

The year that has passed has taken a heavy toll. Many well-known medical officers of the past and present generation have passed away. On service we have lost Colonel Grayfoot, Lt.-Colonel Horton, Capt. Husband, Capt. Bharucha. It is among the older retired men that death has been especially busy. We have lost men like Sir George Birdwood, Sir Benjamin Franklin, Sir Alfred Lethbridge, Surgeon-Major Barstead (one of the two surviving I. M. S. Crimean veterans), Deputy Surgeon-General Fairbrother, Deputy Surgeon-General Williamson, Brigade-Surgeon MacRory, Surgeon-Major W. Napier Keefer, Surgeon-Colonel J. G. Pilcher, Lieutenant-Colonel J. Davidson, and Brigade-Surgeon G. E. Seward. Among the men better known to the present generation, there have gone Lieutenant-Colonel A. W. D. Leahy, Lieutenant-Colonel Ernest Hudson, Colonel T. H. Hendley, C.I.E., Brigade-Surgeon S. C. Amesbury, Lieutenant-Colonel Miller Thompson, Lieutenant-Colonel J. A. Nelis, Lieutenant-Colonel F. L. Swaine, Lieutenant-Colonel Sarkies, Lieutenant-Colonel Kirtikar, Lieutenant-Colonel J. S. Wilkins, and Lieutenant-Colonel Fred. F. MacCartie, and on October 23rd we lost the head of the Department by the death of Sir Charles Pardey Lukis, and in Christmas week it was announced that the new Director-General would be Surgeon-General W. R. Edwards, C.B., C.M.G., I.M.S., an excellent and widely popular choice.

(1) *Retired pay to Disabled Officers.*

Degree of disability.	Percentage degree of disability.	RETIRED PAY ON ACCOUNT OF DISABLEMENT.							Officers holding permanent commissions in Regular Forces.	
		Officers not holding permanent commissions in Regular Forces.								
		Major-General.	Brigadier-General.	Colonel.	Lieutenant-Colonel.	Major.	Captain, Lieutenant, or Second Lieutenant.	All ranks.		
	Per cent.	£	£ s.	£ s.	£	£ s.	£ s.	£		
1	100	350	325 0	275 0	250	225 0	175 0	100		
2	80	280	280 0	220 0	200	180 0	140 0	80		
3	70	245	227 10	192 10	175	157 10	122 10	70		
4	60	210	195 0	165 0	150	135 0	105 0	60		
5	50	175	162 10	137 10	125	112 10	87 10	50		
6	40	140	130 0	110 0	100	90 0	70 0	40		
7	30	105	97 10	82 10	75	67 10	52 10	30		
8	20	70	65 0	55 0	50	45 0	35 0	20		

Current Topics.

WAR SERVICES, PENSIONS, AND ALLOWANCES.

THE following article is taken from *The Lancet* (September 22nd, 1917), and will be found to contain a vast amount of useful information about pensions, grants, and allowances to medical men employed on war service :—

WAR SERVICE AND THE MEDICAL MEN : PENSIONERS, GRANTS, AND ALLOWANCES.

We have put together in concise form the various means through which the medical man, who has entered either the Navy or Army, is compensated for invalidism or loss of professional income, while the case of his death on service is considered in respect of pensions to widows and children. The new Royal Warrant is placed first, as it is not merely the most important organisation, but is part of the ordinary terms of agreement between employer and employed. Various agencies follow, applicable in greater or lesser degree in different circumstances, and the source of further information if required is given in each case. The War Emergency Fund of the Royal Medical Benevolent Fund is placed last but one, as its intention is avowedly to supplement and fill in the gaps of the other agencies ; the Medical Patriotic Fund of the British Medical Association last of all, as the fund is only to be instituted if others fail to co-operate or amalgamate.

MINISTRY OF PENSIONS : THE ROYAL WARRANT
(July 1917).

Object.—The draft Warrant issued by the Minister of Pensions in July deals with the retired pay of disabled officers (naval or military) and with the pensions of the families and relatives of deceased officers, with effect from April 1st, 1917, and the option of further retrospective effect if more favourable to the officer than his present retired pay. The actual schedules are given as follows :—

In addition to retired pay under Royal Warrant of Dec. 1st, 1914.

(2) Pensions, Gratuities, and Allowances to Officers' Widows and Children.

Rank.	Widow's pensions.	Widow's gratuity.	Children's allowances.		
(1)	(2)	(3)	(4)	(5)	(6)
Field Marshall	£800	£600	£3,500	£300	£25
General	600	450	3,000	30	25
Lieutenant-General	500	375	2,000	30	25
Major-General	400	300	1,100	30	25
Brigadier-General	300	225	900	30	25
*Colonel	200	150	600	24	20
+Lieutenant-Colonel	180	135	450	24	20
Major	140	105	300	24	20
Captain	100	75	250	24	20
Lieutenant	100	75	140	24	20
Second-Lieutenant	100	75	100	24	20

* Colonel means an officer who has been employed in the rank of Colonel. + Including a Colonel not employed as above.

N.B.—Whether pension is granted to the widow on scale (2) or (3), and whether the gratuity (4) is added, depends on the particular circumstances attending the officer's death, and the same consideration applies to the additional children's allowance (6). Allowances are continued up to the age of 18 in the case of sons (with extension for purposes of education or apprenticeship) and to the age of 21 in the case of daughters.

Conditions.—Retired pay at temporary rates is given until disablement has reached its final condition, and a permanent pension then awarded cannot be subsequently altered to the officer's disadvantage. During special treatment pay at the highest degree of disablement may be received. In the case of total disablement the officer requiring the constant attendance of a second person may receive an additional allowance of £78 a year. When the degree of disablement is less than 20 per cent. a gratuity not exceeding £500 may be granted in lieu of retired pay.

MILITARY SERVICE (CIVIL LIABILITIES) COMMITTEE.

