

required supplies for camps and ships and hospitals, but they have also increased the demand through milk-bars and restaurants. At the same time 10 per cent. of our population has been withdrawn from civilian life into the Armed Forces. On the other hand, the reduction in fertilizer and the labour shortage have directly affected the productive capacity of our dairy-farms. In Auckland a prolonged dry period in autumn and winter of 1943 has accentuated the effect of these factors. But it must not be overlooked that factors are operative that would have been operative even had there not been an outbreak of war. The population in the centres is a growing population. That of Dunedin has not grown lately, but in the other centres the increase has been continuous, and in Auckland and Wellington it has been considerable. The pressure of population has increased the competitive force of other uses of the available land. An increasing population demands an increasing supply of milk, and this has been the position in New Zealand irrespective of war conditions. Instead of a proportionate increase in the number of cows used for town milking there has been a relative and, in several cases, an absolute decrease. As will be seen on reference to the description contained in Chapter 2, the exact particulars of the movement in Auckland is not known. Six hundred and forty-nine dairies with 25,206 cows were registered by the Department of Agriculture this year, and these show an increase of 863 cows over the figures for April, 1942. But the Milk Council licensed only 417 permanent and 43 temporary suppliers, and the Commission has no return of the number of cows on the dairy-farms in respect of which these licenses were granted. In Wellington the number of dairies licensed by the Department of Agriculture in 1943 was 502, and the number of cows on the dairy-farms affected was 19,086. This represented a reduction in twelve months of 7 licenses and on 468 cows. As not all licensees supply milk the Department states that not less than 75 per cent. supply milk regularly—the exact movement cannot be computed, but the figures supplied are significant and create misgiving concerning the adequacy of future supplies. In Christchurch the number of permanent licenses in April, 1942, was 508, with a cow population of 9,522, and twelve months later these figures were 497 and 9,364 respectively. In April, 1943, there were 27 temporary licenses with 714 cows. Though the total of the two kinds of licenses and the cows carried has increased, the permanent licenses show a decline, and temporary licenses are granted by the Department to dairies that are not qualified for permanent licenses. In Dunedin there was a reduction of 1,695 cows on dairies with permanent licenses between April, 1938, and 1942, and a further reduction in the following year of 368 cows. About 50 temporary licenses were issued each year. On these figures it is clear that not only is there a failure to meet exceptional circumstances from approved sources, but that even in relation to the continuance of the normal demand at a normal rate of increase the position is deteriorating. As the season of plenty is now opening this deterioration is not likely to be manifested for some time; but unless the autumn and winter of next year are exceptionally bountiful or a radical alteration is effected in the situation, the winter of 1944 is likely to prove disastrous. The development of temporary licenses in itself is highly significant, not in its origin due to war conditions. They were first officially recognized in 1939. Prior to that date some vendors were augmenting off-season supplies from unregistered dairies, and new regulations were introduced to give the Department some measure of control. Now with this assistance supplies are insufficient, and resort is had to emergency supply from factory suppliers. And this practice dates back to the pre-war period.

New Zealand is fortunately situated so far as dairying is concerned, and the number of cows being milked within convenient distances of the four metropolitan areas is greatly in excess of the numbers required for town-milk supply. Remembering this it is impossible to avoid the conclusion that the organization of the liquid-milk industry ought to have proved sufficiently adaptable to have met all requirements, even including the requirements arising out of the war. The cows are being milked for the factory, and two things seem to be required:

- (1) That an increased number should be secured for town milk under proper conditions; and
- (2) That all-round-the-year milking or an appreciable proportion of true winter milking ought to have been secured.

An alternative to this course was to rely on supplies from farm dairies qualified for temporary license only and on stripper milk and milk from late calvers and aborted cows largely supplied by factory suppliers at a distance. This latter alternative, unfortunately, has been adopted in Auckland, Wellington, and Dunedin. In Wellington it has been advocated as a permanent feature of Council policy. In Christchurch there has been a much nearer approach to a level supply, and one result has been that, though relatively to the total supply the demand for the Armed Forces has been heavy, there has been no purchase of milk outside the regular area of supply and, except for rationing of school milk during the winter months of the years 1938 to 1942 inclusive and a mild form of rationing of milk-shops and milk-bars in 1942, there has been no failure in supply to consumers. But even in Christchurch the position has not been satisfactory in two respects. There has been some rationing and there has been too free a use of temporary licenses.

STANDARD OF SUPPLY

Everything that happens in connection with the production and distribution of milk must be taken into consideration if a high standard of the supply is to be maintained. In all areas it is recognized that the best attainable results are assured only when milk of a high quality is produced from disease-free cows; when that milk is cooled immediately after being drawn; when it is treated while fresh and in such a manner as to destroy all harmful bacteria or to restrict their growth; when it is adequately protected against all sources of contamination; and when cleanliness is secured at every stage of production, collection, treatment, and distribution. In the survey that follows conditions obtaining in these respects in the different areas is examined. In this section attention is directed to certain matters more fully represented later.

QUALITY

It is impossible to state accurately the average butterfat content of any milk other than that pasteurized by the Milk Department of the Wellington City Council. The only guide in other areas is the report by the Health Department on samples taken by its officers. The average butterfat content shown by these returns is as follows: Wellington, 4.6 per cent.; Auckland, 4.31 per cent.; Christchurch, 4.12 per cent.; Dunedin, 3.98 per cent. It should be added that a representative of one of the largest vending companies in Christchurch gave in evidence 3.85 per cent. as the percentage of butterfat in milk treated and vended by it.