

additional nursing staff is coming from. The best use must be made of our limited resources. Much can be achieved by the efficient organization of tuberculosis arrangements at both regional and hospital level. And it would help immediately and enormously if every large general hospital, both teaching and non-teaching, could be induced to open a male and a female tuberculosis ward. No big hospital can avoid having odd cases of phthisis passing through its wards. Better by far to nurse these in wards properly organized for the purpose and thus reduce the chances of infection of staff and possibly other patients. The training of nurses and of medical students would benefit, and the great increase in the total number of beds available for the disease would go far towards solving this grave problem.—I am, etc.,

London, N.W.11.

F. J. BENTLEY.

B.C.G. Vaccination

SIR,—In their communications (June 12, pp. 1126 and 1129) in support of B.C.G. vaccination both Prof. Arvid Wallgren and Dr. H. Malmros quote the investigation by Hyge of an outbreak of tuberculosis in a girls' school, the former citing it as the investigation which perhaps best corresponds to an animal experiment and the latter claiming it as that which would seem to furnish the best evidence hitherto advanced for the efficacy of B.C.G. vaccination.

In 1942, within a month or two of the time that Hyge was vaccinating his school-children with B.C.G., my colleague, Dr. J. S. Paterson, and myself were vaccinating a number of heifers with the vole bacillus and placing them together with unvaccinated controls in a dairy herd which had a bad record under the Tuberculosis Order. From time to time animals were returned to the laboratory in pairs including one from each category, and the last four animals were not slaughtered for examination until the end of 1947, by which time Hyge had concluded and published his observations. For the first two or three years the advantage lay very markedly with the vaccinated animals. No control was free from infection after eighteen months, while two of the vaccinated animals were still completely resistant after three and a quarter and three and a half years in the herd. Over the series only 5 out of 11 vaccinated animals were infected, as contrasted with 10 out of 12 controls; but of the 5 infected vaccinated animals 4 were severely affected and in 2 of these the lesions were even more severe than the lesions found in any of the controls.

Our results bore some resemblance to those which Watson reported to the Twelfth International Veterinary Congress in 1934. Vaccinating calves with B.C.G. against the risk of natural infection, he found that when his animals reached maturity the lesions in infected animals were even more severe in the vaccinated animals than in the unvaccinated animals.

The end results of vaccination are still far from being established. The mortality rate might be reduced in one age group, only to be raised again later in life, possibly after an interval of many years. In the meanwhile the morbidity rate based on clinical observations might be deceptive, for the fully virulent tubercle bacillus might have gained access to the tissues and be lying in a state of latency. This possibility is no flight of fancy, for I have recovered the bovine bacillus from a vaccinated animal in which there was no trace of any visible lesion two years after it had been infected with a massive test dose of bovine bacilli administered by mouth. Perhaps Hyge has arranged to follow the after-history of all his school-children for the next twenty years. If he has not, I feel that he should try to do so, for the final observations in such an investigation would carry weight.—I am, etc.,

Cambridge.

JAMES A. YOUNG.

SIR,—B.C.G. vaccination by Wallgren's intracutaneous method, especially when left to nurses, produces local results which are quite strong deterrents when observed by a community still not fully converted to the advantages of the vaccination. The ulceration or "pock," although in cases I have observed not larger than those to be met with in calf-lymph vaccination, remains open much longer. The average period for the "pock" to remain moist is 6-8 weeks, with some, not secondarily infected, going on as far as 4 or 5 months. Where a "pock" was open for less than 3 weeks the vaccination was

likely to prove unsuccessful. (These figures are derived from about 2,000 vaccinations carried out by the Danish Red Cross on D.P.s in Schleswig-Holstein in 1947.) Further, there are 4 cases out of the 2,000 where subcutaneous inoculation has resulted in a sinus persistent after 11 months.

Under these circumstances I would like to ask whether Parish's multiple pressure^{1 2} method of vaccination has been tried with B.C.G. It avoids the objection to Birkaug's apparatus in that sterilization is very simple, it is very much safer in the hands of nurses, and I think it likely that the public resistance to it would be much less than to the intracutaneous method.—I am, etc.,

H. B. M. MURPHY,
Regional Medical Officer,
International Refugee Organization.

Kiel, Germany.

REFERENCES

- ¹ Parish, H. J., *British Medical Journal*, 1944, 2, 781.
² Mole, R. H., *Lancet*, 1947, 1, 597.

SIR,—The articles on B.C.G. vaccination (June 12, pp. 1126 and 1129) by Prof. Arvid Wallgren and Dr. H. Malmros were most stimulating and encouraging. It seems to be conclusively proved that B.C.G. vaccination is not harmful and that it may be of great benefit in anti-tuberculosis work. There are many ways in which it could be used in this country, and one of the most obvious is that of protecting contacts in those homes where, because of shortage of beds, sputum-positive cases have to be nursed for long periods. B.C.G. vaccine should now be available for use in this country.—I am, etc.,

Stanstead Abbots, Herts.

B. COURTS.

SIR,—I congratulate you on continuing to publish articles on the use of B.C.G. vaccine. I think we all agree that it has now been thoroughly tried out in the Scandinavian countries, that it is harmless if used correctly, probably cuts down the incidence of pulmonary tuberculosis, and is especially useful for contacts and young nurses.

In view of the shortage of sanatoria staff and lack of facilities to take infectious cases of pulmonary tuberculosis away from uninfected contacts it is doubly important to use this method in England if there is the slightest hope that good may be done. Our tuberculosis officers in Bedfordshire, who are keen and competent young men, are anxious and willing to use the vaccine in the county. The only stumbling block is the Ministry of Health, who, presumably acting on Prof. Wilson's advice, will not supply the material, and it cannot be obtained through our commercial houses.—I am, etc.,

Luton, Beds.

R. G. APHORPE.

** This matter is now under consideration by the Ministry of Health.—Ed., *B.M.J.*

Chances of Survival in Pulmonary Tuberculosis

SIR,—In your annotation on the above subject (June 12, p. 1143), you finish by stating that the figures for Aberdeen would have been of more value if the number of persons who were lost sight of during the period of observation had been stated. You may therefore be interested to learn that of the 1,257 patients, 26, or 2.1% of the total, were lost sight of. Details are shown in the table below.

12 were lost sight of during the 1st year of observation.					
5	"	"	"	2nd	"
2	"	"	"	3rd	"
1	was	"	"	4th	"
4	were	"	"	5th	"
1	was	"	"	6th	"
1	"	"	"	7th	"

One of those in the fourth year died of bowel obstruction unassociated with his tuberculosis, and the one in the sixth year was killed by enemy action. Of the 26 cases, 16 had been classified as Stages 1 and 2, and of these 9 were lost sight of during the first year.

The article from which the figures were taken was, of course, a report on a paper delivered to the Tuberculosis Society of Scotland, and the number of patients lost sight of was regarded as being so small as not materially influencing the figures.—I am, etc.,

Aberdeen.

ROBERT FRASER.