Object.—To grant pecuniary assistance to men, married or unmarried, serving with H. M. Forces who are unable by reason of undertaking military service to meet their financial obligations.

Benefits.—Applicants must not hold a commission, and must be ordinarily resident in the United Kingdom. Assistance is granted in respect of rent, interest and repayment of loans, instalments under agreements of purchase, rates and taxes, insurance premiums, school fees, but is not available for ordinary debts.

Amount.—Not to exceed £104 per annum (= £2 a week) paid quarterly.

Conditions.—The assistance may not be assigned and is liable to revision or withdrawal at any time. It ceases on discharge from the Forces. In case the grantee is reported dead or missing the assistance may be continued for 26 weeks to his widow or dependents.

Application.—Commissioners have been appointed for 45 districts in England, 3 in Wales, and 18 in Scotland. A list of addresses can be inspected at any post-office. Application should be made to the Commissioner for the district in which the applicant or his family resides, on a form obtainable at the post-office.

PROFESSIONAL CLASSES WAR RELIEF COUNCIL (INC.).

Object.—To assist the families of professional men whose circumstances have been adversely affected by the war. Those serving with H. M. Forces (without holding commissions) are advised to confer first with the Civil Liabilities Committee.

Benefits.—When granted these have been of a substantial character. Up to the issue of the last report assistance had been granted to the extent of £10,851 for the education of 631 children, 256 babies had been born in the maternity home, and 103 candidates helped with their training at a cost of £1,300.

Application.—The central office of the Council is at 13-14, Princes Gate, S. W. 7 (Tel. Kensington 6394/5). Chairman: Major Leonard Darwin. Chairman of executive: Dr. S. West. Honorary secretaries: Theo. G. Chambers, Alex. Goddard. Secretary: Miss Percy Tailor. Interviews by appointment only. There are eight members of the medical profession on the Council—namely, Sir Thomas Barlow, Lady Barrett, Sir Francis Champneys, Sir Watson Cheyne, Dr. G. Newton Pitt, Mrs. Scharlieb, Sir Frederick Taylor, Dr. S. West.

OFFICERS' FAMILIES FUND.

Object.—To assist the wives and other dependent relatives of officers in the Navy and Army (including Service Battalions, the Territorial Forces, Indian Army, and Colonial Forces) who find themselves in financial embarrassment or other trouble owing to direct or indirect expenses resulting from the war.

Benefits.—Assistance is provided in the form of (1) money; (2) medical assistance, with the co-operation of doctors, nurses, and maternity homes (Florence Nightingale Hospital, Lissom Grove); (3) education, already given to 475 girls and boys (honorary secretary, Mr. E. H. Parry); (4) clothing dépôt for men at 2, Albert Gate, S. W. 5; for women and children at 29, Berkeley Square, W. 1, managed by Lady Wilson; (5) business advice (chairman, Lord Justice Warrington; 2,000 personal interviews have been given); (6) employment. During the two years 1914-16 in all 9,506 grants have been made, amounting to nearly £200,000, while 476 widows and 172 mothers have been assisted.

Application.—The central office of the Fund is at Lansdowne House, Berkeley Square, W. 1. Honorary secretary, Countess Roberts. Secretary, Miss H. M. Kelly. Interviews 11-1 (except Thursday and Saturday), or by appointment.

AUXILIARY R.A.M.C. FUNDS.

Object.—(a) Officers' Benevolent Branch: To assist the orphans of commissioned officers of the three auxiliary branches of the R.A.M.C.—viz., the Special Reserve, the Territorial Force, and the New Armies—serving during the present war. (b) Relief Branch: To assist the widows and orphans of the rank and file of the same branches. A similar Fund has existed since 1820 in the regular R.A.M.C.

Benefits (of the Benevolent Branch).—Relief is given in respect of each orphan up to a maximum of £40 in a year, and to the age of 21 years (boys) or 18 years (girls). A female orphan has a claim if over 50 years and unmarried, or at any age if unfit. Loss of both parents constitutes a superior claim for relief, and priority is given to the relatives of officers killed in action, or who died of wounds or disease caused by active service. Donations are given, not annuities.

Application.—The office of the benevolent branch is at 124, Victoria Street, S. W. 1 (Tel. Vict. 2722). President, Sir A. Keogh. Chairman, Major Ewen Maclean. Secretary, Lieutenant-Colonel E. M. Wilson. Application should be made on or before July 1st in any year, the distribution taking place annually in October.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

Object.—To provide for the necessitous widows and orphans of its members.

Conditions of membership.—Membership is open to any registered medical practitioner resident at the time of his election within a 20-mile radius of Charing Cross. The annual subscription is £2 2s. Relief is granted in respect of life members and those of three years' standing.

Benefits.—A widow with an assured income of less than £100 a year receives £50 annually, plus £43 a year for each orphan up to 16 years of age. The Copeland and Brickwell Funds permit of further grants in special cases. In the year 1916 £4,223 odd was distributed, and on the

last day of the year 48 widows and 9 orphans were in receipt of grants.

Application.—Secretary, 11, Chandos Street, Cavendish Square, W. 1.

WAR EMERGENCY FUND OF THE ROYAL MEDICAL BENEVOLENT FUND.

Object.—A special department of the Royal Medical Benevolent Fund to afford assistance to members of the medical profession who find themselves in temporary difficulties, consequent on having joined the Army Medical Service.

Benefits.—Grants on a liberal scale will be made in respect of rent, insurance, taxes, family maintenance and education, in so far as the needs are not met by any other existing fund if the necessary funds are forthcoming.

Application.—The office of the Fund is at 11, Chandos Street, Cavendish Square, W. 1, President, Dr. S. West. Honorary treasurer, Colonel Charters Symonds.

MEDICAL PATRIOTIC FUND OF THE B.M.A.

