infection early in life. Yet in the majority the disease is arrested if not cured, thanks to resistance-power derived from natural selection and aided by tolerable sanitary conditions. For about half a century during the steady improvement of these conditions the number of deaths per million of the population of England and Wales from these diseases steadily decreased. In the first decade of the present century an attempt was made to hasten this process by other methods, the tendency of which would be to increase the proportion in our population of families with less resisting power to the disease. The Registrar-General's last report tells us that our phthisis mortality reached its lowest level in 1913, and that both 1914 and 1915 have shown increases. In the latter year they were 1,515 per million, a figure in excess of that of any year since 1909, although the conditions of life in the great masses of our population were better and not worse than in previous years.

Are we on the right track? Is it not probable that such things as open-air schools, which have been so successful in Yorkshire and other places, would have done more towards diminishing tuberculosis than dispensaries and sanatoriums? But I must not trespass further on your space nor attempt to show how, if treatment with some isolation has failed in tuberculosis, treatment with practically no isolation is still more likely to fail in venereal diseases, in which diseases, if in any, prevention is better than cure.—I am, etc.,

London, W., May 5th. M. T. SADLER.

THE DANGER OF SMALL-POX.

SIR,—In his last letter Professor McWeeney advocates compulsory vaccination of infants, "to be repeated after the lapse of five or seven years." It is not clear whether he proposes that it should be repeated every five or seven years, but certainly a single revaccination at the age of 5 will not protect for life or anything like it.

But surely it is hardly worth while seriously discussing the advisability of compulsory revaccination in this year of grace. Every one knows it is not "practical politics." We have done without it hitherto, and certainly there was never less need for it than to-day. We have succeeded without it in controlling small-pox more effectually than almost any other zymotic, and no Government is at all likely to entertain for a moment a proposal for introducing it now.

Professor McWeeney concludes by stating: "The main fact is that in vaccination we possess an admittedly certain means of defence." I definitely challenge this statement. I deny that vaccination (for remember we are discussing vaccination as a State institution) is a certain means of defence. Infant vaccination—and it is that which I am out against—has been over and over again proved to be a "broken reed"; and, even if Professor McWeeney shelters himself behind compulsory revaccination, we have the experience of Germany. No country is likely to do more in the way of compulsory revaccination than Germany, yet they have not completely abolished small-pox even there. Result: "Several serious outbreaks" during the present war.

Dr. Archibald Kidd, in his letter in your issue of April 21st, quotes statistics of the Metropolitan Asylums Board, which undoubtedly prove—as has been so often proved before—that infant vaccination protects the individual, especially during childhood. But they do not prove that infant vaccination is of value in preventing the spread of small-pox, which is the only way in which we can protect the community. Small-pox inoculation would doubtless have the effect of producing similar, or even more striking, statistics; and would prove that inoculation protected the individual. But they would be no proof that inoculation protected the community. We know that inoculation was a failure in that respect.

As for Dr. Kidd's statistics of persons vaccinated after exposure to infection, such vaccination is, of course, only satisfactory provided it is done within three or four days of first exposure to infection. For this reason prompt diagnosis of the first case is of vital importance, and if all medical students were properly instructed in small-pox diagnosis and had only unvaccinated cases to deal with, this should almost always be possible. Those occasional cases referred to by Dr. Kidd, where unvaccinated persons suffer from very mild small-pox, practically only occur when you are dealing with an abnormally mild strain of small-pox. This almost always breeds true, and therefore, even if such cases should escape diagnosis, as I admit may easily happen, very little damage is done. Such an epidemic, indeed, is little worse than an outbreak of chicken-pox; for example, the epidemic in Australia in 1913.

Regard for your space prevents me from replying more fully.—I am, etc.,

Leicester, May 8th. C. KILLICK MILLARD.

TETANY AND THE FUNCTIONS OF THE PARATHYROIDS.

SIR,—In their paper on tetany and the parathyroids (an abstract of which appears in the issue of the BRITISH MEDICAL JOURNAL of May 5th, p. 575), Professor Noel Paton and Dr. Leonard Findlay state that their investigations are based on the assumption which they felt justified in making "that the nervous symptoms [of tetany] are due to the removal of the parathyroids." May I be allowed space to express the fear that, so far as this assumption is involved, their laborious work has been erected on a very insecure foundation?

The evidence that the parathyroids possess this importance, far from being "perfectly clear" as these authors contend, is surely highly conflicting. A large number of experiments seem to support their position and might be almost convincing were it not that an even greater number point in the opposite direction. A critical examination of both series shows that very many of the experiments in each category contain fallacies so obvious and often so serious that their testimony is worth little or nothing either way. Of the remainder, the weight of evidence seems to me to be altogether inadequate to support the belief that these glands subserve any distinctive function.

