

Mr. Makin, Munitions Minister, said 'that Australian industry had been revolutionised to provide the maximum war effort.'

Dr. H. V. Evatt, another Minister, stated: 'Post-war reconstruction like the war task will consist in assuring that the country's economic resources are fully employed. They must be directed primarily for purposes which is Australia's obligation to achieve: namely, economic security and rising standards for all Preparations in this respect will not retard but assist 'the war effort.'

"I am not pointing to any casual mistakes or omissions which in times of crisis like this are inevitable, but am referring to policies which seem deliberate and which threaten to cause permanent injury to the interests of our vast Indian population.

"I have had to refer to industries on this

occasion because the main object of this Institute is to promote industries by means of research and there is a close interdependence between industries and research. It is needless to state that industrial research will have no value or importance if industries themselves are neglected or starved. Since at the present time, Government have taken control of almost every activity in the country, they owe a duty to the public to explain their policies and justify their inaction in respect of these three developments, namely, industries, industrial research for peace-time needs, and post-war reconstruction—as compared with what is happening under other Governments in the British Commonwealth. In the absence of such a statement, the future which India has to face, when the time for post-war reconstruction arrives, will be viewed by many thinking persons in this country with anxiety and apprehension."

DAIRY INDUSTRY AND ITS FUTURE

BY

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THE value of annual contribution of the bovine population to Indian economic wealth has been assessed at a colossal figure of one thousand crores of rupees. Of these, at least one-third is due directly to milk and milk products. Cattle maintenance is thus of great importance to India. It supplies not only a vast deficiency in our nutritional requirements but it is closely connected with the national economy. In spite of its magnitude, the present state of the dairy industry in India is rather sad. It is still steeped in orthodox sentiments, no attempt being made to fit in with the changing times and conditions. It is one of the most unorganised industries of the country and is carried out on individualistic basis. It is only a fortunate coincidence that the Indian populace is subconsciously aware of the nutritional importance of milk and its products.

In the past, on many an occasion human-made catastrophes have proved blessings in disguise. For example, it required the last Great War to teach the English farmers the

benefits of properly organising their dairy industry and since then the development has been tremendous. In most of our urban centres, the situation is almost parallel to that existing in England at the time and considering the high prices the farm products fetch at present due to the war, it is to be hoped that this will provide a suitable opportunity for organising the dairy industry of this country on which a wider structure could be built later.

The prime function of the dairy industry is to produce enough milk to satisfy the needs of the country. The present production can at least be increased six-fold to achieve this end. This increase in milk market should no doubt bring in its train a better living standard for those engaged in this industry. Increase in production of milk is closely linked up with the number of the cattle population. India is in a paradoxical position that it has more cattle than it needs. India possesses about a third of the total cattle population of the world, yet the annual output of milk is hardly

12 per cent. of the whole. The average production of her animals is nearly one-fifth of those in New Zealand and one-eighth of those in Denmark. For milk production, food and right type of food, has to be provided to these animals. The present conditions in India do not permit of this maintenance of such a large number of stock. Unless this simple fact is realised, the dairy industry cannot make any progress. To-day India possesses about 100 million acres of land classified as "waste generally unsuitable for cultivation". There is no doubt that with the return of better times serious attempts will be made to utilise at least a part of this waste for growing food crops. The other logical solution is to dispose off a substantial portion of the present unthrifty stock. Their existence only means maintaining two half-starved animals where one should suffice. This subject is at present bound up with sentiment and it is also the bottle-neck which progressive forces in the country should try to break.

Before a nation-wide culling programme could be undertaken a simple system of recording the performance of each animal is essential. On this depends a rational distribution of the available foodstuffs and breeding of better generations. There is no doubt that by better selection, the average yield of our stock could be considerably raised. India depends on buffaloes to produce about 60 per cent. of her milk output. Yet at present there is far too little attention paid to the development of this class of milch animals. There are societies working in purely buffalo breeding tracts, which go out of their way to improve the milch qualities of poor-yielding cows, maintained mainly for draft purposes. The same energy and money spent in right directions can produce infinitely better results.

The greatest incentive to the production and improvement in the quality of milk and milk products is a guaranteed price. From the experience of other countries it becomes abundantly clear that unless a guaranteed price is allowed to producers, a large bulk of the profits is absorbed by the middleman who is little interested in rural conditions. In a big country like India, such measures are no doubt always difficult to be put in practice but with a little propaganda and organisation it is not impossible

of achievement. At present, in the absence of such a scheme things sometimes go to ridiculous ends. For example, in most of the bazars, at least two types of ghee are sold, one for eating and the other for cooking purposes. There is usually a difference of at least 50 per cent. in the quality of the two. A section of the consuming public that cannot possibly afford to pay the price of genuine ghee likes to believe in this differentiation. It is, however, surprising how some of our health authorities also connive at this state of affairs.

