

of carriers, suggests the term "active carriers" for those who have passed through an attack of the corresponding disease, and "passive carriers" for those in whom the organisms have played a purely passive part. It is interesting to note that before the carrier problem was recognized, the occurrence of Pfeiffer's *Bacillus influenzae* in persons other than those suffering from that infection was urged as an argument against its responsibility for influenza; in the light of our present knowledge these observations show that influenza carriers are common, and that their frequency in patients with other diseases, such as pulmonary tuberculosis and measles, indicates that these maladies create a specially favourable soil for the growth of the influenza bacillus.

It is urged that, as there is reason to believe that in a city of the size of New York there are 25,000 typhoid carriers, some regulation such as registration is essential in the public interest. With regard to the medical treatment of typhoid carriers a very pessimistic view is taken, though attention is called to good results reported by Lentz from fortoin (formalized coloin) in combination with extract of *Phytolacca* (a laxative and cholagogue) and sodium bicarbonate. Vaccines are useless, but cholecystectomy promises better, and is preferable to mere drainage of the gall bladder, as the bacilli invade its walls. Universal prophylactic vaccination would theoretically stamp out the disease, and short of this would diminish the incidence of carriers in direct ratio to the number of the inoculated among those exposed to infection.

The recent work on poliomyelitis carriers is fully dealt with, and the probability of the frequency of carriers as compared with the number of actual cases is shown; this is connected with the relative insusceptibility to the disease, which has been estimated at 2 per cent. as compared with 90 per cent. in measles and 75 per cent. in whooping-cough. There is an interesting account of the camp septicaemia, due to a haemolytic streptococcus, which was responsible for such an appalling mortality in the military camps in America during the winter of 1917-18; the infection appears to have been introduced from without by healthy carriers among the recruits. In an appendix are the regulations enacted on the question of carriers by various states up to January 1st, 1918. The section on pneumococcal carriers is thoroughly up to date, and the monograph provides an admirable source of reference on the whole subject of carriers.

#### PNEUMONIA IN THE U.S.A. ARMY, 1917-18.

In a recently published monograph<sup>4</sup> of the Rockefeller Institute for medical research Dr. W. G. MacCallum has made an interesting summary of the bacteriological and pathological observations made in a number of cases of pneumonia, often following an outbreak of measles, in various United States army camps during the winter of 1917-18. Many types of lesion and bacterial infection were found in various combinations; the pneumococcus was generally associated with lobar pneumonia, the haemolytic streptococcus with either lobular pneumonia or interstitial bronchopneumonia, and these were the chief etiological agents. The bacillus of influenza was frequently found in the sputum, occasionally in the lungs and pleural fluid; it was always associated with the streptococcus, and Dr. MacCallum says that it was difficult to assign to it a predominant part in the causation of the pneumonia. He adds that there is still uncertainty as to the exact biological nature of the haemolytic streptococcus, of which several strains seem to have been isolated; indeed, in some camps numerous cases due to a non-haemolytic streptococcus were reported.

In practically all the cases of streptococcus infection he found a serofibrinous or fibrinopurulent pleurisy, sometimes persisting as an empyema after the disappearance of the earlier pulmonary lesions. In some of the camps independent epidemics of pneumonia arose without any preceding significant outbreak of measles. Describing the symptoms of the streptococcal pneumonia, the author remarks that it commonly began with a sore throat, fever, and cough; the physical signs in the chest were often

indefinite until evidence of fluid in the chest appeared. Delirium, sleeplessness, dyspnoea, and cyanosis were common.

