

is only one mile distant. Dr. Levick believes that they have a special sense of direction.

At Cape Adare the penguins returned from the sea about the middle of October; they were at first fatigued and sleepy but soon began to pair and nest. Dr. Levick describes the combats of the cocks, who strike one another doughtily (with one flipper at a time, but ambidextrously); the gentleness and patience of the combatants in their overtures to their desired mates, who make some show of reluctance and have a tendency to hen-peck; the ecstatic attitude assumed at times by either sex, with an associated *chant de satisfaction* which seems to arouse the other partner to come to soothe the first; the activity of the cocks in gathering stones for the nest, often stealing them (a preference for bright colours was noticed); and the individual differences in character, for there are vigilant and unwary, tough and timorous birds. A very remarkable fact is that they do not eat anything all the time!

The fast may be prolonged for twenty-seven days of strenuous life. Thirst is quenched with snow, and on rare occasions the cock may bring a lump to the nesting hen. Incubation seems to last for rather more than a month, the female taking the first fortnight while the male goes off to recuperate; towards the end of the period the parent birds go to the sea in turn, feeding greedily on the abundant Euphausid crustaceans. The developing eggs have to be protected from the cold and from the intrusive skuas. "Evidence goes to show that the sea-leopard is the only living enemy, excepting man, that threatens the life of the adult Adélie penguin." Dr. Levick gives a delightful account of the habits of the penguins in the water and of their games. But there are two points of even greater interest. As the chicks become bigger and their appetites likewise, the turn-about method of securing food is inadequate. "The individual care of the chicks by their parents is abandoned, and in place of this colonies start to 'pool' their offspring, which are herded together into clumps or *crèches*, each of which is guarded by a few old birds, the rest being free to go and forage." The guardians of the *crèche* protect the chicks from the skuas and from the not less troublesome "hooligan" cocks (apparently idle bachelors and wicked widowers). Also suggestive of social development was an extraordinary occurrence witnessed by Dr. Levick and Mr. Priestley, a congregating of penguins into massed bands some thousands strong and an apparent drilling! From one of the motionless bands a single bird ran out in the direction of another band, and stopped. In a flash the entire band from which he came executed the movement "left turn." The band which he had approached did the same, and the two bands marched straight towards one another, and joined to form one body. Similar procedure continued for many hours. Dr. Levick's suggestion is that the "drilling" is a reminiscence of "massing" before migration, going back perhaps to flying days! We have to congratulate the author on his well-told story

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#### THE PROTECTIVE TREATMENT AGAINST TYPHOID FEVER.

TYPHOID fever is inseparable from war. It finds in war, ready for it, all that it could desire. In times of peace we have a thousand ways of avoiding it, a thousand ways of holding it up: so sure are our defences, so elaborate our plans, that we get into a stupid way of thinking of typhoid fever as if it were due only to "insanitary surroundings"; as if it were a disease altogether unlikely to show itself within ten miles of a good medical health officer. Then comes war; and, with declaration of war, comes the general mobilisation of the infective diseases. They are called up, they are sent to the front. Louvain as it was and Louvain as it is are scarcely more unlike than are typhoid in times of peace and typhoid in time of war.

For sheer inaccuracy it would be difficult to surpass a paragraph lately published in a little journal which bears a medical name, but certainly does not in this matter represent either medical opinion or public opinion. This journal "objects *in toto* to serum inoculation as a method of dealing with typhoid." We can measure the wisdom of the little journal, here, by the fact that the protective treatment against typhoid is not a serum-treatment, and has nothing to do with any sort or kind of serum. Then the journal says: "In the parts of France where our troops are operating there should be no difficulty with regard to hygiene. The troops are not shut up in a city closely invested and living on famine rations, but are constantly on the move in a land flowing 'with milk and honey,' not to mention rivers of grape juice, which is, if rationally used, Nature's own 'anti-typhoid serum.'" It says that; it really does. And one of the "anti-vivisection" societies has published an advertisement saying that the protective treatment "leads to tuberculosis"!

Typhoid is, of course, already taking part in the present war. Given the Allied Armies and the German Army in the Western Theatre, how should there not be typhoid? The only question is, How much more will there be a month hence? The lateness of the year, happily, will kill off flies, which are great carriers of the disease; but the flies are not yet gone, and they will more or less repeat that deadly part which they took in the South African War. There is plenty of the disease for them to carry. "It is well known," says Sir Almroth Wright, in the *Times*, September 28, "that the infection of typhoid is thickly sown all along the frontier of France and Germany." Besides, among two millions of men, there are bound to be some who have the germs of the disease in them. And what is the good of talking of "sanitation," as if our men could have the warm baths and the water-closets of the average Englishman's home? Let us take Dr. Johnson's advice, and clear our minds of cant. "An army," as Wright says, "on going out on active service goes from the sanitary conditions of civilisation straight back to those of barbarism. . . . In war the doors are everywhere opened

wide, both to the direct conveyance of infection by the excreta, and to its indirect conveyance by means of contaminated water. . . . On service, proper sanitary arrangements are very often impossible. We may think, for instance, of the situation of men in the trenches under fire. . . . When it comes to a tight place the alternative which will present itself will be that of drinking a polluted water or none. . . . It will, by the very nature of the case, be out of question to apply ordinary sanitary measures in an effective manner. . . . Infection spreads not only among the troops in the field, but also among the soldiers in hospital."