One of the greatest handicaps in the successful development of the rural dairy industry on commercial basis is the lack of proper means of transport. Unless the villagers are well organised on co-operative basis the most profitable disposal of milk will always remain beyond the means of individual producers. It is possible that in the near future it will be realised that every village can have more and better milk and better health by maintaining a village co-operative dairy. For commercial exploitation of milk, quick transport of milk between the village and urban centres is an absolute necessity. Lack of proper transport compels the villagers to dispose off their milk by converting it into less remunerative products.

As in all other walks of life, the need for co-operative organisations cannot be over-emphasised. Production of milk, economically and in a reasonably clean state is an intricate process, starting from the production of right type of fodder to the disposal of the milk. Probably a small farmer never thinks about these details but the results of this *laissez-faire* policy are before our eyes. It is essential that every village or a group of villages, should learn the need for rearing their animals and producing their milk on a co-operative basis. After a preliminary experimental period, the producers will soon realise that they get a better value for their produce, their animals thrive better and the consumer slowly regains confidence in the quality supplied.

Before the desired quantity of milk can be produced in this country and utilised in the right way a little amount of education is also necessary. The farmer must be taught not to rely on straw alone as a food for his cattle. Application of existing knowledge for better conserving and producing good quality of feeding-stuff is

necessary. To do this he must also realise that every animal in his charge looks to a little corner in his field for its well-being.

At present the consuming public is inclined to lay stress on consumption of ghee much beyond what can be expected in return by way of nutrition. The remaining part of the milk is probably of greater nutritional value. If by spending the same money better nutrients can be bought they should learn to do it.

The economic importance of the dairy industry even in its present decadent state, as mentioned before, is enormous. One of its striking drawbacks is the total lack of interest shown in investigating the causes for many of the difficulties it encounters and in taking the help of modern scientific technic to overcome them. No doubt every ghee packer of importance maintains a room for housing a refractometer and one or two such other apparatus but that is mainly with the object of crossing the legal hurdle. One result of this policy is apparent. The Indian consumer is slowly losing confidence

in the genuineness of the products of his own land and is prepared to pay fancy prices for imported articles. It is a tribute to other countries that they take pains to study the Indian requirements carefully and evolve technique to suit that demand. For example, a small import of ghee has already started. In course of time, if the warning is not taken, this is likely to oust a considerable proportion of the indigenous product. If the dairy industry is to advance and thrive, it must harness scientific knowledge to its needs.

Concluding, it may be stated that for the future development of the dairy industry a beginning has to be made from primary stages. Maintenance of just enough animals that can be properly fed, production of better quality of feeding-stuffs, co-operative dairy organisations, organised marketing and scientific research are a few points to be borne in mind, if it is desired to see commercial exploitation of milk a reality.

NATIONAL ACADEMY OF PEIPING

THE British Scientific Mission in China have just forwarded to us a little pamphlet, issued by the National Academy of Peiping, giving an account of the progress of the scientific activities under its auspices in war-time China, during the period 1937-42. The following is an *in extenso* extract of the report which will deeply interest fellow-scientists in this country and in other parts of the world.

"In accordance with an act passed by the Executive Yuan of the National Government, the National Academy of Peiping was established on September 9th, 1929, in Peiping, with the sole purpose of carrying out scientific researches and bringing about their applications. At its foundation, the Academy consisted of nine separate research institutes, namely, the Institutes of Physics, Radium, Chemistry, Materia Medica, Physiology, Zoology, Botany, Geology and Historical Studies and Archæology, and it used to have a staff of more than 200 members, including research professors, assistant research professors, senior and junior assistants and technicians, in addition to about

thirty Chinese and foreign correspondent members. Contributions of all branches of work have been published in various languages, scattered throughout almost all the principal scientific journals of the world.

At the outbreak of the present war with Japan, Peiping was immediately taken over by the invaders; and we were then forced to suspend or relinquish our studies. However, in the midst of confusion and distress we succeeded in transferring a portion of the books and equipment of each of our institutes to the South and to places of safety. And, what was even more fortunate, within a few months after the war had reached a state of stabilisation, the Academy was able to resume the larger part of its work in the hinterland city of Kunming in the Province of Yunnan, where it has continued to be in existence up to the present moment. One can now imagine the danger and trouble we experienced in getting through areas of intensive military operations and lines of blockade, on the way from Peiping to Kunming, a distance of more than 2,000 miles by land and sea.