Two main types of pulmonary lesion are described. The first, called interstitial pneumonia, is said to be essentially the result of infection of the bronchioles with large numbers of haemolytic streptococci, leading to great changes in their walls and the adjacent pulmonary tissue. Here are found patchy collapse, nodules of consolidation round the terminations of the bronchi, haemorrhages round these nodules, and extreme engorgement of the pulmonary blood vessels. The bronchial walls are intensely engorged with mononuclear cells, and thickened; in some cases the bronchial mucosa is necrosed. Masses of streptococci are to be found in the lumen of the air passages, but only a few in the alveoli. The pulmonary lymphatics are often distended with pus, and often thrombosed and conspicuous for their size and yellowish-white contents; they, too, are full of streptococci. The effusion of fluid into the infected pleural cavity takes place very rapidly and may cause complete collapse of the lung; greenish-brown at first, the fluid later becomes more distinctly purulent. Rapid organization of the inflammatory exudate is everywhere characteristic in both lung and pleura; there is, in fact, a great tendency to heal, and to limit the advance of the streptococci by the induration of the infected tissues. There is probably no general septicaemia until a few hours before death.

The second type of pulmonary lesion, described as lobular pneumonia, lacks the firm nodules of consolidation described above; instead there are patches of consolidation in which the alveoli are filled with blood, leucocytes, and enormous numbers of streptococci. No interstitial changes and no signs of resistance are seen, but widespread necrosis of pulmonary tissue. In some instances both varieties of pneumonia occur side by side.

In an addendum to his report Dr. MacCallum gives a brief and non-committal note on the subject of the influenza bacillus and its importance in these recent outbreaks of pneumonia, including that of last winter. He finds that Pfeiffer's influenza bacillus may occur in pure culture associated with the interstitial bronchopneumonia described above, except for the absence of empyema. Using Dr. Goodpasture's new stain for Gram-negative bacteria, combined with Weigert's stain for Gram-positive organisms, he has restudied his material and has found the microbe of influenza in the bronchioles or alveoli of one-third of his cases. His general conclusion is that interstitial pneumonia may be caused by various organisms, including the pneumococcus, streptococcus, and influenza bacillus; where the infection is, as often, mixed, it is difficult to assign to each its exact part in the process.

#### NOTES ON BOOKS.

THE fourteenth edition of HALLIBURTON'S *Handbook of Physiology*,<sup>5</sup> being the twenty-seventh edition of Kirkes' *Physiology*, which first saw the light in the year 1843, is, but for a few minor changes and an appendix on war diet, much the same as its predecessor. It is hard to find anything new to say about so old and well proved a friend of the medical student, to whom his "Halliburton" is, of course, invaluable. Perhaps room might be found in a later edition for the incorporation of some of the results of Krabbe's investigations into the structure and functions of the pineal gland. Needless to say, the book may be heartily commended to the attention of all students of physiology.

Dr. R. W. ALLEN'S *Practical Vaccine Therapy*<sup>6</sup> is a book written for the general practitioner by an enthusiast in the general method of treatment advocated, and one who is a believer in the method of the Big Stick. Dr. Allen holds that many of those who give vaccine treatment employ doses of bacteria that are all too small; to quote a characteristic passage from his introduction: "Almost every writer upon the subject of vaccine treatment in this country but myself," he writes, "will even now tell you to immunize a patient against a pneumococcal cold or bronchitis with a dose of 25 to 50 million;

<sup>4</sup> *The Pathology of the Pneumonia in the United States Army Camps during the Winter of 1917-18*. By William G. MacCallum, M.D. Monographs of the Rockefeller Institute for Medical Research, No. 10, April 16th, 1919. New York: The Rockefeller Institute for Medical Research. 1919. (Sup. roy. 8vo, pp. 147; 53 plates. 1.50 dol.)

<sup>5</sup> *Handbook of Physiology*. By W. D. Halliburton, M.D., LL.D., F.R.C.P., F.R.S. (fourteenth edition, being the twenty-seventh edition of Kirkes' *Physiology*). London: John Murray. 1919. (Demy 8vo, pp. xix + 936; 581 figures, 3 coloured plates. 16s. net.)

