind	... Sili to Sukkur—Larkhana.
Bengal—Assam	... Rangpur via Gauhati, Dhubi and Nowgang to Sylhet.
Bihar—Bengal	... (a) Gorakpur to Darbhanga via Muzaffarpur and Motihari and thereon to Purnea and Dinapur. (b) Muzaffarpur via Moughyr to Murshidabad and Burdwan. (c) Through Benares by trunk road to Calcutta.
Bihar—Orissa	... North Bihar via Patna and Gaya to Ranchi and Ghazipur and then to Purulia.
Central India—Bombay	... Mhow to Bombay via Khandwa.
Central India—Central Provinces.	Many routes touching Bhopal Gwalior through Sangar upto Jabulpore, Chattisgarh and Nagpur.

Provinces.	Route.
Mysore—Bombay	... Chitaldrug and Shimoga upto Dharwar via Bellary district.
Mysore—Madras	... (1) Kolar via Chittoor and North Arcot to Madras or Mailam (South Arcot) upto Tinnevely (Kalungamalai fair). (2) Kolar and Bangalore to Tiruvannamalai fair (November) and occasionally to Madura, Tiruchinappalli. (3) Bangalore and Mysore to Hesur (Salem), Kollegal (Coimbatore) upto Madura via Palni and finally to Tinnevely district (Tuticorin, Sivalpuri). (4) Mysore to Pollachi (Coimbatore) and then to Malabar, Nilgiris, and Coimbatore and Cochin. (5) Hassan to Coorg and then South Kanara district (Mangalore) or Malabar (Cannanore, Calicut).
Nizam's—Bombay	... (1) Latur to Sholapur and Poona via Tembhurni. (2) Hyderabad to Poona via Sholapur. (3) Aurangabad to Khandesh (Tuchora) via Varkhedi.
Nizam's—Central Provinces.	(1) Nander to Akola, Yeotmal and Chanda. (2) Parbhani to Buldhana and Akola.
Nizam's—Madras	... (1) Eastern districts via Nugur to Rajahmundry and Vizagapatam (Chintada). (2) Warangal to Kistna and Guntur districts upto Bellary (Adoni) Hospet and Kurnool (Nandikotkur).
Orissa—Bengal	... Cuttack and Balsan via Midnapore to Calcutta.
Punjab—North West Frontier.	Rawalpindi via Amritsar to Peshawar and Bannu.
Punjab—United Provinces.	(1) Karnal and Mathura by Tarai road upto Buar via United Provinces. (2) Rohtak via Delhi to Aligarh, Cawnpore, Lucknow, Benares, etc. (3) Rohtak via Agra to Lucknow, etc.
Rajputana—Bombay	... Via Palanpur to Ahmedabad, Broach and Surat districts.

Provinces.	Route.
Sind—Bombay	... (1) Tarakpur to Ahmedabad via Ahmedabad district. (2) via Rann of Cutch to Kathiawar and Gujarat.
Sind—Punjab	... Jacobabad to Dera Ghazi Khan via Tampur and Methankot.
United Provinces Central Provinces.	to Agra to Sangor via Gwalior and Jhansi.

While travelling on these routes, the cattle are joined by other animals locally and from other routes on the way.

(2) *Cattle routes in Madras.*—The main routes in different districts are described below:—

Vizagapatam and East and West Godavari districts.—Cattle from Sambalpur pass to Vizianagram, via Aska, Parlakimedi and other places. From Vizianagram they proceed via Kothavalasa to Pithapur and Tuni in East Godavari district. From Pithapuram some go to Jaggampet, Draksharam, Ambajipet and also to Palakol in West Godavari. Buyers from Guntur and Nellore visit Bhadrachallam and Nugur taluks to buy animals imported from H. E. H. the Nizam's Dominions during October-November. During June and January, the cattle from Hyderabad State are assembled along the Ellore-Chintalapudi roads for sale in the cattle fairs at Pentapadu, Undi and Bhimavaram (West Godavari). During the months of June and November-December, bullocks from the Jeypore State got via Anakapalle are sold in the fairs in West Godavari district.

Guntur and Krishna.—In the Sattenapalle taluk, ryots or dealers from Nellore purchase Hyderabad animals which cross the river Kistna and are assembled at Krosuru or Rasupalam or Chintapalle. In October-November, animals from Hyderabad cross the river at a number of places in Palnad taluk and brought for sale at Palnad and elsewhere.

Kurnool.—Animals from Hyderabad are bought via Sreesailam by Chenchus and Lambadies and brought to Nandikothur and Kurnool taluks for sale from January to March. Cattle from Nellore district are brought via Dornal pass to Atmakur, Nandyal and Koilkuntla up to Kurnool and from Kurnool they pass to Hyderabad or Bellary district (Hospet) or Anantpur (Gooty).

Bellary.—Animals from Hyderabad cross the river during the months March to June, when the Tungabhadra is low and are offered for sale in the weekly markets at Yemminganuru and Kosgi. In the Rayadrug taluk, Mysore cattle proceed via

Gollapalli and Galagala or Tallakera and Rangasamudram and proceed upto Bellary taluk for sale in June-July. Cattle are also purchased in the cattle fair at Nagalamadaka in Tumkur district of Mysore in December for sale in Kalvandrug taluk. Besides, the Bellary taluk receives a large number of Mysore animals in January-February via the Bangalore-Bellary road. In January purchases are made from the large cattle fair at Subbarayana Parsi near Bangalore by Bellary ryots. The fair at Chittavadgi near Hospet receives Mysore cattle to Harpanahalli and Bellary taluks. The Harpanahalli taluk receives cattle from Bombay and Mysore at the annual fair in Kuruvatti in March, from the Harihar fair in Mysore and from Shimoga and Devanagur by the Arasakiri road.

In the annual fair at Mailar (Hadagalli) during February, Mysore cattle arrive via Shimoga road and Bombay cattle from the north. Kudligi taluk receives Mysore animals from Molkalmura and Shimoga via Hosahalli and Jagalur and same enter Hospet and the Sandur State.

Anantpur.—Many fairs held from January to March in Mysore cater to the needs of Mysore cattle in Hindupur, Penukonda and Madakasira taluks. The chief fairs in the district were Somaghatta and Chilamatturu in Hindupur (March), Kottacheruvu in Penukonda (May).

Chittoor.—Calves are brought during spring from Srinivasapur and Chintamani in Mysore to Madanapalle taluk and also taken for sale. The Punganur fair in May is entered by Mysore animals from Srinivasapur and Mulbagal. Palmaner receives Mysore cattle by Madras-Bangalore road at the weekly markets in Palmaner and Venkatagiri kota.

North Arcot.—Unsold Mysore animals pass via Palmaner to Ranipet or Gudiyattam and from there to Onnupuram and Cheevaram fairs or to Chinglepet district. Cattle are also received at Kuppan from Mysore and then on to Jalarpet, Krishnagiri (Salem) or Vaniyambadi. The annual fair in Tiruvannamalai receives Mysore cattle in November via Krishnagiri or Kuppan, Tirupattur, Chengam, etc.

Chinglepet.—Cattle from Ranipet move to Cheevaram, and then to the weekly cattle markets at Pallavaram and Singaperumalkoil. The annual cattle fair in May also draws cattle from Ranipet. Besides, Nellore cattle move to Ponneri and Pulianthope.

South Arcot.—The annual fair at Mailam (March-April) is very important and draws Mysore animals via Tiruvannamalai and Villupuram. Others move via Tirukkoyilur to Parikkal fair in April-May.

Salem.—Cattle proceeding to the south-western districts of Mathurai, Tiruchirappalli, Ramnad, Tirunelveli first enter Salem by the following routes:—

(1) Bangalore and Malur via Hosur, Krishnagiri.

(2) Bangalore, Malur and other districts via Kelman-galam, Rajakottai.

From Rajakottai, the cattle fairs at Macheri, and Kali-patti are visited and unsold animals proceed to Coimbatore district and then to Mathurai. Animals passing via Krishnagiri go to the Tiruvannamalai fair at North Arcot and Mailam in South Arcot.

Coimbatore.—Besides the route via Krishnagiri in Salem district, Mysore cattle are brought directly into Kollegal to the fairs at Guliam held in March and November. The weekly market at Pulimpatti is catered via Satyamangalam and from here cattle proceed to Gobichettipalayam or Avanashi and Coimbatore.

Nilgiris.—Regular supplies of slaughter cattle are received from Mysore into this district via Seegur road, while others come to Gudalur and proceed to Malabar via Nadagani.

Tiruchirappalli.—The route for entry of Mysore cattle into this district is via Salem, Namakkal, Thothiyam. The cattle fair during December-January at Samayapuram and the weekly bazaar at Manapparai are important centres of assembly.

Mathurai.—Mysore cattle assemble at the annual April fair in Mathurai via Salem, Karur and Dindigul. Local animals from Tiruchirappalli district arrive from Manapparai to Dindigul, Melur and Manamadura.

Ramnad and Tirunelveli.—These districts form the southern most assembling centres for Mysore cattle, which proceed via Adamankotta, Bhavani, Palni, Dindigul and Mathurai. Cattle also proceed from Adamankotta via Salem, Karur and Dindigul. From Mathurai, the route is via Tirumangalam and Sattur by the trunk road. The cattle fair at Kamiseri near Sattur is first touched and thence to Sivakasi, Srivilliputtur, Rajapalayam and Sankarankoil (Tirunelveli district). The important Kalugumalai fair (during January to March) is visited via Sattur and Kovilpatti. This fair is a distributing centre of cattle to successive fairs held at Tiruchendur (February-March), Sivalaperi (April-May), Alwartinagar (May-June), Mettupaluram (July) and back to Sankarankoil (August).

Malabar.—Besides the route via Gudalur and the ghats for Mysore cattle (work animals) young bull calves are proceeded for the Malabar district from the weekly shandies at Tudyalur and Pollachi.

South Kanara.—Male buffaloes from Mysore are sold at the annual fair at Kulgunda (November-December) Mysore cattle also arrive during the months of November to May from Sringeri, Kadur, etc. The Karkal taluk including Mudabadri receive from Beltangadi, while Coondapoor is supplied from Siddapur (Nagar road), Halade and Sagar.

H. RESTRICTIONS ON MOVEMENTS

In normal times, no restrictions were usually placed on the movements of cattle in British India, although some Indian States levied export duties in certain cases. With a view to conserve the cattle wealth of each province or State, certain restrictions were placed by provinces and States during the war-period by banning inter-provincial movements except on permits. Certain quotas were also fixed.

CHAPTER V—BREEDS OF CATTLE AND CATTLE IMPROVEMENT

In India, the number of fairly defined breeds of oxen was about 35, and of buffaloes 10. These breeds in their pure form are found only in or near their natural homes. There is also a larger proportion of well-defined types of buffaloes than of oxen. Most cattle in different parts of India are however the degenerated progeny of some breed being the result of intermixing of several breeds.

A. OXEN

Breeds of oxen in Madras

The most important breeds of cattle in Madras are described below, according to habitat, areas of demand and other particulars:—

(1) *Alambadi*: (also called Bestal, Cauvery Valley, Salem or Mahadeswar betta).

Habitat.—Kollegal and North Bhavani taluks of Coimbatore, South Hosur and South-West Dharmapuri taluk of Salem and Kankanhalli taluk of Bangalore district in Mysore.

Areas of Demand.—Tanjore, Mathurai, Tirunelveli, Nilgiris, Salem, Coimbatore and parts of Mysore.

Number in India.—457,000.

Utility.—A draught breed producing active and hardy bullocks, which are said to subsist on scanty ration. They are good at road-work and moderately heavy draught. Cows are poor milkers.

General.—Cattle of this breed are white, iron-grey, grey and fawn and brown in colour but the bulls are grey or even black.

Animals are of medium size. The breed is not recognised by the All-India Cattle Show Committee.

Features.—The breed is moderately long with prominent forehead. The horns are characteristic and slope backwards, with a forward slope towards the tip; ears long and pendulous; body long; animals of quick temper.

(2) *Barghur.*—

Habitat.—Barghur hills of the Bhavani taluk of the Coimbatore district.

Assembling centres.—Cattle-fairs in North Coimbatore and Salem districts.

Area of demand.—Coimbatore and Salem districts.

Number.—110,000.

Utility.—Useful work animals in the hills but fiery, restive and difficult to train. Cows are very poor milkers.

General.—The breed closely resembles Halikar, but is different from Alamhadi, being smaller in size, more compact and attractive. The chief colours are grey, red and white red with white spots and white with red spots. For speed in trotting, or power of endurance, they have gained a high reputation.

(3) *Halikar.*—

Habitat.—Tumkur, Hassan and Mysore districts of the Mysore State and adjoining parts of Bombay and Madras Provinces.

Assembling centres.—Dharwar district in Bombay, cattle-fairs in Mysore. In Madras, Karuvalli and Chittavatti (Bellary district), Ranipet (North Arcot district), Hindupur, Sonnaghatta and Chilamatteru (Anantapur district).

Areas of Demand.—Mysore, Dharwar and North Kanara in North Kanara in Bombay, and the districts of Bellary, Anantapur, Chittoor, North Arcot, Salem, Coimbatore and on a small scale southern districts in India.

Number in India—1,749,000.

Utility.—A draught breed useful for road and field-work. Bullocks are strong, spirited, quick and steady workers. Cows are poor milkers.

General.—Proportionately built medium size animals, iron grey or almost black in colour. Forehead is bulging and furrowed in the middle and horns characteristically drawn back and bent, similar to Amritmahal breeds.

(4) *Kangayam.*—(also Kanganad, Kangu).

Habitat.—Southern and south-eastern taluks of Coimbatore district, in such places as Palayakottai and Kangayam.

Assembling centres.—Cattle fairs at Avanashi, Tiruppur, Kannapuram Mathurai and Athicoambu and cattle markets throughout the southern parts of Madras Province.

Areas of demand.—All the southern districts of Madras, namely, Coimbatore, Salem, Tanjore, Tiruchirappalli, Mathurai, Ramnad and Tirunelveli.

Number.—1,040,000.

Utility.—A very good draught breed of Madras, used for cultivation, road and mhothe work. Bullocks are strong and active, but cows are poor milkers yielding only 4 to 5 lb. per day.

General.—Animals are medium sized, colour white or grey, and horns grow from the top of the poll ending in sharp tips. Cows are white or grey with black markings on knees and a black ring round the eyes. Two varieties are reported, the larger type in Tiruchirappalli district and small types in Coimbatore.

(5) *Ongole.*—(Also Nellore).

Habitat.—Ongole tract in Nellore and Guntur districts.

Assembling Centres.—Breeding areas round Ongole, Tanguturu, Singarayakonda. For cows, Tiruvottiyur market near Madras City is a large assembling daily market.

Areas of Demand.—East and West Godavari, Krishna, Guntur, Kurnool, Cuddapah and Nellore districts in Madras and Nalgonda district of the H. E. H. the Nizam's State. For cows, Madras city also.

Number.—1,502,000

Utility.—Powerful work animals, suitable for heavy plough or cart-work, but are not fast trotters. Cows are good milkers yielding 10 to 12 lb. per day and about 3,500 lb. in a lactation. A general utility breed.

General.—Large and heavy animals, docile and alert, possessing good carriage and gait. Horns are short and stumpy. Ongole animals were exported abroad formerly (about 1920) and were found successful in building good beef breeds. The neck is short and thick, develop large fleshy hanging in folds and extending to the navel. Hump large and erect, horns short and stumpy turning sideways or backwards in males and larger in cows. Long and well-developed body. Bullocks are strong and massive.

The above breeds are the most important in Madras. Mention may be made of *Pullikulam* or *Jellicut* breed bred in the Mathurai district, particularly in the vicinity of the Cumbum Valley and Periar river. It caters to the needs of the Ramnad zamindars as a quick-trotting breed, but cattle are small, but

active and capable of much endurance and bulls are used for baiting. Animals resemble the small type of Kangayams. The *polled cattle* of the Tanjore district are really Kangayam animals whose horns have been destroyed when young, with the intention of making more docile and strong.

India.—The more important cattle breeds in India with their habitat are given below :

Statement—Vide (Opposite page)

Of the different breeds of oxen in other provinces and states, the best milkers were Tharkapur and Red Scindhi in Sind, Sahimal and Haryana (Punjab) and Gir (Kathiawar). Of these, the Sind cows have become popular in Madras and are in good demand due to their large milk yield, adaptability to different conditions and good temper. The breeds that are useful for both work and milk were Dajal, Hissar and Haryana (Punjab), Deoni (Hyderabad), Rath (Alwar), Shahabadi (Bihar) and Tharkapur (Sind). Breeds good for work only were Bachour (Bihar), Khillari and Dangi (Bombay), Gaolao (C.P.) Kherigarh (U.P.) and Krishna Valley (Hyderabad). Active and fast trotters are got from the Amritamahar (Mysore), Nagore (Jodhpur) and Parwar (United Provinces.)

B. BUFFALOES.

(1) *Madras.*—Two distinct breeds of buffaloes exist in Madras, namely, the *Toda* of the Nilgiris and *Parlakemedi* breed of Ganjam, found in the Visakhapatnam district. Besides the buffaloes types in Malabar and in South Kanara bear also some distinctive features. The breeds are described below :—

(1) *Parlakemedi.*

(Desi or Manda)

Habitat.—Ganjam hills around Parlakemedi.

Assembling Centres.—Weekly fairs at Uppalada, Balada and the markets in Chintada and Ungrada in Ganjam and Sundarapuram in Visakhapatnam.

Areas of demand.—Rice growing areas of Ganjam and Visakhapatnam districts.

