

THE IMPROVEMENT OF INDIAN CATTLE

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No excuse is needed for introducing the subject of the improvement of Indian cattle on the occasion of the Jubilee of the M. A. S. U., for not only are cattle of immense economic importance to the country, but in view of the exceptional position held by the cow in India, the subject is one that should be very close to the hearts of all. From the economic point of view, the ox is the foremost prime mover in the world, and is responsible for the tillage of a greater area than any other draft animal, nor does there seem reason to anticipate that this supremacy will be seriously challenged in the near future. The use of cow's milk is being more and more advocated by the medical authorities both for adults and children and as there is no satisfactory substitute, the demand for milk is limited only by the cost at which it can be produced.

With this realisation of the value of the cattle industry in India, it is surprising that so little attempt has been made to improve it. As far as the working ox is concerned, progress is negligible, and though the production of a better class of dairy animal has received rather more attention, it cannot be said, in view of the 150 million horned stock in the country, that this attention is adequate. As for the production of a dual-purpose animal, one in which the males will be good working animals and the females good milkers, no steps have been taken to improve the already existing breeds that display these characteristics.

There are two directions in which control in breeding, with a view to the improvement of stock, may be exercised: they are complementary to each other. Firstly, the prevention of the mating of inferior animals, and secondly, the encouragement of the mating of superior animals. It is not proposed to discuss the first of these here. It is necessary to say only that the way to prevent the spread of inferior germ-plasm is to isolate or to castrate all inferior male stock. Fencing would effect the first, but fencing in the Tropics presents peculiar difficulties. For the second, the practice of castration is by no means widespread, and when it is done, it is often done too late.

There is in India an objection to the early castration of an animal that looks as if it was likely to develop into a good working ox. It is held that the operation causes it to lose the masculine attributes of a heavy fore-part, so that the hump or shoulders which are desirable for exercising its full draught capacity are not fully developed. This

belief may or may not be well-founded, but it is surely time that some concerted effort was made to test this point, for it is one that affects every stock-owner in the country. If it could be shown that there is no justification for this belief, every effort should be made to educate the peasant to castrate the stock he does not want for breeding. That such a campaign would be effective, can be assumed from the success obtained in some of the African colonies where the number of animals thus treated, is increasing rapidly. Uganda, e. g. reports¹ in 1932, that 96% of the animals sent to the principal markets were castrated, whereas six years before, roughly this number were entire.

Turning to the other direction in which stock improvement must proceed, there is first the selection of the male stock to be used—for it is through the sire that improvement must start—and secondly the organisation of means whereby the services of such improved animals may be fully utilised. The first point, the selection of good male breeding stock is the one which presents the most uncertainty. There are two schools of thought, the one aiming at the improvement of the Indian animal (*Bos indicus*) by the use—to a greater or less extent—of imported bulls of the *Bos taurus* type, the other pinning their faith to the use of good bulls selected from the indigenous cattle.

What tropical experience is there on which we can draw in order to decide which of these two policies is the correct one? First, let us clear the air by pointing out that breeding single-purpose animals, either for work or for milk, implies two widely different objectives, and that a policy successful in producing one may not necessarily be good for the other. Secondly, it must be remembered that the Tropics is a wide term, and embraces not only the broad continents of Africa and India, where the seasons are marked, and where diseases may be rife, but also the islands of the Pacific and the West Indies, where seasonal variation is small and where many of the serious diseases of stock are unknown and unlikely to enter.

It will not take long to consider the improvement of the Indian working ox, for there has not, so far as the writer knows, ever been any question of improving him by crossing with *Bos taurus*. The primary requisites for such an animal are strength, courage and hardiness. "The animal to be produced is one that can live, breed and thrive most successfully under local conditions existing at the time"², and it is no good producing anything in advance of this. The efforts of the Veterinary Departments are improving conditions as far as liability to disease is concerned, in a most wonderful way, but beside the risk of disease, dreadful, but in the background, goes the ever-present fear of under-nourishment, or actual starvation.

If imported blood is not wanted, is there any evidence that success will result from the use of the best indigenous blood? Here we may safely fall back on the experience of other countries, where certain

recognised principles have been found successful in producing the type required, for there is no *a fortiori* reason why the adoption of these principles should not be equally successful in India. Actually, we can point, in S. India, to the carefully-bred herd of Mysore cattle, which are recognised on all hands to be greatly superior to the ordinary Mysore animal, and which have great reputation for work.

On the question of milk production it is less easy to dogmatise, for in both directions considerable success has been obtained. The standard of a dairy animal can broadly be recorded by a single figure, the number of units of milk yielded in a unit of time, and it is easy therefore to fix an "office-chair" standard, below which no animal will be accepted. The estimate of the quality of a working ox can only be made by watching and testing it at work, and must in the nature of things be largely personal. Continuity of policy is thus easy to obtain when breeding for milk, and *continuity of policy is essential*.