<sup>6</sup> *Practical Vaccine Treatment: For the General Practitioner*. By R. W. Allen, M.A., M.D., late Captain N.Z.M.C. London: H. K. Lewis. 1919. (Crown 8vo, pp. xiii + 308. 7s 6d. net.)

for years I have employed autogenous doses of at least 500 million for the purpose, and lately Avery, Chickering, Cole, and Dochez in America, Lister in South Africa, and Borel in France, have shown upon large bodies of men that dosages of 4,000 million of each of at least six different strains, or a total of 24,000 million pneumococci, can be given with impunity, and are necessary, according to laboratory tests, for the production of high immunity in these cases." The book contains sixteen chapters dealing with the preparation and administration of vaccines in various conditions of disease, and at the end the author gives a number of questions put to him and the answers he would give thereto. It is clear that he has had a large experience with the methods he advocates, and his book, written in didactic style, may be recommended to those who feel that in the matter of vaccine therapy their weak knees require strengthening.

The first volume of the fifth edition of a textbook of bacteriology by Dr. W. KOLLE and Dr. H. HETSCH<sup>7</sup> is a bulky work, and in the paper covered edition difficult to handle without detriment to the book. It is printed in clear English type and the frequent illustrations, while often needlessly diagrammatic, include one or two excellent microphotographs. The paper on which the book is printed is surprisingly good. There is no index, but possibly this will be remedied when Volume II is published. The authors themselves mention the disability under which they have worked, in having no access to the bibliography of the allied countries, and they might have been wiser to wait a little longer before placing this edition on the market. The chapters on the anaerobes and influenza are poor; in the former nothing has been done to advance this difficult subject from a teaching or any other point of view, and in the latter the recent experiences of the influenza epidemic are not taken advantage of. For the rest the work is painstaking, but to those who are not German-speaking, the many excellent British and American textbooks are more likely to appeal.

Dr. R. W. MACKENNA's collection of twenty-five essays *Through a Tent Door*<sup>8</sup> somewhere in France are reflections of a cultivated and widely read medical man, and somewhat recall the flowing style of Mr. A. C. Benson. The first chapter, dealing with nature's immensity and the infinitesimal insignificance of the individual, gives the volume its title, and is followed by an attractive account of his tent library, entitled "Margarine and café-au-lait," from the two wooden cases containing respectively his medical guides (not one of which he says is literature) and his favourite authors—Borrow, the Brownings, Stevenson, La Rochefoucauld, Voltaire, and various poets. "At the Sign of the Red Triangle" is a sympathetic account of the work done by the Y.M.C.A., and "Anaemia G.O.B.," the initials signifying givers of blood, is a well written sketch. The book makes a pleasant holiday companion.

A general review of the trend of modern opinion as to the undoubted connexion between mind and medicine, mental processes and disease, with particular reference to the contributions of Freud thereto, is furnished by a lecture entitled *Mind and Medicine*<sup>9</sup> delivered at Manchester in April last by Dr. W. H. R. RIVERS. It may be recommended to a wide circle of readers.

A book that may be strongly recommended to the attention of general readers and medical men alike is *Life and its Maintenance*,<sup>10</sup> which consists of a series of fifteen essays on biological problems of the day, written by as many authors, each a specialist on the subject with which he or she deals. Strictly speaking, the book falls into the class of "war literature." But its subject matter is all of perennial, not temporary, importance; peace and the process of demobilization leave the interest of these essays as it was when they wore the uniform of military necessity. The subjects dealt with are: "The problem of food," "War bread and its constituents," "Vitamines in war-time diets," "Alcoholic and other beverages in war time," "The strategy of farming past and present," "The

possibilities of increased crop production," "Grass land and arable," "Spraying problems," "Birds and insects in relation to crops," "Co-operation in food supply," "The physiological aspects of flying," "The anaerobic treatment of wounds," "Substitution of raw materials, paper," "Industrial efficiency and fatigue," and "Fresh air and efficiency." These essays are excellently written and full of direct or indirect interest to all of us. We wish this symposium the success it deserves.

Dr. COURTENAY DUNN's *Natural History of the Child*,<sup>11</sup> described by the author as a book for all sorts and conditions of men, women, and children, offers the reader a history of childhood in all its various aspects. It is an introduction to child study, based on the historical method, and consisting very largely of quotations from books, pamphlets, and papers of all conceivable sorts, the quotations having but one feature in common—namely, that they bear in some way on the characteristics, history, pains, or pleasures of childhood, nowadays or long ago. Constructed thus of snippets, the book may be opened at any page and read with interest by the omnivorous reader; the collection has been put together by the author with no little skill and discrimination, and he writes in a spirit of the utmost sympathy with his subject. It is impossible not to admire the industry that has collected so much information and employed it with so much originality.