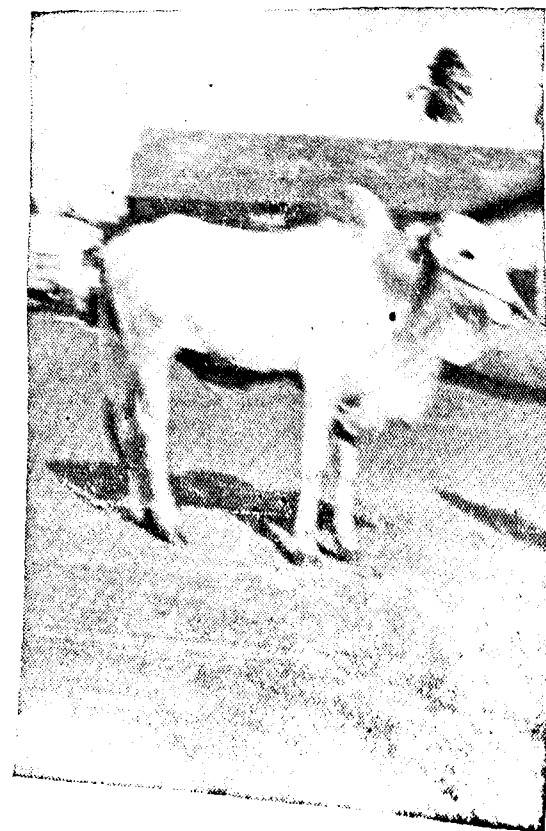
Number.—100,000.

Utility.—Mainly a draught breed useful for slow heavy work in rice fields. Cows yield about 10 lb. milk daily.

General.—Animals light coloured, with grey hair and reddish skins. Horns are thick and long nearly straight with a slight upward curve. The breed is not yet recognised by the All-India Cattle Show Committee.



A PAIR OF MYSORE BULLOCKS



AN ONGOLE BULL

Important Breeds of Cattle In India

Name of breed.	Habitat	Assembling markets.	Areas of demand.	Number in India.	Remarks.
Amritmahal	...	Tumkur and Chitaldrug.	Mysore.	25,000	Active and fast workers but poor milkers.
Bachaur	...	Darbhanza K oilpur Muzaufurpur.	North Bihar West Bengal	600,000	Best draught breed of Bihar but poor milkers.
Bagnari	...	Along river Nazi in North West Frontier and Baluchistan.	Sind, Punjab.	400,000	Bullocks hardy workers and cows fair milkers.
Bajal	...	Jampur in Punjab.	Punjab and North-West Frontier.	1,566,000	Good utility breed.
Dangi	...	Ahmednagar Khandesh and in Bombay.	Chat areas of Bombay.	550,000	Bullocks are useful draught animals cows poor milkers.
Deoni	...	Bidar in Hyderabad.	Bidar and adjoining districts.	300,000	Bullocks good workers and cows fair milkers.
Dhanni	...	Tellagang in Punjab.	Punjab and North-West Frontier.	1,255,000	A very good draught breed, cows poor milkers.
Gaolao	...	Sausar, Warcho in Cen- tral Province.	Bhandara, Yeotmal in Central Provinces.	440,000	Bullocks good, cows give 4 lb. daily.
Gir	...	Kathiawar.	Kathiawar, Gujarat.	790,000	A good milch breed giving 5,500 lbs. in a lactation Bullocks slow.
Mariana	...	Rohtak, Karnal Hissar of Punjab and Delhi.	South Punjab, Delhi North United Provinces	770,000	Good milkers 12 to 24 lb. daily and bullocks good.

Important Breeds of Cattle In India—Contd.

Name of breed.	Habitat.	Assembling markets.	Areas of demand.	Number in India.	Remarks.
Hissar	Hissar in Punjab.	Hissar and Gurgaon.	Canal areas of Punjab of West and Central parts of United Provinces.	4,811,000	A good utility breed. Bullocks good draught animals and cows fair milkers.
Kankrej	Rann of Cutch, Ahmedabad, Radhanpur.	Local.	Gujarat, Kathiawar, Bombay.	770,000	Cows fair milkers (3 to 10 lb. daily) and Bullocks quick draught animals. Small powerful breed.
Kenwariya	Banda in United Provinces.	Nairani Allahabad Dist.	Bundleland Central India.	1,031,000	A draught breed poor milkers.
Kerigarh	Kherigarh in United Provinces.	Fairs in Kheri district and markets in Bharatich.	United Provinces and Ouch.	8,684,000	
Khillari	Sholapur and Satara in Bombay.	Fairs at Maheswed and Nagolia Jath & Aundh states.	Southern Bombay and Hyderabad.	675,000	A well-known draught breed but poor milkers.
Mhewati	Kosi in United Provinces Alwar, Bharatpur.	Fairs in Kosi Megharura Bharatpur, Alwar.	United Province, Gwalior, etc.	400,000	Bullocks good workers. Cows give about 10 lb. milk per day.
Krishna Valley	Belgaum in Bombay and parts of Hyderabad.	Cattle fairs in Bombay Black cotton areas of Kolhapur, etc.	Bombay Hyderabad	653,000	A long massive animal good at work. Cows yield 4 to 6 lb. daily.
Malvi	Malwa tract of Central India portion of Hyderabad.	Fairs in Gwalior, Central Province (Central India and Hyderabad).	Malwa, Jubbulpur, Hyderabad.	4,950,000	Useful docile work cattle-medium size able to feed on small rations.
Nagore	Nagore (Jodhpur).	Cattle-fairs in Nagore, Jodhpur and South Pushkar Hissar, etc.	South Pushkar, Rajputana.	150,000	Famous fast good trotters. Cows give 8 lb. milk daily.

Nimari	...	Nimar (C.P.) and Khar-gaon (Indore).	Singaji, Khandwa, etc.	West of Central Provinces, Indore.	300,000	Bullocks docile. Cows give 3 lb to 4 lb. daily.
Ponwer	...	Puranpur (United Provinces).	Pilibhit district.	Districts of United Provinces. Local.	6,684,000	Bullocks small and famous for their speed.
Purnea	...	Purnea in Bengal near Nepal border.	Local.		750,000	Strong hardy bullocks poor milkers.
Rath	...	North-West of Alwar.	Local.	South-East Punjab, United Provinces, Rajputana.	200,000	Powerful bullocks. Cows yield 10 lb. milk daily.
Sahiwal	...	Depalpur in Ravi tract (Punjab).	Central Punjab fairs and Kasur.	Central Punjab.	952,000	High class milk breed giving 6000 to 7000 lbs. in a lactation. Bullocks slow but useful.
Sanchoore	...	Jodhpur.	Pushkar fair.	Jodhpur.	150,000	Males good workers. Cows give 12 lb. daily.
Shahabadi	...	Shahabad (Bihar).	Sonepur, Bhita (Bihar) Dairi (United Provinces).	Bihar and United Provinces.	500,000	Good work cattle cows best milkers (16 lb).
Red Sindhi	...	Karachi, Hyderabad (Sind) Las Bales State.	Sind markets.	Sind and on a small scale other parts of India.	351,000	Best milkers upto 12,000 lbs. in lactation, average 4000 lbs. docile and able to withstand different climates.
Tharkapur	...	Tarkapur (Sind).	Sind, Ajmer (Pushkar) Gujarat.	Sind, Cutch.	532,000	A dual purpose breed. Bullocks hardy and useful. Cows good milkers (14 to 16 lbs.) Able to live on scanty fodder.

Important Breeds of Buffaloes in India
(Excluding Madras)

Names of breed.	Habitat.	Assembling Centres.	Areas of demand.	Number in India.	Remarks.
Jaffarabadi	Southern Kathiawar (Gir forests).	Kathiawar.	Kathiawar and Bombay.	400,000	Large and massive. Heavy milker 30 to 40 lb. daily.
Kundi	North Sind.	Sukkur, Larkana.	North Sind and Khairpur.	589,000	Good milkers 20 lb. daily.
Mehsana	Mehsana (Baroda)	Ahmedabad Mehsana.	Gujarat Bombay City.	510,000	Early maturing regular breeders and good milking.
Murreh	Punjab and West United Province.	Rohtak, Delhi Hissar, Rewari, etc.	All cities in Northern India.	1,334,000	Average milk yield 30 lb. Good milkers. Males also used for draught.
Nagpuri	Nagpur, Wardha (Central Provinces).	Umaria, Sonbagaon, Wun.	Central Province and Khandesh (Bombay).	400,000	Males heavy draught animals. Females 15 lb. of milk daily.
Nili	Sutlej Valley (Punjab).	Cattle fairs in Central Punjab, Amritsar, etc.	Central Punjab.	1480,000	Good milkers (22 lb.)
Ravi	Ravi Valley (Punjab).	Fairs in Lyallpur, Amritsar, etc.	Punjab, canal areas.	1,858,000	Can give 16 to 20 lb. daily. Coarse hairy animals.
Surti	Charotar area (Bombay).	Markets in Gujarat.	Gujarat and Bombay City.	300,000	Regular breeders give 15 lb. milk daily. Medium size.

72

73

(2) *Toda*

Habitat.—Nilgiri Plateau.

Assembling Centres.—Breeding areas.

Areas of demand.—South Kanara district.

Number.—31,000.

Utility.—Buffaloes are good milkers giving daily 10 to 20 lb. milk with an unusually good flavour. Males are used only for breeding purposes.

General.—It is a hill breed with thick growth of hair-like a mane along the neck, hump and back. Animals are fierce and dangerous to approach, exceedingly powerful, with long body, large head with wide-set horns peculiarly curved. The breed is not recognised by the All-India Cattle Show Committee.

It is reported that some good sized buffaloes are reared in the Malabar forests, but imports are made into the district from Salem and Coimbatore. For South Kanara, supplies are received chiefly from Mysore through the Annual fair at Subrahmanya. A local hardy breed used for racing, is bred in South Kanara by the 'Bhut' Community.

(2) *India*.—The important breeds of buffaloes in India were as below:—

Statement (Opposite page)

Of the above breeds, the Murrah breed is now popular in Madras city for its high milking capacity.

(C) CROSS BREDS

With a view to evolve a high milk yielding breed suited to urban requirements, experiments were conducted by Caruth by crossing Ayrshire bulls on Scindhi and Saniwal cows at Bangalore from 1919 to 1923. The average daily milk yield increased from 7.2 lb. for pure Scindhi cows to 12.7 pounds in the first generation and about 10½ lb. in the second and third generation crosses. While the adult cows were on the whole of good size and build suitable for dairymen, the bulls had weakness in the hind legs. But animals have to be regularly inoculated against rinderpest by the serum simultaneous method. One defect noted was that many half-bred cows do not conceive at the first or second covering although their dry periods are much shorter than indigeneous cows.

From 1930, experiments were conducted by Mr. Littlewood, with the object of producing quarter-bred Ayrshire, Scindhi and Saniwal, using Scindhi bulls on cross-bred cows. Cows giving 5,000 to 10,000 lb. of milk in a lactation were got. But few of

the bulls could be used for breeding purposes. Both cows and heifers require to be housed and fed well. On the whole, the cross-bred cows could be useful for urban use, especially in dairies.

The number of cross-breeds in Madras city and neighbourhood is now increasing and many dairies are also keeping them to increase milk supplies.

(D) CATTLE-BREEDING

(1) *Cattle-breeding farms*.—During 1938-39, there were in India 53 cattle-breeding farms occupying roughly 98,000 acres. Of this, British India accounted for 45, mostly in Punjab (8 farms; 57,081 acres); United Provinces (5 farms; 11,536 acres); Central Provinces (6 farms; 10,668 acres) and Bombay (5 farms 3520 acres). In Madras, there were two cattle-breeding farms at Hosur and Guntur (buffaloes) occupying an area of 1,893 acres.

The more important cattle-breeding farms were as below:—

Important cattle-breeding farms in India.

Name of farm.	Number of cattle kept in June 1939.
1 Government Cattle Farm, Hissar (Punjab)	...
2 Jahangirabad Cattle Farm (Punjab)	6,858
3 Hampur Cattle Farm (United Provinces)	2,000
4 Allahabad Cattle Farm (Punjab)	1,639
5 Ajjampur Cattle Breeding Station (Mysore)	1,088
6 Madurikund Cattle Farm (United Provinces)	947
7 Livestock Research Station, Hosur (Madras)	933
8 Bharath Cattle Farm (United Provinces)	682
9 Government Cattle Farm, Patna (Bihar)	599
10 Bahadurnagar Buffalo Farm (Punjab)	552
11 Government Cattle-Breeding Farm, Hyderabad (Deccan).	485
	382
12 Imperial Dairy Research Institute, Bangalore	...
13 NorthCote Cattle-breeding Farm, Chharodi (Bombay)	381
14 Rod Cattle Farm (Central Provinces)	353
15 Garhi Cattle Farm (Central Provinces)	...
16 Qadirabad Cattle Farm (Punjab)	342
17 Montgomery Dairy Farm (Punjab)	...
18 Manjhra Cattle Farm (United Provinces)	339
	337
	331
	274

Besides there were 231 cattle in the Imperial Agricultural Research Institute, Delhi and 216 in that at Karnal.

The Hissar Farm is spread over 40,000 acres, of which 5,000 acres were irrigated. The farm worked also with equines, and

goats in addition to cattle. There were 35,000 acres of grazing grounds and stall feeding is resorted to only when grazing is not available. Milk recording and pedigree registers are maintained and animals vaccinated against rinderpest, and other diseases. The farm deals mainly with Hissar and Hariana breeds and young heifers and cows in excess of requirements are sold to breeders, preference being given to co-operative societies. Animals were given to district boards at concessional rates.

In the Livestock Research Station at Hosur opened during 1924, the number of animals increased from 680 to about 1,000 at present. The farm covered about 1,660 acres most of which was pasture. A large herd of Kangayams, and small herds of Scindhi and Hallikar are maintained. The station now serves as the Central Research Station for all Livestock in the Province, and the bulls bred here as well as the surplus females are distributed to the districts for breeding purposes.

During 1923, a farm for breeding improved buffaloes was opened with 150 acres of land at Lam (near Guntur). Besides a nucleus herd of Murrah buffaloes and half breeds, the farm maintains a large herd of local buffaloes. With the abolition of the Chintaldevi Cattle Farm during 1932, the herd of Ongole breeds was transferred to Guntur, where the work is being continued.

(2) *Village cattle-breeding*.—In India, one or two stud bulls are generally kept in each village for breeding purposes, and move in the area along with herds and cover cows whenever they come into heat. In some provinces, some of these bulls are approved for cattle-breeding by the Animal Husbandry Department, the number in the Punjab being 3,243 during 1940-41.

Brahmini.—bulls are bulls dedicated to the Temple. The tradition is that on the death of a relative, all well-to-do persons should give a selected good bull as an offering to God. Although in earlier years, care was taken to choose good animals for such purposes, the practice is now no longer followed.

Breeding bulls in Madras are differentiated into two types of animals namely:—

(1) *Doddadana* comprising large animals selected from the breeds of Amritmahal, Hallikar, Ongole, and Alambadi generally dedicated to temples.

(2) *Natu dana* comprising small village animals of different sizes and colours which exist practically in all villages and constitute the major portion of the breeding stock.

The breeding stock comprise (1) selected large animals of the *Doddadana* types, (2) the calves of *Doddadana* reared in villages, which are moderately good and (3) the non-descript degenerate

types from *Nattudana*. In the case of *Doddadana* the animals are owned and maintained by well-to-do ryots and breeders. In some cases, a few villages club together and subscribe for a good bull, which becomes the property of the villagers and is allowed to roam freely in the fields. In the Ongole breeding tract, the majority of the breeding bulls are *Brahmini* bulls. In the Kangayam tract, the dedication system is not in vogue but breeding bulls are owned by big breeders in large grazing areas, like the Pattadar of Palayakottai, but offspring of the cows served by these bulls are claimed by the owner. In Tanjore, landowners and ryots, keep breeding bulls, and their services are given free to ryots who allow cattle to graze on their fields.

E. SCHEME FOR THE DISTRIBUTION OF STUD BULLS FOR BREEDING.

(a) *Premium Scheme*.--During 1916, the Director of Agriculture, Madras, introduced a premium scheme on the Irish model. According to this scheme, the breeding bull was owned by individual or society or district board, but the Government paid a grant of Rs. 90 per annum for the first three years, provided it was properly maintained and served not less than 40 cows per annum. Some district boards, co-operative and agricultural seed societies, and village panchayats first took advantage of the scheme. For the supply of breeding bulls to the different districts, animals were also supplied from the Livestock Research station at Hosur and Chintamani. The premiums paid per bull have been varied from time to time and stood in 1945 as follows:—

Grants not exceeding Rs. 160 per annum for first year.

Grants not exceeding Rs. 120 per annum for second and third years.

In the case of Ongole bulls and buffalo bulls, the premium was Rs. 10 extra.

The bull should be approved by the Livestock Development Officer or District Veterinary Officer, and shall ordinarily remain in the scheme for five years, and only one bull of the same breed can be maintained by an individual or society.

During 1935, a scheme was introduced by which Government made grants to district boards and co-operative societies for the purchase of stud bulls for distribution to ryots and this was taken up by the district boards at Coimbatore, Tanjore, Chingleput, North Arcot, South Arcot, Nellore and Tiruchirappalli. These bulls are given on loan to ryots for three years after which they become their property. The ryot should undertake the proper maintenance of the bull, and should see that not less than 60 services are performed annually, and may charge the prescribed fees.

The Veterinary Department also proposed during 1941, a scheme costing Rs. 50,000 for purchase of 110 adults of different breeds and 85 young bulls including Murrah buffaloes for distribution to ryots, and a premium of Rs. 50 per annum was paid to each breeder for the first two years until they commenced serving. A grant of Rs. 20,000 was sanctioned every year for this purpose from the year 1942-43. Besides 50 yearling Ongole bred calves were purchased every second year from 1944-45, reared in the Guntur Livestock Research Station and distributed for sale to ryots and local bodies or stationed for service at the Government veterinary institutions. Besides a scheme has been formulated to reach a target of 100,000 bulls and 100,000 cows of Ongole breed every year. It is desirable that similar schemes are also worked for the more important breeds like Kangayam and Hallikar.

