

TABLE C.—INDICATING PERCENTAGES ACCORDING TO AGE PERIOD.

Age Period.	Percentage due to Human Infection.	Percentage due to Bovine Infection.
To three years ...	18	82
From two to six years	53	47
From six to twelve years ...	55	45

In the first group the question of milk-feeding and unusual lymphatic arrangements are most insistent, and one is not surprised to find that a proportion of 82 per cent. of these cases owe their occurrence to infection with the bovine bacillus.

General Conclusions.

From the facts which have been stated one is able to arrive at certain conclusions: (*a*) A considerable proportion of bone and joint tuberculosis in children is due to infection by the bovine tubercle bacillus; (*b*) the bovine bacillus is introduced into the body by the drinking of infected cow's milk; (*c*) Many of the cases due to the human tubercle bacillus are the result of direct infection of the child by a consumptive co-resident; (*d*) the occurrence of bovine infection may be reduced by sufficient care in the examination and sterilization of the milk; (*e*) the occurrence of human infection may be reduced by greater care in the isolation of cases of pulmonary tuberculosis.

THE VIRULENCE OF TUBERCULOSIS IN PALESTINE.¹

By DR. HANS MUCH,

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TUBERCULOSIS is an enemy new to Palestine. Leprosy was formerly its dread spectre. But leprosy has lost its terrors now. There are only a few hundred lepers in the country, but hundreds of thousands of persons stricken with tuberculosis. Among the native population the leper is not ostracized. The tuberculous, on the other hand, is regarded with fear and horror, and is often treated with the cruelty that is the outcome of such fear and horror. Yet this disease was quite unknown in Palestine and Syria a few decades ago, and the same is true also of Egypt. The terror which tuberculosis inspires is warranted, for its victims plainly show its ravages, and most of them

¹ We are indebted to the courtesy and kindness of Mrs. E. Kanthack de Voss for this English abstract of Dr. Much's paper recording the results of his observations made during a recent research in Jerusalem.—EDITOR *B. J. T.*

succumb with frightful rapidity. Experience has taught the native that leprosy is not actively contagious, but he sees entire households struck down and wiped out by the new foe. Hence his panic.

Tuberculosis in Palestine presents a markedly different picture of clinical phenomena from the European variety. Whence arises this difference? The answer is to be found in the theory of immunity reactions. A positive tuberculin reaction indicates that the subject has, at some past period, harboured tubercle bacilli. In Europe about 95 per cent. of individuals over ten years of age react to tuberculin. Among the natives only 25 per cent. react, and then only among town-dwellers. In Europe tuberculosis is a children's disease, and an infection overcome in childhood, in at least many cases, confers immunity that will either permanently protect the individual from reinfection or inhibit rapid development of the disease if acquired. The wider the distribution of the tubercle bacillus and the older its local history the smaller is the mortality therefrom, and *vice versa*. In Palestine the germs fall on virgin soil.

How have tubercle bacilli effected an entrance into a *milieu* which only a few decades ago was tubercle free? Partly through the immigration of Russian Jews, and partly through the return of natives who had emigrated, notably to America. The return of the latter, if infected, is fraught with terrible danger to their native village where tubercle has hitherto been unknown. Bad housing conditions and overcrowding do their share as propagating agents. Jewish families are notoriously large: eight or ten persons often herd in one room, sleep on the floor and share the coverings. Hospital accommodation is wholly inadequate. Thus we have a deplorable state of things, urgently crying for remedy.

Scientific investigation on the lines recently initiated by the writer in the Eppendorf serological laboratory revealed some remarkable data, throwing further light on the processes of immunity. The writer maintains that the tubercle bacillus is composed of four chemically distinct pathogenic substances; also that in the natural defence against tuberculosis, two separate but correlated factors come into play—one being of a humoral, the other of a cellular nature. Among Europeans, the cellular forces are the more stable, and form the basis of immunity, but with fresh infection the humoral forces come to the fore. Among the tuberculous natives the cellular forces were found to be, for the most part, entirely absent, and the infected individual had to rely solely on his humoral defences. The relations existing between the infectivity of tuberculosis and leprosy were also closely investigated.

Practical measures are necessarily experimental in dealing with a new form of the disease, but the writer has found that patients treated

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on the lines of the Eppendorf "partial antigen" therapy furnish gratifying results. Happily, successful treatment does much to lay the spectre of superstitious fatalism which haunts the native mind confronted with tuberculosis. A more comprehensive scheme of treatment is now being organized, for which one of the first requirements will be greatly increased hospital and sanatorium accommodation. The segregation of virulently infective cases is urgently called for.

Egypt is now faced with the same problem, and is showing anxiety to stave off the tuberculosis evil among its native population. If scientifically conducted tuberculosis therapy were to extend to Egypt, the whole problem of dealing with tuberculosis in the East would be grounded on a much broader ethical basis. It would then take the form of a general Oriental problem, involving widespread interests and calling for large-minded international co-operation.

A GARDEN VILLAGE FOR CONSUMPTIVES.

By J. E. ESSLEMONT,

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Few people realize that the deaths from tuberculosis in this country average over two hundred a day, or that we lose every year from this disease three or four times as many lives as we lost in the whole of the Boer War. The *Titanic* and Senghenydd disasters were mere trifles in comparison with the life-wrecking from tuberculosis. If any visible enemy were suddenly to inflict one-tenth part of the damage done each year by tuberculosis, the whole country would be horror-struck, and the Government would be compelled to take immediate and drastic measures to prevent the recurrence of the tragedy. But because this enemy is invisible, and does its work insidiously and gradually, its ravages have been meekly accepted as inevitable; and even now, more than thirty years after Koch revealed the identity of the foe, we are making but feeble and half-hearted efforts to exterminate it. By passing the National Health Insurance Act, Parliament has at last acknowledged its responsibility in the matter, and a commencement has now been made in systematic arrangements for the diagnosis, treatment, and prevention of tuberculosis; but the measures as yet proposed are hopelessly inadequate, especially in the matter of prevention. From the pulmonary form of tuberculosis alone some 50,000 people die every year, and it is pretty certain that there are at least 300,000 people affected by consumption, and of these 150,000 are probably in an open and more or less infective condition. In order to prevent the constant infection of new cases, these cases must be