The fact that HARTRIDGE's *The Ophthalmoscope*<sup>12</sup> has reached its sixth edition is sufficient proof of its popularity. The new edition has been carefully revised and hardly needs any words of ours to commend it. Mr. Hartridge rightly devotes a good deal of space to the appearance of the normal fundus, pointing out that, though the beginner usually prefers to look at abnormalities, it is absolutely essential for him to have a clear idea as to what is the normal. The longer a man works at ophthalmic surgery the more frequently does he come across cases in which it is extremely difficult to say offhand whether the picture presented is normal or pathological. A student who has made himself master of this little book should feel reasonably competent to give an opinion on all the more ordinary fundus pictures; in the difficult cases it is often a question of frequent examinations and careful watching of the case before even he who considers himself an expert can decide.

<sup>11</sup> *The Natural History of the Child*. By Dr. Courtenay Dunn. London and Edinburgh: Sampson Low, Marston and Co., Ltd. 1919. (Post 8vo. pp. 319. 7s. 6d. net.)

<sup>12</sup> *The Ophthalmoscope*. By Gustavus Hartridge, F.R.C.S. Sixth edition. London: J. and A. Churchill. 1919. (Cr. 8vo. pp. viii + 152; 65 figures, 4 plates. 6s. 6d. net.)

#### BRITISH ASSOCIATION ANNUAL MEETING.

In addition to the papers already noticed in the JOURNAL, attention may be directed to three other addresses at the British Association meeting in Bournemouth: "Industrial overstrain and unrest," by Dr. C. S. MYERS, F.R.S., "Butter and margarine," by Professor W. D. HALLIBURTON, F.R.S., and "A new theory of vision," by Sir Oliver Lodge, F.R.S.

Dr. C. S. MYERS spoke of the effect of monotonous application at light work for relatively long hours in producing a central nervous incapacity, which could be more serious than that caused by more strenuous muscular work for shorter hours. The fatigue of the higher centres was the warning sign of local exhaustion. In monotonous mental work the continual effort to repress incompatible mental processes led to a weakening of higher control and ultimately to signs of overstrain. To such causes could be attributed the manifestations of industrial unrest, slackness, irritability, and distrust. The war intensified the causes and rendered overstrain more aggravated. The lecturer discussed measures for preventing their recurrence. The hours of work and rest in different industries must be regulated according to the nature of the occupation, and the element of monotony should be counteracted by stimulating the interest of the worker in his work. There ought to be a whole-time industrial medical service of men specially trained in the conditions governing the workers' welfare, and such physicians should have executive as well as advisory powers. Sanatoriums and clinics should be established throughout the country for the treatment of cases of functional nervous disorder caused by overstrain.

Professor HALLIBURTON, comparing the food values of butter and of margarine, stated that the former contained

<sup>7</sup> *Die Experimentelle Bakteriologie und die Infektionskrankheiten*. By Dr. W. Kolle and Dr. H. Hetsch. Fifth edition. Vienna and Berlin: Urban and Schwarzenberg. 1919. (Super roy. 8vo. pp. xvi + 660; 42 coloured plates and 135 illustrations. 35 marks; 30 marks paper backed.)

<sup>8</sup> *Through a Tent Door*. By R. W. Mackenna, M.D., R.A.M.C. London: John Murray. 1919. (Pp. 310. 8s. net.)

<sup>9</sup> *Mind and Medicine*. A lecture delivered in the John Rylands Library on April 9th, 1919. London: Longmans, Green, and Co. (Super roy. 8vo. pp. 23. 1s. net.)

<sup>10</sup> *Life and its Maintenance*. A Symposium on Biological Problems of the Day. London, Glasgow, and Bombay: Blackie and Son, Ltd. 1919. (Cr. 8vo. pp. viii + 297. 5s. 1 et.)