Notes, Short Comments, and Answers to Correspondents.

THE HOSPITAL PROBLEM AND A NEW HOSPITAL SERVICE.

BY JOSEPH GRIFFITHS, C.M.G., M.CH. CAMB., F.R.C.S. ENG.,
SURGEON TO ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

IT must be clearly understood that every attempt to place hospitals for the sick and injured on the rates under the Poor-laws has failed, and a new attempt is no more likely to succeed to-day than those made in the last century, even if the authority be changed to the County Council. Hospitals of large size, and more of them, are the greatest social need of the day; as the hospitals constitute the hub of the medical world, it is best to re-establish them on a sound and satisfactory basis so as to be able to build up and add spokes and a rim that will make a solid, substantial, and complete wheel of medical organisation with the general practitioner at every point in the periphery and the highly-trained specialist in the centre—each doctor a specialist in his own sphere, with every facility to pass the patients back and fore as conditions dictate, the whole being arranged and connected for the sole benefit of the sick and injured.

From small beginnings the hospital service in this country has gradually become very complex, and few are familiar with its many phases or understand how it is made up. It was created by charity, and not until 1840 was much done to relieve charity of a burden that had then become too heavy; in that year were passed the Poor Law Amendment Acts of Queen Victoria. Since that date the guardians have made provision—adequate in places, inadequate in others—for the care of the sick and indigent poor. In 1848 the first Public Health Act made provision under the Local Government Board for the isolation and treatment of infectious diseases, and thus to some extent relieved the charity hospitals. To-day we have charity hospitals, Poor-law infirmaries, public infectious diseases hospitals, &c.; the first governed by supporters of charity, the last two by public authorities, the guardians and the local public health body respectively. The provision made by the Poor Law Amendment Act and by the Public Health Acts far exceeds that supplied by charity.

The charity hospitals are divisible into two large groups—those with medical schools, and those without medical schools.

The Charity Hospital Medical Schools.

In this country medical education, begun in charity institutions, has been maintained in them by the help of generous friends—not from the funds of the charity—and by the great efforts and self-sacrifice of the medical teachers for centuries past. During the nineteenth century the Government gave help in some directions, and the Education Department is to-day experimenting with medical education in the hope of placing it on sounder footing, but there is doubt whether the experiment will serve its intended purpose. The hospitals in which medical education has been fostered are chiefly the large ones in London. It may be of interest to group these hospitals in accordance with the periods in which they were founded. In the twelfth century, St. Bartholomew's; in the sixteenth, St. Thomas's; in the eighteenth, Westminster, Guy's, St. George's, the London, and the Middlesex; and in the nineteenth, Charing Cross, King's College, University College, St. Mary's, and the Royal Free. All were and are dependent for their income on charitable contributions and bequests, and their resources have been well spent and carefully husbanded for the benefit of the sick poor—and, of late years, of those who, whilst not to be classed as poor, but who were totally unable to afford the expense of nursing and of skilled attention from a physician or surgeon. In return for medical services, hitherto given free, the governors of the charities have granted the medical officers the privilege of creating medical schools within the precincts of the charities and the use of the hospital wards for the training of students. It is not too much to say that the success of these great hospitals is largely due to that intimate association of the school with the hospital, which has acted as an intellectual stimulus to the hospital staffs. Medical education has not been subsidised, as has every other form of education, largely because medical men have been content with indirect rewards; and the latter are apt to be very unequally distributed. Most of us think of St. Bartholomew's and the other big hospitals in London first as medical schools, and secondly as hospitals, although they are maintained primarily for a hospital service for poor people. The need for such special fostering of medical education was so strongly impressed upon the teachers in the early Victorian days that it was held by them that the establishment under the suggested Poor-law Bills of large London hospitals alongside the charity hospitals to which were attached medical schools, would practically cripple the British system of medical education. Indeed the collective action of these teachers actually prevented the development of a new hospital service that, in the opinion of many, would have grown in the remaining portion of the nineteenth century into a magnificent organisation, providing not only London but also the rest of the country with adequate accommodation for the sick and injured.

Charity Hospitals Without Medical Schools.