At the last Annual Representative Meeting of the British Medical Association a scheme for loan fund for the protection and assistance of those who went to the war and on coming home found themselves in temporary difficulties was brought in by a sub-committee appointed for the purpose. A resolution as follows was passed :—

"This meeting approves the principle of the Medical Patriotic Fund (Loan Fund) Scheme, and instructs the Council to consider and, if approved, to launch the scheme on the cessation of hostilities or earlier if the need arise unless in the meantime amalgamation or co-operation of existing funds shall render the establishment of an independent fund unnecessary or undesirable."

THE INTERNATIONAL HEALTH BOARD.

THE ROCKEFELLER FOUNDATION.

It is difficult not to be enthusiastic when one reads of the splendid work done by the International Health Board in many countries in the world. In their third annual report of the calendar year 1916,* Dr. Wickleffe Rose submits his report as Director-General of this great scheme.

During the year no less than 503,349 dollars, or over one and-a-half million (1,510,047) rupees were spent on the work of this Board, of which more than half was spent on the relief and control of hookworm disease.

Systematic efforts towards control have now been established in eight Southern States and fifteen foreign countries, between 36° of N. latitude and 30° South, *i.e.*, the tropical and sub-tropical belt, which is the habitat of the hookworm. In addition to this, the Board sent out two Malaria Commissions, and two to S. America on yellow fever.

The staff of the Board reports that everywhere it has met with cordial reception and with general co-operation on the part of governments and the medical profession.

The active measures for the control and prevention of hookworm are as noteworthy as they are widespread in the Southern States, as well as in Brazil, Nicaragua, Panama, British and

Dutch Guiana and in West Indian Islands such as St. Vincent and Trinidad.

Many important facts have thus been elicited, *e.g.*, the relation between geological structure and hookworm infection, *e.g.*, in Barbados one portion, composed of porous coral limestone which dries quickly, is unfavourable to the growth of the young hookworm, whereas in another portion of the island, a picturesque highland district known locally as "Scotland," the infection is very heavy, it being estimated that 25,000 persons suffer from it in an area of less than 25 square miles.

Among other points elicited is that of racial immunity, *e.g.*, the Negro-creoles of British Honduras are "clinically" immune, but the other inhabitants—Indians and half-castes (Mestizos) are heavily infected.

Everywhere the dangers of soil pollution is seen, due to primitive and inefficient sanitary conveniences, and the planters in British Honduras have come to realise this fact. Special difficulties arise in places where, like China, human excrement is largely used as a fertilizer.

The plan of work is first to develop interest in the work by the "dispensary plan," and when this has been in working order to start the "intensive plan," *i.e.*, to treat everybody and to try to eradicate the infection permanently.

It is satisfactory to learn that "a measurable reduction in infection has been secured by the dispensary method."

The following figures are significant :—

In these thirty-five counties, 63,882 persons were examined by the dispensary plan. Of these, 37·5 per cent. were found to be infected with hookworm disease. At the beginning of the intensive work in the same areas, usually from three to five years after the completion of the dispensary work, 34,727 persons were examined. The infection was found to be 26·5 per cent. Thus, in spite of the opportunities offered over a period of years for cases of new infection or re-infection to arise, it will be seen that the infection recorded in intensive work was 11·0 per cent. lower than that recorded in dispensary work, indicating that as a result of the dispensary work the number of persons infected with the disease was reduced approximately one-third. The method of comparison may be open to error; the number of persons examined and the per cent. of decrease are, however, sufficiently large to be significant. A more limited comparison, including only persons who were examined by both methods, indicates that the estimate of reduction is conservative. Practising physicians and field directors state, moreover, that they now encounter but few of the severe cases of infection which were so frequently seen in 1910 and 1911.

Sufficient time has not yet elapsed since the adoption of the intensive method to warrant a tabulation of the percentage of reduction in infection which it has secured. It can reasonably be estimated, however, that this percentage is greater than that secured by the dispensary method. The intensive type of work, like the dispensary, reduces infection through curative measures.

The intensive method, of course, involves the installation, use, and maintenance of adequate latrines, but it produces more permanent results.

* Broadway, New York, U.S.A.

The report then goes on to give accounts of the anti-hookworm work done in many countries—but as India is not mentioned (India's efforts though guided by the Board's experiences are under the control of the Scientific Bureau in India), it will be perhaps best to give an account of the International Board's work in 1916—in Ceylon.

During 1916 the International Health Board began active participation in measures for the relief and control of hookworm disease in Ceylon. The work in this colony is conducted as a branch of the Government Medical Department, under the supervision of Dr. G. J. Rutherford, Principal Civil Medical Officer. Control is vested in a local Ankylostomiasis Committee, composed of the Colonial Secretary, the Principal Civil Medical Officer, members of the Estate Agents' and Planters' Associations, and prominent medical men of the colony. Of this Committee the Colonial Secretary is Chairman.

Efforts to eradicate the disease from Ceylon have been made for a number of years. At the time of the visit of the Director-General of the International Health Board in 1914, definite plans for bringing the disease under control were formulated. These plans provided for the work to be conducted entirely by local agencies, the expense to be shared equally by the Government and the planters. Because of conditions growing out of the war, however, this project had to be abandoned soon after it was begun.

Later, on May 26, 1915, during the visit of the International Health Board's Director for the East, arrangements were made for resuming measures for the control of the disease with the co-operation of an officer of the Board. Active work was begun on January 12, 1916. At first the staff consisted of a Director, an Assistant Medical Director, six apothecaries, and one caretaker, with all expenses exclusive of the salary and personal allowance of the Director, borne equally by the government and the planters.