India shows us many examples of the success obtained in selecting for milk in indigenous herds. The Pusa herd, of Sanhiwal or Montgomery animals, gave an average yield of milk of 5·8 lbs. in 1913, and of 14·3 lbs. in 1928. Recent improvements in technique by Sayer³, have recently still further improved on these figures. One cow—Chengi—at her second calving gave 6681 lbs. in 304 days in the last year under report. In Madras, the Department started in 1918 to build up a herd of 'Ongole' cattle starting with only 48 cows. The improvement in milk yield is shown below⁴ :—

	Av. daily yield lbs.	Total.	Days dry.	Best Individual.
Foundation stock	9·8	2674	177	14·1
Present stock	11·5	3526	147	25·6

Figures that are more striking, perhaps because a larger number of animals have been under test, come from the Military Department Dairy at Ferozepore, the latest report on which states that "Twenty years' work.....has resulted in a herd of Sanhiwal cows, with an over-all annual yield of 8,000 lbs. of an average composition of 4% butter fat." The 1914 figures were an average of 5·9 lbs. of milk per head for the whole herd.

Such figures are satisfactory; progress has occurred, though to some it may seem slow, too slow indeed when the standard already reached by *B. taurus* in other countries is recalled. In England a cow called Terling Torch 46th, in her second lactation period, gave 30,000 lbs. in 320 days. Surely, urge the 'importing' school, surely the right thing to do is to utilise this dairy 'blood' in building up a dairy animal for the Tropics. And we find that this has been done to a considerable extent, and with no small measure of success.

Time does not permit of a thorough scrutiny of all these experiments, all that can be done is to summarise briefly the conclusions that can be drawn from them. It has been discovered that all breeds of *B. taurus** do not react in the same way, and it is most unfortunate that the breed first tried in India, and the one about which the greatest amount of information is available,—the Ayrshire—is one of the worst for this purpose. The Holstein or Friesian, on the other hand, seems to be remarkably suitable, and is very widely used today. Experience in Trinidad⁵ with half-bred, three-quarter bred and even seven-eighth-bred Holstein-Zebu animals has been quite satisfactory. Experience in Jamaica⁶ with Jerseys, Red Polls and Friesians, and in Fiji and Hawaii⁷ and Puerto Rico⁸ are similar. This seems fairly conclusive but Hammond⁹ shows that *Bos taurus* in the Tropics almost inevitably suffers degeneration, though, in favourable circumstances the process may be a slow one. This degeneration is due to a number of causes, among which are the physical characteristics of unpigmented skins and unsuitable coat-covering, and the environmental conditions leading to poor feeding. This degeneration can be corrected by breeding back to *Bos. indicus*¹⁰.

It is not denied therefore that in suitable conditions, with proper feeding, adequate housing, and under competent veterinary supervision, a satisfactory Dairy herd can be produced, composed of varying proportions of *B. indicus* and *B. taurus* blood. Such conditions are more likely to be found in the smaller islands of the Tropics, where quarantine can be effectively exercised, where imported foods can be cheaply landed, and where the climate is conducive to the production of grass all the year round. A brief description of conditions in Fiji may be quoted:—“The climate is equable: there are no epizootic diseases, no anthrax, no rinderpest, no foot-and-mouth, no tsetse and to ticks”. Such conditions do not hold for India, and the writer feels strongly that in Madras the right line to take is the selection and improvement of the three excellent breeds that already exist, the Ongole, the Kangayam and the Mysore. If this is so, the sooner it is done is the better. Mention has been made of the start of the Ongole breeding scheme with less than fifty cows, when five hundred would not have been too many. What is wanted is the best cow in a thousand, and it should not be very expensive to test a thousand cows a year, selling those not up to the standard and buying others. Continuity in policy has been mentioned. It is mentioned again because without it progress is impossible and it has been singularly lacking in the past. Madras is fortunate in having had a single livestock officer for fifteen years; elsewhere constant change in personnel and in policy have proved a very great obstacle to progress.

* There were 20 different breeds listed at the Royal Ag. Soc. Show at Derby in 1933.

It is suggested therefore that the Madras Students' Union with its great opportunities of influencing public opinion might help on this work, the great utility of which it has been the object of this article to show.

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THE AGRICULTURAL DEPARTMENT*

The subject is one which must engage the attention of every one interested in the advancement of Agriculture in India. This advancement should proceed rapidly as long as the reins of Government are in the hands of our present Viceroy who has an intimate knowledge of the conditions of the agriculturists and the problems which confront improved agriculture. The report of the Royal Agricultural Commission which has considered all agricultural questions bears ample testimony to the attention which he has devoted even to details. India is behind several countries in Agriculture and it is hoped it will within the 5th year of His Excellency's Viceroyalty, rank among the foremost countries which can boast of improved and scientific agriculture.

Till 25 years ago, the Department of Agriculture was in the hands of a member of the Board of Revenue who had agriculture among his several portfolios. The agricultural college at Saidapet was more in name and it did not attract the best of the brains; for the graduates turned out from the college could not expect appointments from Government as there were only few under the patronage of Government. A great impetus was given to the Department during the time of His Excellency Sir Arthur Lawley to whom we owe our present Agricultural College. Successive Directors of Agriculture, Mr. Anstead, Mr. Hilson, Mr. Ramamurthi, and successive governors of the Province have been improving the activities of the Department and

* Speech delivered by:—Rao Bahadur K. S. Venkatarama Iyer, Advocate and Mirasdar, Negapatam on the occasion of the 25th College Day and Conference.