The whole question at present reduces itself to a judicial balancing of the facts for and against, and it could be wished that the competence of Professor Paton and Dr. Findlay to sum up evidence might appear to better advantage than in the only historical statement of theirs which I have had occasion to verify. They dismiss a critical study by myself of the results of parathyroidectomy on the ground that I "entirely ignore the existence of parathyroid tissue in the thymus." Looking up my paper (*Quarterly Journal of Medicine*, 1908, vol. i, p. 150) I find that I wrote, "The association of parathyroid with lymphatic or thymic tissue appears to have escaped observation, yet these combinations are not rare in either man or animals." Again, on the same page (157) I urge the need, before any inferences are drawn from the effects of parathyroidectomies, of microscopically examining the thymus for hidden masses of parathyroid tissue; while in plate xxiv of the same paper I illustrate the anatomical association of parathyroid and thymic tissues.—I am, etc.,

London, W., May 6th. DAVID FORSYTH.

CHILD MORTALITY.

SIR,—The country has been worked up to a madness of enthusiasm upon the subject of infant mortality, similar to that which a few years ago proposed to put tuberculosis out of being. Only the administrative methods in connexion with this new project, which entail the application of public money in grant to any little uncontrolled society, as well as to established charities, such as lying-in and midwifery institutions, for retrospective as well as prospective work, show less regard for economy.

It is the fact that the infant death-rate has been steadily diminishing, owing to suspected and unknown causes, for some years, and this may go a little further, and may be aided in some degree by the inspection of homes and infants, and the advertised fuss of the movement. But, as Dr. Oliver and the BRITISH MEDICAL JOURNAL have pointed out, it is highly improbable that the infant death-rate will be reduced 50 cent., especially if there be no further fall in the birth-rate, as the decrease in the infant death-rate has followed, and seemingly has been in some way connected with, the fall in the birth-rate.

This infant mortality movement can be viewed in two ways: First, as a part of the general and natural desire to save human life, which has always been deemed a moral obligation. It takes no note of the relative values of the newborn and the older unit, much less of the close

relationship of the newborn with the potential power of begetting children. Secondly, the matter may be viewed unsentimentally in its effect upon national numbers. Now it has been brought home to us how closely national safety depends upon national numbers, but the proposition to the effect that our national numbers can be maintained in any considerable degree by a lessening of the infant death-rate is surely most misleading. We will deal with numbers only, though there be a very important related question which deals with quality, since the lessening of the infant death-rate must be chiefly operative amongst the poorest, least capable, and most negligent part of the community.

It should be clearly manifest that the national numbers can only be maintained by maintaining and increasing the birth-rate. When the birth-rate is so high as to ensure a large annual increase the infant death-rate may be fairly high and yet be of only slight importance, as the births are likely to exceed the deaths of infants under one year old by at least 6 or 7 to 1. The proposed saving of 50 per cent. of the infant deaths by the maternity and child welfare schemes of the Local Government Board is really only about equivalent to a fall of one point in the birth-rate when that is reckoned at per 1,000 of the population. For example, let the birth-rate be 22 per 1,000 of the population and the infant death-rate be 91 per 1,000 infants born, which are about the actual figures for England and Wales last year. Then the whole infant death-rate equals 1 in 11 of those born, or 2 points of the birth-rate of 22; 50 per cent. of the infant death-rate equals 1 in 22, or exactly 1 point of the birth-rate. So that, even supposing that the number that is promised to be saved be not exaggerated, it would be nearly compensated by a rise of 1 point in the birth-rate. During the last twenty years the birth-rate has, however, fallen 10 points.

Dr. Oliver is of opinion that it is not feasible for the State to cause an increase in infant life. I am not sure about that. Is it such a great step between State care for the newborn and State care for the to-be born?

To return to the enthusiasm being displayed for saving infant life with which I began, I think one may be satisfied if this enthusiasm be simply looked upon as a means for obtaining a general reform in public health methods of administration. Let us be content to look at it in this light whilst waiting for Lord Rhondda's bill, and be prepared to say something more if that be not the result.—I am, etc.,

May 7th. M.O.H.

SIR,—In his letter (p. 601) Dr. James Oliver speaks of our "regretfully declining birth-rate, a declension which has been in evidence for nearly a quarter of a century." It would be interesting to hear why he regrets it in view of the following facts: Wherever the birth-rate has not declined the child mortality remains high. And as to the general death-rate, it did not fall in those countries which had no declining birth-rate; in England up to 1913 it had fallen by nearly as much as the birth-rate; in several countries it fell faster than the birth-rate, that is, the population increased more rapidly as the birth-rate declined.—I am, etc.,

London, S.W., May 7th. BINNIE DUNLOP, M.B., Ch.B.