Later, in accordance with a new arrangement made by Dr. H. H. Howard, the Board's Director for the West Indies, who had been delegated to assist in organizing the work in Ceylon, the staff was enlarged to include a Director, an Assistant Medical Director, three junior field Directors (in training), four microscopists, twelve nurses, two clerical assistants, and one caretaker. Six of the nurses speak Tamil and English, and four Sinhalese and English, while two are Moors engaged to handle the Moorish population in the villages. This division represents roughly the proportion of these elements of population. Under the new arrangement, the cost of the work is divided between the Government and the Board. From October 18 until the end of the year, the work in Ceylon was directed by Dr. W. Perrin Norris, Associate Director for the East, with Dr. John E. Snodgrass in direct charge of operations in the field.

The Matale district, located in the central part of the Island about seventy-five miles from Colombo, the capital, was chosen for initial operations. Roughly, this area is seven by ten miles in extent. Included within its boundaries are twenty-four rubber and tea estates, and from forty to fifty towns, villages, and hamlets. The estate population numbers about 8,000 and averages one person to the acre; the village population is approximately 18,000. The district is mountainous, and large portions of it can be reached only on foot; on one estate, certain of the coolie lines are about five miles apart and difficult of access, as the estate extends over a mountain range.

Both the intensive and dispensary plans have been followed in the work to date. On the estates, where it is possible to exercise a considerable degree of control over the coolies while they are being examined and treated, and in the villages, the operations have been of the intensive type. In two of the villages, however, Alawatagoda and Wilane, in which operations were

begun during the month of April, many obstacles, most of them of a religious nature, were encountered, and the work finally had to be abandoned before being completed. Examination and treatment by the dispensary method was carried out in the central office at Matale and in the village of Katugastota.

Up to December 31, 1916, operations had been brought to a close on ten estates and in the villages of Alawatagoda and Wilane, while work was in progress on five other estates and in four other villages, as well as in four schools and one college.

TREATMENT.

Further experiments as to the value of oil of chenopodium in the treatment of hookworm disease were conducted during the year. The efficacy of this drug was tested under varying conditions of administration, in doses of different sizes, and in certain instances studies were made of its value in comparison with thymol and beta-naphthol. Practically all reports agree that oil of chenopodium is the most effective remedy for expelling Ascaris, and that it is more active than thymol in the treatment of infection with Oxyuris and Trichocephalus. As to its value in the treatment of hookworm infection, however, the reports received have been conflicting in character—the result, perhaps, of differences in the strength and potency of the drug, in the laboratory technique employed, or in the methods of administration.

Alarming symptoms, and sometimes death, have been reported in the Southern States, the West Indian colonies, Panama, Nicaragua, Ceylon, and Egypt following the administration of the drug in accordance with accepted methods of treatment, and in nearly every instance in less than the maximum dose. Extreme caution in the use of the drug is therefore indicated until its proper method of preparation has been learned, its chemical composition and stability standardized, and a safe dosage and method of administration established. The fact that the drug is a powerful poison, often uncertain in action under conditions at present attending its preparation and administration, should lead all medical officers to be extremely discriminating in its use.

In administering the drug in Nicaragua, Dr. Molloy reports that no arbitrary dosage has been followed. The dose recommended by Dr. Schüffner, 1·00 gram to 1·20 grams as the maximum (15 to 18 minims), was followed for a while, but this was found to be insufficient under ordinary conditions. The dose was finally increased to a maximum of 2·00 grams (30 minims). In none but very exceptional cases was a dose of 3·00 grams (recommended by some physicians in the Far East) prescribed in a dispensary. The maximum dose which can be safely prescribed in dispensaries operating in Central America, where the average weight is about 120 pounds, is believed by Dr. Molloy to be 2·00 grams.

As a rule the dose is proportioned according to age, as follows: Two drops for each year of age to the age of 24, 48 drops being considered the maximum. This amount of the ordinary oil of chenopodium, dropped from a dropping bottle, weighs approximately 2·00 grams. This dose is always given in two or three equal parts, with an hourly, or two-hourly, interval between portions (two hours if given in two equal parts, or one hour if given in three equal parts).

The mode of administration followed is essentially as follows: All solid food is prohibited after the midday meal the day before administering the drug. At 4 p. m. of this day, the patient is given a cleansing purge of Epsom salts. By giving this preliminary purge at 4 o'clock, the necessity of having to get up during the night is avoided, since the purgative will have acted, as a rule, before bed-time.

At 6 o'clock the following morning, before any food is eaten, the first portion of sugar containing the chenopodium is taken, followed by the remainder at hourly or two-hourly intervals. Two hours after the last of the chenopodium, a good dose of Epsom salts (usually a little

more than an ounce for adults) is taken to expel the worms. This is repeated, if necessary, in two hours.

During the last quarter of the year, a series of experiments was begun in Nicaragua to determine the efficacy of chenopodium treatment under given conditions and in given doses. These experiments are still under way, and will be continued until a large number of cases have been treated.

Chenopodium oil, alone, is being used as the basis of treatment. Chenopodium oil mixed with a sufficient amount of oil of eucalyptus to disguise its unpleasant taste and odour (three parts chenopodium and one part eucalyptus) and chenopodium in capsules, are also being used. These treatments are being given to the recruits of the Nicaraguan army, are personally administered by a technical assistant, and all examinations are made with the use of the centrifuge.

In Salvador, oil of chenopodium, given usually in capsules, and thymol with equal parts of sugar of milk, also administered in capsules, are the drugs which have been used. In some instances both oil of chenopodium and thymol have been given to the same patients. When chenopodium is taken the preliminary purge is omitted, a dose of Epsom salts being given in the majority of cases following the last dose of chenopodium. No re-examinations are made in less than one week following the last treatment; in most cases, a longer period is allowed. The centrifuge is used, two slides being examined before and two after centrifuging.

In this country, experiments were conducted as to the relative efficiency of three methods of treatment—that is, oil of chenopodium alone, thymol alone, and one dose of oil of chenopodium followed by thymol for the second and for all subsequent treatments. These experiments, however, have not progressed sufficiently to draw positive conclusions. From the investigations so far conducted it would appear that with fifteen drops of oil of chenopodium administered every one or two hours for three doses, followed by castor oil, a larger number of persons are cured with two treatments than when thymol is administered.