In 1840 it was fully recognised that the support of charity was inadequate for the growing needs of hospital service; and from that date onwards the disparity between the supply of accommodation and the demand for it has steadily increased. Between 1860 and 1870 London was in dire need of additional hospital service, but the expense could not be faced. Before the war, in spite of the growth of existing hospitals, the creation of many small ones, and of innumerable cottage hospitals, the deficiency of provision was very evident. During the war attention was diverted from this question, but the public was educated, by force of circumstance, in the value of hospitals, by witnessing the rapid and successful treatment of injury and disease. The result is an appreciation on their part of the need for more accommodation to meet the increase in population.

If the resources of charity had begun to fail in 1840 and have not since been able to meet many of the demands made upon them, as is well known to the Poor-law and public health authorities, provision from that source is most unlikely to be forthcoming for the additions now contemplated. The Royal Commission in its recent report recommends a subsidy of £1,000,000 to clear some of the hospitals of debt, and further suggests a new mechanism for the collection of funds, but the Commissioners show no appreciation of the pressing need that exists for extension of our present hospitals and for the erection of new ones, nor do they differentiate between the great charity hospitals containing medical schools and those hospitals unhampered by the machinery of education. Hospitals with medical schools attached are exceptionally placed; upon them the entire fabric of medical education rests. They are entitled, therefore, to those privileges which all other educational institutions now enjoy in the matter of State support. The charity hospitals in London and throughout the country, used solely for the purpose of affording relief to the sick and injured, need no special consideration. When these institutions were founded the working classes were included amongst the poor. To-day they are as well off as, if not relatively better off, when in employment, than, any other class in the community, and it can scarcely be maintained that they require the help of charity to provide a medical service for them and their dependents. The guardians may to-day, as ever since the passing of the Poor Law Amendment Acts, make suitable provision for those few who are indigent in Poor-law or charity hospitals, being empowered to incur the necessary expenditure on their behalf. The hospital service of to-day is therefore kept up for the benefit of working classes, which everybody must rejoice to know are now in a position to provide a hospital service the like of which the world has never yet seen. These workers create industry, and the profits of industry are unobtainable without their help; they may justly claim that this service, perhaps the most essential for their welfare, shall be placed on a sound basis, and be supported in part by the industries they make a success.

The problems for immediate solution are: (1) the placing of the medical schools and their hospitals on a sound footing, and (2) the extension and modification of the existing hospital service to meet the needs of the working classes.

I do not propose to deal with the medical schools, for sooner or later the State, through the Education Department, must step in and place them in a position worthy of this country and of the magnificent system of medical education built up by and in great part at the expense of the teachers.

Hospitals for the Working Classes.

The first essential to the establishment of an extended hospital service is additional revenue. There is, of course, the money left in the name of charity, which the new hospitals would be entitled to claim, for the reason already given that the working classes until recent years were considered to be a poor and deserving section of the community. This money does not, perhaps, amount to more than £750,000 per annum for England and Wales. As the present cost of running our charity hospitals is over £4,000,000 per annum, nearly £3,500,000 would have to be provided from other

sources. To-day this sum is obtained in various ways, often at considerable monetary expense and by the employment of men and women who give their services voluntarily; no margin is afforded for the extension of hospitals, for more accommodation than exists to-day, or for new developments in the machinery for the cure of diseases; the amount is only enough to keep the hospitals going on their present basis. For these further objects money will be wanted; and it is time to enlist the support of the working class. During the past 50 years the status of the working man has undergone a profound change. At the beginning of this period he was rightly considered a poor man; he did not then earn enough to pay his weekly bills and leave a margin for contingencies. To-day he earns a good wage; he is supported during any sickness, and after 70 years of age is pensioned by the State. The working classes are now, I believe, in a position to say, "We can find it if you show us how and what benefit we shall obtain in return for our contributions." The following is an attempt to explain this benefit and the means by which it may be obtained.

Source of Revenue.