THE USES AND ABUSES OF SANATORIUM TREATMENT.

SIR,—In a leading article in your issue of April 14th, p. 487, you suggest that the efficiency of sanatorium treatment has been impaired by the over-running of such institutions with advanced cases to the exclusion of those suffering from so-called "early" phthisis. The question has also been adumbrated in numerous medical journals of late, and it may not be unprofitable to mention a few sources of confusion of thought in this problem.

In the first place it must be remembered that the Midhurst results, dealing with patients taken from, at least, comfortable circumstances of life, are by no means applicable to industrial or even rural populations, where, case for case, the improvement of "bacillary" subjects is much more lasting. Even if, for the sake of argument, the Midhurst results be taken as a fair average of the improvement in bacillary cases, it is important to inquire whether the non-bacillary results are not inflated by the inclusion of so-called early cases which need never have gone to a sanatorium at all. Recent serum work on this subject, including much valuable research by Radcliffe, himself on the Midhurst staff, goes to show that probably half of these early non-bacillary cases need never have been treated in a sanatorium. Would not, then, the exclusion of such patients, together with those obviously suffering from chronic disease of a progressive type, leave ample room for *all* the favourable cases, whether seemingly early or seemingly advanced?

It is interesting to note that in Birmingham, where the tuberculosis scheme is probably a model, including a central dispensary with numerous sanatoriums and hospitals for patients in varying stages of disease, not only is every early case immediately admitted for treatment to a sanatorium, but practically all the chronic cases are able to have at least one period of sanatorium treatment, and frequently two and three separate periods. The Birmingham results, too, as far as bacillary cases go, are much more striking than those quoted for Midhurst.

Two other important points are frequently overlooked in such a discussion—first, the educative value of sanatorium treatment, particularly for advanced bacillary cases, and, next, the enormous return to the State in the shape of greatly increased working capacity over a number of years of just those advanced cases which it is suggested should be excluded from treatment.

Finally, on the question of segregation of bacillary subjects, it is of interest to note that numerous investigators of the Hamburger school favour the mild infection of children (tuberculization) as one of the best means of preventing the tertiary form of tuberculosis known as pulmonary phthisis.

If your correspondent Dr. Stapley wishes to know why the Tasmanian aborigine was exterminated by phthisis, he should consult the detailed researches of Hirsch, Marrable, Cummins, Calmette, Metchnikoff, Brewer, Parrott, Fishberg, and others too numerous to mention, who have resolved this question to one point—namely, the presence or absence of previous racial infection—that is, the presence or absence of immunization.—I am, etc.,

EDWARD G. GLOVER, M.D.,
Medical Superintendent, Salterley Grange Sanatorium, Cheltenham.
April 14th.

The Services.

GRANTS TO OFFICERS BY CIVIL LIABILITIES COMMITTEE.

ARMY ORDER 108 (March 14th, 1917) directs the attention of junior officers of the army to the conditions under which grants from public funds may be made to meet certain financial obligations. Copies and forms of application may be obtained from the army agents, or from the Military Service (Civil Liabilities) Committee, Imperial House, Kingsway, London, W.C. "Grants will be made for a limited time, and officers will be required, if serving at home, to furnish, periodical declarations as to means on a form which will be provided for the purpose. In the case of officers serving abroad the declaration may be made by the dependant or other person authorized to act on the officer's behalf." The general conditions governing these grants are given as follows:

1. Grants may be made to officers, whether married or unmarried, who—
   (*a*) At the date of their application rank for pay as Captain, Lieutenant, or 2nd Lieutenant, and
   (*b*) Were ordinarily resident in the United Kingdom before joining the Forces, and
   (*c*) Are unable by reason of their military service to meet their financial obligations, as hereafter described, and are thereby exposed to serious hardship.

2. The obligations in respect of which grants may be made are those arising in the United Kingdom in respect of—
   (*a*) Rent.
   (*b*) Interest and instalments payable in respect of loans, including mortgages.
   (*c*) Instalments payable under agreements for the purchase of business premises, a dwelling house, furniture and the like.
   (*d*) Taxes.
   (*e*) Rates.
   (*f*) Insurance premiums.
   (*g*) School fees.
   (*h*) Maintenance of children.

3. Assistance will not be granted for the discharge of ordinary debts.

4 Every original application for a grant must be made on a form obtainable as stated in the Army Order. If the officer is serving in