In three laboratories operating in Panama, thymol is used; in one, chenopodium. Each drug is reported as having its advantages. At the close of the third quarter, 1916, a change to the exclusive use of chenopodium was being considered, but during the last quarter the results obtained by the laboratory using chenopodium were unsatisfactory. The cause may have been faulty technique on the part of the new microscopists employed in that laboratory, the drug may have been poor in quality, or there may have been some other cause not yet determined.

In administering the drug in Guatemala, a mathematical table of dosage is not adhered to. The minimum dose is 0·65 c.c.; the maximum 3·00 c.c. To a child below ten years, either the minimum dose is given or the dose is increased according to the physical condition of the child; to an average adult, 2 c.c. is given; and to a strong, vigorous male, the maximum dose. At each treatment the dose is divided into three portions, with one hour intervals. Two hours following the last dose, a purge of sodium sulphate is administered.

During the early months of the work in Ceylon, oil of chenopodium was administered in maximum doses of eight minims, repeated in two hours. Castor oil was the only purgative used at this time. Subsequently, the dose was increased to ten and then to twelve minims, until, upon the recommendation of the Malaya Board and of Colonel W. Perrin Norris, Associate Director for the East, it was increased to a maximum of sixteen minims, repeated hourly for three doses. Towards the end of the year, magnesium sulphate was used almost to the exclusion of castor oil as a purgative. With the 8-minim doses, it was rare that more than 20 to 30 per cent. of cures were secured after two treatments. As the size of the dose was increased better results were obtained, until, among one group

of patients, there were 65·7 per cent. of cures after two treatments.

At the present time, the dispensers in Ceylon are given the following instructions concerning the administration of chenopodium:

1. Oil of chenopodium may be administered in accordance with the following table:

Age.	<i>Dose of Chenopodium</i>
1 to 2 years ...	3 minims hourly for three doses
3 to 5 years ...	4 to 5 minims hourly for three doses
6 to 10 years ...	6 to 9 minims hourly for three doses
11 to 16 years ...	10 to 13 minims hourly for three doses
17 to 50 years ...	14 to 16 minims hourly for three doses
Above 50 ...	12 to 14 minims hourly for three doses

In any instance where it is impossible or impracticable to give three doses for a treatment, the maximum dose may be divided into two equal parts, and the second portion be administered at an interval of one or two hours after the first.

2. The drug may be administered on sugar, in milk, or in gelatin capsules or globules.

3. On the evening before the treatment is to be given, a dose of Epsom salts is administered in accordance with the following table:

Age.	<i>Dose of Epsom salts solution.</i>
1 to 5 years 4 drams of the solution
6 to 10 years 8 drams of the solution
11 to 15 years 12 drams of the solution
16 to 20 years 16 drams of the solution
21 and above 24 drams of the solution

Five pounds of Epsom salts dissolved in five gallons of hot water makes the above solution.

In case this solution is objectionable to certain persons, castor oil may be given as the purgative, in which case give as follows:

Age.	<i>Dose of castor oil.</i>
1 to 3 years 2 drams
4 to 8 years 3 to 5 drams
9 to 16 years 6 to 10 drams
Above 16 years 8 to 16 drams

One and one half ounces is usually the maximum dose that should be given to a female.

4. At, say, 6 o'clock the following morning give the first dose of chenopodium and repeat this dose at 7 and 8 o'clock; at 10 o'clock give a purgative similar in size to, or if the bowels moved thoroughly, smaller than, the one given on the previous evening.

5. Only a light meal should be eaten the evening before treatment, and no food and very little water should be taken on the morning of treatment, until after the bowels have moved well following the second purgative.

6. No alcohol in any form, or acids, should be taken for a period of twelve hours before and after taking oil of chenopodium, as these substances assist in the absorption of the drug into the system, and this is very undesirable. Symptoms of poisoning may follow if this precaution is disregarded.

7. Dispensers on estates should keep their cases under direct observation until after the last dose of the purgative has been given and has acted. Dispensers in the villages should arrange to be notified in case any of their cases become ill after treatment, or if the purgative does not move the bowels thoroughly, in which case it should be repeated.

8. No treatment should be given until a medical officer has examined the person. The dispenser must not treat persons who have developed the following conditions after previous treatment, until after re-examination by a medical officer:

- (a) Very old or emaciated persons, who are made weak by, or after, treatment;
- (b) Persons suffering from acute diseases, such as malaria, dysentery, rheumatism, etc.;

(c) Children under two years of age, who become ill after treatment;

(d) Pregnant women, who should not be treated in any instance.

9. No re-examination of the excrement should be made until one week has elapsed after the second treatment; such examination should be made one week after each succeeding treatment. Treatments should be repeated every ten days until the case is cured. In case only two doses are given for a treatment, it may be repeated at the end of eight days. The excrement should not be re-examined in less than one week after treatment, for the reason that the drug causes the female worm to stop laying eggs for a number of days, and if examination is made in less than one week, the specimen may be negative when in reality the worms have not all been expelled.

FILARIAL PERIODICITY.

THE following are the conclusions arrived at by Dr. Warrington Yorke and Dr. B. Blacklock in an article published in the *Annals of Tropical Medicine* (Vol. XI, No. 2, August, 1917):—

1. Obstruction to the passage of *Microfilaria bancrofti* through the cutaneous vessels occurs at all times of the day and night, but is at a minimum at the end of the period of bodily activity.

2. Although this obstruction aids in the piling up of the larvae in the cutaneous vessels, it is in no way responsible for the nocturnal periodicity.

3. The nocturnal periodicity is primarily dependent upon periodic variations in the arterial supply of larvae to the cutaneous vessels.

