Farming will never be a success unless the farmer had more voice in the disposal of his produce-P. Morrel.

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DEVELOPMENT OF AN INDIAN IMPLEMENT WORKS.*

L. V. KULKARNI. L. Ag., KIRLOSKAR WORKS.

In India we have a very large area under cultivation and people are mostly dependent on the land for their food and clothing. With a variety of soils and diverse climatic conditions this country is capable of producing an infinite number of crops. Plants and crops which can be produced only in the Tropics as well as those which are native to temperate climates can easily be grown or acclimatised in several regions in India because there are localities which reproduce in their conditions typical tracts in all zones, torrid, sub-tropical and temperate. Between, for example, the climate of Ooty at your very doors which reminds an Englishman of his sweet home in the United Kingdom and places like Guntur in the Circars where the thermometer records somewhere between 110 and 120 degrees in the shade you have a very wide range which renders possible the production of all sorts of crops and fruits.

^{*} A paper read at the M. A. S. U. Conference in July 1927.

soon was increased to three. A sympathetic and obliging neighbour who knew the potentialities of the first made ploughs of Kirloskar bought them outright. This raised hopes in Mr. Kirloskar who toiled all alone till 1910 when he was in a position to buy large quantities of pigiron from Bhadravati Iron Works of Mysore and the Bengal coke from the Raniganj coal fields. Since then the output has considerably increased so much so that in 1923 which was a record year, the works could daily turn out 250 ploughs. Trade depression which has ensued has however restricted the output though it was a blessing in disguise in that it gave an opportunity to Mr. Kirloskar to get young Indians trained in recognised institutions in America, England and Germany. The Kirloskar works now can boast of several departments headed by Indians of recognised foreign degrees with severe practical training.

The Kirloskars now produce not only ploughs of every description but sugarcane mills, pumps, chaff cutters, mote wheels, shellers and winnowers and a number of other agricultural needs. So that this indigenous firm has obtained a reputation in this country which has been built up steadily and surely. There is a metallurgical laboratory attached to the works where raw material, the finished products and all substances in the intermediate processes are analysed and tested also for strength, hardness and tempering, and for preparing paints and varnishes themselves. The ploughs manufactured in this firm are used to a very large extent in the Central Provinces and Berar and Bombay (Deccan), the type particularly in favour being Kirloskar Nos. 9 and 100 which have turnwrest mould boards. Almost 5 to 6 thousand ploughs are purchased by the cultivators of the black soil tracts of these You in Madras have gone in for the light Konkan ploughs and I suppose this has very well answered the purpose which the poorer cattle of this Province can utilize and be put to. About 1500 to 2000 ploughs have been consumed in this Presidency. With the output increased and better quality ensured through the trials which are being made daily at the works by the experts the time will it, is hoped, soon come when a larger tract of country can be reached by the firm that is anxious to extend its operations over a wider area and benefit the cultivator to the largest extent possible. This firm serves as an instance of the marvellous insight and patient industry of one who though indigent but possessing brains, pluck and perseverance has been able to achieve in one quarter of a century what eminent implement makers country

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The price of ploughs has been kept very low with a definite purpose in view, the makers being satisfied with a small margin of profit. Their only aim is to encourage the spread of these ploughs and thus serve the cultivator in their own patriotic way.

Madras being the oldest Agricultural Province in this country which has suffered least from successive waves of different races who came to India at different times through the Khyber Pass it is one of the most advanced in agricultural practices and it is but fitting that it should appreciate and profit by an improvement when changed conditions do require.

I am here to pay my humble tribute to the genius of the Madras cultivator who is silently working out a revolution in modern Indian Agricultural methods and practices.

I sincerely thank the Madras Agricultural Department and its head Mr. R. D. Anstead for the way they have shown to the ryots in the use of improved implements.

As an Agricultural Graduate from a sister institution in Bombay I sincerely thank the Union for the opportunity so kindly given to me to speak a few words this afternoon about the Kirloskar works—which are the first agricultural machinery manufacturers in India.

records for the other taluks available. These four taluks fairly represent the dry and wet areas of the Guntur District and the following observations may be considered to apply to the whole listrict.

The survey is confined to cattle of the pure Ongole type; each and ever willowe and charlet is visited and a question-nuive is filled for each centre. The questionnaire includes an enumeration of the number of cows and breeding bulls, approximate number of caives born annually, details of disposals of calves, details of methods of feeding and gracing

details of methods of feeding and grazing.