(F) CO-OPERATIVE CATTLE BREEDING SOCIETIES AND ASSOCIATIONS

(a) *Societies*.--During 1940-41, there were 386 co-operative cattle breeding societies in India, with a membership of 4,461 keeping 835 bulls and 23,670 cows. Of these, the Punjab was foremost in the list with 313 societies 2,118 members, 18,917 animals and a working capital of Rs. 175,580. Next in importance was Madras with 7 societies, 696 members, 3,954 animals and a share capital of Rs. 7,372. Bombay and United Provinces had 17 and 15 societies with 891 and 192 animals in that year. Compared to the population of cattle in India, the number of cattle owned by co-operative societies was very small. Comparatively greater activity was seen in the Punjab in Amritsar district and in Ferozpur districts and there were 20 buffalo breeding stations.

In Madras, the number of members per society is the largest (about 100 per society) and the number of cattle per society (565). A typical society in Madras, the Anchetty Cattle Breeding Society, Salem district, is described below:—

The society was registered in 1937. The main object is the promotion of economic interests of its members by improving the methods of cattle breeding and to arrange for the joint purchase and sale of cattle required by them. To begin with, the society received a free grant of Rs. 750 from the Salem Urban Bank and Rs. 1,050 from the district board for purchase of 15 Hallikar bulls, which were stationed with members in eight villages. A service fee of annas twelve was charged from members and Re. 1 from non-members. Bulls selected by members are maintained by them according to a standard approved by the Veterinary Department and they get for such purposes the premium granted by the Government as described formerly as well as, half the service fee collected. The other half goes to the society's funds. Expert advice is arranged

through the staff of the Animal Husbandry Department. To start with, local scrub bulls were castrated and cows of proper age and size selected for crossing. When calves are born, they are marked with numbers to avoid in-breeding.

The Forest Department has given to this society grazing grounds in three villages, demarcated at 4 to 5 acres per bull. These blocks are fenced by the society before bulls are left for grazing. Each block is divided into three divisions and grazing is allowed only in one division at a time, to provide facilities for growing grass.

The bulls are replaced once in three years, and funds have been created for repurchase of bulls, as also to meet any loss due to casualty. Out of the profits earned, 25 per cent is allotted to the Reserve Fund, 35 per cent to the repurchase fund and 20 per cent for the casualty fund, 7½ per cent to the Common Good Fund and the balance 12½ per cent is divided among members in proportion to the transaction done by each with the society. The value of a share is Re. 1 and every member is to take not more than 5 shares. Every member must have his male stock castrated, except those selected for breeding. In the matter of joint purchase and sale, the society shall act only as agent.

It is reported that there was a significant improvement in the breed of cattle in the area in a short time. Although there is provision in the bylaws of cattle societies for the marketing of cattle, no society has so far done it in practice in India till the year 1941.

(b) *Associations.*—The formation of breeding societies for the various breeds of cattle was suggested by the Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry in 1939; and commended for action by the Provincial Government by the Indian Council of Agricultural Research. The suggestion was agreed to by the Provincial Livestock Development Board for the Ongole, Kangayam and Hallikar breeds. A scheme was sanctioned for the formation of the *Kangayam cattle breeding and marketing Society* with headquarters now at Coimbatore. The objects were (1) the bringing together all breeds of Kangayam cattle, (2) register and mark all cattle conforming to the approved type (3) and place the Kangayam breed on approved lines of livestock improvement. For such purpose, the society will prepare and maintain authentic records of all breeding operations as services, births, deaths etc. register all pure bred Kangayam bulls in the area, introduce and maintain stud bulls of known pedigree, record all sales and transfer of ownership and arrange to sell the cattle of members in the best market.

The entrance fee was fixed at Rs. 2 with an annual subscription of Re. 1 per member. The society could also collect 5 per cent of the amount realized on sale through the society. The receipts will be credited to Government funds as departmental receipts and Government have agreed to grant Rs. 2,500 during 1944-45 and Rs. 600 in each of the four succeeding years; besides the services of one veterinary assistant and two compounders.

(G) LIVESTOCK DEVELOPMENTAL BOARD, MADRAS

Based on the recommendation of the Cattle Conference in India 1937, at Simla, the Government of Madras constituted in 1940, a Livestock Development Board, as follows:—

- (1) Hon'ble Minister for Agriculture — *Chairman*.
- (2) Secretary to Government, Development Department — *Secretary*.
- (3) Director of Animal Husbandry.
- (4) Principal, Madras Veterinary College.
- (5) Livestock Development Officer, Hosur.
- (6) The Director of Agriculture.
- (7) The Register of Co-operative Societies.
- & (8) to (12) Five non-official members.

A Joint Director of Animal Husbandry was also recently appointed for promoting livestock improvements. The objects of the Board were to advise the Government on schemes on livestock in the Province and to make suggestions for the financing them. Meetings were held every quarter from 1940. A Provincial Livestock Improvement fund was raised by the grant of Rs. 25,000 annually from Government. From the grant, stud bulls, rams and buffalo bulls were purchased and distributed. The Livestock Research Stations at Hosur and Guntur were expanded, and a scheme of salvaging dry cows from the City of Madras sanctioned. Fifty Ongole beifers were subsidised every year at the rate of Rs. 2 per calf per month, while stud bulls were stationed round milk union areas, in important centres. Schemes for the improvement of sheep and poultry have been taken up.

H. CATTLE DISEASES

It was estimated that the total loss due to contagious diseases in India during 1940 was about 3 crores of rupees. The most common diseases being rinderpest (52 per cent.) Haemorrhagic Septicaemia (24 per cent.) black quarter (8½ per cent.) and anthrax (3½ per cent.) out of a total mortality of 236,055. Where such disease take an epizootic form, local supplies are considerably affected, and create deficiency. At present, the Civil Veterinary Departments issue forecasts of changes due to the occurrence of

such epizootic diseases, and when an outbreak occurs; necessary steps are taken to control the diseases, including inoculations. Serum inoculations against the above four diseases have achieved very good results and it is necessary that this be made regular routine, so that lakhs of cattle every year may be saved.

Besides, it is necessary to have a suitable legal enactment for the control of contagious diseases of cattle. Such a legislation exists in the Central Provinces Cattle Diseases Act XVI of 1934, for Saugor and Boshangabad districts. All cattle entering the Central Provinces from the North must pass through these posts, where every animal is thoroughly examined by veterinary surgeons. The sick and incontact animals are detained, while the rest are vaccinated against rinderpest, branded and given a permit. A vaccination fee of four annas was charged per animal and there was considerable reduction in the outbreak of the disease. It is desirable that similar legislation is taken up in other provinces and States.

In Madras, the serum simultaneous method against rinderpest has been successfully adopted, but the existing staff was not enough to carry out the work in all areas. About 486,099 inoculations were done during 1945. The spread of the disease is controlled by the Madras Cattle Diseases Act of 1886 and the Madras Rinderpest Act of 1940.

In the reporting of contagious diseases in Madras, village muniffs maintain cattle mortality registers and send reports to the Tahsildar and the local touring Veterinary Assistant. The cattle mortality records are compiled by the Collectors and sent to the Director of Animal Husbandry, but it was found that the number of deaths reported was less than the actuals, while the causes are not accurately reported. Recently presidents of forest panchayats, village panchayats and irrigation boards are also entrusted with such work, and send reports in green cards.

1. LIVESTOCK IMPROVEMENT ACT 1940.

In cattle breeding, the most important lines of development are, the elimination of scrub bulls by compulsory castration to prevent indiscriminate breeding, and the licensing of good bulls fit for service. To achieve the above purposes, the Madras Government passed in September 1940, a legislation called the (1) "Madras Livestock Improvement Act 1940" (Appendix X).

The Act provides that no person can keep without a license from the Director of Animal Husbandry a bull that has cut two permanent incisors unless it has been effectively castrated, as ordered by the licensing officer. A licence will be granted only to good animals belonging to the breed of the area, and should be produced before a cow is served. Contravention of the above

provision can be punished with fines up to Rs. 50 for the first offence and Rs. 100 for subsequent offences.

The Agricultural Marketing Adviser to the Government of India has recommended that an Act on the above lines as in Madras should be introduced in all other provinces.

J. CATTLE SHOW

In all provinces and States in India, cattle shows are held in important fairs, or other occasions. In these shows, animals of good breeds are exhibited and prizes and certificates awarded for the best animals. In the Punjab, where these shows are popular, there were 221 shows during 1940-41 attracting 26,040 animals and the value of prizes given was Rs. 28,325. In Tirupur (Coimbatore dist.) a cattle show is held every year in May by the Agricultural Association and some of the best animals of the Kangayam breed participate including selected animals from the famous herd of the Pattadar of Pehayakottai.

The first All India Cattle Show was organised by the Government of India in Delhi in 1933 and was later continued as an annual function. From 1943, three regional shows were also organised at New Delhi Bhavnagar and Bangalore to include more breeds. The main object of these shows was to encourage cattle breeders to develop breeding on scientific lines. The competitions include milking, cart racing etc., and caps and medals are awarded to winners. The show includes cattle, buffaloes, sheep and goats, and certain specified breeds are selected for each region to compete in the show.

K. FODDER RESOURCES AND GRAZING REGULATIONS.

In India, permanent pastures are very poor except in the reserve forest areas. Reservation of fodder for emergency is not also a common practice, although dry straw is usually kept in the larger holdings. Silage is also not practised, the only exception being Hissar Farm (Punjab), where annually about 8,000 tons used to be reserved. In the Hosur Cattle Farm, the quantity of green fodders made into silage ranged from 500 to 800 tons annually.

Adequate feeding is one of the most important lines of cattle improvement. The supply of fodder in Madras is however inadequate to maintain the animals on a proper ration. According to the Provincial Fodder and Grazing Committee, the scarcity areas were portions of Circars and Madhar and the less deficit areas like Nellore and portions of North Arcot. Fodder supply is just sufficient to meet requirements in the East Coast and portions of Mathurai. Rannad, Tirunelveli and Coimbatore districts. Fodder supply was considered surplus in certain areas of Coimbatore, Mathurai and Nellore and abundant in parts of Nellore, Coimbatore and Circars.

On the whole, the supplies in Madras will range from 190 to 220 lakhs of tons of dry fodder, and about 30 lakhs of green fodder from fodder crops, besides natural grass from pastures, and *bhusa* of pulses (14 lakhs of tons). The production of concentrates ranged from 350,000 to 450,000 tons of groundnut cake, which is largely required as manure, besides 160,000 tons of cotton seed and about 214,000 tons of rice bran, and husks of pulses. Taking cattle only and omitting buffaloes, the supplies of dry fodder will come to about $7\frac{1}{2}$ lb. per head per day, which is inadequate as an adult requires about 15 lb. Besides buffaloes have to be fed. The nutritive ratio of dry straw is low (1 : 40) and milch cows have to be fed with green fodder grass (1 : 10 or 12) or legumes (1 : 5). The area under fodder crops in Madras increased from 264,000 acres during 1940-41 to 459,000 acres during 1944-45 and 562,799 acres during 1946-47. Cows in milk should be fed with green grass, or with green fodders, whenever possible.

The position regarding concentrates is also not satisfactory. If we take all the concentrates produced (about 2 million tons including dholl husks) this may amount to $\frac{1}{2}$ lb. per adult, as estimated by Sri S. Y. Krishnaswami in his book "Rural problems in Madras." As groundnut cake is also used for other purposes, the supply for cattle would be even less; and is inadequate as a minimum of $\frac{3}{4}$ lb. per head is required. If we can crush all the groundnut kernel in the province and allow exports of oil only, the position can be improved. The milling industry in the province has expanded sufficiently in recent years to crush all the oil seeds produced.

In regard to grazing, this is permitted in the reserved forests throughout the year under permits, the rate being $1\frac{1}{2}$ to 8 annas per cow unit. Besides, village panchayats also permit grazing of cattle, and certain hill villages. In Nellore, a more effective system is practiced when specified areas (*Kanchas*) are sold in auction, and are open to a limited number of cattle and closed for grazing in the rainy months.

Out of 18,396 square miles under forests, about 3,272 square miles were under panchayat management. The number of cattle grazed was $1\frac{1}{2}$ million annually in the reserved forest areas, and $\frac{3}{4}$ million in panchayat forests. The average incidence of grazing was 6 acres per unit in reserved forests and 2.8 acres per unit in the panchayat. A special officer who enquired into the grazing facilities recommended the adoption of a block system of penning animals; supply of drinking water and the cultivation of new varieties of grasses.

For the improvement of cattle, it is necessary to increase fodder supplies from all sources, particularly green fodders, pastures and concentrates.

(L) GOWSHALAS AND PINJRAPOLLS

Gowshalas and *Pinjrapoles*.—in India are established and maintained as an act of piety to prevent slaughter of animals. They are financed by public subscriptions and donations, and some also own lands for grazing and fodder cultivation. The number of such institutions in India was 3,000 during 1940. Generally old, weak, diseased or useless animals are given help in such institutions. A few took up also the work of cattle breeding and dairying. It is reported in the All-India Report on the Marketing of Cattle, that 16 societies maintained 17,000 animals and spent Rs. $5\frac{1}{2}$ lakhs annually.

In Madras, such institutions existed in Visakhapatnam, Bhimavaram in West Godavari district, Nuzvid, Vijayawada and Gannavaram in Krishna district, Repalle, Tenali, and Narasaraopet in Guntur district, Nandyal in Karnool; Bellary and Adoni in Bellary; Brinlavan in Tiruchirappalli; Tirupathi in Chittoor; and one in Nellore. In Madras City, there were the Madras Pinjrapole, the Mahajana Pinjrapol, the protection of cattle service and the Society for the Prevention of Cruelty to Animals for such work. All these *goshalas* and *pinjrapoles* could be easily converted into model cattle improvement centres, if proper methods of scientific breeding, feeding and housing methods are followed.

(M) PEDIGREE REGISTERS AND MILK RECORDS

The maintenance of pedigree and performance registers, forms an important item in cattle improvement work, as this locates the value of each animal and is useful for earmarking it for special purposes as milking, and other characters. In India, such records have been confined mainly to animals kept in Government farms. The Indian Council of Agricultural Research convened a meeting of important breeders during 1936, and arranged for a definition of the characteristics of each breed, as confirmation and milk yields. Herd books are now maintained and animals registered by the Secretary, Imperial Council of Agricultural Research. By the year 1943, 3,000 animals for Sahiwal, Scindhi, Haryana and Murrah breeds were registered.

Besides, records of various Indian Cattle under different conditions have been published as bulletins, and Milk recording and herd book schemes maintained in breeding areas. In Madras, Milk recording was commenced as an experimental measure in the Co-operative Milk Unions at Tanjore and Chittoor; Coimbatore, Mathurai and Vellore. Besides pedigree and performance registers are maintained by the Kangayam Cattle breeding and Marketing Society.

SUMMARY.

(A INDIA)

India is pre-eminently an agricultural country. More than three-fourths of her population depend upon agriculture as her livelihood. Cattle thus play an important role in the rural economy of this country. The males are mainly important as draught animals and females as producers of milk. In all agricultural operations oxen are indispensable to Indian farmers. The cow has been held in high esteem and even considered sacred from times immemorial. She is worshipped for her male progeny which supplies power for agriculture and her milk which is highly nutritive and wholesome food for infants, adults and invalids alike. The dung is used both as manure and fuel. The value of hides, bones, hoofs and horns together is also of considerable economic importance. Unlike European or American countries cattle are not fattened for beef but a considerable proportion from the old and emaciated stock is slaughtered for human consumption. The contribution of the cattle in the economy of India is estimated to be Rs. 1,800 crores annually.

Indian cattle belong to two separate species, viz. oxen and buffaloes. They are quite distinct and do not interbreed. India possesses approximately 16.6 crore oxen and 4.7 crore buffaloes. These are about one-fourth and three-fifths respectively, of the total recorded oxen and buffalo populations of the world or 71 per cent of the total cattle in Asia. Taking the two species together, India has 38 per cent more cattle than Europe including the Union of Socialist Soviet Republics or 5 per cent more than the number found together on the two continents of America. The number of cattle in Africa and Oceania is only about 25 per cent and 8 per cent respectively of the cattle in India.

Although India holds premier position in cattle population but she is neither most densely populated country of the world nor has she a high ratio of cattle to human population as in Denmark.

According to the trade demands and climatic and soil conditions varying number of breeds of both the species have developed in different parts of the country. Some of them are markedly distinct while others are not so well defined. There is a large proportion of well defined types of buffaloes than that of oxen in the country. The number of fairly well-defined oxen is approximately 35 and that of buffaloes 10.

In the Northern India, the most important, oxen breeds in the Punjab are Harijane, Hisar Sahiwal, Dhanni and Dajjal; Bhagrani and Lahani in Baluchistan; Red Scindhi and Tharparkar in Sind. Sahiwal, Red Scindhi and Tharparkar are good milk breeds while others are good draught and general utility breeds.

In Southern India, Alambadi, Auritmal, Burgur, Deoni, Hallikar, Kangayam, Krishna Valley, and Ongole breeds are found. These are mostly bred in the Madras Province and Mysore State. They are good draught and general utility breeds. Bombay including States are noted for Dangj, Gir, Kankrej and Khellari breeds which are also good draught and general utility breeds. In Rajputana States, Jodhpur is famous for Nagore and Sanchore breeds while Rath is found in the Alwar State. These breeds are famous for draught. In the United Provinces, Kenwariya, Kherigharh, Mewati and Poonwar breeds are met with. They are good general utility breeds.