4. By reversing the hours of sleep and activity, cutaneous immigration becomes diurnal instead of nocturnal. The change, however, takes place gradually;

after the periods of sleep and activity had been reversed for four days the time of maximum concentration of the larvae in the cutaneous vessels had only been set back six hours (from midnight to 6 A.M.); when reversal of the hours of sleep and activity had lasted for eleven days the time of maximum cutaneous concentration had been changed from midnight to midday.

5. The number of microfilariae, as judged from the maximum concentration in the cutaneous blood, remained at practically a constant level during the period of observation (21st December, 1916—10th February, 1917).

6. The number of microfilariae present in 100 cubic centimetres of urine varied greatly at different times during a 24-hour period. These variations, which were irregular and gave no indication of either a nocturnal or diurnal periodicity, are to be explained on the assumption that the majority of the microfilariae escaped into the urine with the blood. Graphs depicting the number of larvae per cubic centimetre of urinary blood reveal the existence of a regular periodicity corresponding to that of the larvae in the cutaneous blood, with the difference that the time of maximum concentration was several hours later.

7. The number of microfilariae in the renal and vesical vessels exhibits a nocturnal periodicity analogous to that in the cutaneous vessels.

INSECT-BORNE DISEASES.

AN admirable article summarising our knowledge of insect-borne disease by Mr. M. E. MacGregor, of the Wellcome Bureau of Scientific Research, appeared in the *Journal of Tropical Medicine and Hygiene* (September 15th, 1917). We herewith reproduce the excellent tables given in that article:—

I

THE MORE IMPORTANT INSECT-BORNE DISEASES OF UNKNOWN ORIGIN.

N.B.—Names between square brackets = certain vectors; names without square brackets = probable vectors; names followed by ? = possible vectors.

Organism.	Host.	Disease.	Vector.
? Man ...	Dengue (breakbone fever) ...	[Sandflies (Phlebotomus), Mosquitoes <i>C. fatigans</i> ; <i>S. fasciata</i>].
? " ...	Three-day fever, <i>syns.</i> "Dog disease," Sandfly fever, Phlebotomus fever.	[Sandflies (Phlebotomus) Mosquitoes <i>C. fatigans</i> ; <i>S. fasciata</i>].
? "	Yellow fever ...	[Mosquitoes (<i>Stegomyia fasciata</i>)].
? "	Trench fever ...	Lice?
? Salivary toxin? "	Tick paralysis (American) ...	[Ticks (<i>Dermacentor venustus</i>)].
? Salivary toxin? "	Tick paralysis (Australian)...	[Ticks (<i>Ixodes ricinus</i>)].
? "	Rocky Mountain spotted fever.	[Ticks (<i>Dermacentor venustus</i>)].
? "	Japanese river fever (shima mushi).	[Mites (<i>Larval trombiculidae</i>)] "aka mushi."
? "	Acute anterior poliomyelitis	? Many insects have been claimed as vectors, notably <i>Stomoxys calcitrans</i> ?
? "	Pellagra ...	? Gnats of the genus <i>Simulium</i> have been claimed?
? "	Typhus fever ...	[Lice].

II.

THE MORE IMPORTANT INSECT-BORNE DISEASES OF BACTERIAL ORIGIN.

N.B.—Names between square brackets=certain vectors; names without square brackets=probable vectors; names followed by ?=possible vectors.

The word "flies" includes in the main: *Musca domestica*, *Fannia* sps., *Calliphora* sps., *Lucilia* sps., and *Sarcophaga* sps.

Organism.	Host.	Disease.	Vector.
<i>Bacillus anthracis</i> ...	Man and animals	Anthrax	[Flies], Tabanidae? Beetles?
" <i>dysenteriae</i> ...	" ...	Bacillary dysentery	[Flies] (<i>Musca domestica</i> , <i>Calliphora</i> sps., <i>Lucilia</i> sps.)
" <i>lepræ</i> ...	" ...	Leprosy	Flies? Fleas? Bed-bugs? Skin mites? Mosquitoes?
" <i>paratyphosus A</i> ...	" ...	Paratyphoid fever	[Flies].
" <i>B</i> ...	" ...	"	[Flies].
" <i>pestis</i> "	and rats	Plague	[Flies].
" <i>tuberculosis</i> ...	and animals	Tuberculosis	[Flies], cockroaches, fleas? Bed-bugs?
" <i>typhosus</i> ...	and animals	Typhoid fever	[Flies].
<i>Bartonia bacilliformis</i> x-bodies	" ..	Verruga	[Phlebotomus verrucum].
<i>Spirillum cholerae</i> ...	" ..	Cholera	[Flies], cockroaches, ants. Although the main channel of infection is the consumption of infected food and water.
<i>Micrococcus melitensis</i> ...	" and goats	Undulant fever; syns. Malta fever, Mediterranean fever, Remittent fever.	[Flies]. Although the main channel of infection is the consumption of goat's milk.
<i>Diplococcus intracellularis</i> ...	" ..	Cerebrospinal fever	Flies?
" <i>pemphigi contagiosi</i> ...	" ..	Tropical impetigo	[Lice].

III.

THE MORE IMPORTANT INSECT-BORNE DISEASES OF PROTOZOAL ORIGIN.

N.B.—Names between square brackets=certain vectors; names without square brackets=probable vectors; names followed by ?=possible vectors.

The word "flies" includes in the main:—*Musca domestica*, *Fannia* sps., *Calliphora* sps., *Lucilia* sps., and *Sarcophaga* sps.

