

we can draw a few preliminary conclusions. We have found:—

(1) That infection with the tubercle bacillus is inevitable for those living in crowded communities.

(2) That a mild infection is protective against further disease, or at worst against acute and rapidly fatal forms of disease.

(3) That a primary infection is always dangerous, but that the younger the infant the more massive the infection, and the more virulent the type of organism, especially if air-borne, the more serious is the outlook.

Postponement of Infection.—One conclusion to which these points lead us is that our children should be protected from infection till the latest possible moment. It has already been laid down for adults that a year of town life will inevitably infect, and that reinfection probably occurs at frequent intervals; but the more restricted and protected lives of infants make early infection less inevitable, and it is probable that with care its date can be considerably postponed.

Tubercle Vaccination.—But however well chosen the conditions of life, we know that the moment of primary infection must come, and the question has to be considered whether we shall risk infection by the dangerous human organism and through the more susceptible respiratory channel, or whether we shall take measures to voluntarily substitute alimentary infection with the comparatively innocuous bovine tubercle bacillus.

Dilution of the organisms in a well-mixed milk supply, such as many large dairy companies can provide, reduces the risk of gross infection to a minimum, and the matter may be still further elaborated by feeding only small quantities of unboiled milk at first, and postponing its administration till the more susceptible early months are past. I would contend that complete extermination of bovine tuberculosis is not to be wished for so long as the human tubercle bacillus is rife among us; and fortunately this is but little likely of accomplishment. Our goal should be a clean milk supply, and adequate inspection of small byres and of single cows; through these measures danger of massive bovine infection may be eliminated, and the use of raw milk be more safely and confidently recommended.

Tuberculous Households.—So much for the question of tubercle infection in general and apart from conditions of special risk. It is necessary to consider separately the conditions of children living in phthisical households where the danger of massive dosage with tubercle bacilli of human type comes into play.

There is no doubt that the youngest members of the family run the greatest risk in these households, even apart from their special susceptibility. Not only are they fondled, nursed, and hence in more intimate contact with adult members of the household, but their proximity to the floor and its dust places them in particular danger. Roepke, exposing sterile slides in a room where the washing from a tuberculosis sanatorium was sorted, found that tubercle bacilli could not be demonstrated at a height of 1 to 1½ metres above the ground, but virulent ones were collected from below this level, and the nearer the ground the greater the results to animal experiment. Obviously this is a point of particular importance in considering the risks to young children in a phthisical household. For such children the trap seems baited by nature with almost fiendish ingenuity. Not only are they at the most susceptible age, and unprotected by former acquaintance with the tubercle bacillus; not only is the bacillus air-borne and of the deadly human variety; not only does their dependent position bring them into closer contact with adults, and fix them more constantly to their dangerous surroundings, but in addition their very size, their helplessness, their mode of progression, hold them always in the zone of danger close to the dust of the floor.

I may remark that no amount of care can eliminate droplet infection during cough, and there can be no real protection for young infants in near relation to a case of active phthisis. I would put it to you for your consideration whether such infants should not be removed as soon as possible to safer surroundings. (In the case of adults, already infected, and immune, the author considers the danger of proximity to a consumptive very small.)

CONCLUSIONS.

And now, having stirred up many controversial points, any of which may form the basis of your attack, I would put forward for your particular notice two propositions already belaboured somewhat in this short paper.

The *first* is the question of whether the bovine bacillus is not at the present time doing useful work in protecting the community against the more virulent human variety of tubercle bacillus, the cause of phthisis and of most fatal forms of tuberculosis. In this connection I would point out to you that in Edinburgh, where bovine infection is very common, the phthisis mortality is only one-third that of Vienna, where bovine disease is rare. Indeed, a similar high incidence of bovine infection and

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