The *Daily Chronicle*, October 3, says, "It is reported that 800 Germans, on the lines between Brussels and Antwerp, are suffering from typhoid fever."

That the protective treatment is indeed protective we all know. It is the experience of the nations of the earth; and the whole world is agreed about it. France, India, Canada, the United States, Italy—let alone our enemies—are of one mind. Take only four instances:—

1. *British Army in India*.—"The histories, as regards typhoid fever, of 19,314 soldiers, whose average period of service abroad was twenty months, were carefully followed, and every precaution possible was taken to verify the diagnosis bacteriologically. Of this number 10,378 were inoculated, and 8936 not inoculated. The case incidence of typhoid fever among the inoculated was 5·39 per 1000, and among the non-inoculated 30·4 per 1000."—*Report of Anti-Typhoid Committee, 1912*.

2. *United States Army*.—"Inoculation was made compulsory in the American Army in 1911, and has practically abolished the disease. In 1913 there were only three cases and no deaths in the entire army of over 90,000 men."—Sir W. Leishman, *Brit. Med. Journ.*, August 22, 1914.

3. *French Army*.—"In 1912 typhoid broke out in the barracks at Avignon. Of 2053 men, 1366 were protected and 687 were not. The non-protected had 155 cases, with twenty-one deaths; the protected had not one case. The protective treatment was made compulsory last winter in the French Army; and, in special circumstances, among the reservists."—*Lancet*, January 4, 1913.

4. *Canadian-Pacific Railway*.—"Throughout the "railway camps" in Alberta, during 1911, among 5500 protected there were only two cases of typhoid; among 4500 non-protected there were 220 cases."—*Brit. Med. Journ.*, June 6, 1914.

It remains to be noted: (1) That the vaccine contains no living germs of any sort. (2) That the treatment, though it gave good results in the South African War, has been improved since that time. (3) That the avoidance of exertion and excitement, on the day of treatment, is a great safeguard against any disturbance of the general health. (4) That, when time allows, it is always best to give the vaccine not all in one dose, but in two, or even three graduated doses, with a few days between each dose.

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Sir Almroth Wright, by whose hands the gift of this treatment came to us, greatly desires that the treatment should be made compulsory, as in other armies, so in ours. Surely it is part of "my duty to my neighbour" that I should not, by having typhoid, expose him to the risk of infection from me. And it is certain that a soldier down with typhoid fever is not only useless against the enemy, but dangerous to his own friends.

STEPHEN PAGET.

### THE BRITISH ASSOCIATION IN VICTORIA.

MELBOURNE, AUGUST 20.

ON their arrival from Adelaide by three special trains on Thursday, August 13, the visitors were taken to their quarters, but soon most of them found their way to the reception room at the University. The lecture theatres of the University, and of the Teachers Training College, afforded ample accommodation for all the sections, and are in the same grounds.

In the evening the Governor-General received members at Government House, and some 3000 guests were present at a brilliant function. On Friday afternoon, August 14, a graduation ceremony was held in Melba Hall, when nearly 1000 persons were present. The degree of D.Sc. was conferred on the president, Prof. W. Bateson, and on Sir Edward Schäfer, Prof. H. E. Armstrong, Dr. F. W. Dyson, Sir Thomas Holland, Prof. W. J. Pope, Prof. A. W. Porter, Sir Ernest Rutherford, Prof. Johannes Walther, Prof. W. M. Davies, Prof. C. G. Abbott, and Prof. Luigi Luiggi. At a later hour the Lord Mayor held a reception at the Town Hall, which was largely attended. In the evening the president delivered the first half of his address in the auditorium in the presence of more than 2000 persons. The Governor-General and the State Governor were present, and proposed and seconded the vote of thanks.

On Monday afternoon, August 17, Prof. E. B. Poulton delivered a discourse on "Mimicry" before a very large and appreciative audience. In the evening the Government of Victoria held a reception at the Public Library, Picture Gallery, and National Museum, the buildings for which are in communication. The guests, numbering about 4000, were received by the Premier, Sir Alexander Peacock, Lady Peacock, and by the Chief Secretary, the Hon. John Murray. The ample accommodation afforded by the large rooms prevented undue crowding, and the evening was most enjoyable.

On the following afternoon the Overseas members were entertained at the Botanic Gardens by the members of the scientific societies of Victoria. The weather was delightful, and the magnificent gardens were greatly admired by the guests. The president planted a memorial tree (*Cupressus macrocarpus*) to commemorate the historic visit of the association. In the evening