Organism.	Host.	Disease.	Vector.
<i>E. histolytica</i> ...	Man ...	Am. dysentery	[Flies].
<i>Lamblia intestinalis</i> ...	" ...	Flagellate	[Flies].
<i>Plasmod.</i> <i>Malariae</i> ...	" ...	Quartan	(Anophelines).
" <i>viral</i> ...	" ...	Benign tertian	()
" <i>falciparum</i> ...	" ...	Malignant tertian	()
<i>Leishmania tropica</i> ...	" ...	Oriental sore	()
" <i>donovani</i> (" <i>L. P. bodies</i> ") ...	" ...	K. azar	Flies? fleas? phlebotomus? hippobosca?
" <i>sp. incerta</i> ...	" ...	Espundia	Bed-bugs! fleas? triatoma?
" <i>infantum</i> ...	Children	Leishmaniasis	? A blood sucking insect?
<i>Trypanosoma gambiense</i> ...	Man ...	Sleeping sickness	Fleas?
" <i>rhodescense</i> ...	Cattle and horses	Fly sickness (Nagana)	(Tsetse flies) (G. palpalis).
" <i>brucei</i> ...	Rats	Rat trypanosomiasis	G. Morsitans.
" <i>lewisi</i> ...	Horses, mules, and camels.	Sumra	? Louse? fleas?
" <i>evansi</i> ...			Tabanidae (horse flies).
<i>Schistotry panum</i> ...	Man ...	Chaga's disease	Triatoma.
<i>Babesia bigeminum</i> ...	Cattle	Red water fever	Ticks.
" <i>ovis</i> ...	Sheep	Piroplasmosis	Ticks.
" <i>canis</i> ...	Dogs	Malignant jaundice	Ticks.
" <i>caballi</i> ...	Horses and mules	Piroplasmosis	Ticks.
<i>Nufallia equi</i> (?) <i>Chamydozoa</i> ...	Man ...	Ophthalmia egyptica	Flies.

IV.

THE MOST IMPORTANT DISEASES OF HELMINTHIC ORIGIN.

Names in square brackets=certain vectors.

Organism.	Host.	Disease.	Vector.
<i>Dipylidium caninum</i> ...	Man and dogs ...	Tæniasis (tapeworm)	[Doglouse]. Dog and human flea.
<i>Ova of certain helminths</i> ...	Man ...	Helminthiasis	[Flies].
<i>Filaria loa</i> ...	" ...	Calabar swellings	[Horse flies].
<i>Microfilaria bancrofti</i> ...	" ...	Elephantiasis	[Mosquitoes].
<i>Filaria immitis</i> ...	Dogs ...	Dog filariasis	Mosquitoes.
<i>Aegyptolepis diminuta</i> ...	Rats and occasionally man.	Tæniasis	Fleas.

V.

THE MORE IMPORTANT INSECT-BORNE DISEASES OF SPIROCHÆTAL ORIGIN.

N.B.—Names between square brackets = certain vectors; names without square brackets = probable vectors; names followed by ? = possible vectors.

The word "flies" includes in the main:—*Musca domestica*, *Fannia* sps., *Calliphora* sps., *Lucilia* sps., and *Sarcophaga* sps.

Organism.	Host.	Disease.	Vector.
<i>Spirocheta carteri</i> ...	Man ...	Indian relapsing fever ...	[Lice].
" <i>duttoni</i> ...	" "	African relapsing fever (Tick fever.)	[Ticks (<i>O. moubata</i> , <i>O. savignyi</i>)].
" <i>gallinarum</i> ...	Fowls ...	Spirochætosis ...	[<i>Argas persicus</i>].
" <i>noryi</i> ...	Man ...	American relapsing fever ...	[Lice].
" <i>pertenuis</i> ...	" "	Yaws (Framboesia) ...	Flies?
" <i>recurrentis</i> ...	" "	European relapsing fever ...	[Lice]. Bed-bugs?
" <i>berbera</i> ...	" "	North African relapsing fever.	[Lice].

THE MORE IMPORTANT DISEASES DIRECTLY ATTRIBUTABLE TO INSECTS AND ACARINA.

N.B.—Name between square brackets = certain vector.

The larvae of <i>Fannia canicularis</i> ...	Man ...	Intestinal myiasis
" <i>Piophila casei</i> ...	" "	Ditto
" " <i>Eristalis tenax</i> ...	" "	Ditto
" " <i>Muscina stabulans</i> ...	" "	Ditto
" " <i>Sarcophaga</i> sps. ...	" "	Intestinal, dermal and muscular myiasis.
" " <i>Lucilia</i> sps. ...	" "	Ditto ditto
" " <i>Calliphora</i> sps. ...	" "	Ditto ditto
" " <i>Chrysomyia maculata</i> (the screw worm.)	" and animals	Nasal, auricular, and dermal myiasis.
" " <i>Cordylobia anthropophaga</i> (the Tumbu fly.)	" "	Dermal myiasis
" " <i>Dermatobia hominis</i>	" "	Ditto ...	[Mosquito (<i>Janthinosa lutzii</i>)].
" " <i>Hypoderma bovis</i> , &c.	Cattle (occasionally man.)	Ditto (Creeping disease in man.)
" " <i>Œstrus ovis</i> ...	Sheep (rarely man.)	Nasal myiasis
" " <i>Gastrophilus equi</i> , &c.	Horses	Gastric myiasis
" " <i>Trombidiidae</i> (Harnest mites.)	Man ...	Severe cutaneous irritation
<i>Pediculoides ventricosus</i>	" "	Dermatitis
<i>Tyroglyphus siro</i> ...	" "	" (the so-called "vanillism").
Other <i>Tyroglyphidae</i> ...	" "	Copra itch
<i>Tyroglyphus longior castellani</i> ...	" "	" Itch" or "scabies"
<i>Sarcopetes scabiei</i> ...	" and animals	Pediculosis of the head
<i>Pediculus capitis</i> ...	" "	Ditto body
" <i>humanus</i> ...	" "	Ditto axillary and pubic regions.
<i>Phthirus pubis</i> ...	" "	Severe cutaneous irritation...
<i>Dermatophilus penetrans</i> (Chiggers.)	" and animals		

THE MORE IMPORTANT INSECT-BORNE DISEASES OF FUNGUS ORIGIN.