Bihar is noted for Bachour, Purnea and Dhahabadi breeds while Gaolao, Malvi and Nimari are met with in the Central Provinces and Central India States. They are also good general utility breeds.

As regards buffaloes, the Punjab and Delhi are noted for Nili, Ravi and Murrah breeds. These are good milk yielders. Jaffarabadi Mehsana and Surti breeds are well-known milk breeds in the Bombay province and Kathiawar States. Nagpuri, which is a dual purpose breed, is found in the Central Provinces and adjoining districts of Nizam's dominions. In Orissa, Parbhimedi a breed used for draught purposes is met with.

The livestock enumeration in this country has not yet attained any desirable standard of accuracy. Frequent changes in the classification, the adoption of different grouping by some units and participation of some areas in one census and the non-participation in other effect the utility of figures and make comparison on all-India basis difficult.

Among the oxen the proportion of males is more than half, while in the case of buffaloes, the females predominate and are nearly three-fifths of the total population in India. The reason for this lies in the comparative utility of the two species. For agricultural purposes, the oxen males are generally preferred for lightness and more active nature, and cows are, therefore, generally maintained for breeding bullocks. She-buffaloes, on the other hand, are looked upon as better dairy animals than cows and are better looked after, but their males are neglected so much so that many of them die or sold for slaughter before they attain maturity. This is borne out by the fact that the number of male buffalo youngstock is less than half of the female youngstock.

In the case of oxen, nearly 2.7 per cent of the animals are not put to any work as against 1.4 per cent of that of the buffaloes. This is perhaps due to the sanctity attached to the oxen by the Hindus who do not ordinarily sell even an unserviceable bullock or cow and may maintain it till it dies a natural death. There are no such religious scruples about the buffaloes.

The largest number of oxen is found in the United Provinces which possesses 230 lakh heads or nearly 14 per cent of the total of the country. This is closely followed by Bengal where there are nearly 226 lakh oxen or approximately 13.6 per cent., while Madras stands third with 9.6 per cent of the total. As regards buffaloes about 93 lakhs or 20 per cent are located in the United Provinces 62 lakhs or 13.2 per cent in the Punjab and 61 lakhs or 13 per cent in the Madras Province. Bengal, the second important province in respect of oxen, stands tenth as for as buffaloes are concerned and possesses only about 11 lakh heads or 2.3 per cent of the total, buffaloes of India.

The densities of oxen per 100 acres of cultivated area, per 100 persons and per square mile for the country as a whole are 43, 43 and 108 heads respectively. The all-India average of density of buffaloes works out to 12 buffaloes each per acres of cultivated area and 100 persons and 30 buffaloes per square mile.

From the data available for the period 1919-20 to 1940 it appears that the cattle population steadily increased till 1935 but declined during the quinquennium ending 1940. The percentage increase has been more for buffaloes than for oxen and the percentage decline during the period 1930-40 has been more pronounced in the case of the latter. The reason for the fall during the last quinquennium lies in the famines which occurred in several important breeding areas, viz., south-eastern Punjab (Harianna tract), Gujarat and Kathiawar (Kankrej and Gir tracts) etc.

According to the latest livestock census of 1940, the total number of working cattle found in India is 7.10 crores but the total demand of cattle for cultivation and carting in urban areas, loading and oil-seed crushing is estimated to be 7.14 crores. The deficit of 3.71 lakh heads is probably made up by employing young stock, dry cows, donkeys and camels for such purposes.

The extension of cultivation during the 20 years ending 1939-40 has been 1.0 per cent, while the increase in adult male oxen and buffalo stock has been only 0.6 per cent. No definite conclusions can, however, be drawn from the data as the number of females used for work in 1919-20 is not known. Although no reliable data are available it can safely be said on the basis on enquiries made during the survey that the mechanised transport has replaced bullock driven cart to a considerable extent in all the parts of the country. This indicates a downward trend in the demand for cattle used in carts and as pack animals.

The seasonal demand for draught animals is at its peak just before the commencement of agricultural operations when cultivators require bullocks or buffaloes for tilling. Another rise occurs after the harvesting season for threshing and transporting

the produce to the market. Periods of low demand are post-harvest seasons when little work is left for the animals on the farm. Since crop seasons vary according to the varying conditions of climate in different areas the demand for plough cattle fluctuates accordingly. The demand for cart bullocks in urban areas remains more or less uniform throughout the year, though in rural areas it appreciates after the harvesting season when the produce is transported to the market. The demand for cattle used as beasts of burdens in hills is slack in severe cold and increases on the onset of more open weather in summer when trade movements are active. In plains such animals are in greater demand during the rainy season when the traffic is low.

There are above 4.90 crore breeding cows and 2.14 crore she-buffaloes in this country. Out of these about 96 per cent of cows and 94 per cent of she-buffaloes are located in rural areas and only 4 per cent of milk cows and 6 per cent of she-buffaloes are found in cities and towns. The cows increased by about 8 per cent and the human population by over 27 per cent in 20 years ending 1940. She-buffaloes increased by only about 2 per cent.

As dairy animals are generally marketed when they are in milk, seasonal variations in demand for cows and she-buffaloes are closely associated with their calving seasons. The demand rises with the calving and falls when there is decrease in lactation.

It is estimated that the annual demand for beef cattle is 66 lakh heads, of which 80 per cent are oxen and 20 per cent buffaloes. Although most of the cattle used for slaughter are those which are uneconomical to maintain, in large cities like Calcutta, Bombay and Madras, cows and she-buffaloes are sent to slaughter houses even in the prime of life when they go dry. Buffalo flesh being coarser and less tasty is in lesser demand than beef. The demand for slaughter cattle is increasing year after year partly owing to increase in human population and partly to the development of bill-tong trade and increase in demand for hides. The demand for such animals is less during warm months than in colder parts of the year. This depends upon the consumption of beef which has comparatively better demand in winter than in summer.

In the absence of any dependable data, the study of cattle prices in this country is rendered exceedingly difficult. Cattle owners of this country, as a rule, do not keep records of the cost of rearing cattle up to the age of puberty. Even the Government cattle breeding farms have not yet fully investigated the economic aspects of rearing cattle up to the adult marketable age. Evaluation depends much upon the individual choice or fancy for certain types of animals. These factors are thus responsible for complicating the question of fixing their market value for such

purposes. Important factors affecting prices of draught animals are disposition and colour, age, breed, pair, locality and season. Prices of dairy cows are determined on the performance, age, breed, pregnancy, temperament, locality and season. Similarly prices of slaughter stock depend upon the quality and yield of beef, age, species, class, locality and season. Incidental factors like famines and floods, epizootics, auspicious marks, etc., also affect the prices of cattle. Prices of draught cattle do not show day to day fluctuations but marked changes may be visible from season to season. The main factor that increases the price of draught cattle is the demand for plough animals at the time of preparing land for cultivation. A depression in prices may be noticed during the slack season. Prices may run high when there are sufficient rains followed by good crops and pastures and low when there is paucity of rains and crop failure and fodder scarcity. Milch animals are mostly marketed when they are in lactation. In towns and cities, where there is a constant demand for milk and milk products, if and when the supplies of milk fall, prices of milch cows may show a rise and vice versa. Prices of slaughter stock rise when the majority of cattle are employed in agricultural operations and consequently the surplus for slaughter is small. On the other hand, useless or otherwise unserviceable animals pour into slaughter houses at the beginning of autumn owing to scarcity of fodder and lesser demand for agricultural purposes. This results in low prices.

In India, there are no organised agencies for disseminating market intelligence regarding the prices, demand supplies, etc., of cattle important markets. In 1938, the Central Agricultural Marketing Department organised on an experimental basis a cattle market news service between Rohtak (feeding area) and Bombay (consuming centre). Later the service was extended to other places as well viz., Delhi, Bahadurgarh (Rohtak district), Mehsana (Baroda State) and Calcutta. Since its start the service is running satisfactorily and has been appreciated by the trade. For the benefit of breeders in rural areas the department broadcasts from All-India Radio Station, Delhi, the maximum and minimum prices of milch cows and buffaloes ruling at different centres. Similar news is broadcast from Calcutta. Information received through the broadcast is published in a local Bombay newspaper. The price of milch cattle prevailing at the Tiruvattur market is similarly published weekly in various newspapers in Madras Province.

A few dealers finance their marketing operations from their savings, while the rest, particularly those from the cultivating classes depend generally on external sources. Cattle dealers generally finance their requirements from moneylenders, although co-operative societies, landlords and Government also advance loans for the purpose. Barter transactions in cattle trade are not uncommon in many parts of the country.

As a matter of fact scientific breeding and rearing up to the age of puberty has great bearing on the market value of animals. Unfortunately most of the stock rearers of this country pay little attention to the fundamentals of cattle husbandry. For the preparation of cattle for the market they are, however, quite keen to wash, groom and decorate them before sale. Such measures give the animal an attractive appearance but they cannot mislead an intelligent buyer in assessing its intrinsic value. The slaughter stock, however, is not prepared for the market in any special way.

Assembling and distribution of cattle whether they are intended for draught, dairy or slaughter are interlinked functions. Cattle dealers who undertake the assembling of cattle are also engaged in the distribution. The itinerant traders play an important role in the assembling and distribution all over the country, especially in rural areas where periodical cattle markets are wanting and are not held frequently. Brokers are the only functionaries in the cattle trade. They are found to operate at almost in every stage in the marketing of cattle. The other functionaries are *Bhangis*, *bhistis* and *kahars* who clean the premises and supply water.

Cattle are sold at various sites, such as open fields, road-sides, private premises, village commons, fair-grounds and markets. The various market charges recovered from cattle dealers are admission fee, sale registration charges, brokerage and miscellaneous expenses like octroi, currency exchange charge, ground rent, etc. There are 3 units of sale in the cattle trade, viz., 'per head' 'per pair' and 'per group' of which the most widely used unit is 'per head.'

The prices are settled after examining animals. The price is settled by private treaty or negotiations under cover. Both the methods are prevalent all over the country, but a greater number of sales are conducted by the former method.

It is estimated that breeders' share in the price paid by the final buyers in terminal markets varies from 50 to 86.5 per cent.

The principal means of cattle movement in India is road, although transport by rail is steadily increasing particularly for long distance journeys. A few animals are also moved by river in Bihar, Bengal and Assam while traffic by sea among the maritime provinces and States is negligible. Out of a total number of 12 lakhs of cattle moved, 81.7 per cent are estimated to go by road, 18.2 per cent by the rail and 0.1 per cent by river and sea. Cattle dealers, as a whole, favour road marches as the cost involved is low and generally there is an advantage of free grazing and marketing of cattle en route.

Some railways allow station-to-station concessional rates between two stations generally situated far apart and commanding heavy traffic in cattle. The existing wagons used for transporting cattle have generally neither lighting arrangements nor feeding and watering troughs for animals. As a result of darkness, sometimes, cattle become restive and frightened and receive serious injuries causing heavy losses to dealers. Except in a few cases, cattle trucks have metallic sides, roof and floor, with the result that the temperature inside goes high in summer and low in winter. Arrangements for free ventilation in wagons are also not adequate. At most of the stations, there are no sheds for housing animals in inclement weather.

The total annual number of cattle (average-1933-39) imported into and exported out of different trade blocks in India by rail and river is 223,621. Bengal is the principal importer followed by Bombay, the United Provinces and Bihar. The main exporting provinces in order of merit are the Punjab, Bihar and Orissa.

Movements of cattle mostly originate in surplus areas and terminate in deficit tracts. In certain areas, superior animals are imported where the local cattle are of poor quality. In other cases cattle are marched from one area to another for grazing. Movements of dairy cows and slaughter stock from breeding areas to consuming centres take place throughout the year depending upon the demand. In case of traffic by road, movements take place mostly during the cold weather. The distance covered by cattle drovers during the course of journeys by road varies from a few to as many as 1,000 miles.

India's position in the international trade in cattle is insignificant. The sea-borne trade of this country is small. The imports which consist mainly of milch cows and bulls chiefly from the United Kingdom are sporadic and have little commercial importance. The main buyers of Indian cattle used to be Ceylon, Strait Settlements and Federated Malaya States. The exports of Indian cattle to foreign countries have declined to an insignificant figure at present. No statistics of cattle trade by roads with adjacent countries are maintained.

The activities of the Government both Central and Provincial are multifarious in connection with livestock improvement and welfare. As a result of indiscriminate breeding, Indian cattle on the whole are of inferior quality. A majority of them do not possess the characteristics of any one breed. The Animal Husbandry departments have, however, recently included this important item in their programme of work and attempts are being made to improve the indigenous cattle by practising scientific breeding.

In 1938-39, there were 53 cattle breeding farms in India. Punjab is responsible for maintaining 57 per cent of total cattle

on these farms in British India. The most important of these farms maintaining more than 1,000 heads each are—Government Cattle Farm, Hissar (Punjab), Jahangirabad Cattle Farm (Punjab,) Allahabad Cattle Farm (Punjab) and Hempur Cattle Farm (United Provinces). Government Cattle Farm, Hissar breeds Hissar type of cattle while Jahangirabad and Allahabad Cattle Farms maintain Sahiwal breed. Hempur Cattle Farm keeps Kherigarh and Ponwar breeds. Cattle shows are held to encourage scientific breeding of cattle.

The number of co-operative cattle breeding societies and the cattle owned by the members is very small in India. Generally speaking, the aims of these societies are to arrange for improving the breed of cattle, for purchase and sale of cows and bulls and for the disposal of the improved surplus stock. The largest number of such societies viz., 313, is in the Punjab, next in order are Bombay and the United Provinces which have only 17 and 15 societies respectively. There are probably no cattle marketing or insurance societies in India.

Lakhs of cattle die annually from contagious diseases and the total annual loss to the country on this account alone is roughly estimated to be not less than Rs. 3 crores. The most common epizootics are rinderpest, hæmorrhagic septicæmia, black quarter and anthrax, which are very common in the low-lying areas, where the largest number of deaths occur during or after the rainy season. Rinderpest alone is responsible for about half of the total mortality. In areas affected with these diseases, supplies of cattle are affected adversely. Civil Veterinary Departments in different provinces issue epizootic forecasts, and on their outbreak take necessary preventive and control measures to check them.

In India, except a few enactments there are no legal sanctions for the control of bovine contagious diseases. The infection, therefore, spreads easily from one locality to another by free movement of cattle. In the Central Provinces, quarantine stations established under the Central Provinces Act, XVI (1934) on the northern boundary of the province have shown encouraging results.

During famines, both Government and public organizations render relief in the affected areas. Some non-official organizations are also doing useful work in connection with cattle welfare.

For breeding purposes stud bulls are maintained by the district boards, municipalities, *gowshalas*, co-operative societies, provincial Governments and the States in addition to Brahmani bulls found in large number.

Gowshalas and *pinjrapoles* in India which number about 3,000 are established and maintained as an act of piety. Their main object is to prevent the slaughter of animals. These institutions are financed by public subscriptions and donations and some of them have small pieces of lands for grazing of cattle and the cultivation of fodder.

B. Madras.

The population of oxen in Madras during 1945 was 16.3 millions as compared to 166.2 millions for the whole of Undivided India or 10 per cent roughly. The Madras population of buffaloes was 6.3 millions as compared to about 46½ millions for India. In oxen, the females comprised about 47 per cent while in buffaloes the proportion was 67 per cent. This is because she-buffaloes are preferred for milking purposes.

The largest number of oxen were found in the districts of Salem, South Arcot and Coimbatore. The number of oxen per 100 acres of cultivated area was however highest in Chittoor (118), Chingleput, South Kanara, North Arcot and Salem (83) while the lowest density was noted in Kurnool and Bellary (16). The number of oxen per 100 persons ranged from about 50 in Chittoor and Salem district to so low as 20 in the Nilgiris, Malabar and Tirunelveli.

Working bullocks in Madras comprised 40 per cent of the total cattle population as compared to 37 per cent in India, while breeding cows formed about 31 per cent (India 30 per cent). Young stock comprised about 22 per cent as compared to 28 per cent for India, the proportion of males and females being about equal.

The proportion of working buffaloes in Madras were more than in India (16 per cent and 12 per cent respectively) while the proportion of breeding female buffaloes to the total was about equal (40 per cent.)

The population of buffaloes per 100 acres ranged from 6 in Bellary to 44 in Krishna, the average for the province being 20 buffaloes as against 53 oxen. The average number of buffaloes per 100 persons was 13, as compared to 33 oxen and the largest number of buffaloes per head was maintained in Krishna, Guntur and Nellore districts (over 30). The number of buffaloes per square mile averaged 50 in Madras, as compared to 128 oxen and the largest number of buffaloes per square mile was maintained in West Godavari, Krishna and Guntur districts (130 to 150).

The trend of cattle and buffalo population in Madras was downwards in recent years. Compared to 1935, oxen and buffaloes declined by 8 per cent during 1945, while young stock of oxen aged one to three years declined by nearly 30 per cent in

both cases, there was actually an increase in the number of breeding cows (17 per cent) and breeding she-buffaloes (22 per cent).

The reported deaths due to contagious diseases from 1941 to 1947 averaged 47,813 animals, of which 39 per cent was due to rinderpest alone.

Prewar imports of oxen averaged about 72,940, mostly of working animals brought by road from Mysore, and of buffaloes 15,400. During the war years, imports fell off due to restrictions and interprovincial movements. Prewar exports of oxen averaged about 23,820 mostly by road to adjoining States but fell off during the war period.

