can be performed by anyone, and will avoid the chronic over-dosing with chlorine that gives rise to so many complaints, and it would lead to a very considerable economy in the use and cost of bleaching powder.

The experiments were made in the Poona Water Works Laboratory, by the kind permission of Dr. Baretto, the Director.

I am greatly indebted to him and his assistants for their help and advice.

[The difference of more than one gramme in the weighings of a scoopful of bleaching powder is probably due to the state of the powder and not to any defect in the test.

Major Stanley Elliott has made many weighings at the Royal Army Medical College, and writes that “using the same spoon and the same powder, and measuring the powder in the correct manner, the weights should not vary more than 0·2 or 0·3 gramme. The volumes of the spoons as made for the Horrocks Box are very constant, and variations are due to the packing of the powder in the spoon.”

Stabilized bleaching powder or “Tropical Bleaching Powder,” which is now generally used with the test, is invariably a dry, finely ground powder, and Major Elliott considers that “measurement with the scoop, provided the piled material is not pressed into the scoop, and is cut off level, should be sufficiently accurate for all practical purposes.”

The test does not indicate parts per million of chlorine unless the chloride of lime contains about thirty per cent of available chlorine. The important point is that the test indicates—without any weighings which are usually impracticable with units on active service—the amount of any specimen of chloride of lime which must be added to any particular water in the cart so as to obtain a slight excess of free chlorine lasting half an hour.

It is quite unnecessary to add an excess of chlorine when working with a comparatively pure water, one-quarter or one-half a scoopful of chloride of lime is usually sufficient, and the test can be easily carried out with these amounts.—ED.]

TWO CASES OF TROPICAL TYPHUS AND OTHER FEVERS.

By Major S. J. L. LINDEMAN, M.C.,
Royal Army Medical Corps.

In view of Major Biggam’s article on tropical typhus in the Journal of August, 1932, notes on the following cases of fever taken at the time in Karachi and Quetta are of interest.

From April 12 to 15, 1928, a party of five Gunner officers went on a pig-sticking expedition from Hyderabad Sind to the neighbourhood of the Munsher Lake.
Clinical and other Notes

They lived in a district bungalow and took all supplies from the Hyderabad Mess including drinks and tinned milk.

They stated that no local milk or butter was used and water was only employed for cooking or making tea.

By May 1, 1928, three of these officers had been admitted to hospital with severe continued fever. It would have been expected that they would all have the same disease, but actually each had a different affection.

Lieutenant A. arrived in hospital at Karachi on April 20 having had fever for three days. He complained only of headache; his temperature was 101-103° F., pulse 70; he was dull, and of lethargic appearance. He was covered from head to foot by a macular rash, most marked on the trunk, but also extending to the face, limbs, the palms of the hands, and soles of the feet. He remained quite ill for several days, his chief complaint being headache. The rash faded in three to four days, leaving a brown stain. The temperature came down by lysis, reaching normal on the fifteenth day. There was no recurrence and he returned to duty. All laboratory examinations for malaria, blood-culture, Widal reaction, urine and faeces examinations for enteric group were negative. Notes on the case were sent to Colonel Megaw, I.M.S., who was of opinion that it was a case of tick typhus, a number of cases of which had previously been reported in India, but not before from Sind. In this case no history of tick bite could be discovered, but pig-sticking ground would be eminently suitable for ticks. At the Hyderabad Mess were several dogs which at this time of the year were infected with ticks and frequently suffered from so-called canine tick fever.

Next came Lieutenant B., admitted on April 23, with four days continued fever; his temperature was 102-103° F.; he complained of headache and anorexia, and a slight irritating cough. He was constipated and his tongue was covered with a thick white fur, as though coated with white paint. The fur came off in patches leaving bright red areas. The fever lasted about a fortnight, then the temperature became normal for five days; a similar period of fever followed. Similar relapses with apyrexial periods of about five days continued till the middle of July. During the period of the fever the only complaint was loss of appetite, some headache, and occasional discomfort in the testicles. The tongue presented the same white painted appearance. A complete series of Widal's and laboratory examinations failed to show any enteric group or other specific organisms in the blood, stools, or urine; no Spiroforma recurrentis was found and no agglutination with B. melitensis or para melitensis.

During July he was boarded for invaliding to the United Kingdom. He was sent back to Hyderabad in an apyrexial period to collect his kit; on return there he had no more relapses and remained perfectly fit and well, so his invaliding was cancelled.

Clinically this resembled a case of undulant fever, but bacteriological confirmation was never obtained.
Clinical and other Notes

The third officer, Lieutenant C., was admitted at the end of April, and ran a typical course of enteric fever, *Bacillus typhosus* being grown from his blood. He was seriously ill for some time, but made a normal convalescence.

Finally, while at Quetta in September, 1928, I was asked by Major E. B. Marsh, R.A.M.C., to see with him an officer who seemed very ill with what appeared to be malaria, but no parasites could be found. This officer had been sent in from a Brigade Camp, twenty miles out. It was noticed that his chest and abdomen were covered with a macular rash similar to that seen on Lieutenant A., though it was not so pronounced on the extremities, and some petechiae were noticed. Severe headache was complained of. This patient was more seriously ill, but the fever ran exactly the same course, reaching normal by lysis on the fifteenth day. The Weil-Felix reaction was negative at first, but later became positive.

AN EXPERIMENT TO EXTERMINATE BUGS FROM INFESTED BUILDINGS.

By Major G. D. Jameson,
Royal Army Medical Corps.

An ants' nest was placed in the ceiling of South Barracks guardroom, Gibraltar, in May, 1931.

A considerable degree of success was attained. Bugs decreased rapidly, and ants were observed attacking bugs and taking them to their nest. The subsequent disappearance of the ants can probably be attributed to the fact that the bug population was eventually so diminished as no longer to afford sufficient food supply to the ant colony.

A similar experiment was subsequently tried in a barrack room in South Barracks, the ants being placed in position in August, 1931. In this case the ants rapidly disappeared.

In both instances the species used was the small red ant (*Monomorium pharaonis*?), a small ant about \( \frac{1}{8} \) of an inch long, which is common in Gibraltar.

The chief difficulties in carrying out this experiment successfully are:

(a) In Gibraltar these ants usually build their nests in inaccessible places, e.g., under a tiled floor or under a patio paved with stone or cement, and emerge through a small hole and crack. It is, therefore, difficult to obtain a complete nest. (b) It is difficult to ensure that the ants will remain in the site selected for any length of time.

The following points appear to be absolutely essential for success:

(a) An entire nest complete with eggs, etc., must be obtained. This probably explains the failure of the second experiment. Both the colonies of ants used were collected by myself, and while (1) was apparently a complete nest and contained a large number of eggs, (2) was more in the