The present charity hospitals are, it is well known, more than adequate for the treatment of the really poor now that the working classes have risen from the lowest grade in society, and have acquired an independent and honourable position of their own. By coöperation they can, as I will show, share adequately with their employers in the maintenance of hospitals. There are about 13,000,000 men and women in our country who work for a weekly wage and are insured for definite purposes under the National Insurance Act. Moreover, under that Act is provided very economical machinery for the collection of contributions. If the same machinery were used any addition to the sum now collected by the Insurance Commissioners would involve a very slight and insignificant increase in the cost of collection. By a contribution of 1*d.* per week 13,000,000 men and women would provide £54,166 13*s.* 4*d.* weekly—that is, £3,066,666 13*s.* 4*d.* in one year. If to this is added 1*d.* per week by the employer from the industry for each employee twice the above sum would be available at the minimum cost of collection. This total of £6,133,333 6*s.* 8*d.*, together with the moneys now accruing from hospital charities, would amount to nearly £7,000,000 per annum, which sum the National Insurance Commissioners—the proper collecting body—would refund to each locality according to its needs. As the cost of the present hospitals is about £3,500,000 over and above that received from endowments the excess of money under the scheme could be put aside: (1) for the extension of existing hospitals; (2) for the re-erection of others in more suitable situations, or more commodious sites; and (3) for the establishment of new hospitals.

Consequential Changes.

The support of the hospitals by insured persons and by employers of labour, as above suggested, would be followed by many changes. The charity hospitals with their endowments would be absorbed by the new and reorganised institutions, and their mode of government would be modified to meet the new conditions. All service in them would, as a matter of course, cease to be merely voluntary. Apart from those who constitute the governing body, only the doctors at present render voluntary service. As, however, medical men are already appealing for payment for attention to sundry cases sent into the hospitals by public bodies, and are prepared to accept fees from payments made direct to the governing body by patients, the step I suggest is only a small one. Great advantages would, in the opinion of many, follow payment of the medical officers, as the time is at hand when work in the large hospitals should be undertaken only by those who devote their entire time to some specialty. Such work is too arduous and exacting for the man compelled to devote much time to other practice as a means of livelihood. The hospital doctor requires times for study, which, in the present condition of things, is very difficult to obtain; moreover, the medical student only receives such technical training in the methods for the discovery and for the curing of disease as will suffice to meet the requirements of examiners; newly qualified men, except in a very small proportion of cases, remain without opportunity to apply their book knowledge acquired with much labour and great expense. Again, the present system in the charity hospitals to which medical schools are not attached prevents the natural development of the machine for the proper treatment of patients; not until specialists only are employed can the work done in them be fully satisfactory. The recent progress of medicine and surgery makes it imperative for all specialists to have time for study and thought and to have their work apportioned and within their compass. The gain from this alteration would be immense if estimated only in the reduction of time an insured patient would take to become fit for the resumption of work.

Benefits.

But other benefits would be derived from a reorganisation of the hospital service on the new financial basis. Among them are relief of the home from the care of sickness and injuries, and a speeding up of the process of cure from immediate and proper attention and from the application of the appropriate means available in all large institutions but wanting in the home and seldom found in the smaller hospitals. In any scheme of reorganisation ample provision of beds must take precedence; a proper period of rest, combined with suitable employment, is essential to complete cure for the early resumption of work. To the injured workman the convalescent period is of extreme importance, and nowhere can this be ensured as fully as in graded hospital institutions designed for the purpose, arranged and equipped for the production of preliminary employment under healthful conditions. All dependants should be entitled to any advantages enjoyed by the heads of families; the houses of working men, necessarily of small size, would thus be relieved of all their sick and injured inhabitants greatly to the benefit of the rest of the family or occupants. Small-pox and other infectious diseases cannot be adequately isolated in such houses, which, moreover, are not large enough for maternity cases; it is therefore obvious that adequate provision for childbirth and after-care of mother and child would be necessary.

It will have to be recognised that the layman, however well acquainted with the business management of hospitals, is not the proper person to undertake the reorganisation of the hospital service. Such reorganisation must be the work of medical men who can grasp the problem as a whole. And those in charge of the finances should realise that it is not in the best interests of the patient that doctors should continue to render service on the old voluntary lines. We must break with the past, remodel the hospitals, and reorganise the professional work carried on in them, without losing sight of those sound fundamental principles under which the profession has won its present status. Whatever new hospital service might be devised the new conditions should embrace the following requirements: (1) The hospital medical service to come under the control of a sub-department, hospital service department, of the Ministry of Health; (2) appointments to be for life with the usual reservation as to behaviour, incompetency, &c.; (3) all payments on a whole-time basis; (4) promotion by merit combined with length of service; (5) translation, by direction of the sub-department of the Ministry of Health, as need arises for special services in different parts of the country.