It is estimated that the number of cattle required in Madras for ploughing or cultivation was about 7.9 millions for urban cart work and other purposes 0.40 millions making a total demand of 8.33 millions. The actual supply available including cows and she buffaloes used for work was only 8.16 millions. This leaves a deficiency of about 170,000 animals for cultivation alone. It is seen that during 1945, 484,000 cows and 77,000 she-buffaloes were actually kept for work. The largest number of cows used for work was in Salem district (210,000), followed by Madras, Coimbatore and Tiruchirappalli (55,000 to 60,000 each).

Prices of cattle can be reported only in an approximate way due to a number of causes, as individual variations, lack of proper records and factors associated with breed and utility. Usually prices of draught animals are comparatively low up to four years and highest between 4 to 8 years, and price decline afterwards. The price of an Ongole bullock which was quoted at Rs. 100 to 110 prewar rose to about 450 to 500 during 1947-48. In the same period, the price of an average Kangayam bullock rose from a range of Rs. 90 to Rs. 100 to about Rs. 400 to Rs. 500. For inferior mixed breeds, the prices rose from about Rs. 50 to Rs. 60 prewar to about Rs. 250 to Rs. 300 during 1947-48.

The prices of dairy cows depend on the milking capacity. For a daily milking capacity of 8 to 12 lb. the average price for Ongole cow at Tiruvottiyur rose from about Rs. 88 during 1941-42 to Rs. 275 during 1947-48. For a daily milking capacity of 12 to 16 lb. the corresponding prices were Rs. 110 during 1941-42 and Rs. 399 during 1947-48. Usually cows in the first and second calving get a slightly higher price than in the third and fourth calving.

The average price of a country she-buffalo at Tiruvottiyur of 8 to 12 lb. daily milking capacity rose from Rs. 60 during 1941-42 to Rs. 192 during 1947-48. The price rose from Rs. 77 to Rs. 291 for country buffaloes with 12 to 16 lb. milking capacity in the same period.

There are also some good or auspicious marks as well as bad or inauspicious marks which influence prices, and these are discussed in the report.

Prices of draught animals, are usually low from January to May but rise after June with the commencement of agricultural operations and the greater demand for cattle. Prices of milch cattle as well as she-buffaloes were low from January to March and reached the highest level from September to November.

It is extremely desirable to develop a cattle market service for the benefit of cattle owners and dealers. Such a service was opened between Rohtak and Bombay by the Central Marketing Department. In Madras, price of milch cattle at Tiruvottiyur are broadcast weekly, while prices of working animals are published in the *Fort St. George Gazette*, for some important markets.

In the preparation for the market, work animals and cows are fed liberally with fodder and concentrates a few weeks before sale and also decorated with glass beads, bells, etc., but usually no attention is given to slaughter stock. Some malpractices are also practiced to increase the value of animals, as the use of stimulants.

The agencies engaged in the assembling and distribution of cattle are the owners who may be professional breeders or only cultivators and itinerant traders who buy and sell animals in their march from village to village. There are very few wholesale dealers in cattle. Butchers deal in slaughter stock got from merchants but rarely from owners. Brokers exist in some of the important markets, but they do not take part in the finance of marketing. Prices are decided either by private treaty or through negotiations under cover between brokers and sellers. Auction of cattle is reported in certain areas of Malabar and certain Government farms.

Although cattle may be sold sometimes in open farms, road sides, etc., the bulk of the transactions take place in (1) fairs, (2) weekly shandies or (3) daily markets. In Madras, important cattle fairs where over 20,000 cattle were assembled were Sivalpuri and Muthialpuram in Tirunelveli, Kunivathi in Bellary, Kannapuram in Coimbatore and Kalgunda in South Kanara. The important shandies assembling cattle were Pollachi (Coimbatore) Nainamalai (Salem) and Vaniakulam (Malabar). Usually work cattle predominate in the shandies but more buffaloes are seen in the shandies of East Godavari, West Godavari, Malabar and Visakhapatnam. In the Tiruvottiyur Milch Cattle Market, near Madras city, transactions take place daily and the arrivals during 1947-48 totalled 10,465 she buffaloes (country) and 4167 Ongole cows.

The ownership of the markets or fairs is generally in the hands of the municipality, district board or panchayat while a few are private owned. It is seen that the proportion of the total income actually spent on the improvement of the market is usually small. The admission fee usually varies from 2 to 4 annas per animal, and the brokerage from Re. 1 to Rs. 2 but where transactions take place under cover, the broker gets a higher share.

For finance, cultivator mainly depend on the village money-lender for purchase of cattle. In the co-operative land colonisation schemes, a half grant up to Rs. 125 is given for purchase of cattle, while co-operative credit societies and milk supply unions also advance loan to members for purchase of cattle. In the Tiruvottiyur Market, Madras milkmen have a running account with known cattle dealers.

Compared to the volume of movements by road, the transport by rail of cattle is on a very small scale only. During 1947-48, about 1,118 cattle were imported by rail into Madras from other provinces, while annually about 15,000 milch cattle move by rail from Guntur and Nellore districts into Tiruvottiyur.

The rate per wagon per mile ranged from As. 3-6 to As. 4-0 for cattle at owner's risk and 20 percent extra at railway risk. With a view to encourage the movements of dry cattle from Madras city to grazing areas and to prevent their being sold for slaughter, certain reduced rates were granted by the Madras and Southern Mahratta Railway on representations of the Marketing Section between 1939 and 1946, at half the rate for the journey from Madras and exemption of terminal for the up journey.

On the whole, the costs of transport by road was cheaper than by rail being 2 to 6 pies per mile per animal as compared to 6 to 9 pies by rail prewar. Recent costs of transport and incidentals are estimated to be 1½ annas per cow per mile by rail.

There are certain well-defined cattle routes by road, both between different provinces and in the internal trade. Thus Mysore cattle move to Coimbatore, Salem, Mathurai, Ramnad up to Tirunelveli, in the South and to the Ceded districts in the North. Animals from the Nizam's State move to Krishna and Guntur. The several routes for cattle movements are discussed in detail in the report.

The main breeds of oxen in Madras were the Ongole Kangayam, Alambadi, Hallikar. In buffaloes, the Parlakimidi breed and the Tada breed have distinct features. The Alambadi is a draught breed good at road work, while the Hallikars are also good at road and field work. The Ongoles are powerful working animals, but not fast trotters and the milk yield is good (10 to 12 lb. daily). The Kangayams are good for cultivation, road and

mote work, but poor milkers (4 to 5 lb. daily). The Scindhi breed and some cross breeds with Ayrshire and Murrah buffaloes have been found very good milkers, especially for use in urban areas. Some Murrah buffaloes averaged up to 20 lb. milk daily and the cross breeds 12 lb.

The cattle breeding system in Madras consists of village breeding bulls dedicated to temples (Brahmini bulls) or privately owned bulls. In the Ongole area, the majority of bulls are Brahmini bulls, but in the Kangayam breed, bulls are maintained by private breeders, who have a right to claim selected offspring of these bulls.

From the year 1916, the Government of Madras were giving premiums for the maintenance of breeding bulls owned by co-operative societies, individuals or district boards, at rates ranging from Rs. 90 to Rs. 160 per annum for the first few years, provided they served not less than a fixed number of cows per annum. Besides loans were granted for purchase of breeding bulls, the supply being made from selected animals or through Government farms. Besides Government also purchased breeding bulls for supply at concessional conditions to breeders. Recently a target for supply of 100,000 Ongole cows and 100,000 bulls has been fixed for every year. It is desirable that a similar scheme is also introduced for other breeds like the Kangayam and Hallikar.

In Madras, there were during 1940-41 seven co-operative cattle breeding societies with 696 members and 3954 animals. An example of a good society was the Anchetty Society in Salem district which maintains bulls selected by the Veterinary department in grazing grounds, let out in blocks. The bulls are replaced once in three years. Scrub bulls are castrated, inbreeding avoided and the local supply of Hallikar breed improved.

On the recommendations of the Indian Council of Agricultural Research, a Kangayam cattle breeding and Marketing society has been started recently to bring together all breeders of Kangayam cattle, maintain performance and pedigree registers, and generally to improve the breed.

Based on the recommendations of the Cattle Conference in India, 1937, the Government of Madras constituted a Livestock Development Board in 1940 now presided over by the Honourable Minister for Agriculture, to advise and finance livestock improvement schemes. A provincial Livestock Development Fund of Rs. 25,000 annually was created and work connected with the purchase and distribution of stud bulls, rams and buffaloes, improvement of livestock research, salvaging of dry cows, and related problems are undertaken.

In Madras, the supply of fodder and concentrates for milch and work animals is not adequate and steps should be taken to increase the supplies. The per capita dry fodder supply of cattle alone was only $7\frac{1}{2}$ lb. daily and of concentrates less than half a pound. This must be increased.

In Madras, there were about 20 pinjrapoles and *goshalas* maintained by private subscriptions or charity to prevent slaughter and help old and weak animals. It is desirable that their scope of work is extended to develop modern methods of breeding, feeding and housing.

In cattle breeding the most important lines of development are the elimination of scrub bulls by compulsory castration and the licensing of good bulls for service. To achieve this purpose, the Madras Government passed in September 1940, a legislation called the 'Madras Livestock Improvement Act.' Such an Act is necessary in all provinces and States of India.

CONCLUSIONS AND RECOMMENDATIONS.

A. ALL INDIA

1. *Cattle Breeding*.—Generally Speaking, as a result of indiscriminate breeding Indian cattle are of inferior quality. A majority of them do not possess the characteristics of any one breed. It is suggested that.

(a) *The feasibility of introducing legislation in all provinces and Indian states on the lines of the Madras Cattle Breeding Act (1940) may be considered.*

(b) *The possibility of levying a cess on slaughter and Export of cattle and also on the sale of cattle in fairs and shows in the various provinces and states to finance the cattle breeding schemes may be explored.*

(c) *The desirability of organising cattle breeding societies on a more extensive scale particularly in the important cattle breeding tracts may be examined.*

2. *Cattle Census*.—Frequent changes in the classification the adoption of different grouping by some units and participation of some areas in one census and non participation in the other affect adversely the utility of the census figures. The data in many areas are collected through village choudidars, headmen, policemen, etc., and their accuracy is not always free from doubt. It is suggested that a *system of uniform classification and grouping of cattle in the livestock census by a more intelligent class of enumerators in all parts of India at the same time may be adopted.*

3. *Control of Epizootics*.—In India, except a few enactments, there are no legal sanctions for the control of Bovine contagious diseases. Infection, therefore, spreads easily from one locality to another by free movements of cattle. In the central Provinces quarantine stations established under the Central Provinces Act

XVI (1934) on the northern boundary of the province have shown encouraging results. It is suggested that:—

(a) *Other Provincial Governments and Indian States may consider the desirability of providing similar legislations,*

(b) *The Railway Authorities may be approached to appoint Veterinary Officers to supervise the disinfection of railway trucks and wagons used for the Transport of cattle,*

(c) *The possibility of organising co-operative cattle insurance societies on a sounder basis than attempted in the past may be explored.*

4. *Co-operative Marketing.*—There are no producers' cattle marketing societies in this country. The producer has therefore to depend on the money lender and broker to get the maximum price for his cattle. A considerable portion of this price has to go as a share of these agencies. It seems advisable that *Co-operative cattle marketing societies may be organised in the breeding areas throughout the Country.*

5. *Cost of Rearing Calves.*—Cattle owners in this country do not keep records of the cost of rearing calves and even Government cattle breeding farms have not so far worked out the economic aspects of rearing cattle upto the marketable age. It is suggested that the *Indian Council of agricultural research may consider the desirability of investigating the cost of rearing calves upto the marketable age under different conditions in various regions.*

6. *Market Intelligence.*—In India there are no well organised agencies for dissemination to the producers and buyers market news relating to cattle. The cattle Market news service introduced in 1938 by the central agricultural Marketing Department and the broadcasts from the All India radio stations, Delhi and Calcutta do not serve the purpose sufficiently. It is desirable that *the Provincial Governments and Indian states may recognise the necessity of and introduce the cattle market intelligence service on an extensive scale suited to local conditions.*

7. *Railway Trucks and wagons.*—The existing wagons used for Transport of cattle have generally neither lighting arrangements nor feeding and water troughs for animals. As a result of darkness sometimes cattle become restive and frightened and receive serious injuries causing heavy loss to dealers. Except in a few cases, cattle trucks have metallic sides, roof and floor with the result that the temperature inside goes high in summer and low in winter. It is suggested that *steps may be taken by the Railway Authorities to provide ventilators and arrange for lighting and feeding and water troughs for animals in the wagons. The desirability of making improvements for protection from extremes of heat and cold may also be examined.*

8. *Slaughter of cattle.*—In Calcutta, Bombay and Madras, young cows and she-buffaloes are often slaughtered when they go dry, as it is not always economical for the owners to keep them or to send them back to the breeding tracts. It is recommended that.

(a) *Legislation may be introduced to prohibit the slaughter of cows and she-buffaloes in Large Towns as long as they can be used for breeding purposes,*

(b) *The Railway authorities may be approached to encourage the return of these animals to their home districts by providing liberal concessions.*

(c) *The Provincial Governments and Indian states may establish cattle salvage stations for rearing good specimens of young calves and dry cows and she-buffaloes when they are rejected by the City Milkmen and often slaughtered.*

B. MADRAS

1. *Cattle Breeding.*—In Madras a livestock development board has been organised to finance and develop schemes for the improvement of cattle. A cattle breeding Association has been started for the Kangayam breed of cattle and it is desirable that similar societies be started for the Ongole and the Hallikar breeds of cattle.

In Madras, premia have been given for the maintenance of selected breeding bulls by private individuals, District Boards, Co-operative Societies, Panchayats, etc. A target has also been fixed for the distribution of one lakh of selected bulls every year. This scheme should be expanded to work in all districts so that animals of good pedigree may replace the large number of existing scrub cattle.

In Madras legislative provisions exist under the Madras cattle breeding Act (1940), whereby all scrub cattle are to be compulsorily castrated, and selected breeding bulls are licensed. The provisions of this act should be rigorously enforced in all the districts so that in a short time, only selected animals are used for multiplication of the existing breeds of cattle.

Side by side, selected animals of (1) the Murrah breed of Buffaloes and (2) Scindhi breed of cattle should be imported and distributed in city areas to increase the yield of milk, if necessary by subsidies.

2. *Proper feeding and maintenance of cattle.*—The supply of dry fodders and concentrates is not enough to give an adequate feed to the existing cattle population. It is very desirable that the fodder and grazing resources of the province are expanded in all areas. The growth of sannhemp, fodder oholam, pillipesara and other green fodder should be encouraged. More forest grazing should be provided for cattle and the areas let out in blocks, so that while one block is being grazed, other blocks may be

allowed increase in yield. The supply of groundnut oil cake is inadequate for the needs of manuring and of the cattle. It is desirable that the export of groundnut kernel may be practically prohibited so that all the cake can be utilised in the country. The oil-milling industry has now sufficiently expanded in recent years to crush all the oil seeds produced in the province.

3. *Co-operative marketing.*—More societies for the improvement of cattle and marketing may be developed as the Anchetty cattle breeding society, Salem district. Societies may be formed for the Ongole breed in Guntur and Nellore districts and also in the Kangayam area of the Coimbatore district. These societies may also be developed as feeder areas for supply to co-operative milk unions and urban dairies, supplementing the supply from Government farms. The societies may also be encouraged to maintain pedigree and milk records for the animals, so that a nucleus can be built up for a planned distribution of Pedigreed stock.

4. *Market intelligence.*—At present fortnightly prices of milch cattle at Tiruvottiyur and of draught cattle at Draksharam, Vizianagram, Manapparai, Ranipet, Pollachi and Hindupur are published in the Gazette. Weekly prices of milch cattle are also sent through the Madras Radio. It is desirable that a more extensive cattle news service is developed including in its scope Kangayam Cattle and Ongole breeds in Nellore and Guntur Districts.

5. *Railway facilities.*—With a view to salvage the dry cows, that would be otherwise be slaughtered in Madras City the M & S. M. Railway granted on the suggestions of the marketing organisation, special reduced rates for the movement of dry cattle from Madras city to grazing areas in Guntur and Nellore and for their return journey with calves to Madras. These rates were recently cancelled, but the system should be continued and more areas helped by such concessions. Railway wagons should also be provided with proper lighting arrangements for cattle and for feeding and water troughs.

6. *Cattle marketing.*—The markets for cattle should be regulated and more facilities given by the market authorities for the care, feeding and watering of the animals. In addition, arrangements should be made for arranging the animals in the markets according to classes and groups and for auctioning animals where necessary. Markets should be established in the large growing areas, as Tunguturu in Guntur for Ongole breeds.

7. *Slaughter and salvage of cattle.*—Legislation may be introduced to prohibit slaughter of animals that can be used. Besides transport concessions for the salvage of dry cattle to grazing areas, it is desirable to encourage the the scope of existing goshalas and pinjrapoles to develop proper methods of breeding and rearing animals, so that more animals can be rendered useful.

APPENDIX I.

International Trade in Cattle.

(in thousands).

COUNTRY.	Number of cattle.	
	Imports.	Exports.
<i>Europe—</i>		
Germany	201.4	0.2
Denmark	...	172.4
Greece	55.3	...
Ireland	0.3	700.8
Italy	166.7	1.9
Rumania	...	43.1
United Kingdom	712.2	1.0
Switzerland	24.1	6.9
U. S. S. R.	141.9	...
Other countries	70.3	292.0
Total	1,372.2	1,218.3
<i>America (North, Central and South)—</i>		
United States	507.3	4.1
Argentina	...	69.8
Columbia	49.5	0.1
Uruguay	...	68.7
Other countries	660.9	488.8
Total	1,217.7	631.5
<i>Asia—</i>		
China	2.3	22.3
Chosen (Korea)	...	57.2
Hong-Kong	51.4	...
India	...	1.1
Netherland Indies	0.1	26.7
Japan	57.2	...
British Malaya	30.2	0.3
Manchuko	...	24.4
Palestine	26.8	...
Turkey	...	40.8
Other countries	39.5	72.5
Total	207.6	245.3
<i>Africa—</i>		
Chad	...	56.5
Union of South Africa	31.0	1.8
Other countries	90.0	318.7
Total	121.0	377.0
<i>Oceania—</i>		
Total	1.7	0.4
Grand Total	2,920.2	2,472.5

APPENDIX II.