N.B.—Name between square brackets = certain vector.

<i>Achorion schonleinii</i> ...	Man ...	Favus ...	[Lice (Pediculi)].
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Mr. MacGregor concludes his articles with the following remarks:

It should be borne in mind that a large number of diseases included in the foregoing tables are not confined to being spread by insects, and insect transmission may, in some cases, only be occasional. This fact, however, cannot afford the preclusion of such diseases from consideration, and where transmission of the indirect type is possible, it is obvious that we are unable to form any just estimate of its relative importance. Probably, nevertheless, the dissemination of pathogenic micro-organisms by flies, for all that has lately been said in this connection, has not even yet been over-emphasized. It seems more than likely that *Bacillus tuberculosis* is spread in this manner from infective sputum to food (milk particularly) to a much greater extent than is commonly imagined, and there being no probability of

rapid acute infection, as with *B. typhosus*, the part played by the fly is too apt to be overlooked.

Much of our knowledge with regard to insects and disease is still indefinite, as may be seen from the tables, but to anyone not particularly conversant with the subject, what we already know with certainty, even in connection with only the more important diseases that have been considered, may be sufficient to cause some little surprise.

TREATMENT OF PREGNANCY IN CHOLERA CASES.

DR. P. McC. LOWELL, of Manila, has a practical article in *The Philippine Journal of Science* (Vol. XII, July, 1917) on the handling of a pregnant woman in cholera. In recent outbreaks

in Manila, Dr. Lowell has had good results with the hypertonic salt solution with soda bicarbonate, and in 302 non-pregnant cases the mortality was only 19 per cent., whereas in the case of pregnant women in 66 cases there were 30 deaths or 45 per cent. His conclusions as to the best way of handling cases of pregnancy in such serious conditions are given as follows:—

From the facts narrated above, it is evident that the speedy termination of attempted abortion, or the removal of the dead foetus is not only justified but indicated. Even if the number of cases experimented upon may seem to be small, I think it is sufficiently large when considering the results obtained. The almost immediate urination following and the general change in the condition for the better after the delivery were at times nothing short of marvellous.

This method seems to be original, as I am unable to find any mention of it in the literature available, with the possible exception of Davis, who advocates the speedy termination of the labour if it should start, but says nothing about removing the dead foetus when abortion is not threatened.

CONCLUSIONS.

1. Pregnant cholera cases have a higher mortality than non-pregnant cases, if left to their own resources.
2. The later the pregnancy the graver is the prognosis for the mother.
3. There is some factor other than mechanical which kills the foetus very early in the disease in the majority of the cases.
4. Abortions occur in most of the cases, and the older the foetus the greater is the tendency to abort.
5. Most of the pregnancies come to a fatal termination.
6. Abortion is nature's therapeutic measure in aiding the mother in her fight for life.
7. The essential factor in the treatment of pregnant cholera cases is to remove the dead foetus as soon as possible and in the manner best suited to the mother's condition, because it shortens the periods of convalescence, preserves the strength of the mother, and reduces the mortality to about that of the non-pregnant cases.

THE second issue of "Recalled to Life" (J. Bale Sons and Danielson Ltd.) continues to give valuable account of recent developments in the case of the care, re-education and return to civil life of the disabled, and institutions for discharged soldiers and sailors are being founded. Sir Walter Lawrence gives an interesting account of orthopædic work, at the present moment there are in use some 10,000 beds for orthopædic cases, and Sir Wm. Osler described the work done and showed how little the capabilities of the maimed are appreciated.

AN excellent article on Amœbic Abscess of the Liver by Dr. Rufino Abriol appears in *The Philippine Journal of Science*, May, 1917.

Ophthalmology (Seattle U. S. A., July, 1917) contained a long and useful synopsis of legislation by the State for the Blind.

THE Proceedings of the Kathiawar Medical Society (for September, 1917) contain a useful article on uric acid gravel and stone by Dr. N. T. Mehta, of Junagadh, and we are glad to see, as in all places where stone is common, a preference for the crushing operation.

Sub-Assistant Surgeon R. K. Desai gives a case of "appendicitis" and quotes at full length a lot of very ordinary and harmless prescriptions, after which the patient recovered. It is far from certain that the diagnosis was correct, at least the paper as printed gives no reason to suppose so.

Sub-Assistant Surgeon M. J. Adalfa has a useful note on two cases of eclampsia. It is satisfactory to see that the Kathiawar Medical Society continues to do useful work.

Reviews.

The British Journal of Surgery, Vol. V, No. 17, Issued Quarterly.—Bristol, John Wright & Sons, Ltd. Subscription 31s. 6d. per ann. Single Numbers 8s. 6d. net.

THE present number of this excellent journal is, as usual, mainly composed of articles dealing with military surgery. Captains Gamlen and S. Smith's study of the inter-relation between the radiography and surgery of gunshot wounds of the head is too technical for the average surgeon, but should be of interest to the radiographer. Mr. H. L. W. Woodroffe deals concisely and clearly with the technique of the repair of cranial defects by means of cartilaginous grafts, and records seven cases so treated with encouraging results. Captains Max Page and Le Mesurier, R.A.M.C., contribute a long article on the early treatment of gunshot fractures of the thigh with an analysis of 125 cases; Thomas' or Hodgens' splints gave satisfactory results in all cases. The details of reduction of the fracture and application of the splint are carefully described and illustrated. A short article by Col. G. Barling, A.M.S., deals with the technique of the Carrel treatment of wounds.

Major V. H. Kazanjian and Capt. Burrows deal at length with the treatment of secondary haemorrhage in fractures of the jaws, discussing the indications for the ligature of different arteries in these formidable cases. The article on oral and plastic surgery by Major Valadier and Capt. Whale, is a valuable contribution, though we should have preferred more details as to the exact methods employed in each of the cases illustrated, by which the remarkably good results shown in the photographs were attained.