The government of the hospitals would rest with the insured persons and employers; the State would represent the charities and thus exercise a measure of control. To ensure successful working the medical and surgical staff should hold office under a special body other than the governing body of the institution to which they are attached; otherwise the service would deteriorate, often very seriously, and in some instances would become almost worse than useless for reasons which need not here be stated.

Conclusion.

The scheme I have outlined is, I believe, the best available solution of the hospital problem confronting us to-day; I venture to think its adoption would lead to a quiet and very desirable revolution in the government, management, and usefulness of the hospitals. Money would be available for the development of matured and well thought out schemes and provisions of ample and immediate accommodation for sickness and injuries as soon as possible after their infliction. The result of speeding up the process of recovery would, I am satisfied, repay many times over the cost involved in the proper application of skilled doctoring, nursing, and convalescent training. Moreover, unification, in a general sense, of all hospitals and the creation of large institutions would lead to an economy impossible in the existing small and independent hospitals throughout the country. We need more for the money spent, and more cannot be obtained without reorganisation of the hospital service; from unification will result both economy in business management and better handling of disease and injury.

A CLINICAL THERMOMETER SHEATH.

Mr. A. E. James, head male nurse at St. John's Hill Infirmary, Battersea, has called our attention to the "James Thermometer Sheath" which he has devised. The sheath is a paper tube closed at one end, which is placed over the bulb and a portion of the stem of the clinical thermometer. When inserted into the patient's mouth the temperature is duly recorded, the thermometer withdrawn, and read. No cleansing is required, as the glass has not been in actual contact with the mouth. The sheath is ejected or removed by the patient. A further advantage is that, in the event

of accidental breakage of the thermometer in the mouth, the sheath will hold. There is nothing deleterious in the sheath, as rice paper, gum arabic, and paraffin wax only enter into its composition. Obviously the sheath must materially retard the correct recording of the temperature. Thus we found that an unprotected thermometer registered a rise in temperature from 73° to 100° F. in 18 seconds, the same instrument under similar conditions, but covered with a sheath, requiring 60 seconds. The inventor thinks the sheath should be found very useful to the busy physician passing from house to house during an epidemic. It would, however, be necessary first to determine that the retarded reading has no practical drawback.

UNIVERSITY TRAINING FOR WELFARE WORKERS.

THE Joint University Council for Social Studies, of which the object is the coördination and development of the work of university departments of social study, has issued its fourth report, entitled "University Training for Welfare Work in Industry and Commerce." Since the publication of the Council's report on welfare training in 1917 much experience has been gained on the subject, and in January, 1921, a committee was appointed further to consider the subject and prepare a revised report. The committee consisted of members of the Council and of other persons of special knowledge and experience; representatives were appointed to it from the Factory Department of the Home Office, the Ministry of Labour, Employers, Labour, the Welfare Workers' Institute, and the Industrial Welfare Society. Owing to the illness of Prof. E. J. Urwick, chairman of the Joint University Council, Prof. F. Tillyard (Birmingham) was appointed chairman of the committee.

In the introductory section of the report the development of industrial welfare work is traced from its beginning at the end of the nineteenth century to its present position. Its definition in the Home Office pamphlet of 1919 is quoted as follows in the section devoted to the scope of welfare work in the report: "the provision by the management for the workers of the best conditions of employment .... including everything which bears on the health, safety, and general well-being and efficiency of the worker, while avoiding any interference with his private affairs." It is pointed out that the minimum requirements of various Acts of Parliament constitute the basis of welfare work, but its logical development includes canteens, recreational and educational schemes, medical departments, employment departments, thrift societies, &c. An essential for the success of welfare supervision is the confidence and support of the workers.