Cattle.

Number of Oxen in various parts of Madras Province in 1944 (000)

DISTRICT.	MALES										FEMALES					YOUNG STOCK						TOTAL CATTLE		DISTRICT.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	Cows over 3 years used for work		Under 1 year.	1 to 3 years.		Total 3 years and under.	Male.	Female.	(17)	(18)	(19)	(20)			
											Breeding cows 4,2. cows over 3 years kept for breeding or milk production.	Cows over 3 years not in use for work or breeding purposes.		Male.	Female.								Male.		Female.
	Breeding bulls i.e., entire males over 3 years kept or used for breeding purposes only.	Working bullocks, bullocks and uncastrated males over 3 years kept for work only.	Uncastrated males over 3 years kept both for work and breeding.	Bulls and bullocks over 2 years not in use for breeding or work.	In Milk.	Dry.	Not Calved.	Cows over 3 years used for work only.	Cows over 3 years not in use for work or breeding purposes.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Total.							
Visakhapatnam ...	4	319	82	26	125	168	45	8	8	62	58	57	120	117	552	412	965	Visakhapatnam.							
East Godavari ...	1	252	42	16	111	104	29	4	4	48	52	42	55	90	107	402	359	761	East Godavari						
West Godavari ...	2	178	31	9	60	81	24	3	4	30	31	30	38	60	69	280	241	521	West Godavari.						
Krishna ...	2	151	17	3	49	62	27	3	3	26	24	24	28	49	52	226	197	423	Krishna.						
Guntur ...	2	170	25	7	47	53	18	1	2	23	23	22	26	46	50	249	171	420	Guntur						
Kurnool ...	2	134	37	6	32	45	14	...	1	16	16	14	15	30	32	209	124	333	Kurnool						

Bellary	3	167	28	6	40	41	14	...	1	22	22	18	16	41	38	244	134	379	Bellary.
Anantapur	3	176	59	13	53	68	24	5	4	31	30	27	25	58	55	308	208	516	Anantapur
Cuddapah	1	106	39	5	29	36	13	2	3	14	15	13	15	28	30	178	114	292	Cuddapah.
Nellore	2	171	45	9	73	117	48	2	4	33	35	30	38	63	73	290	316	607	Nellore.
Chingleput	8	237	57	19	87	105	40	2	4	27	27	39	44	66	71	387	290	677	Chingleput.
South Arcot	5	296	72	37	184	138	93	42	24	48	47	49	48	97	95	508	576	1,084	South Arcot.
Chittoor	11	250	53	17	89	151	49	29	16	46	47	46	48	92	95	424	430	854	Chittoor.
North Arcot	6	406	46	29	93	102	62	61	19	36	36	44	42	81	77	567	414	981	North Arcot.
Salem	10	373	49	52	128	157	79	210	47	67	67	66	72	133	139	617	759	1,376	Salem.
Coimbatore	5	346	29	25	132	125	73	59	8	69	64	71	69	141	133	546	530	1,076	Coimbatore.
Tiruchirappalli	5	351	21	17	71	98	62	55	10	40	39	47	47	86	86	481	383	864	Tiruchirappalli.
Tanjore	2	406	17	9	102	142	79	...	3	46	45	60	63	106	108	540	435	975	Tanjore.
Mathurai	3	281	28	17	70	69	55	67	13	37	35	37	37	74	72	403	346	750	Mathurai
Ramnad	4	240	16	13	52	43	37	26	8	27	25	27	25	55	50	327	215	542	Ramnad.
Tirunelveli	6	250	17	9	62	48	32	...	2	26	26	25	24	51	50	334	194	528	Tirunelveli.
Malabar	4	216	9	5	116	161	51	1	3	66	67	63	74	129	141	363	473	836	Malabar.
South Kanara	...	164	21	6	71	96	38	...	2	36	37	39	44	75	81	266	290	556	South Kanara.
The Nilgiris	1	5	1	1	8	6	2	...	...	2	3	2	3	5	6	12	22	34	The Nilgiris.
Madras	...	2	...	...	3	1	...	...	...	...	1	...	...	1	1	3	4	7	Madras.

Buffaloes

Number of buffaloes in various parts of Madras Province in 1944 (000)

DISTRICT.	MALES										FEMALES					YOUNG STOCK					TOTAL BUFFALOES			DISTRICT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	(1)	Breeding bulls &c., entire males over 3 years kept or used for breeding purposes only.			(3)	Working bullocks, &c., bullocks and uncastated males over 3 years kept for work only.		(4)	Bulls and bullocks over 3 years not in use for breeding or work.			FEMALES					YOUNG STOCK					Total.	Female.		Male.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		(2)	(3)	(4)		(5)	(6)		(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

	1	5	1	41	30	10	1	1	15	20	5	12	20	32	28	114	142	Bellary
Bellary	1	5	1	41	30	10	1	1	15	20	5	12	20	32	28	114	142	Bellary
Anantapur	1	14	3	44	34	10	1	2	18	23	9	16	27	38	45	129	174	Anantapur
Cuddapah	2	20	5	76	56	15	1	2	25	33	13	21	38	54	65	204	270	Cuddapah
Nellore	3	65	10	143	79	36	3	3	53	62	28	53	81	116	159	378	537	Nellore
Chingleput	3	39	5	41	32	15	1	1	12	14	10	14	22	28	69	119	187	Chingleput
South Arcot	1	29	6	30	21	15	3	2	11	12	7	9	18	21	53	91	144	South Arcot
Chittoor	4	15	4	40	37	14	1	3	15	17	8	12	24	30	46	124	171	Chittoor
North Arcot	2	21	4	34	19	13	2	3	10	12	7	11	17	22	44	93	137	North Arcot
Salem	2	6	1	50	27	17	3	1	17	24	7	16	24	39	34	138	171	Salem
Coimbatore	3	3	1	57	31	20	2	1	21	29	7	22	27	51	34	163	196	Coimbatore
Tiruchirappalli	1	12	1	51	39	24	5	2	19	24	9	16	28	39	41	160	201	Tiruchirappalli
Tanjore	2	40	2	56	46	26	5	1	19	21	12	17	31	59	75	173	247	Tanjore
Mathurai	1	10	1	40	22	15	6	1	14	17	5	10	20	27	33	112	145	Mathurai
Ramnad	2	11	3	26	16	10	7	4	10	12	5	9	15	21	31	84	115	Ramnad
Tirunelveli	2	15	2	46	29	16	4	1	16	18	9	12	25	30	43	126	169	Tirunelveli
Malabar	1	136	3	20	18	7	6	1	8	7	13	7	21	15	160	65	225	Malabar
South Kanara	1	139	11	23	21	7	...	...	7	7	7	7	14	14	164	65	229	South Kanara
Nilgiris	...	2	...	5	3	2	...	...	1	2	1	1	2	3	4	13	18	Nilgiris
Madras	...	...	...	4	1	...	...	...	...	...	...	...	...	...	1	5	6	Madras

APPENDIX IV,

Month & Year.	VIZIANAGARAM						HINDUPUR						RANIPET					
	I CLASS			II CLASS			I CLASS			II CLASS			I CLASS			II CLASS		
	teeth 2-4	teeth 4-6	Full mouthed.	teeth 2-4	teeth 4-6	Full mouthed.	teeth 2-4	teeth 4-6	Full mouthed.	teeth 2-4	teeth 4-6	Full mouthed.	teeth 2-4	teeth 4-6	Full mouthed.	teeth 2-4	teeth 4-6	Full mouthed.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1941																		
April	170	180	195	150	160	185	n'q	n'q	n'q	31	47-8	33-8	n'q	250	200	n'q	140	120
May	180	180	170	120	130	149	n'q	n'q	n'q	n'q	45-8	34-8	155	187-8	167-8	110	150	12-
June	140	150	160	110	120	130	n'q	n'q	n'q	n'q	46	34	130	150	140	90	110	100
July	140	150	165	120	130	135	n'q	n'q	n'q	n'q	50	32-8	165	165	162-8	90	115	105
August	130	165	150	100	115	120	n'q	n'q	n'q	n'q	45	30	155	165	160	90	115	105
September	130	140	160	110	120	135	n'q	n'q	n'q	80	57-8	45	210	230	200	187-8	190	185
October	135	145	160	120	125	130	n'q	n'q	n'q	n'q	55	45	240	260	190	175	185	160
November	125	135	160	115	120	125	n'q	n'q	n'q	n'q	50	40	205	220	190	187-8	190	182-8
December	130	140	160	110	115	120	n'q	n'q	n'q	n'q	50	35	192-8	210	185	175	185	182-8
1942																		
January	130	140	150	110	120	130	n'q	n'q	n'q	100	75	60	195	235	185	152-8	162-8	145
February	120	130	140	105	110	120	n'q	n'q	n'q	115	92-8	57-8	190	220	200	120	160	150
March	120	135	140	110	115	120	n'q	n'q	n'q	n'q	102-8	65	210	237-8	200	187-8	182-8	165
April	130	140	150	110	115	120	n'q	n'q	n'q	n'q	85	55	210	237-8	200	167-8	182-8	165
May	140	150	160	120	125	150	n'q	n'q	n'q	n'q	70	37-8	n'r	n'r	n'r	n'r	200	160
June	135	145	155	115	120	125	n'q	n'q	n'q	n'q	85	360	275	225	185	n'r	n'r	n'r
July	140	150	160	115	120	130	n'q	n'q	n'q	95	77-8	n'q	n'q	n'r	n'r	n'r	n'r	n'r
August	115	135	145	115	120	130	n'q	n'q	n'q	130	97-8	n'r	n'r	n'r	n'r	n'r	n'r	n'r
September	130	140	160	110	120	130	n'q	n'r	n'r	n'r	n'r	n'r	n'r	n'r	n'r	n'r	n'r	n'r
October	150	165	180	125	130	135	n'q	n'q	n'q	125	80	222-8	232-8	210	170	185	160	n'r
November	140	150	160	120	130	135	n'q	n'q	n'q	145	80	n'q	190	220	177-8	127-8	140	115
December	155	165	170	120	125	130	n'q	n'q	n'q	160	110	n'q	207-8	232-8	190	142-8	157-8	132-8

APPENDIX IV--(Contd.)

Month and year.	MANAPPARAI.					POLLACHI.					DRAKSHARAY.							
	I CLASS.		II CLASS.			I CLASS.		II CLASS.			I CLASS.		II CLASS.					
	2-4 teeth.	4-6 teeth.	Full mouthed.	2-4 teeth.	4-6 teeth.	2-4 teeth.	4-6 teeth.	Full mouthed.	2-4 teeth.	4-6 teeth.	2-4 teeth.	4-6 teeth.	Full mouthed.	2-4 teeth.	4-6 teeth.	Full mouthed.		
																	(20)	(21)
1941	170	190	160	126	140	120	75	115	145	45	87-8	87-8	210	275	350	125	225	175
April	200	230	180	156	166	146	136	162-8	162-8	85	100	100	200	275	250	125	175	165
May	200	250	150	150	160	140	90	125	130	70	100	90	150	165	225	100	125	175
June	170	200	160	130	160	125	90	110	150	55	75	85	n q	n q	n q	n q	150	160
July	160	180	140	120	140	100	85	110	125	77-8	100	90	n q	n q	n q	n q	n q	100
August	160	180	140	110	150	100	90	100	125	50	65	90	n q	n q	200	n q	150	n q
September	180	180	140	120	140	120	75	95	110	70	90	112-8	n q	n q	200	n q	130	n q
October	160	170	135	100	140	100	90	102-8	135	62-8	87-8	90	n q	n q	250	n q	120	n q
November	140	160	100	100	120	80	80	95	110	70	85	95	n q	n q	250	100	130	150
1942	160	200	220	100	150	120	90	110	155	95	125	125	n q	n q	250	100	150	200
January	150	225	200	120	160	150	80	100	135	90	110	130	n q	n q	240	n q	120	180
February	175	250	240	160	170	160	80	110	125	65	90	105	n q	n q	n q	80	n q	120
March	200	250	220	150	160	180	105	117-8	127-8	90	110	136	n q	n q	250	100	150	180
April	n r	n r	n r	n r	n r	n r	95	105	110	85	95	115	n q	n q	n q	n q	100	130
May	180	200	150	140	150	120	120	135	162-8	80	117-8	137-8	n q	n q	n q	n q	160	150
June	160	180	130	120	130	110	112-8	137-8	170	90	112-8	137-8	n q	n q	200	n q	130	160
July	200	220	180	150	170	135	113-8	137-8	175	87-8	112-8	137-8	n q	n q	n q	n q	120	120
August	190	220	175	140	160	120	180	175	162-8	100	110	135	n q	n q	180	n q	100	100
September	220	250	210	160	180	130	135	162-8	212-8	100	135	162-8	n q	n q	200	100	120	150
October	200	230	190	150	160	120	135	162-8	212-8	100	135	162-8	n q	n q	200	100	120	130
November	220	250	210	160	180	140	130	162-8	212-8	97-8	135	162-8	137-8	165	225	90	112-8	137-8

APPENDIX IV—(Contd.)

Prices of work bullocks in different markets (per pair of bullocks).

Month & Year.	VIZIANAGARAM										HINDUPUR				RANIPET			
	I CLASS					II CLASS					I CLASS		II CLASS		I CLASS		II CLASS	
	teeth		teeth		Full mouthed.	teeth		teeth		Full mouthed.	teeth		teeth		Full mouthed.	teeth		Full mouthed.
	2-1	4-6	2-1	4-6		2-1	4-6	2-1	4-6		2-1	4-6	2-1	4-6		2-1	4-6	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1943																		
January	180	200	260	150	160	180	n.q.	n.q.	n.q.	170	150	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.
February	170	200	225	140	150	180	n.q.	n.q.	n.q.	175	165	n.q.	207-8	280	177-8	117-8	127-8	n.r.
March	220	260	290	175	200	225	n.q.	n.q.	n.q.	175	165	n.q.	212-8	282-8	212-8	127-8	155	130
April	225	275	300	170	180	200	n.q.	n.q.	n.q.	200	160	n.q.	235	282-8	207-8	162-8	172-8	137-8
May	250	275	300	140	170	190	n.q.	n.q.	n.q.	200	150	n.q.	265	320	207-8	162-8	220	175
June	350	400	450	250	275	325	n.q.	n.q.	n.q.	300	12-8	n.q.	265	320	212-8	212-8	237-8	190
July	330	360	400	250	275	300	n.q.	n.q.	n.q.	300	212-8	n.q.	260	325	282-8	190	210	170
August	200	250	275	150	175	200	n.q.	n.q.	n.q.	300	240	n.q.	285	350	255	185	212-8	167-8
September	220	240	250	170	180	190	n.q.	n.q.	n.q.	340	250	n.q.	365	400	297-8	200	225	170
October	225	260	275	150	175	200	n.q.	n.q.	n.q.	300	250	n.q.	365	400	297-8	190	212-8	167-8
November	250	275	300	180	190	200	n.q.	n.q.	n.q.	300	250	n.q.	395	502-8	332-8	230	287-8	202-8
December	250	275	300	175	200	225	n.q.	n.q.	n.q.	310	260	n.q.	420	525	342-8	245	300	210
1944																		
January	350	375	425	250	275	300	n.q.	n.q.	n.q.	300	250	n.q.	450	500	345-8	287-8	210	
February	400	425	450	275	300	325	n.q.	n.q.	n.q.	312-8	250	n.q.	410	475	337-8	245	270	212-8
March	450	475	500	325	350	375	n.q.	n.q.	n.q.	375	300	n.q.	485	600	450	365	325	245
April	450	500	550	350	375	400	n.q.	n.q.	n.q.	367-8	300	n.q.	485	600	460	365	325	245
May	400	450	500	300	325	350	n.q.	n.q.	n.q.	400	350	n.q.	470	550	500	400	500	300
June	525	550	575	425	450	475	n.q.	n.q.	n.q.	400	350	n.q.	750	950	550	450	550	350
July	450	500	550	325	350	400	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	1100	1400	950	900	950	700
August	500	525	550	450	475	500	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	1100	1400	950	800	950	700
September	440	475	500	350	375	400	n.q.	n.q.	n.q.	n.q.	n.q.	n.q.	1100	1400	950	800	950	700
October	450	500	550	350	375	400	n.q.	n.q.	n.q.	300	250	n.q.	1200	1500	1050	900	1050	800
November	550	575	600	400	425	450	n.q.	n.q.	n.q.	277-8	240	n.q.	1200	1500	1050	900	1050	800
December	500	550	600	400	425	450	n.q.	n.q.	n.q.	305	270	n.q.	1200	1500	1050	900	1050	800

APPENDIX IV—(Contd.)

Prices of work bullocks in different markets. (per pair of bullocks).

