of a mile inland from the sea, selecting preferably a district of known low phthisis mortality, our results, I am confident, would be much better than they are, and we should not now be in danger of running from one extreme of opinion to another. Sanatoriums, I am convinced, are valuable where properly situated. Where wrongly situated, I believe they may be worse than useless.

One other word. Some time ago I tried to discover the effect on sanatorium statistics of the sanatorium site. I had to give up the inquiry: For I found so many cases were regarded as cured consumption in which, bacilli having never being discovered, the diagnosis, in my opinion, remained in doubt, and that in many sanatoriums exact statistics were not obtainable.—I am, etc.,

Exeter, Dec. 8th. W. GORDON.

SIR,—In your leader (p. 767) summing up the expert opinions expressed at the Medical Society discussion you say that "it would seem that sanatorium treatment from the public point of view has proved to be a failure, although it has rendered very material service to individuals."

Doubtless this is a very fair statement of the case; but still not really fair to sanatorium treatment as such. At present the after-care of the patient is the difficulty, and the immediate result of treatment is judged by that, which is hardly fair, as important considerations are omitted.

In Wales and Monmouthshire the work of the Welsh National Memorial Association, which administers sanatorium benefit, has been much hampered by the following difficulties:

About 40 per cent. of tuberculosis cases never come to the notice of the tuberculosis officers.

The vast bulk of the public and a small proportion of the medical profession do not trouble to distinguish between hospital and sanatorium cases.

Some insurance committees and medical attendants are insistent on sending hospital cases to sanatoriums, thereby placing the tuberculosis officer and sanatorium superintendent in a difficult position. Hospital cases, acute and advanced, are then expected to do as well as the proper early case.

The advanced case which has, perhaps, done remarkably well and come out robust in health, with his tuberculosis in a sealed condition, is expected to take up the threads of his previous existence, with every circumstance tending to interfere with his leading the disciplinary life which he led at the sanatorium.

The exigencies of the war have interfered with the general work of the Association, and this is doubtless true of similar agencies in the rest of the United Kingdom. It is, however, very encouraging to receive very many letters from thankful patients who have "joined up" and done well in the army and navy, or have settled down into busy public life.

Sanatorium treatment should not wholly be condemned if "peradventure ten persons only are saved." Doubtless a successful State medical service will greatly assist in solving this as well as many other medical problems.—I am, etc.,

Newport (Mon.), Dec. 8th. J. LEWIS THOMAS.

HOW IS THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS TO BE MADE?

SIR,—One cannot take exception to the desire of the Medical and Panel Committees of Manchester if they felt the need to revise their knowledge of the physical signs of pulmonary lesions, but when they publish their joint deliberations in the form of a memorandum which, with all its up-to-dateness, contains nothing which cannot be found in any medical textbook, and when its apology contains assertions which reflect anything but credit on their colleagues, what end have they in view? If they think that there are practitioners who do not keep in touch with the literature of their profession, do they really believe that they do any good by seeking to buttonhole those men through the Insurance Committee? Incidentally, it always appears to be some third person who requires the assistance. In Halifax the same thing happens. I have been informed that the Halifax Panel Committee regarded it as a "most excellent memorandum," and advised its publication. Evidently our local committee does not require it, or how do they know that it is a most excellent memorandum? Did that criticism not demand knowledge based upon experience? Yet they advised the Insurance Committee to publish it, evidently for the benefit of their colleagues. If one resents this pharisaical attitude, can one be much blamed?

If the opinion of the Manchester Committees is correct, and if one accepts the need of this memorandum—and one would be justified in doing so—as an indication of the average practitioner's professional knowledge, then there will be little occasion to comment if the general public show little confidence in the profession.

I would feel sorry if Dr. Sutherland regarded my letter in any way as an attack on his qualifications as a tuberculosis officer; but, speaking generally, one must not lose sight of the fact that appointments as tuberculosis officers under the insurance scheme do not qualify those men to be recognized as tuberculosis experts. To be an expert one requires to be as conversant with the beginnings of a disease as with its later stages, and in view of their position as tuberculosis officers, their experience in the difficult problems of the earlier symptoms must be limited. It may be that the more capable the general practitioner becomes the greater will be the field of usefulness of the officers; but it is obvious that the more capable the general practitioner becomes the less need will there be to call in the "expert."

This point of view is of importance because of the present tendency to multiply the "experts," and it is hard to say whether ultimately it will be any easier for the practitioner to diagnose the particular "expert" required for his patient than it is at present to diagnose the particular disease from which the patient is suffering.

In regard to the letter of Dr. Lachlan Grant, it was not my intention to commence a discussion on the early symptoms of pulmonary tuberculosis. I hope as a general practitioner I am no more interested in the need for the early diagnosis of pulmonary lesions than in the need for the early diagnosis of many other diseases. There was no intention to give expression to these thoughts if the memorandum had not called for a protest.—I am, etc.,

Halifax, Dec. 9th. A. GARVIE.

THE RESERVE POWER OF THE HEART.

SIR,—The report upon soldiers returned as cases of "disordered action of the heart" of the Medical Research Committee in England has recently been supplemented by reports of the detailed clinical studies made by members of the staff, contained in No. 4, Vol. VI, of *Heart*. The most striking features of these excellent and very detailed studies are, first, the negative conclusions as to the etiology and pathology of this syndrome, and, secondly, the positive conclusion that graduated exercises cure a large proportion of the patients.

These patients show certain symptoms which, to our mind, are most significant—breathlessness and blood pressure and pulse reactions to exercise. The authors state that:

> The response of the respiratory rate to exercise is a very exaggerated one.

Again:

> None of our patients are capable of such effort (that is, amounts of work healthy young adults are capable of); equal distress and similar pulse rates and systolic pressure are produced by smaller amounts of work or work done more slowly. It is clear that if we chose a given amount of work as a stimulus and apply the stimulus to healthy controls and to our patients, the latter react to the stimulus in an exaggerated fashion. The pulse rate rises much higher than in controls, and the high rate is longer sustained, the blood pressure rises higher and the raised pressure is longer sustained than in controls; the summit of the blood pressure is not delayed,* however; breathlessness, fatigue, and palpitation are also much more in evidence.

It seems to us very clear that the patients who presented the above symptoms were suffering from a decreased cardiac reserve power. The fact that so many of them were cured

* The summit was not delayed because the authors in each experiment stopped increasing the work just as they were about to reach a "delayed rise." The controls were given from one-third to four times more work than the patients (comparing the maximum amounts given). Had the authors been a little more persistent they would have found the "summit of maximal pressure is delayed" exactly as they found it was in normal patients, and with decidedly less work.