The summary of recommendations is briefly as follows: 1. Training for welfare workers should be provided by the Universities. 2. While no fixed standard of qualifications for training for candidates for welfare work can be laid down, it is essential that candidates should have had such previous education as to enable them to profit by the social study course. 3. Graduates desiring to qualify for welfare work should supplement their degree courses by specialised post-graduate study. 4. No definite age can be fixed for commencing welfare training, but a certain degree of maturity of thought and experience is essential. 5. While the length of training differs according to the previous qualifications of the student, two years is, as a rule, the shortest period necessary to cover both the academic training and the supervised practical work. 6. Candidates for welfare training should receive the customary training for social workers, with certain options in the second year. 7. The syllabus should include some treatment of the following subjects: industrial and social history, economics, social and political philosophy, health and hygiene, psychology, outlines of central and local government, elementary statistics, industrial law, business organisation, industrial structure and problems. 8. Students should have lectures and personal tuition by persons who have had welfare experience. 9. While regular work in a well-organised welfare department for an extended period forms an essential part of practical training, all students should have opportunities of practical experience which will give them an insight into the working of the public and social agencies of a modern community, and opportunities of association with normal conditions of working-class life. 10. Scientific study of the problems of industrial welfare being still in its infancy, facilities for advanced study of such subjects as industrial organisation, psychology, statistics, &c., should be provided at convenient hours with a moderate fee. 11. Students who satisfy the examiners in theoretical and practical work should receive the usual Social Study certificate or diploma, with a special endorsement as regards welfare work. 12. Bursaries should be provided in order that candidates without means should not be excluded from qualifying for welfare work.

The final recommendation is for the establishment of joint advisory councils composed of representatives of both employers and workers, as well as of welfare societies, in connexion with each university.

GAS DISEASE IN FISH.

THE great mortality, due to various causes, frequently caused in very hot summers in fish-breeding establishments is well known, and the mortality among fish from want of oxygen is very common in summer. It appears, however, that super-saturation of the water with oxygen may be a danger to fish life. The *Fishing Gazette* for August 27th directs attention to a condition occurring in fishes known in German as Gaskrankheit der Fische, and described by Prof. Marianne Plehn, of the Biological Experimental Institute of Munich. In ponds rich in plant life, especially those that contain a large amount of algæ, at times there is an enormous liberation of oxygen and the water becomes super-saturated therewith. A slight super-saturation is harmless to fish, but when it becomes considerable they suffer. More oxygen is taken up by the blood, and if a rise of temperature takes place the oxygen separates from the blood in the form of small bubbles, which may injure the gill vessels or may collect in the heart and so form a "gas embolism," which may cause death almost immediately. The gas bubbles may occur in the peripheral cutaneous blood-vessels and are easily seen in the fins; larger bubbles collect in the vessels of the head, in the mucous membrane by the mouth below the eyes, and with preference in the orbital cavities, so that the eyes may be made to protrude. If the fish is removed to cooler water the phenomenon disappears and it may quite recover. But if the blood is super-saturated with oxygen a fatal gas embolism may occur if the temperature rises. These observations seem to explain a phenomenon, noted by fish breeders, that a rich growth of algæ is injurious to the fry, and it is not improbable that the trouble is caused by an excess of oxygen. Other gases than oxygen may be absorbed from the water and be set free in the blood stream when the temperature rises or the pressure falls. Everyone is familiar with the discharge of nitrogen in the form of bubbles that may occur in too rapid decompression of a person who has been working in a caisson, sometimes with very serious or even with fatal results from gas emboli. Fish in water super-saturated with ordinary air under high pressure show the gas disease, but the gas bubbles liberated are chiefly nitrogen, which, however, are equally dangerous to life.

THE USE OF X RAYS IN OBSTETRICS.

ATTENTION was drawn in a recent issue of THE LANCET to the possible uses of X rays in ascertaining the position of the fœtus during pregnancy. An article in the August number of the *American Journal of Clinical Medicine*[1] exposes a further use of X rays in obstetrics—namely, in determining the various pelvic measurements with precision and without any inconvenience to the patient. The principle upon which this method depends is of course that the height of any object may be determined by a comparison of its shadow with that of another object of known length. The article cited consists of an illustrated description of the technique.

THE "BLACK PERIL" IN U.S.A.

STATISTICS of the Metropolitan Life Insurance Co. of New York show that the coloured population of the United States increased at a lesser rate during the last decade than ever before. The increase was in fact only 6·5 per cent. during the last ten years. While the birth-rate has remained stationary or thereabouts, the death-rate has been rising and has in some areas even doubled. The death-rate from tuberculosis among adolescent negro boys and girls is ten times as high as among whites of the same ages. Malaria, typhoid, and hookworm infection take a high toll in the Southern States, while syphilis does enormous damage among the coloured people. Among negro males between the ages of 15 and 35 years the homicide rate is approximately ten times that of whites.