Month and year.	MANAPPARAI										POLLACHI.				DRAKSHARAM.			
	I CLASS.					II CLASS.					I CLASS.		II CLASS.		I CLASS.		II CLASS.	
	teeth		teeth		Full mouthed.	teeth		teeth		Full mouthed.	teeth		teeth		Full mouthed.	teeth		Full mouthed.
	2-1	4-6	2-1	4-6		2-1	4-6	2-1	4-6		2-1	4-6	2-1	4-6		2-1	4-6	
(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	
1943																		
January	210	235	200	145	160	130	125	162-8	187-8	97-8	175	162-8	145	180	225	90	120	130
February	300	350	280	180	180	145	130	162-8	187-8	105	135	175	n.q.	180	225	n.q.	125	160
March	380	410	350	250	280	290	130	165	175	110	135	175	n.q.	190	225	90	125	160
April	380	400	340	240	260	200	140	170	190	112-8	137-8	175	n.q.	190	225	90	125	160
May	225	255	230	160	180	170	n.q.	n.q.	n.q.	200	150	n.q.	240	260	305	155	175	140
June	600	650	470	450	400	300	140	170	190	112-8	137-8	175	n.q.	n.q.	n.q.	110	135	190
July	650	625	500	500	475	325	140	170	190	112-8	137-8	175	n.q.	n.q.	n.q.	110	135	190
August	660	665	400	400	380	370	n.r.	n.r.	n.r.	100	150	260	n.q.	n.q.	n.q.	110	135	190
September	850	800	700	600	580	450	150	250	350	100	150	260	n.q.	n.q.	n.q.	155	190	
October	550	560	450	400	380	250	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.q.	n.q.	n.q.	155	190	
November	450	400	370	300	275	225	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.q.	n.q.	n.q.	175	225	275
December	420	380	370	275	240	200	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.q.	n.q.	n.q.	175	225	275
1944																		
January	400	350	300	275	260	300	185	275	420	105	160	215	275	400	175	225	275	
February	600	550	475	450	400	300	225	350	450	125	175	250	n.q.	325	175	225	275	
March	750	675	550	450	375	250	225	450	550	150	250	375	n.q.	350	450	250	350	
April	750	675	550	450	400	280	225	450	550	150	350	375	n.q.	350	450	250	350	
May	700	660	475	450	360	300	250	450	550	175	300	375	n.q.	350	450	250	350	
June	700	625	500	450	325	250	225	375	450	250	325	375	n.q.	350	450	250	350	
July	700	625	475	450	375	200	325	375	450	250	325	375	n.q.	350	450	250	350	
August	600	575	400	360	300	200	375	525	675	250	350	450	n.q.	325	175	225	275	
September	650	575	450	375	300	200	375	525	675	275	350	450	n.q.	325	175	225	275	
October	650	575	450	375	300	200	375	525	675	275	350	450	n.q.	325	175	225	275	
November	600	525	400	325	200	275	350	425	475	175	250	325	n.q.	1100	900	325	450	
December	560	500	350	350	300	190	275	350	450	175	225	275	n.q.	900	700	325	425	

APPENDIX IV—(Contd.)
Price of work bullocks in different markets (per pair of bullocks).

Month & year.	VIZIANAGARAM										HINDUPUR					RANIPET				
	I CLASS			II CLASS			I CLASS				II CLASS		I CLASS			RANIPET				
	mouthed.			Full			teeth		teeth		Full		mouthed.		teeth					
	2-4	4-6	teeth	2-4	4-6	teeth	2-4	4-6	teeth	2-4	4-6	teeth	2-4	4-6	teeth	2-4	4-6	teeth		
1947	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
January	...	600	650	700	500	550	600	n.q	n.q	n.q	300	225	n.q	1100	1400	1100	900	1100	800	
February	...	550	600	650	450	500	550	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
March	...	500	550	600	400	450	500	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
April	...	550	600	650	450	500	550	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
May	...	550	600	650	450	500	550	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
June	...	550	650	700	450	500	550	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
July	...	600	700	750	500	550	600	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
August	...	650	700	750	550	600	650	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
September	...	600	650	700	500	550	600	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
October	...	600	650	700	500	550	600	n.q	n.q	n.q	300	225	n.q	750	850	650	850	725	n.q	
November	...	500	550	600	400	450	500	n.r	n.r	n.r	n.r	n.r	n.r	720	820	620	820	700	n.q	
December	...	500	550	600	400	450	500	n.r	n.r	n.r	n.r	n.r	n.r	720	820	620	820	700	n.q	
1948																				
January	...	550	600	650	450	500	550	n.q	n.q	n.q	700	500	n.q	720	820	620	820	700	n.q	
February	...	500	550	600	400	450	500	n.q	n.q	n.q	n.q	700	500	n.q	720	820	620	820	n.q	
March	...	550	600	650	450	500	550	n.q	n.q	n.q	n.q	700	500	n.q	720	820	620	820	n.q	
April	...	600	650	700	500	550	600	n.q	n.q	n.q	n.q	700	500	n.q	720	820	620	820	n.q	
May	...	650	700	750	550	600	650	n.q	n.q	n.q	n.q	700	500	n.q	720	820	620	820	n.q	
June	...	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	n.q	

APPENDIX IV—(Contd.)
Prices of work bullocks in different markets. (per pair of bullocks).

Month & Year.	MANAPPARAI						POLLACHI						DRAKSHARAM					
	I CLASS			II CLASS			I CLASS			II CLASS			I CLASS			I CLASS		
	2-1	4-6	mouthed.	2-1	4-6	mouthed.	2-1	4-6	mouthed.	2-1	4-6	mouthed.	2-1	4-6	mouthed.	2-1	4-6	mouthed.
	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
1947																		
January	625	500	380	500	470	325	162-8	187-8	225	100	137-8	175	n.q	1100	900	350	425	875
February	700	600	420	575	550	350	162-8	187-8	225	130	137-8	175	1000	1100	350	450	550	n.q
March	650	550	450	550	450	350	162-8	187-8	225	100	137-8	175	1000	1100	450	475	500	450
April	700	600	500	600	500	400	162-8	187-8	225	100	137-8	162-8	1100	1100	650	550	450	400
May	700	600	500	600	500	400	162-8	187-8	225	100	137-8	162-8	1100	1100	700	600	450	400
June	800	600	500	750	650	500	162-8	187-8	225	125	175	225	1100	1100	700	600	400	400
July	750	650	530	650	575	450	175	225	250	125	175	225	1050	1200	700	600	450	450
August	750	650	530	650	575	450	175	225	250	125	175	225	1050	1200	700	600	450	450
September	750	700	650	700	500	400	450	600	750	300	400	450	n.q	n.q	800	700	600	n.r
October	600	650	450	500	400	350	400	600	750	300	400	500	1100	1000	850	350	700	450
November	700	600	550	600	600	400	485	625	700	310	405	450	1060	1100	900	800	600	450
December	650	550	450	550	450	350	485	625	700	310	405	450	1300	1300	900	800	600	450
1948																		
January	650	560	460	560	460	350	485	625	700	310	405	450	1750	1650	1300	1200	1000	550
February	650	550	450	550	450	350	500	675	750	337-8	425	520	1050	1350	1100	900	700	600
March	600	550	450	550	450	350	500	675	750	337-8	425	500	1550	1500	1200	1100	900	800
April	650	550	450	550	450	350	500	650	750	340	425	500	1850	1500	1200	1000	900	800
May	650	550	450	550	450	350	n.r	n.r	n.r	n.r	n.r	n.r	1450	1350	1100	1000	950	550
June	700	550	450	550	400	300	500	675	750	333	425	500	1550	1500	1300	1100	900	550

APPENDIX V.

Prices of Milch Cattle at Tiruvottiyur Cattle Market (per animal).

	Ongole Cows.				Country Buffaloes.			
	1st & 2nd calving.		3 & 4th calving.		1st & 2nd calving.		3rd & 4th calving.	
	2-3 M.M.	3-4 M.M.	2-3 M.M.	3-4 M.M.	2-3 M.M.	3-4 M.M.	2-3 M.M.	3-4 M.M.
1941								
April	85	110	80	100	57-8	77-8	47-8	60
May	90	110	80	102-8	65	80	55	70
June	97-8	125	90	117-8	65	80	55	70
July	102-8	127-8	92-8	120	75	92-8	62-8	80
August	102-8	127-8	92-8	120	70	90	60	77-8
September	95	117-8	82-8	110	70	90	60	77-8
October	100	122-8	87-8	115	65	87-8	60	77-8
November	95	117-8	82-8	110	60	82-8	55	72-8
December	90	112-8	75	100	57-8	77-8	52-8	67-8
1942								
January	75	100	62-8	87-8	52-8	70	40	60
February	65	90	55	80	45	55	37-8	50
March	55	65	45	55	35	45	30	40
April	60	n.s.	50	60	40	n.s.	35	n.s.
May								
June				Market closed.				
July	75	105	65	85	55	115	45	75
August	85	125	85	135	80	n.a.	90	n.a.
September	85	125	85	135	95	n.q.	110	n.q.
October	85	125	85	135	95	n.q.	110	n.q.
November	75	105	85	115	62-8	85	75	95
December	65	90	75	105	52-8	75	65	85
1943								
January	55	70	65	92-8	50	70	55	90
February	65	75	85	105	55	70	77-8	90
March	75	90	85	120	65	85	75	110
April	95	130	110	150	85	105	95	130
May	95	140	115	165	95	125	105	135
June	100	135	120	165	95	125	115	140
July	110	140	120	165	90	120	110	130
August	130	160	140	175	110	140	125	155
September	110	140	120	165	90	120	105	135
October	110	140	120	165	90	120	105	135
November	145	180	135	185	130	155	135	n.a.
December	170	190	147-8	172-8	120*	140	135	n.a.
1944								
January	160	180	140	160	140	160	140	165
February	150	180	135	150	127-8	150	117-8	147-8
March	162-8	197-8	160	190	158	182-8	150	175
April	167-8	210	160	200	167-8	187-8	162-8	182-8
May	175	230	170	222-8	167-8	205	160	195
June	185	237-8	175	227-8	175	220	162-8	197-8
July	197-8	262-8	192-8	257-8	192-8	245	170	222-8
August	215	272-8	202-8	260	205	257-8	190	242-8
September	215	272-8	205	267-8	205	262-8	190	247-8
October	227-8	275	212-8	272-8	220	262-8	210	262-8
November	225	267-8	210	277-8	220	267-8	202-8	262-8
December	217-8	262-8	195	262-8	205	250	207-8	247-8

APPENDIX V—(Contd.)

Prices of Milch Cattle at Tiruvottiyur Cattle Market (per animal).

	Ongole Cows.				Country Buffaloes.			
	1st & 2nd calving.		3rd & 4th calving.		1st & 2nd calving.		3rd & 4th calving.	
	2-3 M.M.	3-4 M.M.	2-3 M.M.	3-4 M.M.	2-3 M.M.	3-4 M.M.	2-3 M.M.	3-4 M.M.
1945								
January	217-8	267-8	207-8	277-8	202-8	255	200	25
February	210	305	205	295	175	235	165	255
March	215	350	205	305	180	287-8	170	260
April	225	325	210	305	175	275	165	265
May	225	325	210	305	185	280	170	270
June	225	325	210	305	215	300	200	290
July	225	325	210	305	220	315	207-8	275
August	225	325	210	305	175	275	165	265
September	225	325	210	305	187-8	275	170	265
October	225	325	210	305	162-8	250	160	245
November	225	325	210	305	155	225	145	225
December	225	325	210	305				
1946								
January	240	345	230	330	160	220	150	210
February	250	325	235	305	155	210	145	205
March	250	330	230	320	145	230	135	225
April	245	337-8	237-8	320	14-8	242-8	135	2-5
May	245	337-8	237-8	320	147-8	242-8	135	225
June	245	337-8	237-8	320	147-8	242-8	135	225
July	250	342-8	242-8	325	152-8	247-8	140	230
August	255	360	240	345	155	255	145	235
September	262-8	387-8	260	367-8	187-8	300	175	280
October	237-8	362-8	232-8	345	165	255	155	267
November	237-8	375	227-8	337-8	165	237-8	17-8	220
December	237-8	362-8	225	345	175	262-8	157-8	237-8
1947								
January	237-8	362-8	225	345	175	262-8	157-8	237-8
February	237-8	362-8	225	345	150	225	130	217-8
March	237-8	350	230	345	165	250	155	237-8
April	212-8	322-8	202-8	317-8	145	237-8	140	210
May		No Report						
June	287-8	400	270	382-8	200	300	185	280
July	282-8	425	250	350	187-8	282-8	175	287-8
August	237-8	350	225	337-8	150	225	145	222-8
September	300	450	285	425	300	350	195	225
October	300	400	250	350	25	300	200	250
November	250	400	240	350	187-8	287-8	170	262-8
December	287-8	450	262-8	400	205	300	175	250
1948								
January	275	362-8	260	340	175	275	162-8	222-8
February	300	400	275	375	200	287-8	175	262-8
March	287	425	262-8	400	215	337-8	187-8	300
April	312	450	288	412	200	288	175	200
May	300	400	275	375	213	288	188	275
June	263	350	238	350	213	325	213	313

APPENDIX VI.

Important Cattle fairs in the Madras Province.

—(Number of cattle assembled).

Name of District & fair	Month.	Duration.	Bulls.	Bullocks.	Cows.	Calves.	He-buffaloes.	She-buffaloes.	Total.	Area where animals come.	Area where animals go.	Breed.	Remarks.
Tiruchirap. Samayavaram.	Jan. ...	1 week.	...	...	...	...	...	...	...	...	...	...	Thaipusam.
Salem ...	Jan. ...	2 days.	...	...	...	...	...	...	...	...	...	...	...
Kalipetti ...	Feb. ...	6 days.	...	...	...	...	...	...	...	...	...	...	...
Machery ...	Feb. ...	6 days.	...	...	...	...	...	...	...	...	...	...	...
Puduvathi ...	April ...	1 week.	...	...	...	...	...	...	...	...	...	...	...
Naganath ...	April ...	...	...	...	...	...	...	...	...	...	...	...	...
Yemmiganur.	April ...	...	...	...	...	...	...	...	...	...	...	...	...
Peyyannur.	April ...	...	5,000	300	...	...	...	...	5,300	H.E.H. Nizam State, Kurnool, Bellary.	Madurai, Rannad, Tirunelveli.	Ongole, Amarut-mahal.	Car festival.
Kurivathi ...	Feb. ...	15 days.	12,000	10,000	200	1,000	...	...	23,200	Mysore, Hyderabad.	Do.	Halikar, Amrut-mahal.	...
Chinahi ...	Jan. ...	...	3,000	2,500	100	1,000	...	...	6,000	Mysore, Bellary.	Bellary ...	Do.	...
Yemmiganur.	Jan. ...	...	...	...	...	...	...	...	...	...	...	...	...
Mylar ...	Feb. ...	...	...	...	...	...	...	...	6,000	...	...	...	...
Garjala ...	Feb. ...	...	...	...	...	...	...	...	...	...	...	...	...

Tanjore ...	Nirathanalur.	March.	...	7,000	...	...	...	...	7,000	Mysore, Tanjore, Tiruchirapalli.	Southern districts.	Kangayam.	...
Tirunelveli.	Tiruchendur.	Mar. ch.	...	...	...	...	...	...	...	...	...	...	...
...	Pesuvandam.	May ...	...	...	...	...	...	...	...	...	...	...	...
...	Kalugumalai.	March } April. } Feb. }	675	14,000	200	300	...	...	15,975	Mysore and Southern districts.	Southern districts.	Kangayam, Alambadi.	Panguni-Uthiram.
...	Muthulapuram.	July ...	10,000	10,000	100	100	500	...	20,610	Rannad, Tirunelveli.	Sankaranar-koil.	Do.	...
...	Sankaranar-koil.	Aug. ...	7,000	1,500	200	200	100	1,000	10,000	Southern districts.	Southern districts.	Do.	...
...	Sivapuram.	Sept. ...	...	...	...	...	...	...	2,000	...	Travancore.	...	...
...	Alwar.	April. } June. }	...	...	...	...	...	...	...	...	...	...	...
...	Tirunagar.	Oct. ...	...	...	...	...	...	...	...	...	...	...	...
...	Tirunelveli.	...	10	8,420	500	450	100	200	9,590	Tirunelveli, Salem, Trichirapalli.	Tirunelveli.	Alambadi.	Car festival.
...	Thasi ...	...	...	...	...	...	...	...	...	...	...	...	...
Coimbatore.	Tiruchendur.	March.	...	...	...	...	...	...	10,000	...	...	...	...
...	Kannapuram.	April. } May }	12,000	6,000	500	1,500	...	...	20,000	Coimbatore, Salem, Tiruchirapalli.	Mathurai, Rannad, Tirunelveli Dts.	Kangayam.	Car festival.
...	Pudupalayan.	Aug. ...	2,000	300	300	5,000	...	...	7,300	Coimbatore, Salem.	Coimbatore, Salem.	Kangayam, Bargur.	Cattle Show
...	Tirupur.	May ...	...	...	...	...	...	...	12,000	...	...	...	...
...	Karamadai.	March. } 10 days }	...	...	...	...	...	...	...	...	...	...	...
...	Avanashi ...	May ...	...	...	...	...	...	...	...	...	...	...	...
...	Athikambai.	June ...	3,000	10,000	600	3,000	...	...	16,600	Coimbatore, Tiruchirapalli, Mathurai.	Mathurai, Rannad.	Kangayam.	Mariamman festival.

APPENDIX VI—(Contd).
Important Cattle fairs in the Madras Province.
—(Number of cattle assembled).

