EDITORIAL

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TUBERCULOSIS IN CATTLE IN GREAT BRITAIN

The Present Position

The incidence of tuberculosis in cattle in this country is often quoted as 40 per cent. This is a mis-statement, for although that figure was given some years ago it referred only to *cows* and did not include other types of cattle. A reliable estimate is 18 per cent. or less, of the entire cattle population.

Bovine tuberculosis is of interest partly because of its economic importance in agriculture and partly because of its relation to human infections. Deaths of children from infection with bovine tubercle bacilli were stated by Dr. Edith Summerskill (1949) to be 'in the region of 1,500' annually, whilst 'in addition there are many thousands—mainly young children—who are crippled for life by this disease.' Ritchie (1949a) says that of 30,650 type determinations in human tuberculosis made up to 1940, 8.2 per cent. were found to be bovine, and that of 19,407 cases of pulmonary tuberculosis, 3.1 per cent. yielded bovine organisms.

Up to the present there has been no real attempt to control tuberculosis in cattle on a large scale. Encouragement has been given to farmers to produce milk from cows free from tuberculosis, by the payment of bonuses and premiums on the milk produced. The Milk (Special Designations) Orders provide for the establishment of tubercle-free herds. Such herds are tested usually every six months and any reactors to the test are removed from the herd. It has been shown that by this method it is possible to maintain a tubercle-free milk supply but it often fails to maintain tubercle-free herds over a period.

In 1935 a Tuberculosis (Attested Herds)

Scheme was introduced. Its aim was to maintain herds free of tuberculosis. The scheme is voluntary and the conditions pertaining to it are exacting. Farmers have accepted it to such an extent that at the end of June 1949 there were 40,744 attested herds in the country, of which 747 were added during the month of June.

Recent reports show that throughout Great Britain there has been a steady increase in the number of cattle in herds free from tuberculosis. Ritchie (1949b) says:—'In 1931 it was calculated that 40 per cent. of cows would react to tuberculin. In 1945 it was calculated that 30 to 35 per cent. of cows would react or 17 to 18 per cent. of all cattle (England, 20 per cent.; Wales, 7.5 per cent.; Scotland, 14 per cent.). At that time 890,000 cattle were in tubercle-free herds; this figure had risen to 1,704,000 in 1948,' and further 'the amount of milk sold from tubercle-free herds had risen from 141.6 million gallons for the year to March 31, 1943, to 354 million gallons five years later.'

In addition to these encouragements to farmers to establish tubercle-free herds, routine inspections of dairy herds are carried out by the veterinary staff of the Ministry of Agriculture and 'open' cases of tuberculosis are slaughtered. There is also in operation the Tuberculosis Order under which the reporting of cattle affected with certain forms of tuberculosis is compulsory. Tuberculosis of the udder is included in the Order. During 1948, for example, 1,111 reports were received which showed that tubercle bacilli had been found following the biological testing of herd bulk samples. Following subsequent tracing in the herds a total of 867 cows were shown to be the source of the infection in the milk samples; the cows were slaughtered under the Tuberculosis Order.

Pasteurization of milk is a further safeguard against the transmission of infection from cattle to human beings. The Milk (Special Designations) Act comes into force on October 1 of this year. This Act enables the Minister of Food to specify areas in which all milk sold retail for human consumption must conform to certain standards of purity. Milk in the scheduled areas must either be produced from tubercle-free herds or be pasteurized before sale.

The most recent development in the control of tuberculosis in cattle is the announcement made by the Minister of Agriculture that a scheme for the eradication of tuberculosis on an area basis will be introduced on October 10, 1950. 'The Tuberculosis (Attested Herds) Scheme, which provides for the eradication of bovine tuberculosis from individual *herds* on a voluntary basis, has made considerable progress since entry to the Scheme was re-opened in July 1944, after the war. The next stage is the eradication of the disease from *areas*, provision for which was made in the Agriculture Act, 1937.

'The main instrument will still be the voluntary Tuberculosis (Attested Herds) Scheme. The aim will be to encourage as many more farmers as possible to join the Scheme and to apply compulsory measures only later. - As a first step, therefore, the object will be to provide direct incentives to attestation for all cattle producers, including owners of beef and rearing herds.

'When a substantial proportion of cattle in an area have become attested, the area can be declared an "eradication area." Due notice will, however, be given of the intention to declare an "eradication area" so that everyone will have an opportunity of coming in voluntarily. The length of notice given will vary according to circumstances. When an area has been declared an "eradication area" all cattle in it will be tested and reactors dealt with. When disease has been eradicated from the area it will be declared an "attested area," and will consist entirely of tubercle-free herds.

'The ultimate aim will be to have the whole of Great Britain as one large attested area. This aim would be achieved by stages. The first areas to be

cleaned up will be those in which the proportion of attested cattle is already high. Other areas will follow in succession as they too become ready for declaration as "eradication areas" and then "attested areas," until the whole country has been covered. The notable progress already made in South-West Scotland and South-West Wales, and in one or two small island areas, suggests that they will be ready for early treatment when the area scheme is introduced.'

While clinical examinations will continue to play an important part for some years at least, tuberculin testing will be the essential item in the various schemes. Recent research work has resulted in the evolving of better and purer tuberculins and in a more exact interpretation of the results of the tests. In this country two tuberculins (mammalian and avian) are used, injected intradermally in the neck simultaneously. Readings are made after 72 hours (the single comparative intradermal test). The use of this test, especially on a herd basis, yields highly satisfactory results, differentiating between reactions due to sensitization from infection with bovine tubercle bacilli, and those arising from other causes.

Attempts have also been made to immunize cattle against tuberculous infection. Vaccines composed of living cultures of *M. tuberculosis*, B.C.G. strain and the vole acid-fast organism have been the subjects of extensive laboratory tests and field trials. While there is much evidence that the use of such vaccines creates a resistance to subsequent infection over a limited period, there are practical difficulties in their application and use. It is very doubtful if vaccination has a place in the control of tuberculosis in cattle even in areas in which the incidence of infection is high.

T. DALLING

BIBLIOGRAPHY

- RITCHIE, J. N. (1949a). Paper at the 14th International Veterinary Congress, London.
- RITCHIE, J. N. (1949b). Paper at the 2nd Commonwealth and Empire Health and Tuberculosis Conference, London.
- SUMMERSKILL, RT. HON. DR. EDITH (1949). Paper at the 2nd Commonwealth and Empire Health and Tuberculosis Conference, London.