A SIMPLE METHOD OF FIXING FINGER-PRINTS.

To the second (Sept.) issue of *Dactylography*, a bi-monthly journal, edited by Dr. Henry Faulds, dealing with identification by finger-prints, Mr. Leslie D. White has contributed an easy method of making finger-prints which he accidentally discovered while experimenting in photography. Expose a piece of self-toning printing-out-paper to the daylight until it becomes almost black, impress the finger on it for three seconds, and immerse the paper in a solution of potassium permanganate, when immediately the finger-print shows up black on a white background. Wash in water for two seconds, place in the usual hyposulphite of soda solution for half a minute, wash in water, and hang up to dry. The result is clear and permanent, and bears magnification. Mr. White claims as an advantage that the method does not soil the fingers, and there is no ink to clog the skin markings. Dr. Faulds adds a remark that the impressions look as if they would enlarge well for legal exhibits.

[1] Roentgen Pelvimetry, by Dr. Edward E. Brostrom, of Los Angeles, p. 525.

MILESTONES IN ANÆSTHESIA.

I. In A.D.1875 a student, just qualified, when he was dresser in the eye wards at Guy's, gave the deadly drug chloroform in a closed inhaler to a patient upon whom Higgens was to operate for cataract. He proceeded to do his part with the confidence of ignorance, and with absolutely no instruction except such as he had gathered from watching the house surgeons in the theatre. All went well, and only a little sickness followed.

II. In A.D. 1887 the same student, now sobered by practice, gave chloroform in a similar way for Lister to perform a serious operation. That great and kind man instructed him in the better method of placing as much of the corner of a stiff towel as would cover the patient's nose and mouth, telling him to keep that surface gently wetted the whole time, with excellent result. Only the usual, or "laudable," vomiting followed.

III. In A.D. 1921 the same man, spectator and no longer practitioner, witnessed the administration of ether to his wife for the extraction of a difficult tooth. The excellent young anæsthetist used a Clover, holding it an inch away from the mouth, and gradually bringing it closer until quiet induction was complete, prepared to give ether on a flannel mask if it were needed. All went well of course; no vomiting, discomfort, or danger occurred, and directly afterwards the patient was talking clearly.

Perhaps these advances in 46 years are worth noting.

SEPTUAGENARIAN M.D.

SANITATION IN BENGAL.

IN the fifty-second annual report on Sanitation in Bengal in 1919, recently issued, Dr. Charles A. Bentley, Sanitary Commissioner, states that the vital statistics are calculated on a population of 45,329,247, being that of the Presidency according to the census of 1911, excluding the Chittagong Hill Tracts. The birth-rate was 27·5 per 1000, compared with 32·9 in 1918, and 33·3 in the quinquennium (1914–18); it was the lowest recorded since 1892, due to unfavourable economic conditions resulting from the poor harvest of 1918, and a serious prevalence of influenza, with excessive mortality, during the latter half of that year and the earlier months of 1919. In the various districts it ranged from 18·5 in Calcutta and 21·0 in Jessore to 32·8 in Rajshahi and in Noakhali. With regard to the rates in towns, it is stated that the "abnormally low birth-rates are due solely to neglect to register the births that actually occur." Presumably the same observation might apply to rural areas, of which 37 returned birth-rates below 20 per 1000; but this explanation would be at variance with the attribution of a low birth-rate to a poor harvest and influenza.

The general death-rate was 36·2 per 1000, compared with 38·1 in 1918 and 31·2 in the preceding quinquennium. Of the total number of deaths (1,641,111), no less than 1,229,257 are returned under the head of "fevers" (27·1 per 1000); this mortality was specially heavy during the first six months of the year, and was undoubtedly due to influenza; in the latter part of 1918 some 350,000 to 400,000 deaths may be ascribed to this cause, and in 1919 a further 200,000; Birbhum and Burdwan districts suffered most, with a probable loss of about 3 per cent. of their population during the last two years.

An Epidemic of Cholera.