Name of District & fair.	Month.	Duration.	Bulls.	Bullocks.	Cows.	Calves.	He-buffaloes.	She-buffaloes.	Total.	Area where animals come.	Area where animals go.	Breed.	Remarks.
Mathurai	Idayar-kottai.	March } April }	1,500	3,500	150	250	..	..	5,400	Mathurai Tiruchirappalli.	Mathurai.	..	Mariamman festival.
	Thalla-kulam.	..	..	..	..	..	..	..	13,000	..	..	..	..
	Sombati	..	..	..	..	..	..	..	5,000	..	..	..	..
	Mathurai	.. April.	..	..	..	..	..	..	..	..	..	..	..
	Nilekottai.	.. May	..	..	..	..	..	..	..	..	..	..	..
	Kothacheruvu.	.. April. } .. May }	1,000	5,000	..	..	..	..	6,000	Anantapur, Chittoor.	Anantapur, Chittoor.	Amrita-mahal.	..
Anantapur.	Karigannapalli.	.. Feb.	3,000	3,000	..	50	..	..	6,050	Nellore, Salem, Coimbatore.	Coimbatore. All breeds local.	..	..
North Arcot.	Tenegal	.. Feb. ... 4 days.	..	..	..	..	..	..	5,000	..	..	..	..
South Arcot.	Tiruvannamalai.	.. Nov. ... 10 days.	..	..	..	..	..	..	5,000	..	..	..	..
South Arcot.	Kalayarkoil.	.. May ... 10 days.	..	..	..	..	..	..	10,000	..	..	..	..
South Arcot.	Mylam	..	..	..	..	..	..	..	2,500	..	..	..	..
South Arcot.	Kalgunda	.. Dec. ... 2 weeks.	7,240	..	..	..	13,430	..	20,670	..	..	Mysore.	..
Kanara.	Kishur	.. Dec. ... 10 days.	..	..	..	..	..	..	6,000	..	..	..	..
Malabar.	Kuppam	.. Feb. ... 10 days.	..	..	..	..	..	..	..	..	..	..	..
Chittoor.	Rolla (budsagar.)	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX VII.
Important cattle shandies in the Madras Province.
(Number of animals).

District.	Name of shandy.	Day.	Bulls.	Bullocks.	Cows.	Calves.	He-buffaloes.	She-buffaloes.	Total.
W. Godavari	Undi	Tuesday	150	300	50	100	1,000	130	1,730
Chittoor	Tadapalligudem	Sunday	..	500	50	25	300	60	435
Arcot	Palmar	Friday	..	..	..	..	..	..	..
	Pavitrani	Friday	..	700	20	10	10	5	745
	Podupet	Thursday	..	..	..	..	..	..	800
Salem	Nayanmalai	Wednesday	..	..	..	..	..	..	5,000
	Macheri	Monday	..	..	..	..	..	..	500
	Shevavpet	Tuesday	..	..	..	..	..	..	750
	Muthunaikanpatti	..	..	..	..	..	..	..	1,000
Coimbatore	Peundurai	Sunday	100	300	50	100	5	10	565
	Mulanur	Wednesday	200	160	..	280	150	..	700
	Kavandanpady	Wednesday	400	..	50	10	..	..	600
	Andiyur	Monday	..	350	300	100	..	20	670
	Punjai	Thursday	40	620	105	165	20	50	1,060
	Puliampatti	Thursday	..	..	..	..	..	..	..
	Pellachi	Thursday	..	2,400	..	760	..	..	4,960
	Tudiyalur	Monday	..	..	1,740	..	..	..	1,000
Malebar	Parakulam	Monday	80	100	150	25	50	30	435
	Venankulam	Thursday	100	600	500	800	750	200	2,950
E. Godavari	Agraharam	Saturday	100	150	160	30	250	130	850
	Ambajipeta	Wednesday	..	350	40	106	..	60	660
Mathurai	Usilampatti	Wednesday	..	300	250	..	..	..	550
	Melur	Monday	100	100	200	30	10	10	450
	Virupakshi	Thursday	..	..	..	..	..	..	..
Vishakhapatnam	Kolliviesha	Tuesday	..	300	100	25	300	10	735
	Ungarada	Wednesday	..	..	500	200	100	500	1,300
	Balajipeta	Friday	300	..	100	20	250	25	1,165
	Narayanavallasa	Thursday	..	100	50	80	500	20	750
	Godikomma	Monday	..	300	50	300	400	80	1,830
Rannad	Singanpurneri	Thursday	..	300	200	50	..	..	550

APPENDIX VIII.
Income and Expenditure of fairs and shandies.
(a) Fairs.

District.	Name of fair.	Year	Income (Rs.)	Expenditure (Rs.)
Coimbatore	Avanashi	1939—1940	1,480	92
	Kamappuram	1939—1940	2,000	1,000
Bellary	Deyyamadinna	1939—1940	36	139
Tanjore	Nirattannallur	1939—1940	5,150	1,540
	Nitrattannallur	1947	10,967	7,136
Mathurai	Salaiputhoor	1947	5,000	1,600
Malabar	Kizhur	1947	188	1,000
	Yanjanakulam	1940	7,800	200
South Kanara...	Kuligunda	1946—1947	1,214	1,332
	Kuligunda	1947—1948	2,934	2,060
	Sheethanadi	1946—1947	109	1,091
	Sheethanadi	1947—1948	321	1,184
Tiruchirappalli ..	Manapparai	1947—1948	2,205	717
	Thotham	1947—1948	9,155	442
	Somayapuram	1947—1948	300	352

(b) Weekly shandies.

District.	Name of shandy.	Year.	Income (Rs.)	Expenditure (Rs.)
West Godavari.	Undi	1939—1940	3,735	620
Coimbatore	Tadepalligudem	1939—1940	2,332	3,234
	Pollachi	1939—1940	32,699	351
	Pollachi	1946—1947	43,580	2,650
	Pollachi	1947—1948	47,450	5,449
Visakhapatnam.	Narayanavalasa	1940	2,650	75

APPENDIX IX.
Estimated number of cattle imported into or exported from different trade-blocks in India by road during 1938—1939 (in thousands).

Exporting Trade Blocks.	Importing trade-blocks.													Total.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Assam	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Bengal	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Bihar	...	...	...	...	...	...	...	...	...	...	...	...	...	102
Orissa	...	...	...	...	...	...	...	...	...	...	...	...	...	42
United Provinces	...	...	...	...	...	...	...	...	...	...	...	...	...	74
Punjab	...	...	...	...	...	...	...	...	...	...	...	...	...	232
Delhi	...	...	...	...	...	...	...	...	...	...	...	...	...	70
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Sind and Baluchistan	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Central Provinces	...	...	...	...	...	...	...	...	...	...	...	...	...	43
Bombay	...	...	...	...	...	...	...	...	...	...	...	...	...	20
Madras	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Rajputana	...	...	...	...	...	...	...	...	...	...	...	...	...	170
Central India	...	...	...	...	...	...	...	...	...	...	...	...	...	100
Nizam's Territory	...	...	...	...	...	...	...	...	...	...	...	...	...	40
Mysore	...	...	...	...	...	...	...	...	...	...	...	...	...	69
Kashmir	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Total	...	...	...	...	...	...	...	...	...	...	...	...	...	1000

Note.—Some figures are subject to revision on receipt of supplementary information.

APPENDIX X.

THE MADRAS ACT No. XV OF 1940.

An Act to provide for the improvement of livestock in the Province of Madras.

WHEREAS it is expedient, to provide for the improvement of livestock, in the Province of Madras; and whereas the Governor of Madras has by a proclamation under section 93 of the Government of India Act, 1935 (26 Geo. 5, Ch. 2), assumed to himself all powers vested by or under the said Act in the Provincial Legislature;

Now, therefore, in exercise of the powers so assumed to himself, the Governor is pleased to enact as follows:—

1. *Short title, extent and commencement*:—(1) This Act may be called the Madras Livestock Improvement Act, 1940.

(2) It extends to the whole of the Province of Madras.

(3) This section shall come into force at once, and the Provincial Government may from time to time by notification in the *Fort St. George Gazette* apply all or any of the remaining provisions of this Act to the whole or any portion of the Province of Madras from such date and for such period, if any, as may be specified in the notification, and may cancel or modify any such notification.

2. *Definition*:—In this Act, unless there is anything repugnant in the subject or context—

(a) "bull" includes a buffalo-bull;

(b) "cow" includes a buffalo-cow and a heifer;

(c) "Director" means the officer appointed by the Provincial Government as the Director of Veterinary Services for the Province of Madras and includes any other person on whom the powers or duties of the Director under this Act have been conferred or imposed under section 3;

(d) "licence" means licence granted under section 4;

(e) "licensing officer" means the Director or any other officer or person authorized to grant licences under section 4;

(f) "prescribed" means prescribed by rules made under this Act.

(g) a person is said to "keep a bull" if he owns the bull or has the bull in his possession or custody; and

(h) a bull is said to be "castrated" if it is rendered incapable of propagating its species.

3. *Appointment of Director*:—The Provincial Government may by general or special order confer or impose on any person all or any of the powers or duties of a Director under this Act.

4. *Bulls which have attained a certain age to be licensed*:—(1) No person shall keep a bull which has attained the prescribed age except under and in accordance with the terms, conditions and restrictions of a licence granted under this section, unless it is certified by the prescribed officer that the bull has been effectively castrated by a method and in a manner approved by the Director.

Explanation:—Where a person keeps more than one bull, he shall obtain a separate licence in respect of each bull.

(2) Every licence under this section shall be granted by the Director or any officer or person authorized by him by general or special order. It shall be in such form, for such period, and subject to such terms, conditions, and restrictions as may be prescribed.

No fee shall be charged for the grant of the licence.

5. *Refusal and revocation of licences*:—(1) Subject to such rules as may be prescribed, the licensing officer may refuse to grant or may revoke a licence in respect of any bull if in his opinion the bull appears to be—

(a) of defective or inferior conformation and consequently likely to beget defective or inferior progeny, or

(b) suffering from an incurable contagious or infectious disease or from any other disease rendering the bull unsuitable for breeding purposes, or

(c) of a breed which it is undesirable to propagate in the district or part of the district in which it is kept.

(2) The licensing officer may also revoke a licence granted in respect of any bull kept within his jurisdiction (whether such licence was granted by himself or by any other officer) if in his opinion—

(a) the licence was granted under circumstances of which the licensing officer was not aware at the time of granting the licence, or

(b) there has been a breach of any of the terms, conditions or restrictions of the licence.

(3) If a licence is revoked under this section, the officer revoking the licence shall give notice thereof to the person keeping the bull or to the person stated in the licence to be the owner of the bull. The notice shall set out the grounds for the revocation.

(4) No person shall be entitled to any compensation for the refusal or revocation of any licence under this section.

6. *Surrender of licence*:—A licence granted in respect of a bull shall be surrendered without delay to the licensing officer, if—

(a) the period specified in the licence expires, or

(b) the licence is revoked under this Act, or

(c) the bull dies, or is certified by the prescribed officer to have been effectively castrated by a method and in a manner approved by the Director.

7. *Inspection of bulls* :—The licensing officer may by order require any person keeping a bull to submit it for inspection by himself or by any officer or person deputed by him for the purpose, at any reasonable time, either at the place where the bull is kept for the time being or at any other reasonable place specified in the order, and thereupon it shall be the duty of the person keeping the bull to submit it for inspection accordingly, and render all reasonable assistance in connection with such inspection to the officer concerned.

8. *Power to order castration of bulls* :—(1) The licensing officer may by order require any person keeping a bull which in his opinion has attained the prescribed age, and in respect of which no licence is for the time being in force under this Act, to have it castrated, within one month from the date of the service of the order, by a method and in a manner approved by the Director and specified in the order.

(2) Such castration shall be performed or caused to be performed by the licensing officer free of charge, unless the owner or other person keeping the bull desires to make his own arrangements for complying with the order.

9. *Duty to inform owner of contents of notice or order of castration* :—If any notice or order is served under section 5, section 7, or section 8 on any person who is not the owner of the bull, it shall be the duty of that person forthwith to take all reasonable steps to inform the owner of the contents of such notice or order, and if he fails to do so, he shall be liable to indemnify the owner against any loss the owner may sustain by reason of such failure.

10. *Production of licence* :—It shall be the duty of any person who for the time being keeps a bull in respect of which a licence has been obtained and is in force, to produce such licence—

(a) within a reasonable time, at any place where the bull is for the time being on demand made by a licensing officer or an officer of the Veterinary Department not below the rank of Veterinary Assistant Surgeon, or an officer of the Agricultural Department not below the rank of upper subordinate, or an officer of the Revenue Department not below the rank of Revenue Inspector, or such other officer as may be authorized in this behalf by the Provincial Government by general or special order, or

(b) before a cow is served by the bull, on demand made by the person in charge of the cow.

11. *Penalties* :—Whoever—

(a) keeps a bull in contravention of this Act or of any rule or order made thereunder, or of any terms, condition or restriction of a licence, or

(b) neglects or fails to submit a bull for inspection when required to do so under section 7, or

(c) neglects or fails to comply with an order served under section 8, or

(d) neglects or fails to produce a licence when required to do under section 10 shall be punishable with fine which may extend fifty rupees and in the case of a second or any subsequent offence th fine which may extend to one hundred rupees.

12. *Power of licensing officer to castrate bulls* :—(1) If a person who keeps a bull neglects or fails to submit it for inspection, or to have it castrated when required to do so under section 7, or section 8, the licensing officer may direct that the bull shall be castrated by a method and in a manner approved by the Director and marked with a prescribed mark in the prescribed manner, free of charge.

(2) (a) If it is not known in whose ownership, possession or custody a bull is for the time being and the fact cannot be ascertained after an inquiry in the prescribed manner, the licensing officer may seize the bull or cause it to be seized, and if he is of opinion that the bull has attained the prescribed age and is unsuitable for breeding purposes on any of the grounds specified in sub-section (1) of section 5 may direct that the bull shall be castrated by a method and in a manner approved by the Director and marked with a prescribed mark in the prescribed manner, free of charge.

(b) Every bull seized under clause (a) shall, after it has been castrated and marked as aforesaid where necessary, be sold by public auction or sent to a pinjrapole or infirmary recognized by the Provincial Government in this behalf.

(c) In case the owner of any bull seized under clause (a) appears before the licensing officer within such time as may be prescribed in this behalf and proves to the satisfaction of such officer that the bull is owned by him—

(i) in case the bull has been sold by public auction, the proceeds of such sale shall be paid to the owner after deducting therefrom the costs, charges and expenses incurred for the maintenance and sale of the bull; and

(ii) in any other case, the bull shall be delivered to the owner on payment of the costs, charges and expenses incurred for its maintenance.

(d) The costs, charges and expenses referred to in sub-clauses (i) and (ii) of clause (c) shall be determined in the prescribed manner.

13. *Power of licensing officer, etc., to inspect or mark bulls and to enter premises* :—For the purposes of this Act, a licensing officer or any officer or person authorized by him in this behalf shall have power at all reasonable times—

(a) to inspect any bull;

(b) to mark any bull with a prescribed mark in the prescribed manner; and

(c) subject to such conditions and restrictions, if any, as may be prescribed, to enter any premises or other place where he has reason to believe that a bull is kept.

14. *Duty of Officers to report offences, etc.*—It shall be the duty of all village officers and servants and of all officers of the Veterinary, Agricultural and Revenue Departments—

(a) to give immediate information to the nearest licensing officer of the commission of any offence, or of the intention or preparation to commit any offence punishable under this Act, which may come to their knowledge;

(b) to take all reasonable measures in their power to prevent the commission of any such offence which they may know or have reason to believe is about or likely to be committed; and

(c) to assist any licensing officer in carrying out the provision of this Act.

15. *Cognizance of offences.*—No Magistrate shall take cognizance of any offence under this Act except upon a complaint made by a licensing officer or any person authorized by such officer in this behalf.

16. *Officers to be public servants.*—The Director, every licensing officer, all officers and persons authorized by the Director or a licensing officer under this Act, and all village officers and servants shall be deemed to be public servants within the meaning of section 21 of the Indian Penal Code (XLV of 1860).

17. *Bar of certain proceedings.*—(1) No suit, prosecution or other proceeding shall lie against any officer or servant of the Provincial Government for any act done or purporting to be done under this Act without the previous sanction of the Provincial Government.

(2) No officer or servant of the Provincial Government shall be liable in respect of any such act in any civil or criminal proceeding if the act was done in good faith in the course of the execution of duties or the discharge of functions imposed by or under this Act.

18. *Limitation for certain suits and prosecutions.*—No suit shall be instituted against the Crown and no suit, prosecution or other proceeding shall be instituted against any officer or servant of the Provincial Government in respect of any act done or purporting to be done under this Act, unless the suit, prosecution or other proceeding is instituted within six months from the date of the act complained of.

19. *Revision.*—The Provincial Government may at any time either *suomotu* or on application, call for and examine the record of any order passed by, or any proceedings recorded by, any officer or person under this Act, for the purpose of satisfying themselves as to the legality or propriety of such order or as to the regularity of such proceedings, and may pass such order in reference thereto as they think fit.

Nothing contained in this section shall apply to the orders or proceedings of any Court or Magistrate.

20. *Power to make rules.*—(1) The Provincial Government may make rules to carry out the purposes of this Act.

(2) In particular and without prejudice to the generality of the foregoing power, such rule may provide for—

(a) all matters expressly required or allowed by this Act to be prescribed;

(b) the circumstances in which duplicates of licences may be granted, the fees which may be charged for the grant of such duplicates, and the conditions, restrictions and limitations subject to which they may be granted;

(c) the powers to be exercised and the duties to be performed by officers appointed under this Act, and the procedure of such officers; and

(d) the service of notices and orders issued under this Act.

(3) In making a rule under sub-section (1) or sub-section (2), the Provincial Government may provide that a person guilty of a breach thereof shall be punishable with fine which may extend to fifty rupees.

(4) The Power to make rules conferred by this section shall be subject to the condition of the rules being made after previous publication.

(5) All rules made under this section shall be published in the *Fort St. George Gazette* and upon such publication shall have effect as if enacted in this Act.

21. *Saving.*—Nothing contained in this Act shall apply to a bull dedicated in good faith to a religious purpose in accordance with any religious usage or custom provided that notice of the dedication is given in the prescribed manner to the licensing officer.

