lecture was published in the *London Medical Gazette* (1845, **36**, 1399). The first patient in whom he recognized an undescribed condition was seen by him in 1824, but I find no record of him reporting this case prior to 1832; Scott and Preston did not state the reference when they wrote that Brodie had described "his abscess" in 1824.

It is quite clear that the latent abscess occurring at the site of a compound fracture long years after is not the entity described by Brodie, for there had been no open wound of the limb in his cases. The medical literature in our language is valued and we are proud of those whose names we associate with well-known conditions. If only for the sake of those who will read present literature in future days it seems important to realize what condition was described by the man whose name is associated with it. By this means the value of the original work is accurately reported from time to time and the memory of a great man is perpetuated.—I am, etc.,

London, W.1. ST. J. D. BUXTON.

## Louse-borne Relapsing Fever in Persia

SIR,—Drs. R. I. Bodman and I. S. Stewart in their interesting article (Feb. 14, p. 291) claim that this disease had not previously been reported in Persia. They may be interested to know that it was encountered in Iraq and Persia on a wide enough scale as to cause much anxiety among our Forces in the campaign of 1914–18. The subject was reviewed at considerable length by W. H. Willcox and J. C. G. Ledingham in addresses to the Royal Society of Medicine on Jan. 27, 1920 (*Proc. R. Soc. Med.*, 1920, **13**, 59). In his opening address Willcox said that the disease was known by native practitioners as "recurrent fever" and by the Turks as "chronic fever," both typhus and relapsing fever being endemic and of greater incidence than enteric fever. Our troops were uninfected until their contact with the local population and Turkish prisoners. Louse infestation was appallingly common in the Turkish army and relapsing fever was known to be prevalent at Kut in the winter of 1915–16. The disease also occurred in the civil and military population of Bagdad in 1917, after its conquest by the army led by General Sir Stanley Maude. The following incidence of cases among military personnel was recorded (the total amounting to 1,883):

| Year | British | Deaths | % Mortality | Indian | Deaths | % Mortality |
|---|---|---|---|---|---|---|
| 1917 .. | 20 | — | — | 196 | 8 | 4·08 |
| 1918 .. | 110 | 6 | 5·5 | 1,557 | 126 | 8·09 |

Sir John Ledingham demonstrated the correspondence in the incidence curves for typhus and relapsing fever month by month from 1917 onwards which Drs. Bodman and Stewart notice again in 1946. The epidemic started in the last quarter of the year and attained maximal height in April, whereas in the 1946 epidemic January was the month of maximal incidence—a difference accounted for solely by variations in temperature and relative humidity of the atmosphere. On reading the accounts of the two epidemics it is interesting to note that they correspond in almost every detail with regard to symptomatology, complications, and the response to treatment with N.A.B. The mortality was about 1% for Arabs in 1918, being considerably less than for Indian and British troops. It was noted that cerebral relapsing fever might sometimes clinically resemble meningococcal meningitis. Jaundice was often a complication. There was evidence that lice are sometimes infective for both typhus and relapsing fever at the same time. For example, a medical officer contracted relapsing fever exactly 6 days after attending two cases of typhus, and there were other experiences from which it was concluded that lice can be vectors of the two diseases simultaneously.—I am, etc.,

Windsor, Berks. PHILIP H. WILLCOX.

## Trichlorethylene in General Anaesthesia

SIR,—Since the introduction of trichlorethylene into anaesthetic practice in 1942, the two factors concerning this drug which have provoked more discussion than all others would appear to be (1) tachypnoea and (2) the necessity of employing only minute amounts of the agent. Concerning these two points, Dr. Gordon Ostlere (Jan. 31, p. 195) does little but reiterate what has been said already many times over.

He states, "The secret of a successful trichlorethylene administration lies in the employment of only small quantities of the drug," previous to which he has said that he uses as a vehicle for his vapour a 20% mixture of oxygen in nitrous oxide. There is, however, no mention of the effect of oxygenation upon tachypnoea and this to my mind is equally important. Using a 20% oxygen–nitrous-oxide mixture rapid respiration will indeed ensue if the amount of trichlorethylene vapour exceeds the minimal. If, however, the oxygen content is raised to 30% or more, then much greater latitude with the amount of trichlorethylene can be allowed and a more easily controlled anaesthesia obtained even though in the long run more of the agent may be vaporized.

Adequate oxygenation would appear to be an exceedingly important factor in the prevention of trichlorethylene tachypnoea, and since Dr. Ostlere's paper appears to have been written for the benefit of persons unaccustomed to using this agent I feel that this point should be stressed. I agree wholeheartedly with the writer when he refers to the use of minimal amounts of the drug, but may I make so bold as to add an amendment to his statement and say that "the secret of a successful trichlorethylene administration lies in the employment of only small quantities of the drug, together with a high oxygen percentage in the mixture"?—I am, etc.,

York. J. MCNAUGHT INGLIS.

## Simple Test for Pulmonary Tuberculosis

SIR,—With reference to the letter under this heading (Jan. 24, p. 173) the monocyte–lymphocyte (m/l) ratio is recognized as one of several aspects of the differential count having special interest in tuberculosis, more particularly in relation to "resistance" (m/l<1/3) and to "spread" (m/l>1/3) of the disease. The idea is promulgated in the Houghton and Frimodt-Moeller indices, where monocytes and lymphocytes are regarded respectively as "liabilities" and "assets"; but in these indices the m/l ratio makes only minor contribution towards the final result, and Muller, who reviewed the literature, concluded that monocytic variations are relatively crude measures of the disease process and in the form of the m/l ratio are not diagnostic. In an established case of tuberculosis, serial haemograms (including the m/l ratio) can be helpful in assessing progress, but unfortunately the controversial significance of the monocyte and the multiphasic aspect of the disease (co-existence of recent and old-established lesions) preclude rigorous correlation with the underlying pathology and there is an inevitable "haziness" when we come to interpret the haematological data.

Classification in terms of an m/l ratio also implies confidence in the value observed, but the differentiation of monocytes and lymphocytes is not always easy and any error in this respect is doubled in the ratio. For example, an error $-x$ in the monocyte count leads to $m-x/l+x$ in the ratio, for what is lost to one is gained to the other. Although supravital staining has been used to improve differentiation, this difficulty still remains—in 1936 Dr. Heaf submitted identical blood films from three cases to each of 11 "competent authorities" and received the following range of reports: Case 1, lymphocytes, 12–29.5%; monocytes, 4.5–40%. Case 2, lymphocytes, 4–19%; monocytes, 4–16%. Case 3, lymphocytes, 36–65%; monocytes, 2–15%. The site and method of the puncture may also alter the picture, as monocytes can stagnate in the lobe of the ear.

Finally the standard error of the ratio which is of the order $\sqrt{m}/l$ (more nearly $m/l[\frac{1}{m}+\frac{1}{l}-\frac{2}{w}]^{\frac{1}{2}}$) must be considered. In a differential count of 100 cells ($w=100$), where $m=8$ and $l=24$, the true value of the m/l ratio is not necessarily $8/24=1/3$, but merely somewhere within the range $1/3\pm2$ SE—viz., between 1/13 and 1/1.7.

To summarize—not only is the m/l ratio largely indeterminate in relation to the general and special pathology of tuberculosis but it is also subject to considerable cytological and mathematical uncertainty. Hence it lacks scientific desiderata essential to any reliable diagnostic test and must be viewed with circumspection. Incidentally, bacteriological tests are just as "simple" to do and much "simpler" to interpret.—I am, etc.

Papworth, Cambridge. D. BARRON CRUICKSHANK.