Cholera was epidemic throughout the province—namely, in 494 out of 498 registration areas. The deaths reported (124,949) were in a ratio of 2·8 per 1000, compared with 1·8 in the preceding quinquennium. Only once in the last ten years has this ratio been exceeded. In the district of Birbhum the ratio was 6·8, and in that of the 24 Parganas 5·9, where the deaths from this cause numbered 14,360, this being the largest number reported from any individual registration area. Dr. Bentley remarks that "the October rainfall of 1918, on which the normal outturn of the winter rice crop depends, was much smaller than usual. The early cessation of the rains which occurred, especially in the Burdwan and Presidency divisions, reduced the supply of water available during the succeeding months. The deficient rainfall and short harvest also led to increased migration. Thus the factors necessary for the occurrence of widespread epidemics of cholera in 1919 were provided by the unfavourable season of 1918, with the results that have been recorded." The outbreak among pilgrims returning to Calcutta from the native festival on the island of Sagar at the mouth of the Ganges, when a large number of cases of cholera were landed in the city (Dr. Bentley states the number to have been "some 217"), and the energetic and successful manner in which this emergency (to which the epithet "appalling" may be fitly applied) was dealt with, have been already alluded to in these columns.[1] Dr. Bentley considers that a considerable proportion of the excess cholera mortality in the succeeding months was indirectly due to infection originally brought from Sagar island. In several instances during the year outbreaks in the province were traced to polluted water, but increasing use is being made of permanganate of potash and chloride of lime for disinfecting wells and tanks.

[1] THE LANCET, 1921, i., 307.

Small-pox, Plague, Rabies.

There was a great increase in small-pox, the deaths numbering 37,010 in 1919, giving a ratio of 0·8 per 1000, compared with 0·2 in 1918 and 0·3 in the quinquennium, 1914–18; the vaccinations increased from 1,619,280 in 1918 to 2,216,812 (if the figures are to be relied on, which Dr. Bentley considers to be doubtful). The deaths from plague numbered 424 (0·01 per 1000); 334 of these deaths occurred in Calcutta (0·4 per 1000). There were 179 deaths from rabies during 1919, compared with 119 in 1918 and 71 in 1917; the increased mortality emphasises the need for a Pasteur Institute (at Calcutta), more accessible than those at Kasauli and Shillong.

The work falling upon the Sanitary Commissioner has greatly increased in recent years, and a special committee is considering the matter with a view to improved organisation. It may be noted that the population of Bengal is approximately the same as that of the United Kingdom.

INDIAN JAIL OCCUPATION.

IN the Administration Report of the Jails of the Bengal Presidency for 1920 Lieut.-Colonel F. S. C. Thompson, I.M.S., the inspector-general of prisons for the Presidency, gives an interesting note on the diet of prisoners. The proportion of prisoners voluntarily choosing wheat at one meal in lieu of rice is steadily increasing. The beneficial result of this nutritious diet is evident from the fact that cases of bowel complaints have gone down considerably, and of the 32,175 convicts discharged during the year 54 per cent. gained weight, while only 19 per cent. lost weight. The daily average strength for the year was 15,357, the number admitted to hospital 20,254, and the daily average number of sick 812, against 15,886, 22,699, and 878 respectively in the previous year. The total number of deaths during the year was 321, against 365 in 1919. The commonest cause of mortality at the two most unhealthy jails, Malda (death-rate 78·8) and Jalpaiguri (69·2), was malaria, while dysentery proved the main reason at the next two jails, Burdwan and Faridpur, although malaria remained the chief cause of sickness. The industries pursued by the prisoners in the various jails include the manufacture of jute, iron goods, the printing and supply of forms, the manufacture of cloths and blankets, and of lubricating and medicinal castor oil and of mustard oil. In the juvenile jail the most important industry is the manufacture of quinine tablets. On an average 83 boys were employed on this industry and 13,195 lb. of quinine sulphate were converted into treatments and tablets during the year. 1,074,321 treatment tubes (each containing 20 four-grain tablets), 712,520 five-grain tablets, and 50,875 two-grain tablets were sold during the year. This jail also acts as a distributor of cinchona products. The total profits of the jail from the quinine industry and other manufactures amounted to Rs.233,561, against Rs.230,022 in the previous year.